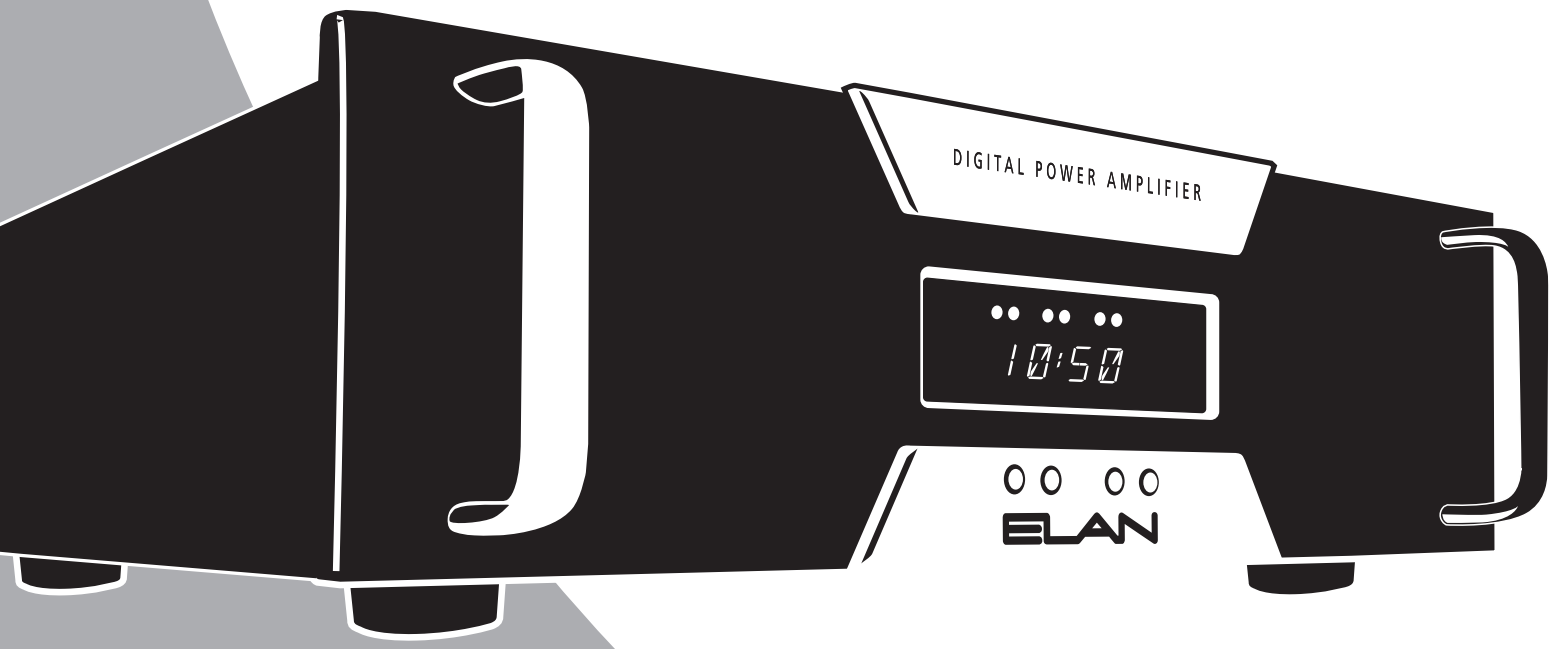
D SERIES

D1200/D1201

12 CHANNEL DIGITAL POWER AMPLIFIER

INSTALLATION MANUAL AND USER'S GUIDE



COMPACT, POWERFUL,
AND VERY COOL

ELAN
HOME SYSTEMS™

⚠ WARNING ⚠

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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

WARNING: TO REDUCE THE RISK OF FIRE OR SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT SAFETY INFORMATION

Read Information All safety and operating information should be read before the unit is operated.

Follow Information All operating and use information should be followed.

Retain Information The safety and operating information should be retained for future reference.

Heed Information All warnings on the unit and in the operating instructions should be heeded.

Carts and Stands This unit should be used with a stationary shelf. Do not use any mobile carts.

Wall Mounting Mounting of this unit should be done only by an authorized installer.

Ventilation This unit should be situated so that its location or position does not interfere with proper ventilation. This unit should never be placed near or over a radiator or heat register. This unit should not be placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings. Do not rack mount two or more amplifiers on top of each other without either forced-air ventilation or one rack space (1.75") between each unit.

Non-Use Periods Units that are left unattended and unused for long periods of time should be unplugged from the wall outlet.

Power Sources This unit should be connected to a power supply only of the type described in the operating instructions or as marked on each unit. If you are not sure of the type of power supply to your home, consult your authorized ELAN dealer or local power company.

Grounding or Polarization These audio products are equipped with a grounding-type alternating-current line plug. This plug will fit only into a grounding-type power receptacle. This is a safety feature. If the plug receptacle does not fit, contact an electrician to replace your obsolete receptacle. Do not defeat the safety purpose of the grounding-type plugs.

Water and Moisture To reduce the risk of electric shock or fire, these appliances should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

Power Cord Protection 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 at plugs, convenience receptacles, and the point where they exit from the appliances

Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or fire when used. When removing from the wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.

Volume Controls Do not use volume controls rated for less than 100 Watts RMS. To do so can result in damage to the amplifier and the volume control.

Cleaning Unplug this audio product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning

Overloading Do not overload wall outlets and extension cords, as this could result in fire or electric shock.

Object and Liquid Entry Never insert objects of any kind through the openings of these appliances, as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Care should be taken so that objects do not fall and liquids are not spilled into the appliance through openings in the enclosure.

Servicing Do not attempt to service these appliances yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service These appliances should be serviced by qualified service personnel when:

* A power supply cord or a plug has been damaged or
* If liquid has been spilled into the appliance or objects have fallen into the appliance or
* The appliance has been exposed to water or moisture or
* The appliance does not appear to operate normally or exhibits a marked change in performance or
* The appliance has been dropped or the enclosure damaged.

Replacement Parts When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check Upon completion of any service or repairs to this audio product, ask the service technician to perform safety checks to determine that the audio product is in proper operating condition.

Lightning For added protection for these audio products during an electrical storm, or when they are left unattended and unused for long periods of time, unplug them from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the audio products due to lightning and power-line surges.

9700721
HOME SYSTEMS WITH AUDIO AND/OR VIDEO CONTROL CAPABILITIES
ETL LISTED PRODUCT
CONFORMS TO UL STD 6500.
AUDIO/VIDEO AND MUSICAL INSTRUMENT APPARATUS FOR HOUSEHOLD, COMMERCIAL, AND SIMILAR USE.
ETL LISTED PRODUCT.
CONFORMS TO CAN/CSA E65-94.

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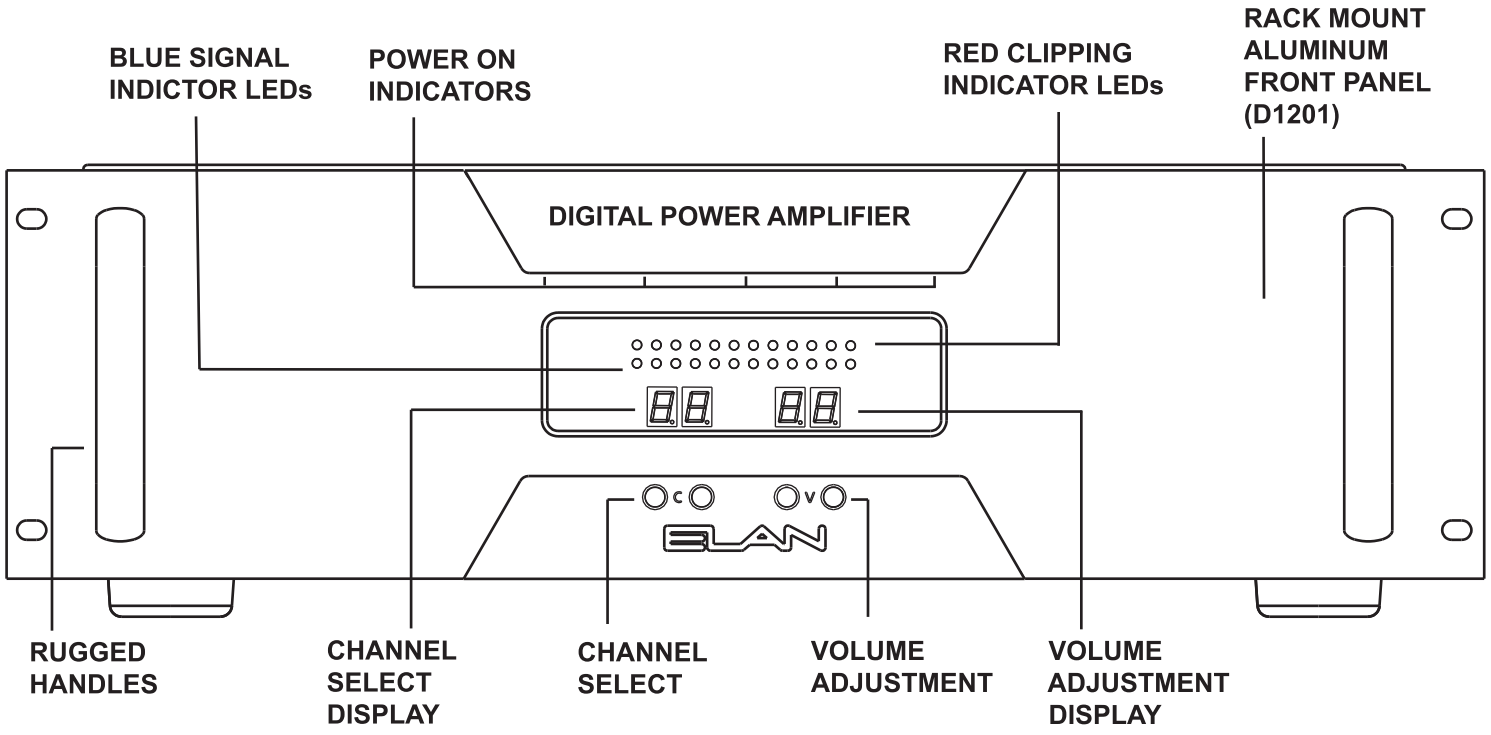
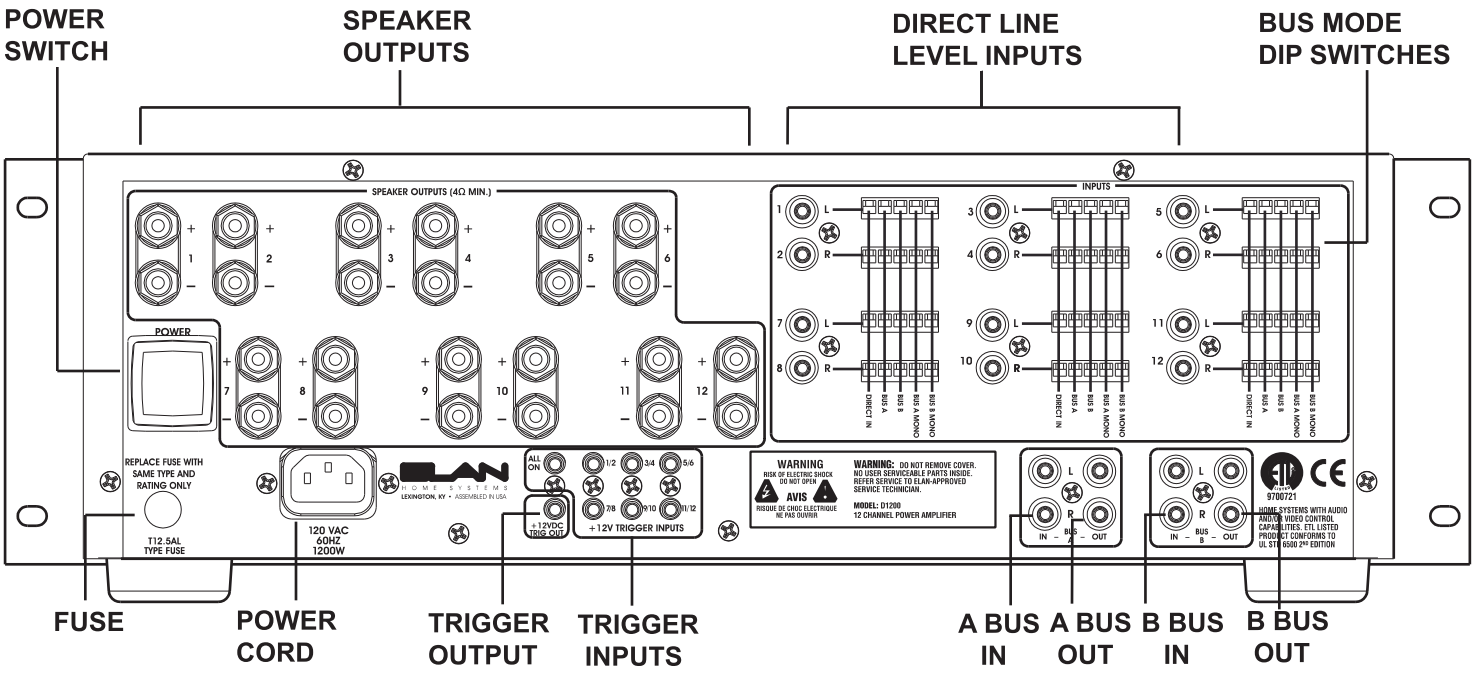
FRONT VIEW



REAR VIEW



INTRODUCTION

The ELAN D1200 Digital Power Amplifier has been designed from the ground up specifically for custom installers to provide the ultimate solution for multi-room, whole-house applications. Twelve channels of clean, powerful audio can be combined in dozens of different ways to suit virtually any situation that may be encountered in whole-house distributed audio systems. The D1200 uses an audio bus system that allows inputs and outputs to be combined in many ways without the use of extraneous patch cables. 'Class T' Digital technology and ACE™ (Automatic Clip Eliminator™) allow efficient use of power, ensuring clean, powerful audio at all volume levels in any application. Remote triggers and turn-on circuits for each channel enables the installer to integrate this amplifier easily with any ELAN multi-zone system or in stand-alone applications without additional ELAN equipment.

I. FEATURES

'CLASS T' DESIGN

'Class T' allows the D1200 to deliver its full rated power from all twelve channels simultaneously and is 90% efficient so the amplifier does not waste energy producing excess heat.

TWELVE HIGH-POWER CHANNELS

Audio quality is greatly improved when plenty of power is applied to each speaker in a multi-zone environment. Bass sounds better. Dynamic range is improved. Voices sound full and rich. The D1200 provides 12 x 100 Watts @ 4 Ohms; ideal for virtually any distributed audio system. ELAN uses an ultra-high efficiency torroidal transformer and 200,000 uF of bulk storage capacitance to ensure plenty of power when it's needed!

UNIVERSAL STEREO BUS

A-Bus and B-Bus inputs and outputs allow the amplifier to be configured in dozens of different ways to meet the demands of large audio distribution systems. Channels can be assigned to one of two audio busses in order to be split or combined according to situational demands. Audio inputs can be A-BUS, B-BUS, Independent, Stereo, or Mono without the use of extraneous patch cables. Additional amplifiers can be connected from the Bus outputs of the D1200 to provide greater system expansion.

ACE™ (AUTOMATIC CLIP ELIMINATOR)

Microprocessor-controlled dynamic leveling circuit eliminates clipping without audio degradation typical with traditional compressor-based clipping circuits. Each amplified output is continuously monitored for signal clipping. Extremely fast transients are ignored but if ACE sees a consistent clipping trend, it turns the respective channel down by one increment. This action is repeated until no more clipping is detected. Once clipping is absent for five seconds, ACE will slowly and unnoticeably begin to restore the original gain settings. This translates into accurate high quality audio reproduction at all volume levels.

INDIVIDUAL REMOTE TRIGGER INPUTS/TRIGGER OUT

Six +12VDC Trigger Inputs allow each pair of channels to be powered up and muted independently. +12VDC Trigger Output turns on and mutes additional amplifiers.

FRONT PANEL DISPLAY AND CONTROLS

High-visibility blue LED display and front panel Channel Select and Volume Adjustment controls make setup easy. Blue Signal LEDS show when audio is present on each input. Red Clipping LEDS indicate distortion, and make fine tuning the amplifier very straightforward. Five blue LEDs fire downward to softly indicate Power status.

DIGITAL VOLUME LEVEL SET AND LOCKOUT

All channel volume levels are matched to within 0.3dB, making volume setup easy, accurate, and repeatable. Volume settings are stored within the D1200's non-volatile memory upon exiting setup. This means that settings are preserved even when a power outage occurs. A special multi-button key press can be used to "Lock" the volume settings so that they can not be tampered with. The user may view their settings when the system is locked, but is unable to change them.

ADVANCED AMPLIFIER PROTECTION

Each channel of the D1200 is coupled to its respective output binding post via a high power relay. If the processing circuitry senses a fault condition (over heating, shorted output, etc.) It will completely disconnect the amplifier channel from the output load. Faulted conditions will be indicated on the front panel. After finding and correcting the problem causing the fault condition, simply power the unit OFF and back ON to restore operation.

RACK MOUNT ALUMINUM FRONT PANEL WITH RUGGED HANDLES (D1201)

Amplifier mounts securely to equipment racks. Handles are invaluable when moving, installing, adjusting or servicing the unit.

CLASS T DIGITAL TECHNOLOGY EXPLAINED

The ultimate objective of any audio amplifier design is to make a high fidelity amp with high efficiency and high reliability. There are several basic audio power amp topologies that have been developed to attain these objectives; Class-A, Class-B, Class-AB, Class-H, Class-G and Class-D are the most common. The D1200 utilizes proprietary Class-T topology from Tripath™. Class T combines the best of several of these designs and minimizes deficiencies in each design as well.

Class-A, Class-B and Class-AB amps have been around for over 50 years. Basically, these classifications designate the amount of time that the amps output devices conduct during one, full cycle of a periodic signal. Class-A amps are in a state of conduction 100% of the time; Class-B amps have a complimentary pair of outputs, which are biased so that each output is conducting only 50% of the time. Class-AB amps also have complimentary output pairs but they are biased so that each output is conducting slightly more that 50% of the time; this lowers crossover distortion. The vast majority of audio amps in use today

are Class-AB. A well-designed Class-AB amplifier has good linearity (high fidelity) and poor efficiency (less than 50%). Class-H and Class-G are both voltage supply varying techniques which are usually applied to Class-AB type, linear amplifiers. These techniques give marginal improvement in efficiency at the cost of a more complex and less reliable power supply.

Class-D amplifiers use output devices which switch on and off at a fixed frequency. This frequency is usually more than ten times higher than the highest frequency to be amplified. A passive filter reconstructs the wave form passing through the amplifier and removes switching artifacts that distort sound. Class D amplifiers use output devices that are either ON or OFF, never in a state of mid-conduction. This mid-conduction state is what causes linear switching amplifiers to be as inefficient as they are (less than 50% efficiency.) Class D amps approximately 85% efficient: a 35% increase!

As mentioned, each of these amplifier designs has drawbacks. Class D amps have tendencies toward high distortion rates. Crossover distortion, ground bounce, and high-frequency artifacts create most of the distortion in these designs. Imperfectly matched transistors lead to inexact ON/OFF timing results and crossover distortion issues. Ground Bounce caused by high-current switching of the output transistors manifests itself as noise on the audio output. In some Class D amplifiers, this high-frequency noise is not completely filtered out, resulting in high frequency distortion.

CLASS T TECHNOLOGY-- WHY IT'S BETTER

Class T is a combination of Adaptive Digital Signal Processing and Spread Spectrum Switching. This design takes the efficiency of a Class D design and combines it with the fidelity of a Class AB amplifier by dramatically improving signal integrity. Class T offers the following improvements over Class D:

1. Class D has a fixed switching input. Class T has an adaptive switching frequency which is dependent upon both input signal frequency and magnitude. Switching artifacts are removed in this way, reducing distortion. The switching signal is constantly being optimized to match the input signal in order to yield the highest possible fidelity

2. Class D amplifiers have nominal switching frequencies between 200kHz and 300kHz which creates artifacts in the 20 to 50kHz audio band. This can be heard as audible noise. Class T amplifiers have nominal switching frequencies between 600kHz and 700kHz; artifacts from this frequency are not audible.

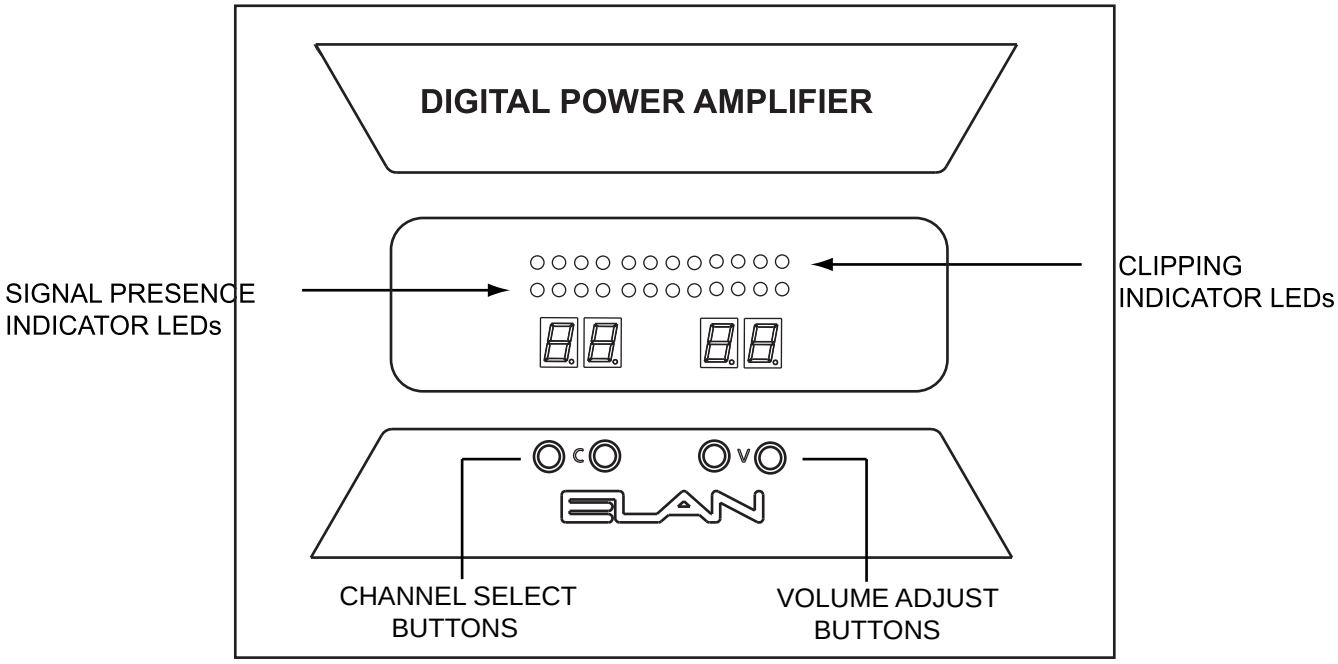
3. Class T design constantly monitors the output transistors and adaptively corrects for variations between and within these transistors. The Class T design also monitors and corrects for ground bounce that the transistors produce when switching large currents.

4. Typical power efficiency with a Class T amplifier is 85% (unreachable by class A-B amps,) Typical THD + Noise is less than 0.04% (unreachable by Class D amps.) Truly the best of both worlds!

II. FRONT PANEL FUNCTIONS

A. CHANNEL SELECT DISPLAY/VOLUME ADJUSTMENT DISPLAY

The leftmost display on the front of the D1200 shows which channel is selected for adjustment. Pressing **C+** or **C-** will cycle through each individual channel. Once a channel is selected, use **V+** and **V-** buttons to adjust the channel's Volume Up or Down from **0** to **99** (**50** is factory default). See **VOLUME ADJUSTMENTS**.



Select a Channel with C Buttons ⊖ **C** ⊕
Adjust Volume with V Buttons ⊖ **V** ⊕

B. SIGNAL/CLIPPING INDICATORS

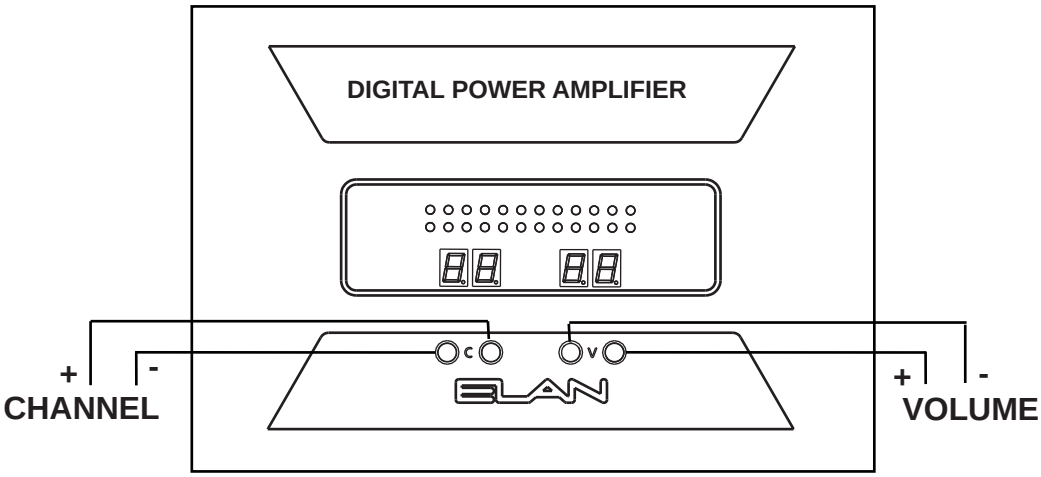
There are twenty-four LEDs on the front panel of the D1200 designated for signal presence and clipping indication. Twelve blue LEDs indicate when an audio signal is present on each input. The left most blue LED is channel one, and the rightmost LED is channel 12. Red LEDs are placed above the blue ones to indicate clipping for each corresponding channel. Consistent red LEDs indicate over-saturation of the input signal. Volume should be reduced for the affected channels. See **VOLUME ADJUSTMENTS.**

THERE IS NO BENEFIT FROM TURNING THE AMPLIFIER'S VOLUME PAST THE POINT WHERE THEY CAUSE THE RED CLIPPING LEDs TO LIGHT UP.

C. VOLUME ADJUSTMENTS

Each amp channel can be individually adjusted from the front panel. Pressing the **C** button will cycle thru all the inputs on the amplifier — both Left and Right channels can be adjusted independently. The **C** button to the left cycles downward, the one on the right cycles upward. When the desired channel is displayed on the front panel, use the **V** buttons. Again, the **V** button to the left lowers the volume for that channel, the one on the right raises the volume. Set the levels by lowering them all the way down, then raise the volume of any keypads or volume controls to maximum. Slowly adjust volume up for this channel until the red clipping LEDS start to light up, then drop the level one or two clicks. Follow this procedure for all channels and the amplifier's volume levels will be properly set up. Factory default settings put all channel volume levels to **50. Please note: Whenever the Front Display is illuminated (during volume adjustment, for example), ACE™ clipping elimination circuitry is disabled.**

⚠ TURNING THE VOLUME LEVEL PAST THE POINT OF DISTORTION WILL NOT INCREASE THE VOLUME!



SELECT A CHANNEL, THEN ADJUST THE VOLUME

D. LOCKOUT

The Lockout feature is designed to disable all front panel functions. Use this feature once the system is fine tuned and ready-to-go. By locking the system's front panel, prying hands cannot ruin carefully set level adjustments or overdrive speakers.

To place the D1200 in Lockout Mode:

1. With the Front Display dark, Press **C-** and **V-** simultaneously.
2. Continue pressing **C-** and **V-**. The Front Display will show the Volume setting momentarily.
3. Four seconds later, the Front Display will read **LOCH.** Release the buttons.
4. Follow the same procedure to Unlock the D1200. This is a toggle command.

If the user tries to change settings while in Lockout Mode, the Front Display will read **LC**.

E. FACTORY DEFAULT

When your D1200 arrives, it is set to a FACTORY DEFAULT condition. At some point during the life of this amplifier it may be necessary to put the unit back into Factory Default mode. If this unit is moved to a different location or speaker type, load, or location are changed, the FACTORY DEFAULT procedure should be used.

1. Turn the D1200 OFF using the rear Power Switch.
2. Turn the unit back ON. The Front Display will read **ELAN.**
3. Press and hold **C+, C-, V+,** and **V-** (all the front panel buttons at once) while **ELAN** is displayed.
4. The Front Display will read **FAC dEF**.

The Factory default settings are:

- All channels Volume defaults to **50.**
- **Lockout** feature is Disabled.
- **ACE ™** Automatic Clip Eliminator is Enabled.

III. CONNECTIONS

A. SAFETY CONCERNS

Although the D1200 is extremely efficient and runs cool, ELAN reccommends placing this amplifier in a well-ventilated area that allows heat to rise. Do not place the D1200 on the bottom of a large stack of equipment in an enclosed area.
This unit is HEAVY! Use caution when picking it up and make sure that whatever supports this amplifier can hold **fifty pounds (50 LBS)** safely. Do not place the amplifier with the rear panel of the unit on the ground. Damage to speaker binding posts can occur.
Use only grounded outlets when using this product. Making any modification to the power cord could cause unsafe operation and will void the manufacturer's warranty. This amplifier is very powerful and should have its own dedicated 15 Amp AC circuit.

ALL CONNECTIONS SHOULD BE MADE WITH THE AMPLIFIER TURNED OFF AND UNPLUGGED FROM POWER. DAMAGE CAN OCCUR TO EQUIPMENT IF IMPROPER CONNECTIONS ARE MADE!

B. SYSTEM TYPES

Multi-Zone

Zone Outputs are typically connected to the D1200s inputs when used with a multi-zone controller. In a simple application, each stereo zone output goes into a Direct input—sending left and right audio to the two speakers assigned to that particular zone. Zone outputs can be Fixed (speaker outputs wide open and attenuated with volume controls,) or Variable (volume is controlled at pre-amp level and requires no volume control.)

Stand-Alone

Source components in stand-alone installations should be connected using high-quality RCA-type stereo interconnect cables. Make sure to verify whether a fixed-level or variable signal will be used, and whether a volume control will be connected. Fixed level sources require Volume Controls, Variable source typically will not. Most stand-alone systems will contain an A/V receiver, a stereo receiver, or a preamp; seldom will a true source component (DVD, CD, Tape) be connected directly to the D1200.

FOR SAFETY: ONLY USE VOLUME CONTROLS RATED FOR 100 WATTS RMS OR HIGHER

C. SPEAKERS

Each speaker output of the D1200 is rated to handle a four ohm load. Speaker loads below four ohms will cause the amplifier to go into a protection mode and cause undesirable operation. Impedance matching volume controls can be used in situations where a four to eight Ohm load cannot be maintained by wiring methods. The output of the D1200 exceeds some Volume Control manufacturer's Wattage specifications. please ensure that any Volume Controls used are rated for 100 Watts RMS or higher or damage to the Volume Control and/ or amplifier can occur. See **USING VOLUME CONTROLS** for additional information.

The five-way binding posts used on this product will accept bare speaker wire, banana plugs (single or dual,) spade lugs, and pin connectors. Please ensure that adequate space is available behind the amplifier to connect speaker terminations and that several inches of slack are available on the speaker leads so that no tension is placed on these connections. Multiple speakers can be connected to the speaker terminals through the use of banana plugs or other speaker terminators. Do not try to stuff multiple speaker leads into the five-way binding posts!
Speaker leads should all be carefully trimmed to make sure that no stray wire strands touch. Speaker wire should be 14 to 18 AWG twisted-pair speaker wire. As a general rule, longer runs require heavier gauge wire. When using larger than 16 AWG, spade lugs, pins, or banana jacks must be used. Please maintain polarity across all speaker leads in order to preserve the “Phasing” of the speakers (audio quality) and to prevent damage to volume controls that may be used in the system.

OUTPUTS SHOULD NEVER BE BRIDGED!

D. USING VOLUME CONTROLS

It is critical to use Volume Controls rated for 100 Watts RMS or higher when using theD1200 amplifier. Using Volume Controls rated for less than 100 Watts RMS can cause excessive heating and damage to the Volume Control and to the D1200! Please remember that this amplifier is four ohm stable. Impedance-match settings should take this into consideration.

THE USE OF UNDERRATED VOLUME CONTROLS POSES A FIRE RISK!
ELAN VS, VSO, VM, VMO, AND VSE VOLUME CONTROLS ARE NOT COMPATIBLE WITH THE D1200 -- NEW HIGH POWER VOLUME CONTROLS ARE BEING DEVELOPED AND WILL BE AVAILABLE SOON.

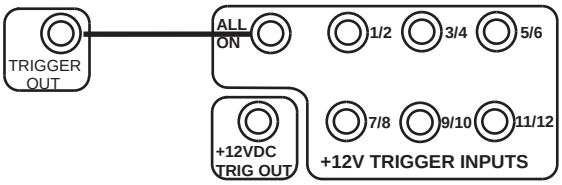
Compatible ELAN Impedance Matching Volume Controls will be released soon.Please call ELAN Technical Support if questions arise about compatibility of Volume Controls.

E. TRIGGER INPUTS/OUTPUT

Each channel pair of the D1200 has its own Remote Turn On/Muting circuit. Individual channel pairs can be turned on or muted independently of any others. An **ALL ON** port allows the entire amp to turn on and mute as one unit. The 12 Volt Trigger Out can be used to turn on other equipment, additional amps, or to perform automated functions desired by the user. The Front Display of the D1200 will show **nA** when a channel is in Mute.

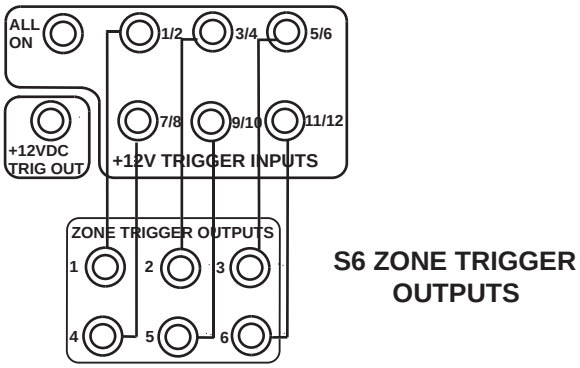
TRIGGER INPUTS

A/V RECEIVER TRIGGER OUT **D1200 TRIGGERS**



Single A/V Receiver Mutes/Turns On all channels simultaneously

D1200 TRIGGERS

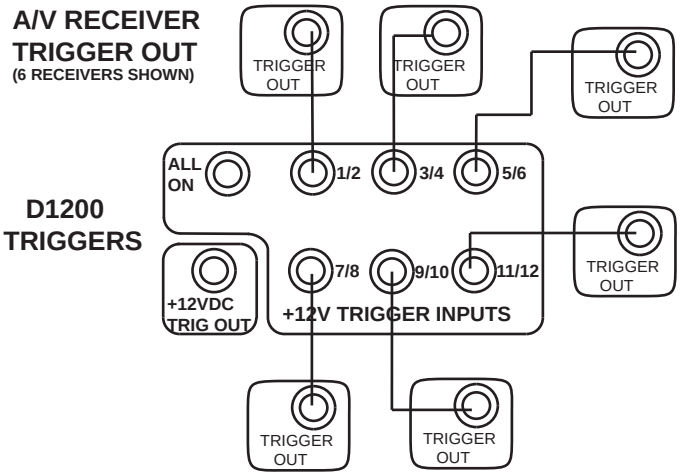


S6 ZONE TRIGGER OUTPUTS

Multi-Zone System (S6) Mutes/Turns On each Pair of Channels Independently

A/V RECEIVER TRIGGER OUT
(6 RECEIVERS SHOWN)

D1200 TRIGGERS

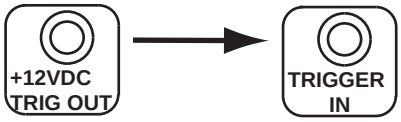


Multiple A/V Receivers Mute/Turn On Each Pair of Channels Independently

TRIGGER OUTPUT

D1200 TRIGGER OUT

TRIGGER IN
(ADDITIONAL AMP)



D1200 Turns On Additional Amplifier With +12VDC Trigger Output

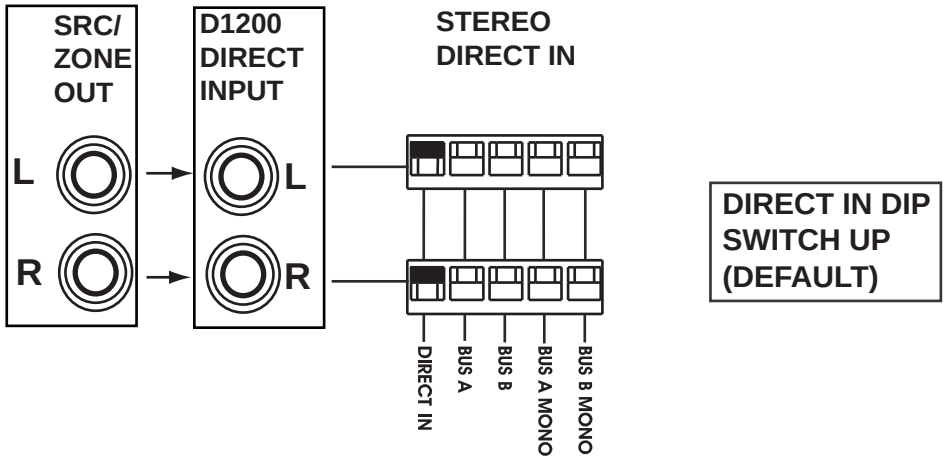
TRIGGER INPUTS ACCEPT 3 TO 24 VDC

IV. SYSTEM MODES & CONFIGURATIONS

A. UNIVERSAL STEREO BUS MODES

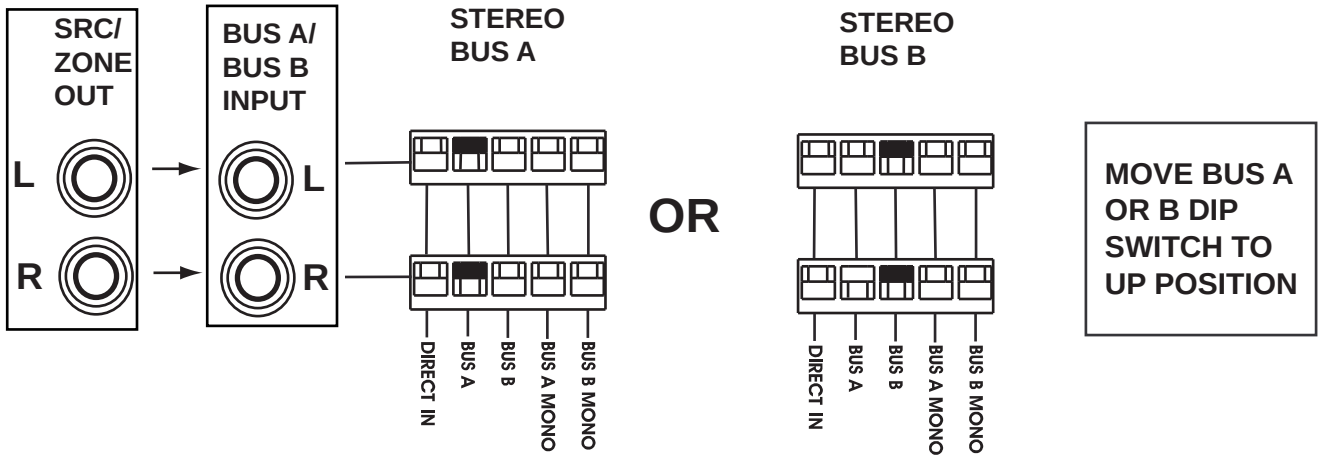
One of the primary design goals for the D1200 was ease of installation and flexibility. The Universal Stereo Bus has achieved this goal by grouping desired channels together without the use of additional RCA patch cables. By using the BUS A Dip switch settings, any number of outputs can be tied together to the same input. Use of BUS B allows any number of other channels to be grouped together Independently of BUS A. Any channel not configured to BUS A or BUS B remains independent.

STEREO DIRECT MODE



L & R INPUTS TO L & R CHANNEL SPECIFIC SPEAKER OUTPUTS

STEREO BUS MODES



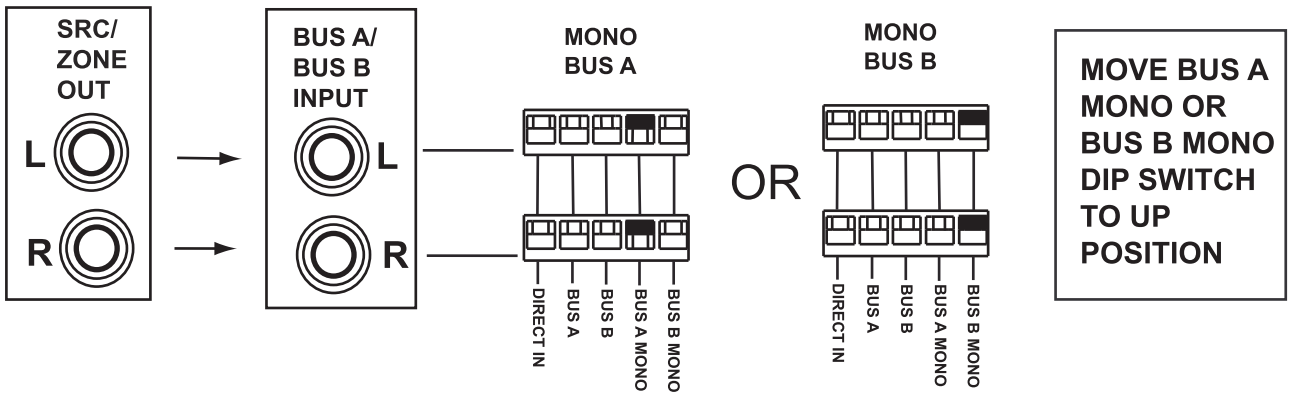
L & R SPEAKER OUTPUTS TO ALL BUS A (OR BUS B) CHANNELS

B. MONO VS STEREO

Typical listening areas in a whole-house system use two stereo speakers. In many instances, however, one mono speaker is present, or two speakers are installed in a way in which true stereo separation cannot exist. Mono configuration will sound better when speakers are installed in areas that do not have a defined central listening area -- L shaped rooms, outdoor areas, kitchens, bathrooms, or hallways, for example. Creative use of mono zones can enhance the design flexibility and sound quality of a well-designed distributed audio system. The D1200 has internally configuarable mono settings for each audio bus (BUS A and BUS B).

C. MONO BUS MODES

A 'Summed Mono' configuration can be derived from plugging both Left and Right RCA cables from a stereo source into both Left and Right inputs of BUS A or BUS B. When BUS A MONO (or BUS B MONO) is selected for a particular channel, both Left and Right speaker outputs will play an identical mono signal. This effectively doubles the number of mono speakers outputs available without Volume Controls!



L & R INPUT OF BUS A TO L & R SPEAKER OUTPUTS OF ALL BUS A CHANNELS

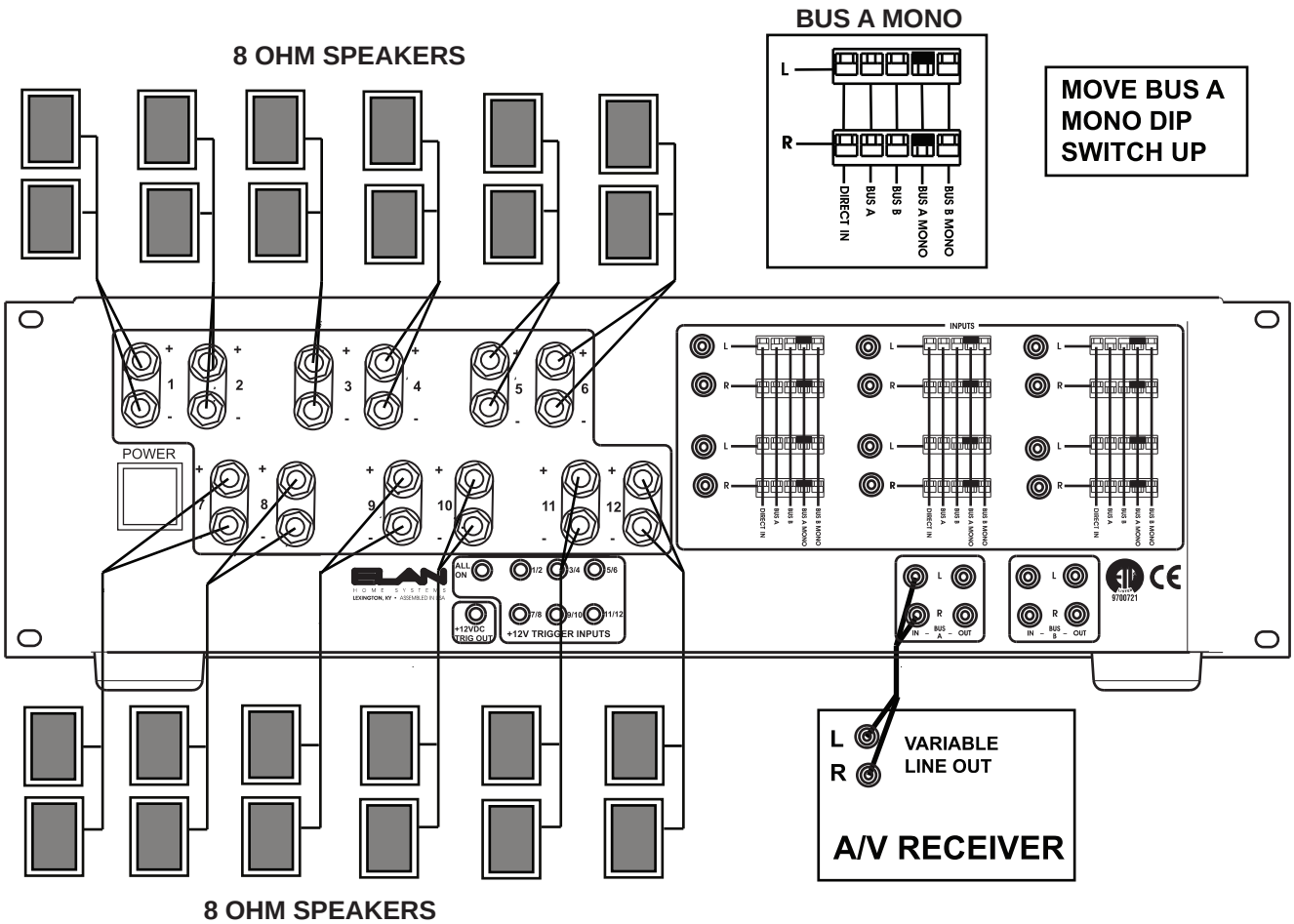
EACH BUS A SPEAKER OUTPUT IS 'SUMMED MONO'

V. DESIGN & APPLICATIONS

A. STAND-ALONE SYSTEM DESIGN AND APPLICATIONS

The D1200 can be configured in dozens of diferent ways in many types of applications. This section describes "stand-alone" applications that do not utilize ELAN whole-house controllers. These installations can take the form of anything from a basic home theater system in a living room to a hyge ballroom with two dozen speakers! Most stand-alone applications will be somewhere in-between and will be based on one or two models. The following examples show basic methods of stand-alone system design. All of these examples are designed to be expanded upon by adding additional inputs, outputs, volume controls, or speakers; even additional additional D1200s. By using the Universal Stereo Bus features, stand-alone systems using the D1200 can be as complex as the installer's imagination!

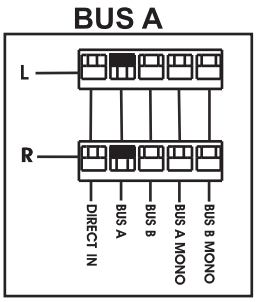
1. MONO SINGLE ZONE STAND-ALONE SYSTEM



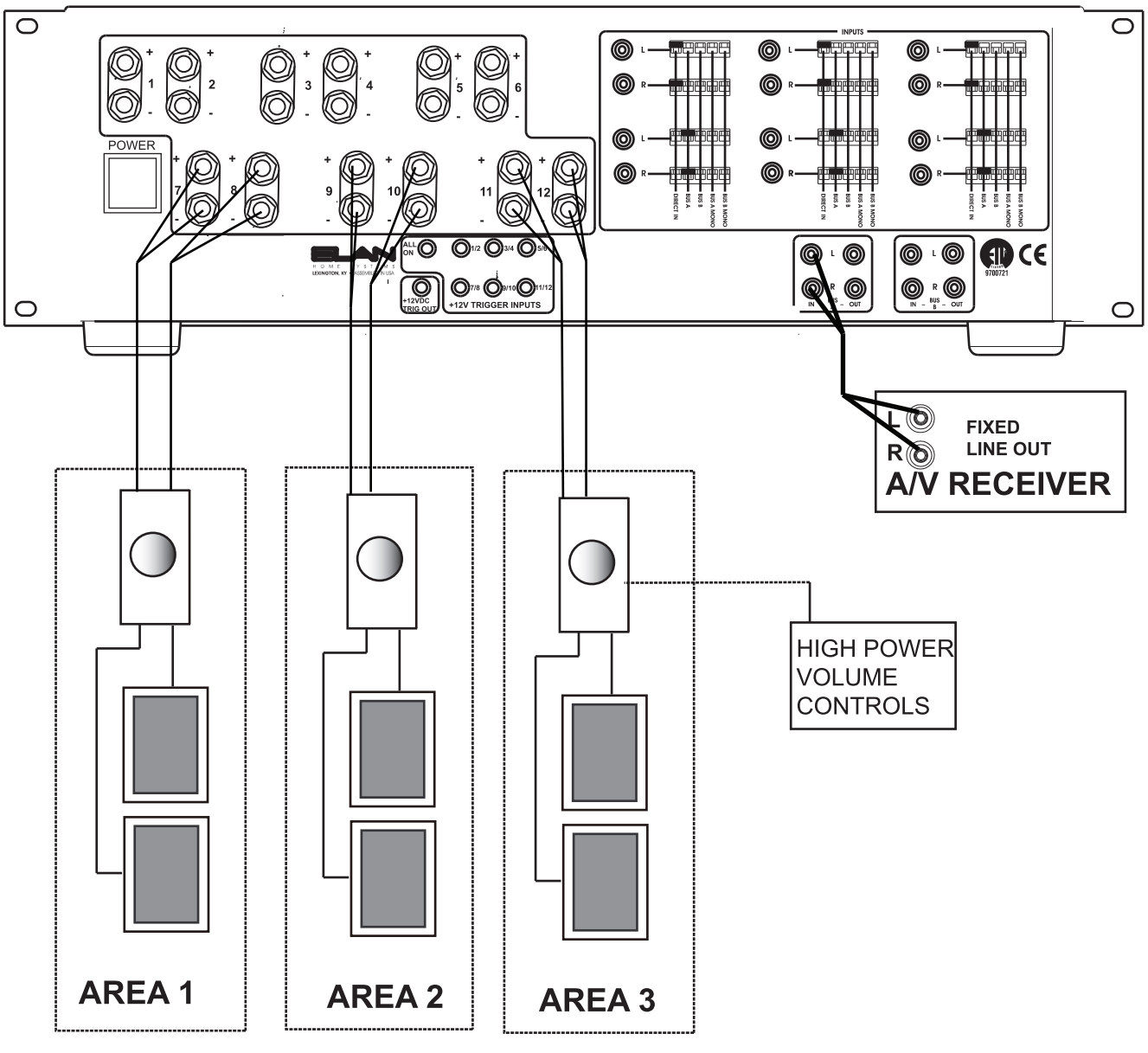
1 "ZONE"
24 MONO SPEAKERS (8 OHM)
1 A/V RECEIVER W VARIABLE OUTPUT
ALL SPEAKERS VOLUME RAMPS UP/DOWN TOGETHER
BUS A MONO ENABLED ON ALL CHANNELS

2. STEREO SINGLE ZONE STAND-ALONE SYSTEM

3 LISTENING AREAS SHOWN
1 A/V RECEIVER W/ FIXED OUTPUT
EACH LISTENING AREA VOLUME RAMPS UP/DOWN SEPARATELY W/ DEDICATED HIGH POWER VOLUME CONTROLS
BUS A ENABLED ON CHs 7-8, 9-10, 11-12



MOVE BUS A DIP SWITCH UP



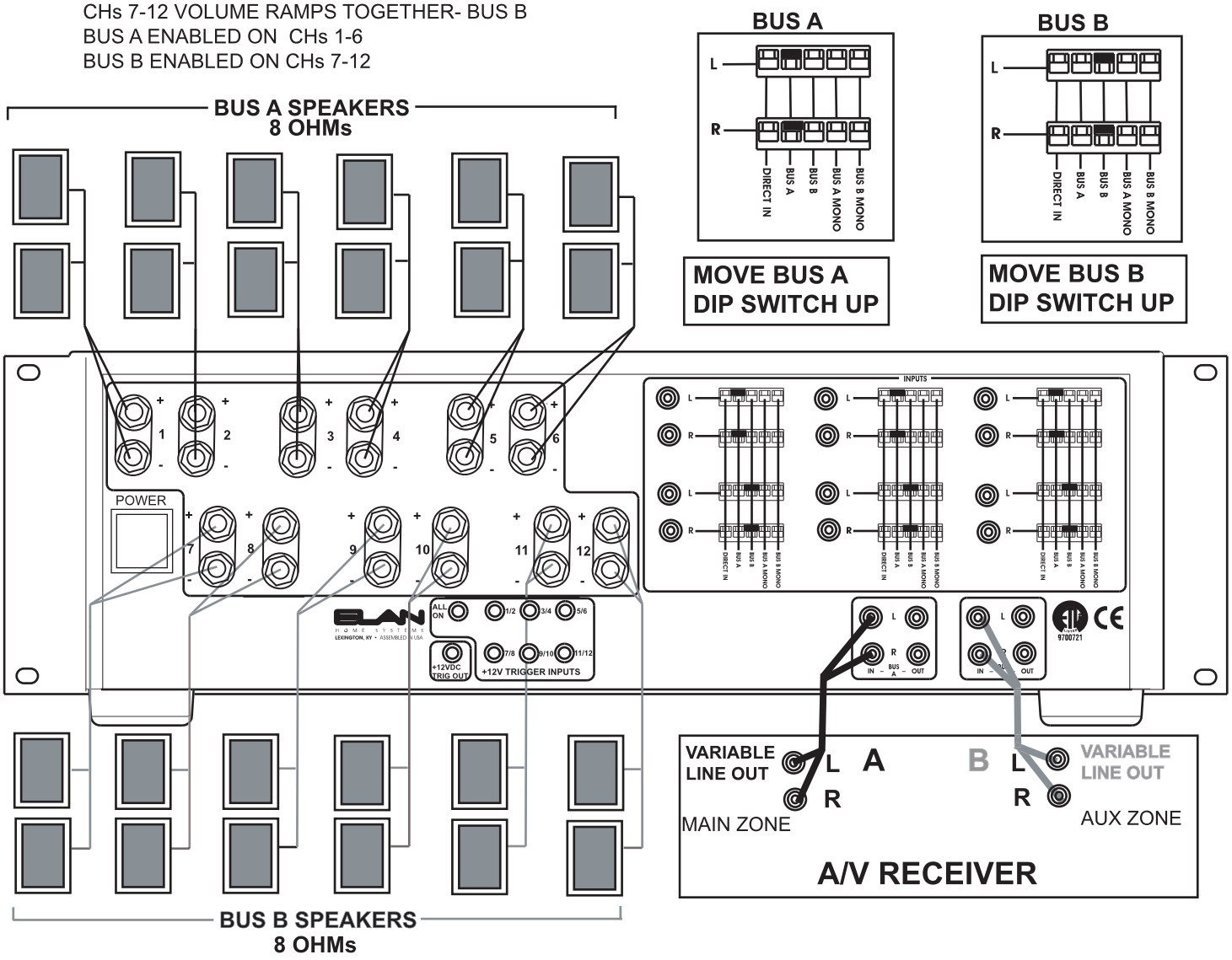
B. MULTI-ZONE DESIGN/APPLICATIONS

The D1200 was designed with multi-zone systems in mind. By using an ELAN multi-zone controller, certain amp channels are designated to specific zones of the house, each having its own separate source selectability. The advantages of this system type are numerous:

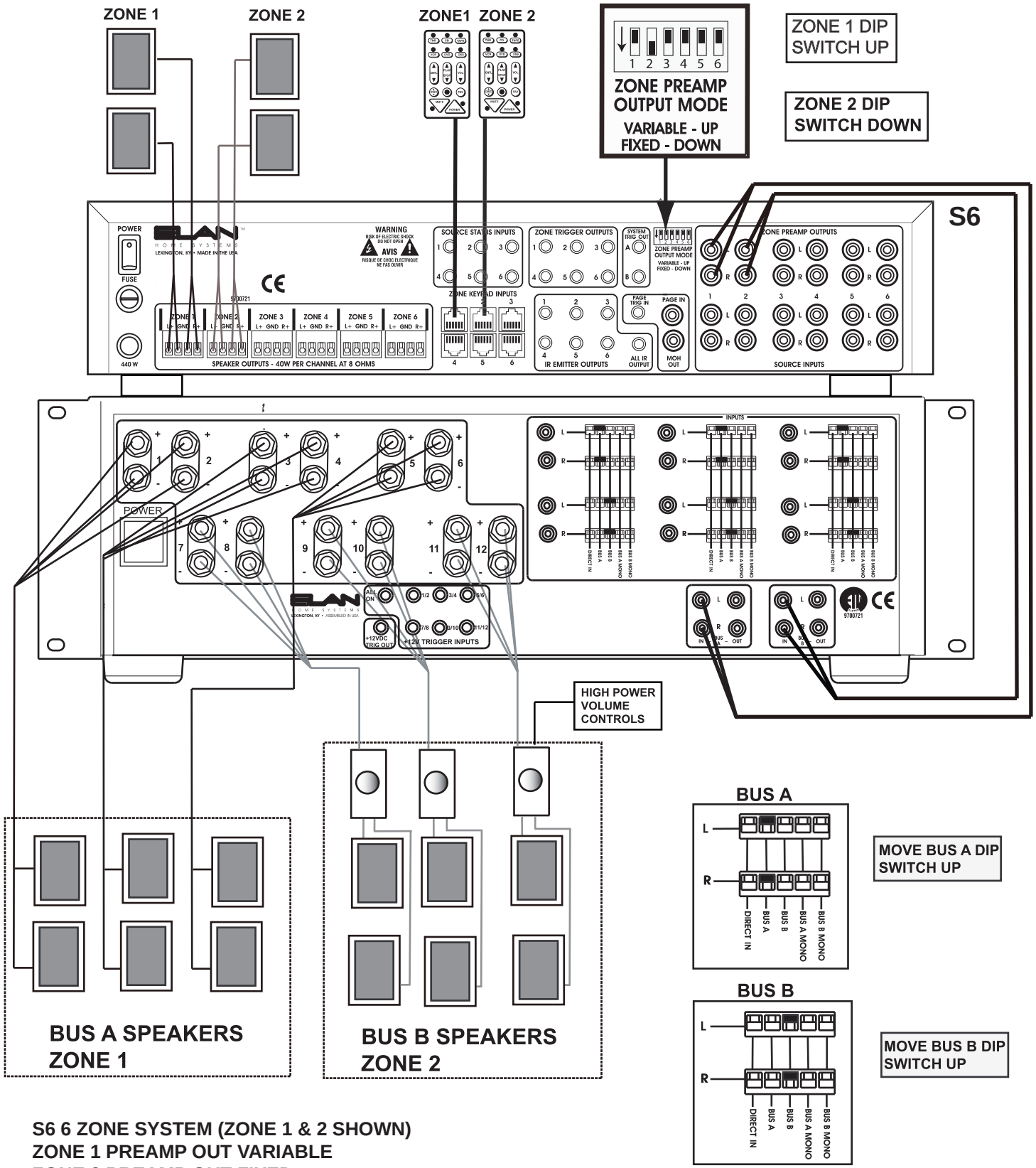
1 Each area of the house can listen to a different audio source at the same time.
2. Source components do not have to be duplicated throughout the house (who wants to buy twelve A/V receivers or DVD players?)
3. House-wide systems can interface easily (Page, Doorbell, Telemute).
4. System status can be conveyed throughout the house so that shared sources and zone On/Off are evident (so that one person doesn't interrupt another person's movie, for example).
5. Separate zones can be personalized to allow only certain sources to be accessed or certain features allowed or disallowed (Do Not Disturb, for example).

1. STAND ALONE MULTI-ZONE SYSTEM

2 "ZONES"
6 PR STEREO SPEAKERS (8 OHM)
A/V RECEIVER WITH 2nd ZONE OUT
CHs 1-6 VOLUME RAMPS TOGETHER- BUS A
CHs 7-12 VOLUME RAMPS TOGETHER- BUS B
BUS A ENABLED ON CHs 1-6
BUS B ENABLED ON CHs 7-12

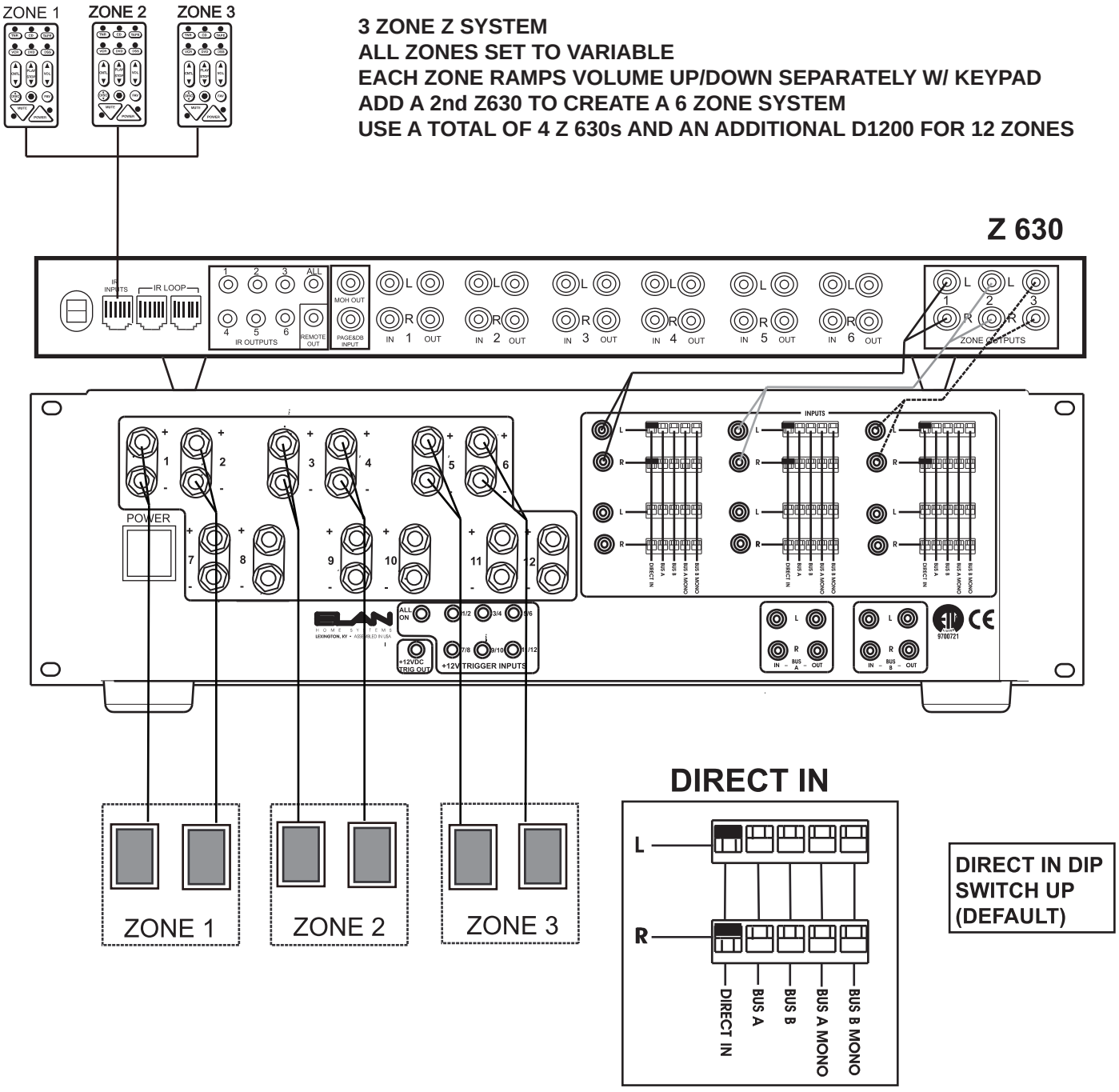


2. MULTI-ZONE ELAN S SYSTEM



S6 6 ZONE SYSTEM (ZONE 1 & 2 SHOWN)
ZONE 1 PREAMP OUT VARIABLE
ZONE 2 PREAMP OUT FIXED
ALL SPEAKERS IN ZONE 1 VOLUME RAMPS UP/DOWN USING KEYPAD
MAIN SPEAKERS IN ZONE 2 VOLUME RAMPS SEPARATELY USING HIGH POWER VOLUME CONTROLS
BUS A AND BUS B ENABLED

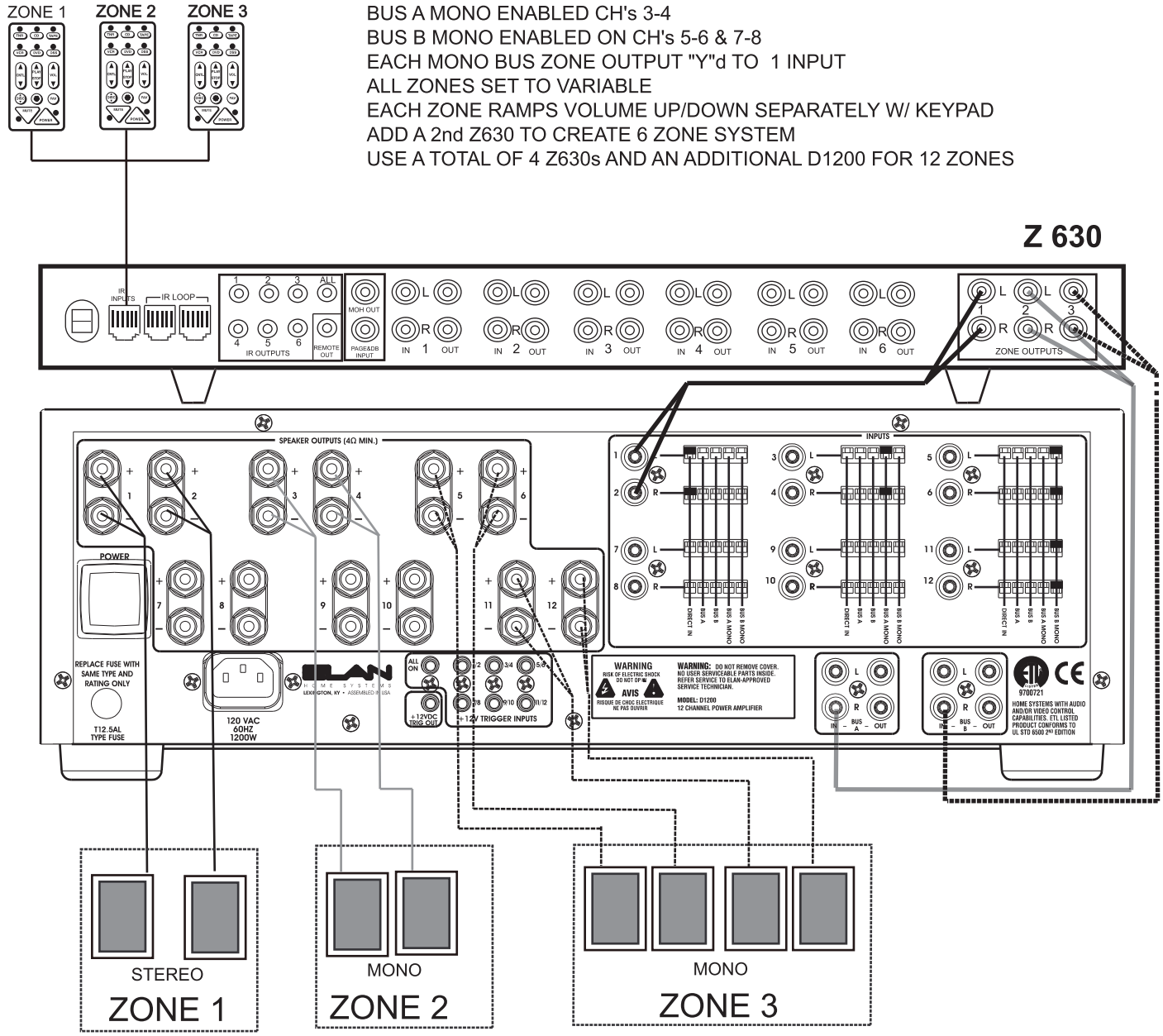
3. MULTI-ZONE ELAN Z SYSTEM

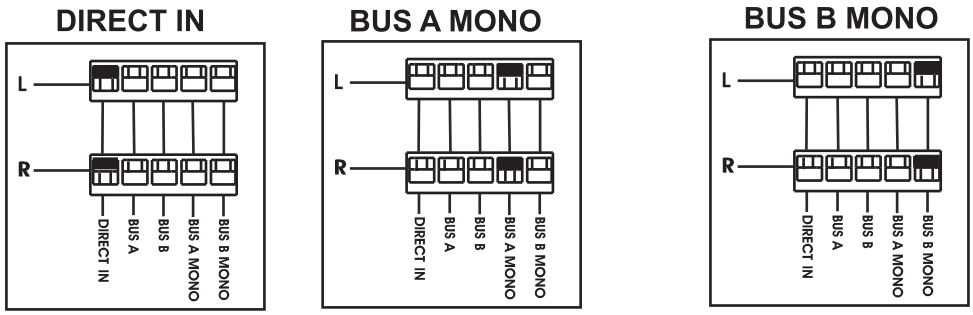


DIRECT IN DIP SWITCH UP (DEFAULT)

4. MULTI-ZONE ELAN Z SYSTEM MONO BUS

3 ZONE Z SYSTEM
BUS A MONO ENABLED CH's 3-4
BUS B MONO ENABLED ON CH's 5-6 & 7-8
EACH MONO BUS ZONE OUTPUT "Y"d TO 1 INPUT
ALL ZONES SET TO VARIABLE
EACH ZONE RAMPS VOLUME UP/DOWN SEPARATELY W/ KEYPAD
ADD A 2nd Z630 TO CREATE 6 ZONE SYSTEM
USE A TOTAL OF 4 Z630s AND AN ADDITIONAL D1200 FOR 12 ZONES



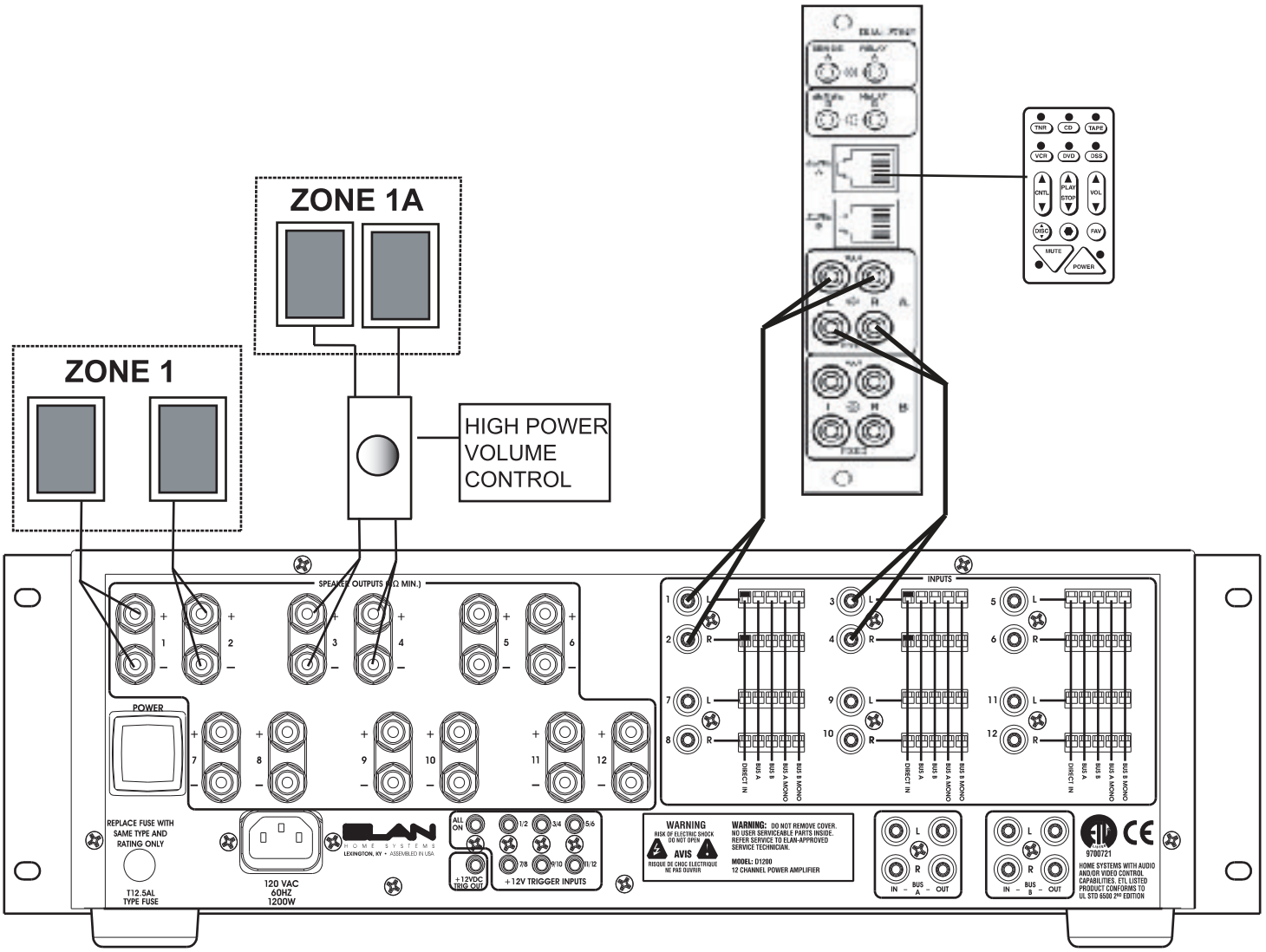


DIRECT IN DIP SWITCH UP (DEFAULT)

MOVE BUS A MONO DIP SWITCH UP

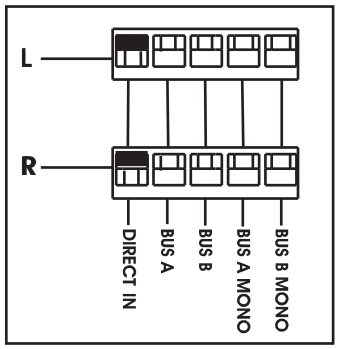
MOVE BUS B MONO DIP SWITCH UP

5. MULTI-ZONE ELAN HD SYSTEM



HD SYSTEM W/ FIXED AND VARIABLE OUT
DIRECT IN ENABLED
1 ZONE W/ SUB ZONE SHOWN
ZONE 1 SPEAKERS VOLUME RAMPS UP/DOWN W/ KEYPAD
ZONE 1A SPEAKERS VOLUME RAMPS UP/DOWN
W/ HIGH POWER VOLUME CONTROL

DIRECT IN



DIRECT IN DIP SWITCH UP (DEFAULT)

VI. TROUBLESHOOTING

SYMPTOM	CAUSE	SOLUTION
No Audio From One or More Channels	1. Loose/Bad Speaker Cable Connection	Check Cable Ends at Binding Posts and Speaker Terminals
	2. Break/Short in Speaker Cable	Check Continuity of Each Speaker Cable Using Multimeter. If Short or Open is Indicated, Check Wiring for Proper Connections.
	3. Speaker is Defective	Swap with Known Good Speaker
	4. RCA Patch Cable Defective	Swap with Known Good Patch Cable
	5. Source not Sending Audio	Verify Source is Powered Up and Playing. Check any Tape Monitor Settings on A/V Receiver
	6. All Dip Switches Down	Move Appropriate Dip Switches UP
"**NA**" flashes on display, then Volume setting	7. Channel is in MUTE	Make sure triggering device's remote output is connected and producing voltage
"**Er**" message displayed on front panel	8. Amplifier in Protection Mode	Find short or low-impedance condition. Correct overheating or AC power issues. Once issue is found and resolved, cycle power to D1200. This condition could be caused by 1.,2.,3., and/or 4 above
Audio "Hum"	1.Ground Potential Difference Between Source Components (Ground Loop)	Plug All Sources into Same AC Outlet.
		Test AC Outlet Using Ground Tester
	2. Faulty/Damaged Cables	Check Source Equipment Cables For Damaged Cables and Faulty Connections.
	3. Faulty Wiring	Make Sure Any Volume Controls Are Not Hooked Up Backwards.
		Check for Shorts in Wiring (See item 2 in "No Audio…")
Distorted Audio at Normal Volume Levels	1. Input Gain Too High	Reduce Gain to the Channel in Question. Ensure Red Clipping LEDs are not Pulsing or On Constantly
	2. Defective/Incompatible Speaker	Check for Physical Damage to Speaker
		Check Power Ratings on Speaker Do Not use Speakers Rated for Less than 100 Watts RMS

Audio is Unclear, Bass Response Low	Speakers Out of Phase	Verify that + of Amplifier goes to + of Speaker (and – to -) on ALL Speaker Leads.
Incorrect Source Playing on Speakers	1. Universal Stereo Bus DIP Switches in Wrong Position	Make sure BUS A/MONO/B DIP Switches are in Correct Position.
	2. Source Connected to Wrong Input of Amplifier	Verify Source Input Connections.
	3. Speakers Connected to Wrong Speaker Outputs	Verify Speaker Connections.
Amplifier Will Not Power Up	1. Power Switch is OFF	Turn it ON. Switch is Located on Back of Unit.
	2. Circuit Breaker Tripped	ELAN Recommends the D1200 be Installed on its Own 15 Amp Circuit Breaker. Placing this Unit on a Circuit Populated by Other Devices can Cause Circuit Breakers to Trip.
	3. Remote Turn-On Miswired	Ensure That Any Remote Turn On Cables are Connected At Both Ends. A Cable Plugged into the D1200 Remote In, but Not Connected to a Sources Remote Out will Remain in Mute Mode.
Volume Control Rattles in Wall	Using Incompatible Volume Control	Use Volume Control Rated for 100 Watts RMS or Higher.
Audio Very Distorted in areas using Volume Controls	1. Impedance-Match Settings Incorrect (when available)	Set Impedance-Match Settings Correctly (when available).
	2. Using Incompatible Volume Control	Use Volume Controls Rated for 100 Watts RMS or Higher.
Audio plays through too many channels or extremely distorted	All Dip Switches in UP position	Place Dip Switches in appropriate positions.

VII. SPECIFICATIONS

POWER RATING - RMS

Output Power (12 Channel Stereo) . . . . . 100W x 12 @ 4 ohms per channel

Output Power (12 Channel Stereo) . . . . . 70W x 12 @ 8 ohms per channel

FREQUENCY RESPONSE. . . . . 20 Hz to 20 kHz, -.3dB into 8 ohms

FULL POWER BANDWIDTH . . . . . .10Hz to 50 kHz

SIGNAL TO NOISE . . . . . .>102db (A-weighted)

CHANNEL SEPARATION. . . . . > -70dB (channel to channel @ 1 kHz)

TOTAL HARMONIC DISTORTION . . . . . < .04%,

INTERMODULATION DISTORTION . . . . . < 0.1%

VOLTAGE GAIN (AV) . . . . . Continuously Variable from 0 - 32

SLEW RATE. . . . . > 20V/microsecond

INPUT IMPEDANCE . . . . . 49 K ohms

INPUT SENSITIVITY. . . . . .635Vrms (60W @ 8 ohms)

CONNECTORS

Input . . . . . Gold RCA Phono

Output . . . . . Gold 5-Way Binding Posts

POWER REQUIREMENTS. . . . . 120 VAC, 1500 Watts

POWER SUPPLY. . . . . Ultra-high efficiency toroidal transformer
200,000 uF storage capacitance effortlessly
sustains high current demand.

REMOTE TRIGGER INPUTS . . . . . 5 to 24 Volts AC/DC

TRIGGER LOOP OUTPUT . . . . . +12VDC @0.1A

DIMENSIONS/WEIGHT

Dimensions . . . . . 5.25 x 17.0 x 15 (inches.)
13.34 x 43.18 x 38.1 (cm.)

Rack Face . . . . . 19 X 5.25 (inches.)
48.26 x 13.34(cm)

Weight . . . . . 47 lbs/21.3 kg

ETL® and CE® approved.

Limited Warranty

ELAN HOME SYSTEMS, L.L.C. ("ELAN") warrants the D1200/D1201 Power Amplifier to be free of defects in materials and workmanship for two (2) years from the date of purchase. If within the applicable warranty period above purchaser discovers such item was not as warranted above and promptly notifies ELAN writing, ELAN shall repair or replace the item at the company's option. This warranty shall not apply (a) to equipment not manufactured by ELAN, (b) to equipment which shall have been installed by other than an authorized ELAN installer, (c) to installed equipment which is not installed to ELAN's specifications, (d) to equipment which shall have been repaired or altered by others than ELAN, (e) to equipment which shall have been subjected to negligence, accident, or damage by circumstances beyond ELAN's control, including, but not limited to, lightning, flood, electrical surge, tornado, earthquake, or any other catastrophic events beyond ELAN's control, or to improper operation, maintenance or storage, or to other than normal use of service. With respect to equipment sold by, but not manufactured by ELAN, the warranty obligations of ELAN shall in all respects conform and be limited to the warranty actually extended to ELAN by its supplier. The foregoing warranties do not cover reimbursement for labor, transportation, removal, installation, or other expenses which may be incurred in connection with repair or replacement.

Except as may be expressly provided and authorized in writing by ELAN, ELAN shall not be subject to any other obligations or liabilities whatsoever with respect to equipment manufactured by ELAN or services rendered by ELAN.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED AND IMPLIED WARRANTIES EXCEPT WARRANTIES OF TITLE, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

WARNING TO OUR VALUED CUSTOMERS

To insure that consumers obtain quality pre-sale and after-sale support and service, ELAN Home Systems™ products are sold exclusively through authorized dealers. ELAN products are not sold online.

The warranties on ELAN products are NOT VALID if the products have been purchased from an unauthorized dealer or an online E-tailer. To determine if your ELAN re-seller is authorized, please call ELAN Home Systems at (859)269-7760.

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