

OWNER'S  
MANUAL

# *Directed* **AUDIO**<sup>®</sup>

models | A802  
A1004  
D2205

## CONGRATULATIONS

Congratulations for choosing a Directed Audio power amplifier from Directed Electronics, the industry leader in high quality automotive security and audio equipment since 1990.

Directed Audio power amplifiers continue to set new standards of performance, reliability, and affordability in the mobile electronics industry.

Featuring high-efficiency MOSFET power supplies, flexible on-board crossovers, and state of the art audio design, Directed Audio power amplifiers will excite and delight the mobile sound

enthusiast with years of high-quality audio reproduction.

Directed Audio power amplifiers come with a two-year limited warranty if installed by an authorized Directed dealer. If not installed by an authorized dealer, Directed Audio power amplifiers are covered by a one-year, parts-and-labor limited warranty.

Be sure to retain your original sales receipt and refer to the warranty section of this guide for full details about your coverage.

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## **LIMITED TWO-YEAR CONSUMER WARRANTY**

Directed Electronics, Inc. promises to the original purchaser, to replace this product should it prove to be defective in workmanship or material under normal use, for a period of two years from the date of purchase by the dealer as indicated by the date code marking of the product PROVIDED the product was installed by an authorized Directed dealer. During this two year period, there will be no charge for this replacement PROVIDED the unit is returned to Directed, shipping pre-paid. If the unit is installed by anyone other than an authorized Directed dealer, the warranty period will be one-year from the date of purchase by the dealer as indicated by the date code marking of the product. During this one-year period there will be no charge for this replacement PROVIDED the unit is returned to Directed, shipping pre-paid. This warranty is non-transferable and does not apply to any unit that has been modified or used in a manner contrary to its intended purpose, and does not cover damage to the unit caused by installation or removal of the unit. This warranty is void if the product has been damaged by accident or unreasonable use, neglect, improper service or other causes not arising out of defects in materials or construction. ALL WARRANTIES INCLUDING BUT NOT LIMITED TO EXPRESS WARRANTY, IMPLIED WARRANTY, WARRANTY OF

MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND WARRANTY OF NON-INFRINGEMENT OF INTELLECTUAL PROPERTY ARE EXPRESSLY EXCLUDED TO THE MAXIMUM EXTENT ALLOWED BY LAW, AND DIRECTED NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. DIRECTED HAS ABSOLUTELY NO LIABILITY FOR ANY AND ALL ACTS OF THIRD PARTIES INCLUDING ITS AUTHORIZED DEALERS OR INSTALLERS. Unit must be returned to Directed, postage pre-paid, with: consumer's name, telephone number, and address, authorized dealer's name and address, and product description. IN ORDER FOR THIS WARRANTY TO BE VALID, YOUR UNIT MUST BE SHIPPED WITH PROOF OF INSTALLATION BY AN AUTHORIZED DIRECTED DEALER. ALL UNITS RECEIVED BY DIRECTED FOR WARRANTY REPAIR WITHOUT PROOF OF DIRECTED DEALER INSTALLATION WILL BE COVERED BY THE LIMITED ONE-YEAR PARTS AND LABOR WARRANTY. Note: This warranty does not cover labor costs for the removal and reinstallation of the unit. BY PURCHASING THIS PRODUCT, THE CONSUMER AGREES AND CONSENTS THAT ALL DISPUTES BETWEEN THE CONSUMER AND Directed SHALL BE RESOLVED IN ACCORDANCE WITH CALIFORNIA LAWS IN SAN DIEGO COUNTY, CALIFORNIA.

## FEATURES

- High-speed MOSFET switching power supply and complimentary bi-polar outputs
  - Stereo, mono, or simultaneous stereo/mono operation
  - Thermal, DC offset, reverse polarity, short circuit and over/under voltage protection
  - Programmable features controlled via ESP® serial databus and Directed's proprietary Bitwriter® tool (998T) \*
- \* The Bitwriter® unit must have version 1.906 or above to fully access the amplifier features menu.
- ESP® port for connection to ESP-2 Security components and current Bitwriter® module with Audio programming
  - Continuously variable 12 dB/octave two-way crossover(s)
  - Switchable 8 dB bass EQ function
  - Remote subwoofer level control function (A1004 and D2205 only)
  - Variable input sensitivity optimizes match with different signal sources.
  - Chrome plated wire and RCA jacks ensure maximum signal transfer
  - Rugged extruded two piece heatsink and cover
  - Unity gain pass through RCA jacks

## WARNING



High-powered car audio systems may produce sound pressure levels that exceed the threshold at which hearing loss may result.

They may also impair a driver's ability to hear traffic sounds or emergency vehicles. Use common sense and practice safe listening habits when listening to or adjusting your audio system.

## **NOTE**

Prior to servicing your vehicle ensure that the alarm system is **disarmed**. Due to the amplifier's anti-theft feature (if enabled), amplifier operation is disabled when the main power to the amplifier is removed while the alarm is armed. The amplifier operation must then be reset.

If the alarm is replaced with another ESP2 alarm system, ensure that the amplifier goes through a learn routine (using the Bitwriter®) prior to re-enabling the anti-theft feature.

## **INSTALLATION GUIDELINES**

1. Please read this owner's manual carefully before installing this amplifier.
2. Disconnect the battery ground terminal prior to making any electrical connections.
3. Check for any hazards or obstructions such as gas tanks, fuel or brake lines, and wiring harnesses before mounting the amplifier.
4. Pick a mounting location that will provide adequate access and ventilation and protect the amplifier from heat, moisture, and dirt.
5. Avoid sharp metal areas when routing cables to the amplifier, and run RCA cables away from the power cables and other potentially noisy car harnesses.
6. The amplifier should be grounded with a short, heavy gauge wire connected directly to the car at a bare metal surface, preferably scraped body sheet metal. Do not use factory grounded locations, seat bolts, or brackets that are spotwelded.
7. Always fuse your power connection within in 8 to 10 inches of the battery terminal. Use a fuse or circuit breaker rated slightly more than the on-board fuse(s) of the amplifier(s). The gauge of power wire used should take into account the total current draw of the system, and the length of the wire used. IASCA and other auto sound competition organizations have charts available for this; you can also find a chart in the MECP study guide. Minimum wire gauge recommendations for the individual amplifiers are listed on the specification

page. Always use the same gauge wire for the amplifier ground that you use for the power wire. Be sure to examine the battery ground cable of the vehicle, and if necessary, upgrade it by adding an additional ground wire that is the same gauge as the amplifier's power wire. Remember, the amplifier can only deliver its rated output when it is not current limited by the power and ground supply wires.

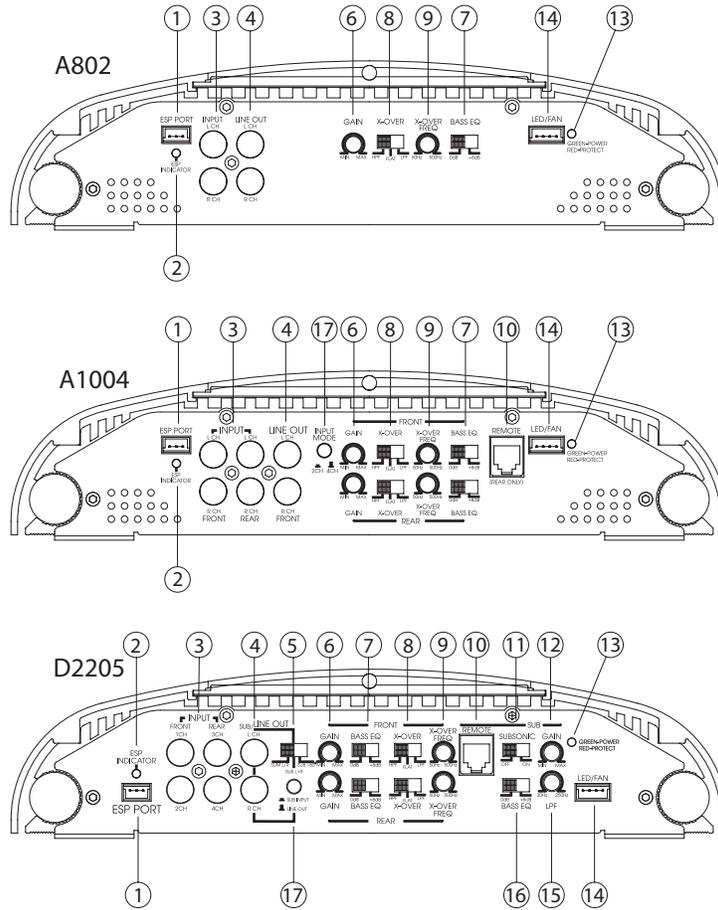
8. This amplifier is designed to drive a speaker load that measures from 2 to 8 ohms (1 ohm on D2205 Sub Output). Keep in mind that heat is the long-term enemy of automotive electronics and the lower your speaker load, the more heat is generated. For low impedance speaker applications or restricted ventilation installations, an external cooling fan may be advisable.
9. Battery and ground connections to the vehicle should be made with crimped ring terminals of the appropriate size (surface area is what counts); soldering the terminals after crimping is also recommended.
10. Due to the high-frequency MOSFET switching power supply, filtering the power cable is not generally required (remember that the amp can't deliver full output if the power supply is restricted). Proper grounding of the signal source is mandatory for the amplifier to reach its performance peak. If the RCA inputs are not grounded adequately via the signal source, electrical noise from the vehicle may be picked up in the system.

## **FRONT PANEL CONNECTIONS/STATUS LED**

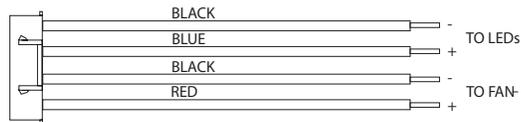
1. **ESP® Port** - connection port for Bitwriter® or ESP2 security system.
2. **ESP® Status LED** - indicates ESP® functionality and is used to diagnose ESP® features.
3. **RCA Input Jacks** - accepts line level outputs from head units or signal processors at voltages between 250 mV and 7.5 volts. (A1004 and D2205 also have a Rear Input.)
4. **RCA Output Jacks** - these pass through RCA jacks can be used to send a signal to a second amplifier.

5. **Line Out Switch (D2205)** - three positions:  
**sum L/R**—left front and rear and right front and rear channels are summed.  
**sub L+R**—set the switch to this position when using an additional D1200 amplifier connected in Parallel mode.  
**sub 180°**—set the switch to this position when using an additional D1200 amplifier connected in External Bridge mode.
6. **Gain** - controls amplifier sensitivity and is used to match the input level of the amplifier to the output level of the signal source. (front and rear on A1004 and D2205.)
7. **Bass EQ** - allows 8dB additional bass boost (A802 and A1004).
8. **X-Over HPF, Flat, LPF** - the HPF attenuates low frequencies and is used with mid-range speakers and tweeters. Flat does not attenuate any frequencies and is for full range speaker systems. LPF attenuates high frequencies and is used for subwoofers.
9. **X-Over Freq** - adjusts the crossover point (50-500Hz) for the on-board active crossover.
10. **Remote** - optional accessory which allows the level to be adjusted remotely (usually located for control by the vehicle's driver).
11. **Subsonic** - the OFF position takes the filter out of the system, the IN position places the the filter into the system (D2205).
12. **Sub Gain** - subwoofer channel gain adjustment.
13. **Status LED** - Will illuminate GREEN to indicate the amplifier is on and operating normally, and will be illuminated RED if the amplifier shuts down due to short circuit, DC offset, or overheating detected by on-board protection circuitry.
14. **LED/Fan** - allows connection of an **optional** LED light bar or **optional** cooling fan for the amplifier.
15. **LPF** - sets high frequency limit of subwoofer channel (D2205).
16. **Bass EQ** - allows 8dB additional base boost on sub channel (D2205).
17. **Sub Input/Line Out** - selects RCA jacks (4) (Sub/Line Out) as either Subwoofer Input or Line Output.

**FIGURE 1—AMPLIFIER CONNECTIONS — FRONT**



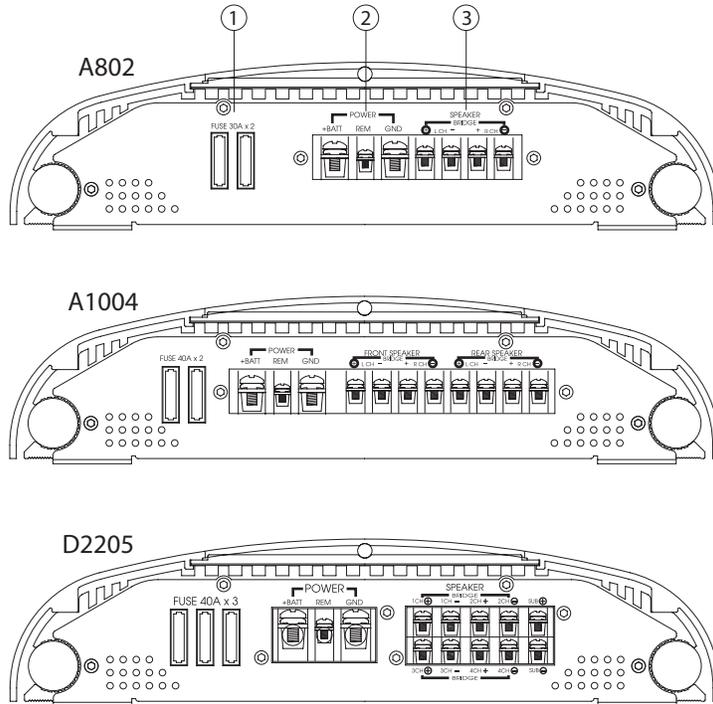
**FIGURE 5—LED/FAN HARNESS**



## REAR PANEL CONNECTIONS

1. **Fuses** - These fuses protect the amplifier against internal electrical damage and are meant to protect the amplifier only. All other power connections should be fused at the source.  
  
The A802 uses 2-30A fuse, the A1004 uses 2-40A fuses, and the D2205 uses 3-40A fuses.
  2. **(+) 12 Volt Power** - Connect this terminal through a FUSE or CIRCUIT BREAKER to the positive terminal of the vehicle battery or the positive terminal of an isolated audio system battery.
- WARNING:** Always protect this power wire by installing a fuse or circuit breaker of the appropriate size within 12 inches of the battery terminal connection.
2. **Remote Turn On** - This terminal turns on the amplifier when (+) 12 volt is applied to it. Connect it to the remote turn on lead of the head unit or signal source.
  2. **Ground** - Connect this terminal directly to the sheet metal chassis of the vehicle, using the shortest wire necessary to make this connection. Always use wire of the same gauge or larger than the (+) 12 volt power wire. The chassis connection point should be scraped free of paint and dirt. Use only quality crimped and/or soldered connectors at both ends of this wire. DO NOT connect this terminal directly to the vehicle battery ground terminal or any other factory ground points.
  3. **Speaker Terminals** - Connect subwoofers to these terminals. (Refer to the *Speaker Wiring Diagrams* section of this guide.)

**FIGURE 2—AMPLIFIER CONNECTIONS REAR**



**ESP® FEATURES AND CONTROLS**

These amplifiers incorporate an on-board Directed ESP® Engine. In addition to allowing menu-driven parameter adjustment\*, operate with security products from Directed Electronics to incorporate advanced ESP2 features. Your dealer can use a Bitwriter® with Firmware version 1.906 or later to access these parameters.

\* **Note:** The ESP® features are obtained by using Bitwriter® and a 3 pin ESP® cable. While a Bitwriter® can only talk to one ESP®/ESP2 device at a time, multiple amplifiers can be set to respond to Arm/Disarm commands. Simply repeat the TX ID Learn procedure for each amplifier. When

completed use a Y-cable to connect the Alarm signals to both amplifiers.

**Note:** Prior to using the anti-theft or valet features it is recommended that the alarm be installed and its functionality verified. Please consult the install or operations guide for the appropriate alarm.

For the Bitwriter<sup>®</sup> to Amp connection, the cable must have the same color sequence at both ends of the cable. For the Alarm to Amplifier, the Transmit and Receive wires must cross from one end to the other.

Bitwriter<sup>®</sup> commands can control parameters such as Turn on Delay, Fan Control, Input Gain adjustment, and also place the amplifier into a monitoring state for commands from an ESP2 equipped alarm.

1. **Turn-On Delay** - 0.75, 1.00, 1.25, 1.75, 2.25, 2.75, or 3.25 seconds. 1.75 seconds is the factory default setting.
2. **Fan Control - AUTO** - The fan will automatically turn on when the internal temperature exceeds approximately 40 deg C. The ON option causes the fan to operate whenever the Amplifier is on. Use the ON option if you are using the external FAN port to drive optional

LED tubes. In the OFF mode the external FAN port is disabled.

3. **Service Code Display** - The Directed ESP<sup>®</sup> Engine stores up to seven previous faults for later replay. The Service Code Display allows the installer to step through the fault history.
  - **OFF** - In the OFF position, the amplifier operates normally.
  - **FLASH CODE ON LED** - the last recorded fault is "replayed" on the ESP<sup>®</sup> Indicator LED. If the unit has never recorded a fault, the ESP<sup>®</sup> Status indicator will not flash.
  - **RESERVED** - no function, reserved for future use.
  - **CLEAR LAST FAULT** - Clears the last fault. Note that this allows you to see previous faults prior by back-stepping one at a time through the fault history.
4. **Input Gain Range** - The sensitivity on the gain control can be limited to specific ranges. The DEFAULT position allows adjustment over the full range of amplifier sensitivities. There are 4 other ranges 0.5-1.0V, 1.0V-2.0V, 2.0-4.0V, 4.0-8.0V.
5. **Input Gain Adjustment** - In the LOCK position, the gain range and gain control can be locked out to prevent accidental mis-adjustment. The

Default mode is UNLOCKED.

6. **Valet** - Selecting ENABLE allows the amplifier to monitor valet signals from the alarm system. The amplifier will not power up once remote power is removed when the Valet monitoring mode is ENABLED and the alarm system has been set into Valet mode.

**Note:** To make use of the Anti-theft or Valet features, the amplifier must "learn" which transmitters are associated with the currently used alarm system. See item 8 below.

If selected while the remote power is on, the amplifier will continue playing until the remote power is turned off.

To Clear Valet Mode, Disable Valet mode on the alarm, then cycle the remote power line off then on again. The amplifier will power up normally after the Turn On Delay time has expired.

7. **Anti-theft** - Selecting ON, allows the amplifier to monitor Arm and Disarm signals from the alarm, rendering the amp in-operable if stolen. When OFF, these signals are ignored. OFF is the factory default setting.

When main power is removed while the unit is armed, the unit is placed

into a "stolen state". The ESP® Status indicator will blink rapidly, and the amplifier will not continue its power up sequence. Also when there is currently an ARM signal active on the bus, the amplifier cannot be written to by the Bitwriter®.

To reactivate the amplifier, connect the alarm that was used to arm the amplifier, and press the disarm button. Ensure the remote line is off (turn it off if this is not the case), and then turn the amplifier on. The amplifier should power up normally after the Turn On Delay expires.

## 8. Learn TX IDs

**Default Off.** Before the unit will respond to Arm/Disarm/Valet Commands from the alarm system, it needs to establish communications with this alarm system. Once this procedure is performed, the unit will store this information permanently in memory. The procedure only needs to be repeated if the alarm unit is replaced or all the transmitters in an alarm system are replaced.

### To perform a transmitter "learn":

1. Connect Bitwriter® to amplifier. Press READ on the Bitwriter®.

2. Press the up arrow 3 times, or the down arrow 7 times to reach the Learn TX IDs menu. Press 'Select' until the ON appears.
3. Press the write key twice. The ESP® status indicator should begin blinking.  
**Note:** The following should be accomplished within 20 seconds or the learn session will time out. If this occurs, the LED will stop blinking. Reconnect the Bitwriter® and press WRITE twice to re-enter the TX ID Learn mode.
4. Disconnect the Bitwriter® and connect the Amp to the alarm cable.
5. Press ARM on any transmitter attached to the alarm system. The LED should go on if the amplifier was on prior to TX ID or go out if the amplifier is off.

**Note:** When the amplifier receives ESP® bus activity (typically either arm or disarm signals), it will blink

to indicate Arm or Disarm commands. This allows the installer to verify that the proper cable is in use and that the transmitters have been properly programmed. The unit must still be programmed to respond to Valet and Arm commands with a Bitwriter® for the Anti-theft/Valet modes to lock out unauthorized operation.

8. **Major Version Number:** This number will allow verification of the firmware installed in the amplifier. This will be useful information should your amplifier ever need service.
9. **Minor Version Number:** This number references the minor version of your amplifier firmware.

#### **ESP® Status Indicator:**

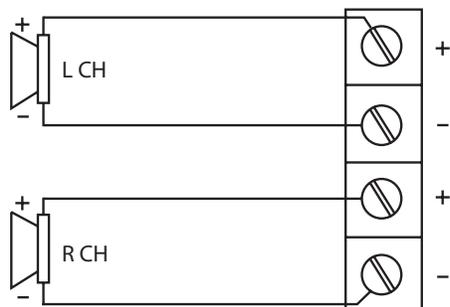
The ESP® Status indicator flashes to indicate the current operational mode. This can be used in conjunction with the Power LED to help determine the source of the problem.

Power/Protection LED	ESP® Status Indicator	Mode
Green	Solid Red	Normal Operation
Green	Flashing	Turn On delay or TX learn
Red	Flashing Slowly	Thermal shutdown
Red	Flashing Rapidly	Overcurrent
Red	Slow Flash (50% duty cycle)	Overvoltage
Red	Slow Flash (mostly off)	Under-voltage
Off	Off	Amplifier Off
Off	Flashing	Arm/Valet received
Off	Flashing Rapidly	Amplifier in Anti-theft/Valet
On	Flashing	Amplifier armed

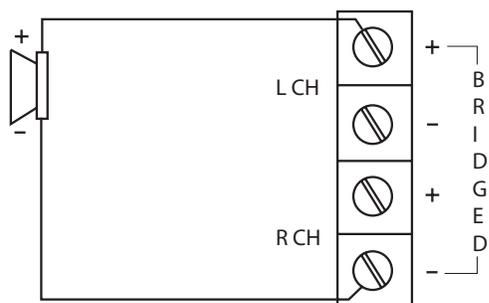
**Note:** Remember that the Directed ESP® Engine incorporates a digital gain control with a finite number of adjustment steps (32). A very small adjustment may not cause any audible changes in output. In addition the range selected may further restrict the adjustment. Extremely quick, large changes may result in audible artifacts, particularly on low frequency material as the gain is changing more rapidly than the source electrical wave.

## **SPEAKER WIRING DIAGRAMS A802/A1004**

### **Stereo operation** (top view)



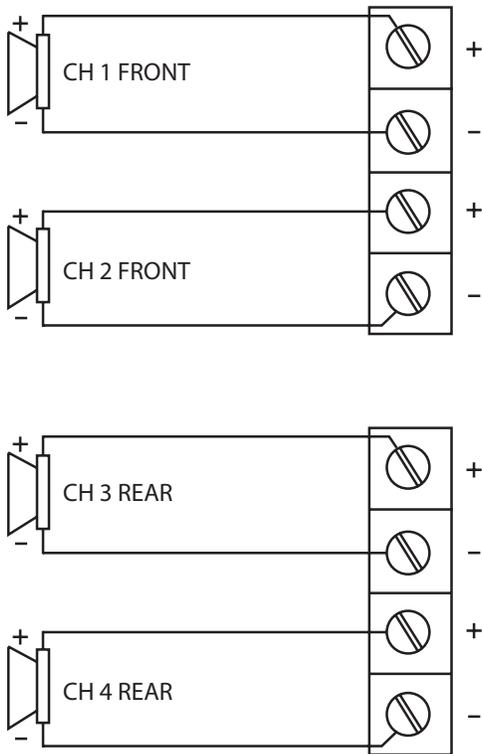
### **Bridged operation** (top view)



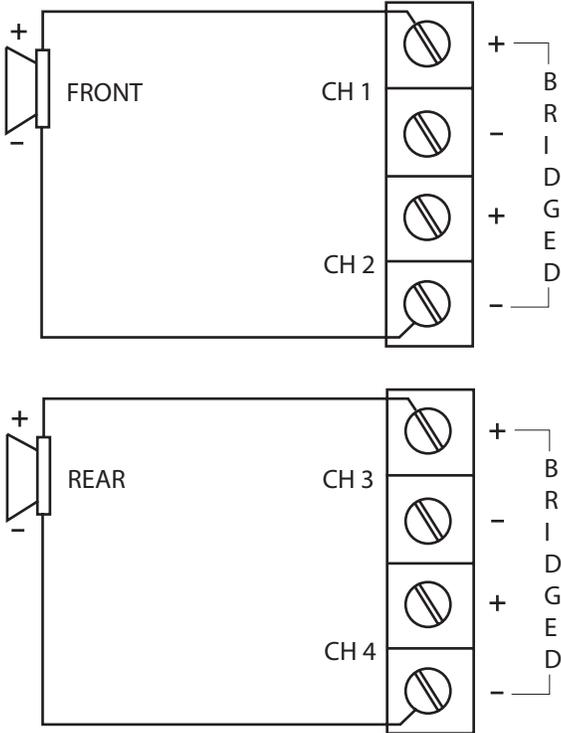
**Note:** The A1004 amplifier connections are the same as shown above, except that there are outputs for Front and Rear speakers.

## **SPEAKER WIRING DIAGRAMS D2205**

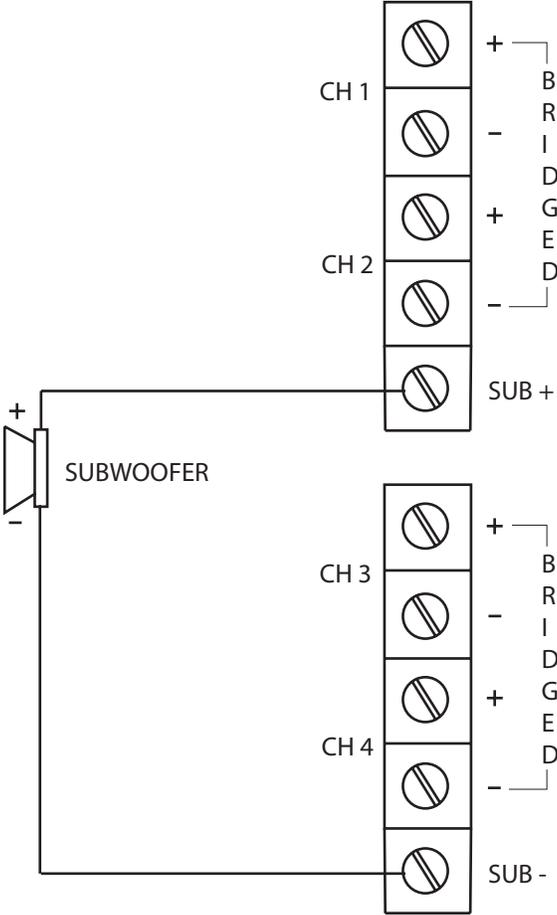
**Front/Rear operation** (top view)



**Front/Rear Bridged operation** (top view)



**Subwoofer operation** (top view)



## CROSSOVER SETTINGS AND GAIN ADJUSTMENT

Your Directed Audio power amplifier needs to be adjusted carefully to achieve maximum performance. These are some guidelines to follow when fine-tuning the amplifier.

- For full-range and simultaneous stereo/mono bass applications, the crossover selection switch should be set to FULL. If the amplifier is driving your subwoofers, set the switch to LOW, and for mid-bass/midrange output, set to HIGH.
- The crossover frequency control needs to be adjusted to suit your particular system. For subwoofer applications, try and keep the setting low enough to prevent image smearing (you should not be able to hear male voices from the subwoofer) but not so low as to create a gap between the subwoofer and the mid-bass/midrange speakers. For mid-bass/midrange settings, try to keep the setting low enough to keep your sound stage in front of you, without overdriving the speaker. It will be to your advantage to spend some extra time with this adjustment, listening to familiar music or system set-up discs to achieve the kind of musical reproduction that you prefer.
- The gain adjustment allows you to set proper signal match for clean, quiet amplifier operation. For full-range and simultaneous stereo/mono bass applications, start by playing some music you are familiar with. With the gain adjustment on the amplifier in the

middle of its rotation, bring up the volume on your head unit to the 3/4 volume setting or until you start to hear distortion or clipping. If you hear distortion before you reach the 3/4 volume setting of your head unit, reduce the gain setting on the amplifier and start to raise the head unit volume again. When you can listen to the music at or slightly above 3/4 on your head unit without audible distortion, slowly raise the gain of the amplifier until distortion is heard, then back off the gain until the distortion is not audible. This setting will allow you to reach full output with all but the quietest of source material, while avoiding excessive noise in the system.

**Note:** Remember that the Directed ESP® amplifiers use a digital gain control with a finite number of adjustment steps. A very small adjustment may not cause any audible change in level.

- The same procedure should be used for adjusting the amplifier when the on board crossover is set to LOW or HIGH, but you will also have to take into consideration the effect that gain adjustment has on system frequency response and imaging. Again, plan on spending some time with music that you know getting the gain and crossover settings the way you like. Test discs and analyzers may help with this process, but in the end it's your ears that count - listen to the music!

## LED TUBE INSTALLATION (OPTIONAL)

This Directed Audio amplifier has been designed with a custom heat sink that can accommodate two (optional—not supplied) VARAD LED tubes.

1. Before installing the LED tubes, remove and discard the mounting feet from the VARAD LED tubes.
2. Slide each LED tube assembly into your Directed Audio amplifier heat sink. Ensure that the LEDs are facing out for optimal visibility. The wires from the LED tube assembly should be on the signal input end of the amplifier. The Black wire from the LED tube is ground and the Black/White wire from the LED tube is power.
4. Run the two wires from the tube assembly and connect them to the 4-pin LED/FAN input connector. Refer to the LED/FAN harness diagram given earlier in this manual.

**NOTE:** If the optional fan IS NOT being used, it is recommended that the second LED tube be wired to this circuit. If the optional fan is being used, it is recommended that the second LED tube be wired in parallel with the first LED tube.

Use the following cross reference chart to select the proper length VARAD LED tube for use with your Directed Audio amplifier.

Directed Amplifier—VARAD Cross Reference Chart			
Directed Part Number	Directed Model	VARAD Model	QTY Required
45120	A502	HLX6, HL6, HLW9	2
45125	A802	HLX6, HL6, HLW9	2
45150	A404	HLX6, HL6, HLW9	2
45155	A1004	HLX12, HL12, HLW15	2
45095	D600	HLX6, HL6, HLW9	2
45100	D800	HLX6, HL6, HLW9	2
45105	D1200	HLX6, HL6	2
45110	D2400	HLX12, HL12	2
45165	D2205	(2) HLX12, (2) HL12	2 or 4

## **SUBSONIC FILTER ADJUSTMENT (D2205 ONLY)**

This amplifier incorporates a subsonic filter to maximize the performance of a subwoofer. The subsonic filter is a high pass filter that removes unwanted bass output at very low frequencies from the woofer. This increases the output of a subwoofer by as much as 3 dB by increasing the mechanical power handling of the subwoofer. Depending on the type of enclosure the subsonic filter can increase the useable low

frequency output by an additional 10 dB! Acceptable boost levels are determined by the type of enclosure used, wattage of the amplifier, and the woofer's excursion capability.

The following guidelines should be used for proper set-up of the subsonic filter to provide optimum performance and reliability from your system.

## **CEA SPECIFICATIONS**

### **A802**

Power Output: 150 Watts RMS X 2 Channels at 4 Ohms and  $\leq 1\%$  THD+N  
Signal to Noise Ratio: 76 dBA (reference 1 Watt into 4 Ohms)

Additional Power: 200 Watts RMS X 2 Channels at 2 Ohms  $\leq 1\%$  THD+N



### **A1004**

Power Output: 90 Watts RMS X 4 Channels at 4 Ohms and  $\leq 1\%$  THD+N  
Signal to Noise Ratio: 81 dBA (reference 1 Watt into 4 Ohms)

Additional Power: 125 Watts RMS X 4 Channels at 2 Ohms  $\leq 1\%$  THD+N



### **D2205**

Power Output: 80 Watts RMS X 4 Channels at 4 Ohms and  $\leq 1\%$  THD+N  
280W RMS X 1 Channel at 4 Ohms  $\leq 1\%$  THD+N  
Signal to Noise Ratio: 80 dBA (reference 1 Watt into 4 Ohms)

Additional Power: 125 Watts RMS X 4 Channels at 2 Ohms  $\leq 1\%$  THD+N  
Additional Power Subchannel: 600 Watts RMS X 1 Channel at 1 Ohm  $\leq 1\%$  THD+N



## **SPECIFICATIONS**

	<b>A802, A1004, and D2205</b>
Conversion Efficiency	>66% @ 4 ohms
Frequency Response	20-20,000 Hz
Signal-to-Noise Ratio	>98 dBA
Separation	65 dB @ 1 kHz
Damping Factor	>150, >50 (D2205 sub-channel)
Crossover Type/Range	2-way Butterworth/50 to 500 Hz
Crossover Slope	12 dB/octave
Bass Equalization	0 to +8 dB
Subsonic Filter	Variable
RCA Input/Output Jacks	2-channel in/2-channel paralleled full-range out
Input Impedance	20K ohms
Input Sensitivity	Variable from 250 mV to 8 volts
Supply Voltage	10 to 16 VDC
Fusing	30Ax2 (A802) 40Ax2 (A1004) 40Ax3 (D2205)
Minimum Cable Requirements (AWG)	#8
Dimensions	varies
Port Output (Optional Fan)/LED (Optional)	12V @<200mA

# Directed AUDIO

Directed Electronics, Inc.  
Vista, California 92081  
[www.directed.com](http://www.directed.com)

The company behind this system is Directed Electronics, Inc. Since its inception, Directed has had one purpose, to provide customers with the finest vehicle security, car stereo products, rear seat entertainment, and accessories available. The recipient of more than 20 patents in the field of advanced electronic technology, Directed is ISO 9001 registered.

Directed® is committed to delivering world-class quality products and services that excite and delight our customers.

Quality Directed products are sold and serviced throughout North America and around the world  
Call 800 274 0200 for more information about our products and services

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