

# AUNEX

AUDIO FOR THE **NEXT** GENERATION



## **AP Series Multi Channel Amplifiers**

Performance Class AB Amplifier Series

Models: AP250.2, AP450.4

## Installation and Operation Manual

Please take time to thoroughly read through this manual to familiarize yourself with your new amplifier. This will ensure that your amplifier will perform at its optimum capabilities.

Para obtener una copia de este manual en español, visite [www.aunexusa.com](http://www.aunexusa.com) y luego vaya a la página del producto que necesita. Haga clic en la pestaña Soporte y descargue su manual en español.



Congratulations and thank you for purchasing an Aunex AP Series Amplifier. This product has been engineered and manufactured utilizing precision quality parts and craftsmanship. Improvements in sound quality and system performance will be greatly enhanced with the use of this amplifier.

To ensure maximum performance we highly recommend you have your new Aunex product installed by an Authorized Aunex Dealer. Should you decide to install this product yourself, please make sure to read this manual thoroughly to familiarize yourself with the necessary installation requirements and tuning procedures.

Please read your warranty and retain a copy of your purchase receipt and original carton should your Amplifier ever needs to be serviced and warranted.

Visit our website for the latest information on all Aunex products at: [www.aunexusa.com](http://www.aunexusa.com). If you have any questions regarding this product, please contact your Authorized Aunex Dealer for assistance or call / email Aunex Technical Support Department at (909) 589-5010 / [tech@ aunexusa.com](mailto:tech@ aunexusa.com).

**Caution: Continuous exposure to sound pressure levels over 100dB may cause permanent hearing loss. High powered audio systems can produce sound pressure levels that can exceed over 150dB. Please limit your exposure to continuous high listening volumes.**



## **Feature Set of the AP Series Multi-Channel Amplifiers**

- Heavy Density Aluminum Extruded Heatsink
- 2 Layer PCB, SMD Technology
- Differential Balanced RCA Inputs
- Fully Variable Crossover 12dB/Octave Slope
- Boost Eq. Circuitry Active in both Full and LP Modes
- Auto-sensing in High Level Input Mode
  - Remote Input Becomes Remote Output Trigger if High level Input is used.
- Power and Protection Logo Illuminated Status Indicator
  - Blue Indicates Amplifier is powered On
  - Red Indicates the Amplifier is in Protection
- 8 Gauge Power & Ground Terminals
- 12 Gauge Speaker Output Terminals
- Advance Protection Circuit Monitoring: Short, Thermal, Overload and Impedance
- Finish: Anodized with Texture Paint

## **What's Included**

- (1) AP Series Amplifier
- High Level Speaker Plug
  - (1) High Level Speaker Plug on the AP250.2
  - (2) High Level Speaker Plug on the AP450.4
- (4) Self Tapping Screws
- (2) Allen Wrenches
- (1) Instruction Manual
- (1) Sticker

## **Important Safety Considerations**

- To prevent personal injury and damage to the unit, please read the following instructions in this manual.
- This product is designed to use in vehicles with 12Volt, negative-ground electrical systems.
- Install this product in a dry location away from your vehicles' safety equipment (airbags, seat belt system, etc.). Water and humidity may damage internal components.
- Use the included mounting accessories to secure this product so that it does not come loose.
- Check before drilling to make sure you do not drill into any vital vehicle system.
- Protect all system wiring from sharp metal edges.
- Do not disassemble or modify this unit; doing so will void your manufacturer's warranty.

## **Important Installation Precautions**

Installation of mobile audio equipment requires experience. Although this manual provides general installation procedures, it will not show the exact installation method for your particular vehicle.

If you do not have the required knowledge and experience, we recommend that you have your equipment installed by an Authorized Aunex Dealer.

- Turn off all stereo and other electrical devices before you begin.
- Disconnect the negative (-) lead from your vehicle's battery to avoid an electrical short. Reconnect the negative lead to your battery once your installation is complete. So, in other words the negative lead from our vehicle's battery is the first connection you remove before starting your installation and the last connect you make after you finish your installation.
- Check your mounting location to make sure there is sufficient room for your installation placement preference.

## **Important Installation Precautions Continued**

- Install this product in a dry location away from your vehicles' safety equipment. Keeping the amplifier dry and installed in a well-ventilated area will help ensure many years of listening enjoyment.
- When running power cables through sheet metal it is best to use grommets and loom to properly insulate your cables from metal edges.
- Avoid mounting the amplifier with the top fins facing down as this may increase the operating temperature of your amplifier.
- If mounting underneath a seat, make sure that there is at least 1 inch (25mm) of space above the amplifier to permit proper cooling.
- Avoid mounting the amplifiers on a subwoofer enclosure as prolonged excessive vibration may damage your amplifier.

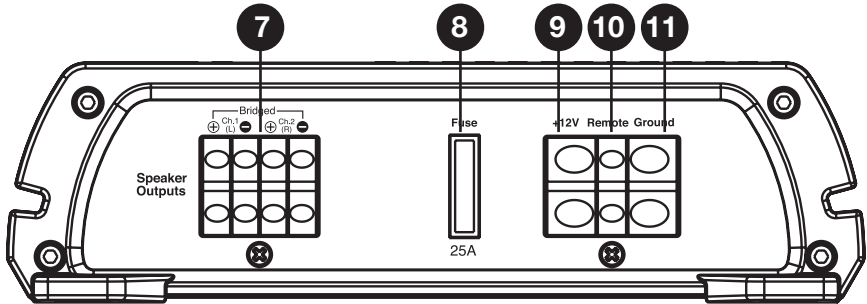
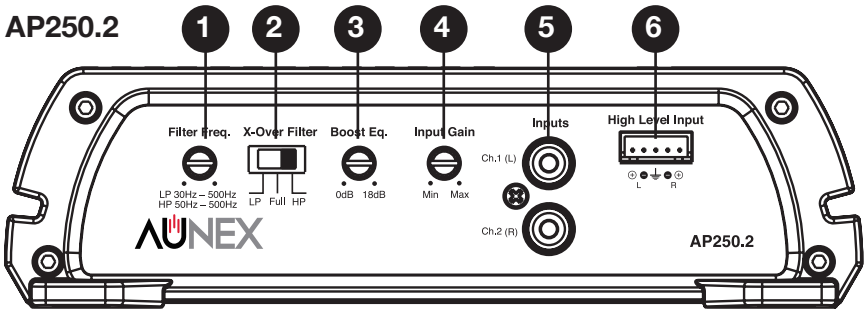
## **Mounting Placement**

Choose a structurally sound location to mount your Aunex amplifier, making sure there are no items behind the area where the screws will be driven.

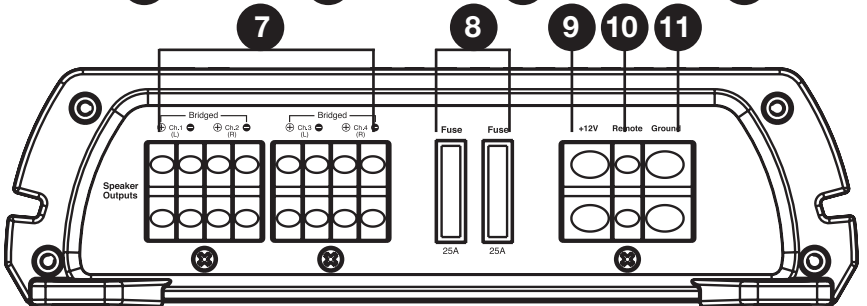
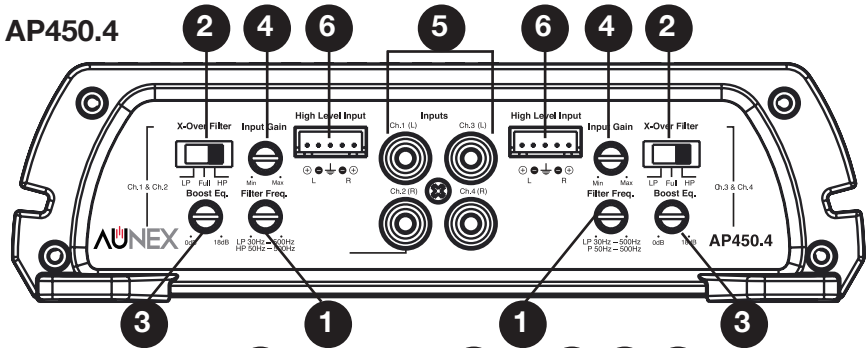
For optimum sound quality, it is highly recommended that you purchase Aunex wiring accessories as they are designed to give your amplifiers high-quality signal it needs to operate at peak performance levels. Aunex provides a wide selection from RCA cables and power wire to speaker wire and battery connectors.

# Side Panel Layout

AP250.2



AP450.4



## Side Panel Layout Continued

- 1. Frequency Filter:** This potentiometer is used to adjust the crossover frequency of your amplifier. When the Crossover filter is switched to Low Pass the crossover frequency adjustment is 30Hz – 500Hz. When the amplifier filter is switched to High Pass, the crossover frequency adjustment is 50Hz – 500Hz.
- 2. Crossover Filter Selector:** Depending on how you will use your AP Amplifier, you will select the appropriate setting on the Crossover switch. Set the Crossover Switch to LP mode if you are using Subwoofers or MidBass drivers. Set the switch to HP if you want the amplifier's internal crossover to serve as a high pass filter. When the switch is set to the Full position will allow the amplifier to send its full bandwidth to your speakers. **Avoid changing the crossover switches with the audio system playing at high volumes as this may damage your speakers.**
- 3. Boost Eq:** Your AP Series amplifiers incorporate a two stage Boost Eq. circuit that is not only active in Low Pass Mode but is also active in Full Range Mode. The Boost Eq. can increase output 0-18dB centered at 45Hz.
- 4. Input Gain:** Use these Input Gain Potentiometers to match the output voltage of your headunit / source unit to the input circuit of your amplifier. **These Input Gains are not a volume knob.** A simple method of setting your Input Gains is to turn your headunit / source unit up to approximately  $\frac{3}{4}$  volume. Then slowly adjust your Input Gains on your amplifiers clockwise until you can hear distortion from your speakers or subwoofers. Then turn the gains down (counterclockwise) till the distortion is no longer heard.
- 5. Low Level RCA Inputs:** These are your differential balanced inputs that are used to connect audio signal from your headunit / source unit to your amplifier. **(Note only one type of input is needed to send signal to your amplifier, therefore you only need to use either your Low Level or High-Level input. Aunex does not recommend connecting both Inputs simultaneously.)**

## Side Panel Layout Continued

- 6. High Level Input:** These are your High-Level Speaker Input that are used to connect your speaker outputs from your headunit / source unit to your amplifier. **(Note only one type of input is needed to send signal to your amplifier, therefore you only need to use either your Low Level or High-Level input. Aunex does not recommend connecting both Inputs simultaneously.)**
- 7. Speaker Outputs:** Your AP Amplifier speaker outputs are designed to accept 16 AWG to 12 AWG wire. Turn the set screws on this terminal counterclockwise to loosen the screw using the supplied Hex wrench. Strip the PVC jacket from your speaker wire ½ inch (12mm). Then insert the bare wire into the terminal block so that no bare speaker wire is exposed. Then tighten the set screw by turning it clockwise.

For maximum current flow, Aunex recommends that you tin your speaker wire before connecting it to the speaker output terminals. In addition, Aunex recommends using high quality 100% OFC (Oxygen Free Cooper) or Tinned 100% OFC speaker wire. This will ensure that your speaker / subwoofer receives maximum output from your amplifier. **Visit [www.aunexusa.com](http://www.aunexusa.com) or talk to your Authorized Aunex Dealer to see a complete selection of premium installation accessory that will complement and enhance listening experience.**

Loading your amplifier below the recommended impedance rating found on page 15 is not recommended and may cause your amplifier to enter into protection mode and may void your warranty.

- 8. Fuse Holder:** This is your fuse block. Should there be a short in your system or if your amplifier is being overdriven, these fuse(s) will typically burn to prevent damage to your amplifier. If it is required to replace your fuse(s), use the same fuse rating that comes with your amplifier. Using a higher fuse may damage your amplifier and will void your warranty.





## Side Panel Layout Continued

**9. +12Volt Positive Terminal:** The +12Volt positive terminal is designed to accept up to 8 AWG wire. Use the supplied fuse block and make your +12Volt connection directly to the positive battery post. The Fuse should be installed within 18" (457mm) of the battery. This fuse is vital to protecting the vehicle and amplifier from a dead short. Turn the set screws on this terminal counterclockwise to loosen the screw using the supplied Hex wrench. Strip the PVC jacket from your speaker wire ½ inch (12mm). Then insert the bare wire into the terminal block so that no bare power wire is exposed. Then tighten the set screw by turning it clockwise.

For maximum current flow, Aunex recommends that you tin your power wire before connecting it to the +12Volt terminal. In addition, Aunex recommends using high quality 100% OFC (Oxygen Free Cooper) or Tinned 100% OFC speaker wire. This will ensure that your speaker / subwoofer receives maximum output from your amplifier.

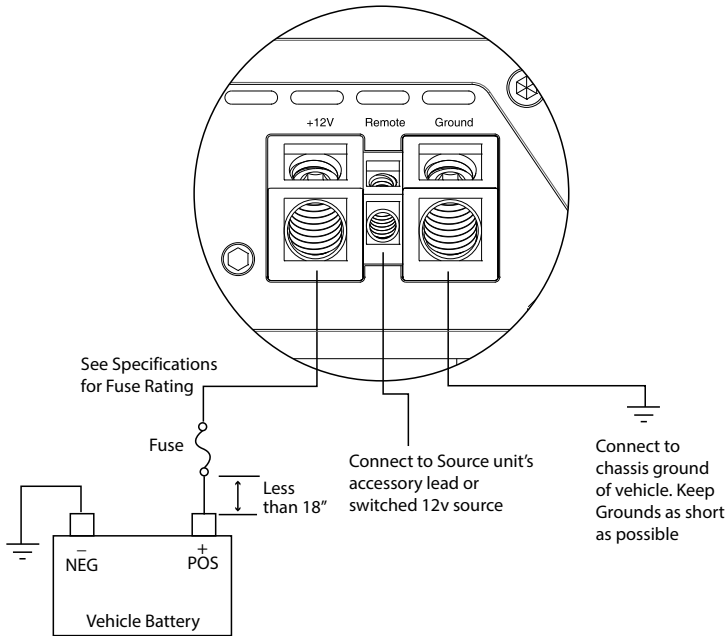
**10. Remote Input Terminal:** This terminal must be connected to a switched +12Volt source. If the source unit does not have a remote Turn on lead, then a switched +12 supply should be used such as the ACC +12Volt. Run an 18-gauge wire from the Remote Turn-On Lead from your headunit / source unit to this terminal.

**If you are using the High-Level Speaker Outputs connection to the amplifiers' RCA inputs, you do not need to connect a remote input to your amplifier. Your amplifier will automatically detect the speaker signal and will turn on your amplifier via its DC Offset circuit. In addition, the remote input terminal then becomes a remote output trigger which can be used to turn on another amplifier or processor that requires a +12volt remote connection.**

## Side Panel Layout Continued

- 11. Ground:** The Ground terminal is designed to accept up to 8 AWG wire. Make your ground connection directly to the chassis of the vehicle as close to the amplifier as possible. Make sure this connection is made with the same gauge wire as used for your +12Volt connection. Ensure that all dirt, grease and paint is removed from your chassis ground point prior to attaching the ground wire. **Aunex recommends when making your chassis ground to use a Star Washer which will help prevent your ground bolt from loosening.**

### Power Connection



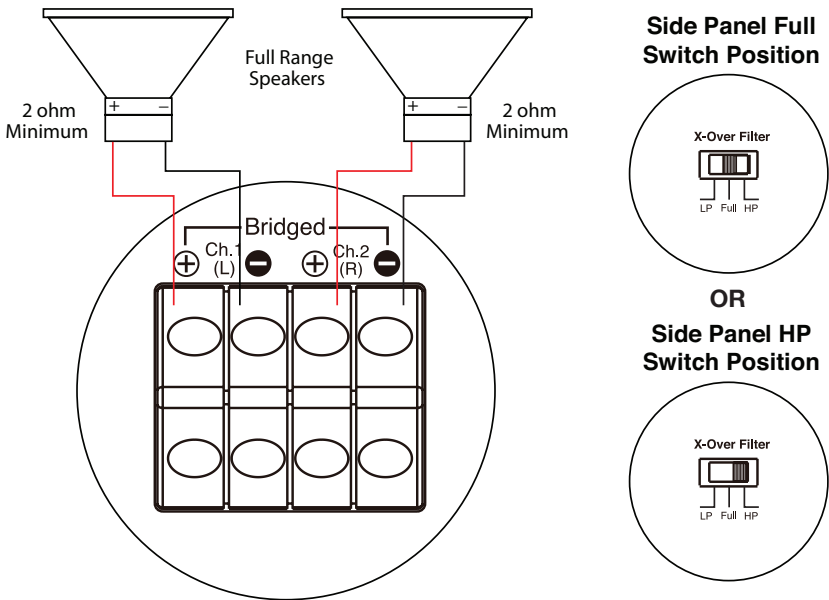
For maximum current flow, Aunex recommends that you tin your ground wire before connecting it to the ground terminal of your amplifier. In addition, Aunex recommends using high quality 100% OFC (Oxygen Free Copper) or Tinned 100% OFC speaker wire. This will ensure that your speaker / subwoofer receives maximum output from your amplifier.

## Common Installation Diagrams

The illustrations below show the common installation methods for your amplifier. (It is important to make sure that the impedance of the speakers connection to your amplifier are either in 4-ohm stereo, 2-ohm stereo or 4-ohm bridged.) Connecting your amplifier below these impedances are not recommended as they will cause your amplifier to go into protection. If you are unsure of the impedance, it is recommended that use a DMM (Digital Multi-Meter) to check the impedance of your connection at the amplifiers' Speaker Output Terminals. Your amplifier will need to be off in order to get accurate measurements.

### AP250.2

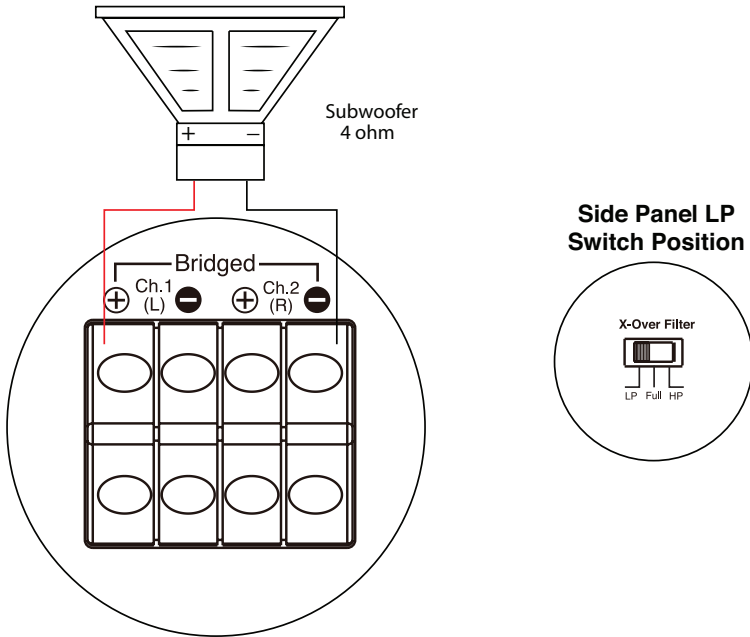
#### 2 - Channel Stereo Speaker Output Connection



# Common Installation Diagrams Continued

## AP250.2

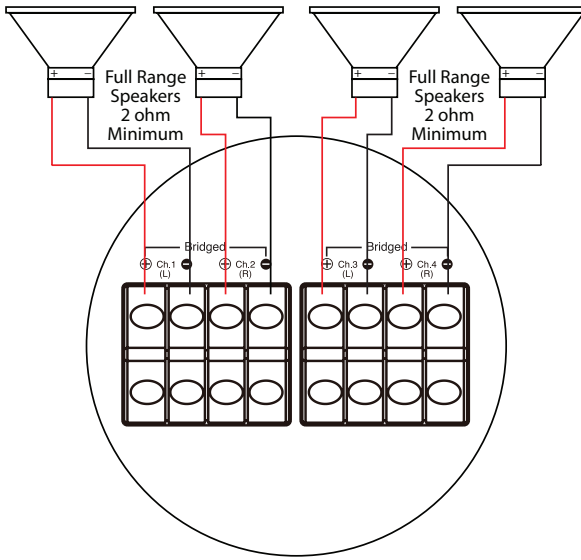
### 1 - Channel (Bridged Mode) Speaker Output Connection



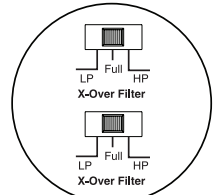
# Common Installation Diagrams Continued

## AP450.4

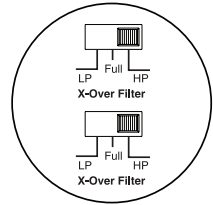
### 4 - Channel Speaker Output Connection



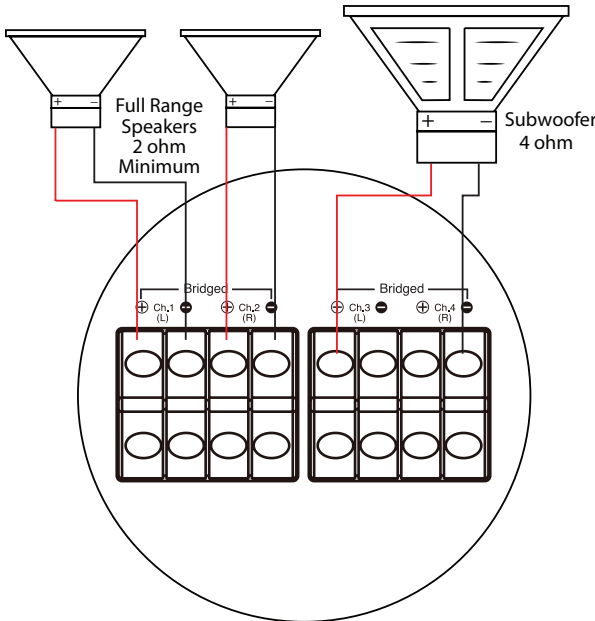
#### Side Panel Full Switch Position



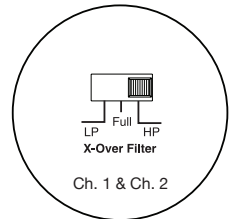
#### OR Side Panel HP Switch Position



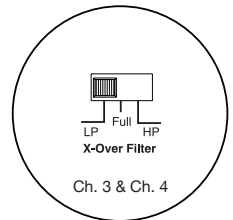
### 3 - Channel Speaker Output Connection



#### Side Panel Switch Position



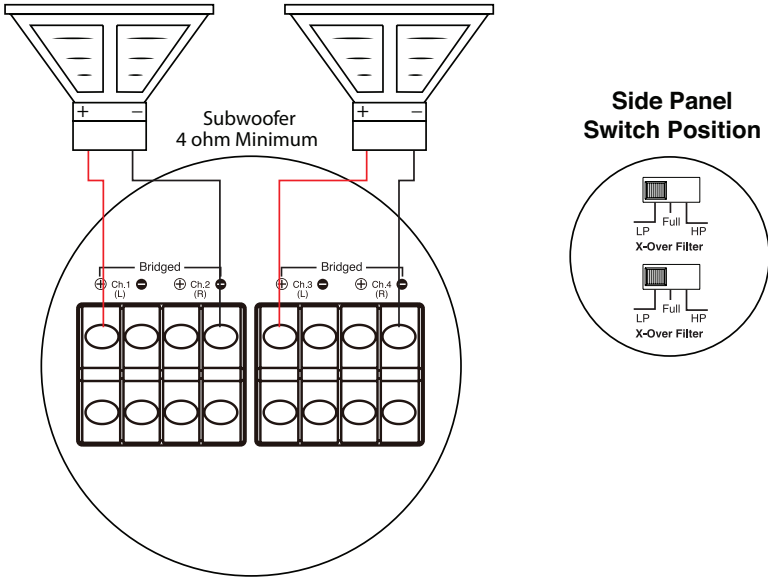
#### Side Panel Switch Position



# Common Installation Diagrams Continued

## AP450.4

### 2 - Channel (Bridged Mode) Speaker Output Connection





Note: One of the leading causes of amplifier failure is using inferior Power, Ground and Speaker wires that are not sufficient in quality to deliver the necessary current to keep your amplifier performing at its peak level. As all Aunex amplifiers are designed to deliver high power output, we recommend that you do not use any power wires that contains CCA (Copper Clad Aluminum). Instead we recommend only using high quality 100% OFC (Oxygen Free Copper) or 100% Tinned OFC (Oxygen Free Copper) wires. This will help give your amplifier the proper current and will ensure that your amplifier will perform at this peak perform level for many years to come.



Ask your Authorized Aunex Dealer or visit [www.aunexusa.com](http://www.aunexusa.com) to view the complete line of installation accessory that will compliment your audio investment. Aunex provides a wide election from RCA cables and power wire to speaker wire and battery connectors.

## Technical Specifications

Specifications	AP250.2	AP450.4
Channels	2	4
Rated RMS Power 4 Ohms Stereo @ 14.4 Volts	70 Watts x 2	70 Watts x 4
Rated RMS Power 2 Ohms Stereo @ 14.4 Volts	125 Watts x 2	115 Watts x 4
Rated RMS Power 4 Ohm Bridged @ 14.4 Volts	250 Watts x 1	225 Watts x 2
Peak Music Power	500 Watts	900 Watts
Frequency Response	10Hz – 50kHz	10Hz – 30kHz
THD + Noise	< 0.2%	< 0.2%
S/N Ratio A-Weighted	> 102dB	> 100dB
Input Sensitivity (Low Level RCA)	250mV – 6V	250mV – 6V
Input Sensitivity (High Level Speaker Output)	450mV – 11V	450mV – 11V
Crossover High Pass (12dB/Octave)	50Hz – 500Hz	50Hz – 500Hz
Crossover Low Pass (12dB/Octave)	30Hz – 500Hz	30Hz – 500Hz
Boost EQ Low Pass - 45Hz Centered	0 – 18dB	0 – 18dB
Efficiency @ 4 Ohm	84%	84%
Operating Voltage	9 – 17 Volts	9 – 17 Volts
Fuse Requirement	25A (Included)	50A (Included)
Dimensions (H x W x D) Inches	2.0 x 8.3 x 7.2	2.0 x 15.2 x 7.2
Dimensions (H x W x D) MM	51 x 210 x 182	51 x 386 x 182

**\*Due to continuous product improvements; specifications and features are subject to change without notice. Please visit [www.aunexusa.com](http://www.aunexusa.com) for the most current information.**

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## Troubleshooting

Problem	Solution
Amplifier does not work; no LED's on	1. Check to see if Power, Remote and Ground is connected to the Amplifier.
	2. Check Power and Remote Turn-on lead for proper +12 Voltage. (12 - 16 Volts DC acceptable range.)
	3. Check the inline fuse, replace if necessary.
Amplifier powers up; no sound	1. Check your RCA connectors to see if there is signal with a DMM (Digital Multi-Meter) to measure AC voltage.
	2. Check your speakers to see if there is short.
Hissing / Enginer noise from speakers	1. Readjust your amplifiers gains to lower setting.
	2. Readjust your source unit volume.
	3. Make sure your RCA's and Speaker wires are routed away from your Power and Ground connections.
	4. Remove existing ground wires for all electrical components. Reground wires to a different location. Verify the grounding location is clean, paint from ground point has been removed and is rust free.
	5. Add a secondary ground cable from the negative battery terminal to the chassis metal or engine block of vehicle.
	6. Check your RCA cables or speaker input for any damage.
Distorted sound from speakers	1. Readjust your amplifiers gains to a lower setting.
	2. Readjust your source unit volume.
	3. Readjust the Boost Eq.
Logo Status LED is Red / Protection Circuit Active	1. Amplifier may be in thermal protection due to heat.
	2. Check the inline fuse, replace if necessary.
	3. Check the voltage at the amplifier power input terminals.

## California Prop 65 Warning

California's Proposition 65 (Prop 65) entitles consumers in California to special warnings for products that contain chemicals known to the state of California to cause cancer, birth defects or other reproductive harm if consumers are exposed to such chemicals above certain threshold levels.

While this law is only for California and Aunex sells products to consumers in California, Aunex is required to display this warning.



Warning: This product can expose you to chemicals which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information visit [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov).

## Warranty

### Limited Warranty – AP Series Amplifiers

Aunex, Inc. warrants this product to be free of defects in materials and workmanship for a period of 1 year from the original purchase date. This warranty is non-transferrable and applies only to the original purchaser from an Authorized Aunex Dealer. **(Any Factory Refurbished Amplifier (B-Stock Products) carries a 90 Day warranty period.)** Should service be necessary within the warranty period, Aunex will at its discretion repair or replace the defective unit with a new or remanufactured product at no charge. Damage caused by misuse, abuse, accidental damage, product modification, failure to follow installation instructions, unauthorized repairs will not be covered under warranty. This warranty does not cover incidental or consequential damages and does not cover the cost of having the unit removed or reinstalled. Cosmetic damages by accident or normal wear and tear are not covered under warranty. Subsequent damage to a other component will not be covered.

## Warranty Continued

Warranty will be voided if the product's serial number has been removed or defaced. Any applicable implied warranties are limited in duration to a period of the express warranty as provided in this manual beginning with the date of the original purchase and no warranties whether express or implied shall apply to this product thereafter. Some states do not allow limitation on implied warranties; therefore, these exclusions may not apply to you. This warranty gives you specific legal rights; however, you may have other rights that vary from state to state.

All warranty returns should be sent to Aunex freight prepaid and must be accompanied by proof of purchase; a copy of the purchase sales receipt. All returns whether sent by the Dealer of purchase or directly from the consumers must have a valid RMA number (Return Merchandise Authorization). Returns without a valid RMA number will be refused. The RMA number must be clearly written on the outside of your return package. Non-defective units will be returned to sender freight collect. Customers are responsible for shipping charges and insurance in sending products back to Aunex. Freight damage on returns is not covered under warranty so be sure to package your return in the original box or packaged securely in another box to prevent possible freight damage. Warranty expiration on items without proof of purchase will be determined from the manufacturing date code.

Products purchased outside of the United States of America are covered by that country's distributor and not by Aunex, Inc. For Service Information in the U.S.A. and to obtain a Return Merchandise Authorization number (RMA) please call Aunex at (909) 589-5010.

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**Declare Your Independence!**

Aunex, Inc.  
13865 Magnolia Avenue, Unit C  
Chino, CA 91710  
T. (909) 589-5010 / F. (909) 589-5011  
8:30am – 5:30pm (PST – Pacific Standard Time)  
[www.aunexusa.com](http://www.aunexusa.com)