



# AP990C

## VACUUM TUBE INTEGRATED AMPLIFIER



# USER MANUAL

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## **Preface**

Thank you for purchasing the AP990C as part of your music entertainment system. The engineers and designers at Aeron have spent countless hours of listening and testing to create a Vacuum Tube Integrated Amplifier of the highest caliber for music reproduction. The AP990C has been designed to provide you many years of playback.

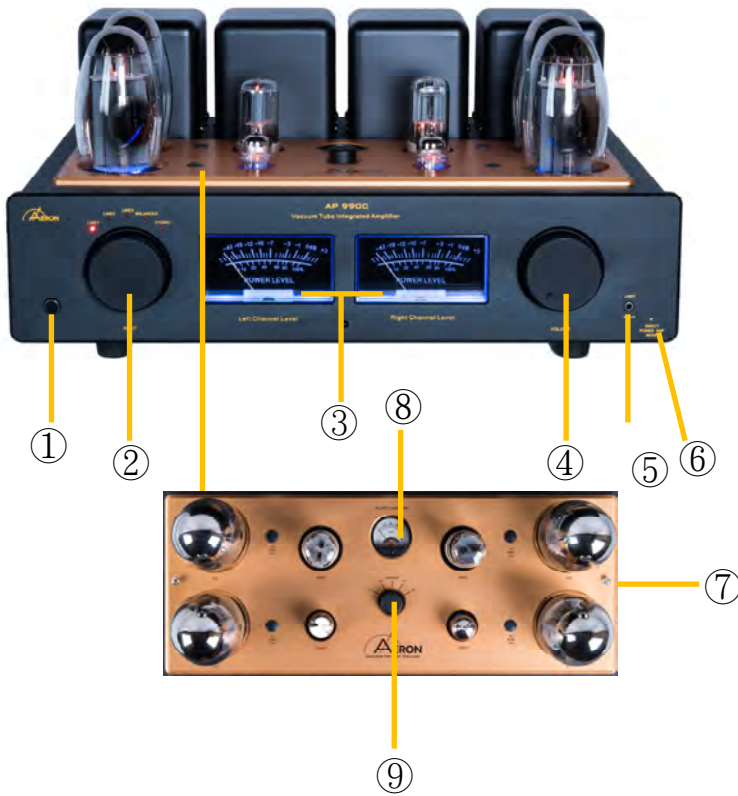
Before use we encourage you to please read this manual thoroughly to properly acquaint yourself with its features. We hope you enjoy listening to Aeron product as much as we have had the pride that we have taken in manufacturing this fine receiver for your listening pleasure.

If you have any questions regarding the operational functions, contact your dealer or distributor for assistance.

Thank you for choosing AERON for your audio experience!

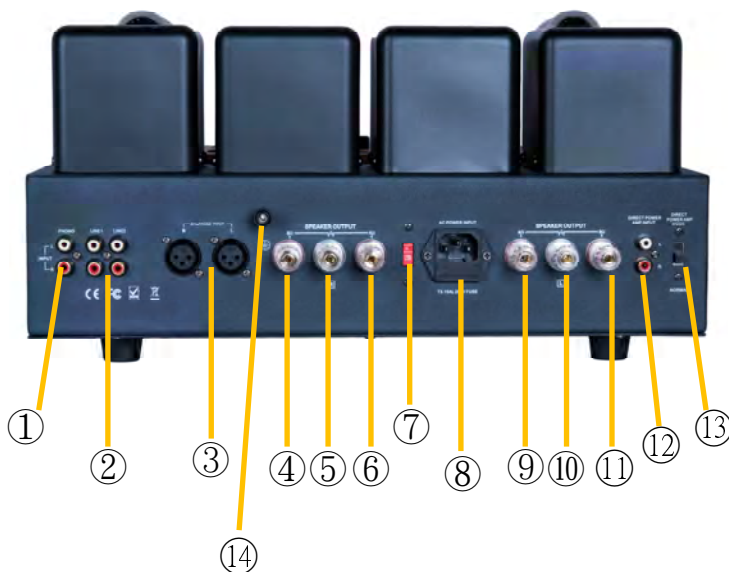
## Illustrations

### Front Panel



1. Power ON/OFF Switch
2. Input selector: Line in 1-3, Balanced, Phono
3. VU Meters
4. Volume Control
5. 3.5mm Input
6. Direct Power Amp Mode
7. Bias Setting for Power Tubes
8. Plate Current Meter
9. Power Tube Selector

### Rear Panel



1. mm Phono input
2. Line input (Line 1, Line 2)
3. Balanced input (Left & Right)
4. 4ohms +ve Speaker Output (Right)
5. -ve Speaker Output (Right)
6. 8ohms +ve Speaker Output (Right)
7. AC Mains Voltage Selector (115V/230V)
8. IEC AC LINE CORD input connection port
9. 4ohms +ve Speaker Output (Left)
10. -ve Speaker Output (Left)
11. 8ohms +ve Speaker Output (Left)
12. Direct Power Amp Input
13. Direct Power Amp Mode ON/OFF Switch
14. Grounding

## Safety Notices

1. Heed all warnings and follow all instructions in this manual.
2. Do not use this apparatus near water.
3. Clean only with a dry cloth.
4. Do not block ventilation openings. Install in accordance with instructions.
5. Do not install near any heat sources such as radiators, heat registers, stoves or another apparatus that produces heat.
6. Do not defeat the safety purpose of the polarized or grounding type plug. If the provided plug does not fit into the outlet, consult your Reseller.
7. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, etc.. Unplug the AC mains cord as well as all other connecting cables during transportation.
8. Only use attachments and accessories specified by Aeron or your Authorized Aeron dealer.
9. Use a surge protector on the main AC-Line to this component as well as all other components connected to this product. Unplug this apparatus during lightning storms or when unused for long periods of time.
10. Refer all servicing to qualified service personnel. NO USER SERVICEABLE PARTS INSIDE. Owner may change tubes.

### OTHER SAFETY CONSIDERATIONS

1. **ALWAYS** disconnect your entire system from the AC mains before connecting or disconnecting any cables, or when cleaning any component. To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.
2. **NEVER** use flammable or combustible chemicals for cleaning audio components.
3. **NEVER** wet the inside of this component with any liquid. If a liquid substance does enter your unit, immediately disconnect it from the AC mains and take it to your Aeron Dealer for inspection.
4. **NEVER** spill or pour liquids directly onto this component.
5. **NEVER** block air flow through ventilation slots or heat sinks.
6. **NEVER** bypass any fuse or replace any fuse with a value or type other than those specified.
7. **NEVER** expose the AP990C to extremely high or low temperatures. If the AP990C has been taken out of storage from an unheated environment, let the unit acclimate to room temperature before making any connections and applying power to the unit.
8. **ALWAYS** keep electrical equipment out of reach of children. This unit has a Protective Cage/ Tube Cover guards against accidentally touching the glass tubes that are used for either power conditioning, amplification, or serving as a VU Meter when the product is in use, thus avoiding a potential injury and burn. Keep children away. Do not handle the tubes when hot, or wet them. Only touch the tubes only when they are cold and the unit is unplugged from its source of AC Power.
9. **ALWAYS** unplug sensitive electronic equipment such as this unit during lightning storms.

# Installation

## Vacuum Tubes

### Before operate your AP990C

Your AP990C amplifier is shipped with the vacuum tubes packed in foam blocks. These must be unpacked and installed before you attempt to operate the amplifier. Included are two matched pair of KT-88 or KT-150 output tubes, and two 12AX7, two 6SN7 dual triodes used in the input stage. Proceed according to the following instructions.

Carefully remove each vacuum tube from its protective foam and match its location “V” number (written on the base of the tube) to the “V” number printed next to each socket. Firmly seat each tube in its matching socket, taking care to “key” the tube pins to the socket holes. Retain the foam blocks with other packing materials for possible future use.

If you are using the optional tube cover, be sure the AP990C is first turned off. Remove the top cover screws, and install the cover on top of the top plate. Insert and retighten screws.



## **Installation**

### **In your System**

To insure normal component life and safe operation this unit must be operated only in a horizontal (upright) position. Adequate airflow and proper cooling thereby can occur only if there is no restriction below, behind and above the unit.

The four special non-marring elastomer feet provide adequate spacing only from a smooth, hard surface. Never operate the unit while it is sitting on a surface such as a rug or carpet.

If the unit is to be operated in an enclosed equipment cabinet, an exhaust fan is desirable so as not to operate the AP990C in overheated ambient air. The "ambient" operating temperature should never exceed 120°F or 49°C. Improper installation will cause premature tube failure and will affect your warranty, as well as the service life of the unit.

It is normal for a vacuum tube power amplifier to run quite warm, and if used for prolonged periods, hot to the touch. All components within are, however, operated at safe, conservative levels and will not be improperly affected thereby, providing the requirements outlined above are adhered to.

# Connections

## Rear Panel Connections

All two sets of Single-Ended inputs, one set of Balanced input, one set of mm Phono input and one set of 3.5mm line level input at front panel are clearly marked to indicate use.

6-Output binding posts (+) and (-), L & R, for 4 or 8 ohm speaker connection

1 — Power line cord inlet

1 — Power line fuseholder

**MATCHING:** It is important to use as close as possible an impedance match between the amplifier and speaker for optimum transfer of power to the speaker with minimum distortion. In the case of speaker systems with significant variations in impedance throughout the frequency spectrum, such as most electrostatic types, determine the best impedance match empirically for best overall sonic results.

It is important sonically that your entire system be connected so that the audio signal arriving at the speakers has correct, or “absolute” polarity (i.e., non-inverted). Connect the black or “-” speaker terminal to the wire that connects to the “0” terminal on the AP990C. Connect the red or “+” speaker terminal to the wire that connects to the “4” or “8” terminal on the AP990C, and tighten the speaker terminals securely to ensure best sonic results.

**About Cables:**

Use the best available speaker wires and interconnects. Aeron cannot emphasize this enough. As better components and systems are developed, it becomes increasingly important to avoid the limitations of inferior system interconnections.

Connect the AP990C input the source components only the highest grade of audio interconnect cables. To avoid sonic degradation use the shortest practical length of cables.



## **Connections**

### **AC Power Connection**

It is essential that the amplifier be connected to wall AC power receptacle, or a similar heavy-duty source. If it is connected to convenience receptacles on pre-amplifiers, etc., the full sonic capabilities of both the AP990C and the preamplifier will be compromised.

For the very best sonic performance, the AP990C should be connected to its own AC power circuit branch, protected by a 15 or 20 amp breaker. The other audio equipment should be connected to a different power circuit and breaker. Avoid the use of extension cords. If they must be used on a temporary basis, use 14-gauge or heavier cords.

The AP990C utilizes a compatible grounding system that generally does not require a “ground lifter” adapter plug on the AC power cord to minimize hum. The power cord supplied with the AP990C has a standard three-prong grounding plug to provide maximum safety when it is connected to a grounded wall receptacle. If there is any question regarding the safety of grounding procedures, be certain to seek competent help with the installation.

If electronic crossovers or other AC powered equipment are used with the AP990C it may be necessary to use “ground lifter” adapters on the power plugs of that equipment to minimize system hum. Generally, the lowest hum is achieved when the only direct connection between audio common “ground” and true earth ground occurs in the preamplifier, through its grounded power cord. Other equipment in the system should have some form of isolation to prevent ground loops and associated hum.

## **Operation**

### **Power-up Procedure**

Make sure you have read and complied with the Installation and Connection instructions prior to attempting operation.

#### **Power-On**

1. Adjust volume control to minimum setting
2. Press the “Power” button to turn unit ON
3. Choose the Audio Source, the source LED indicator is sparkling, wait 30secs to 1mins, till the LED is ON
4. Turn Volume Control to audience level

#### **Shut-Down**

1. Adjust Volume control to minimum setting
2. Press the “Power” button shut unit OFF

# **Operation**

## **Direct Power Amp Mode Procedure**

AP990C can set as a Power Amplifier.

1. Turn off the AP990C.
2. Connect the signal from preamplifier to AP990C "Direct Power Amp In".
3. Select the switch to "Direct Power Amp Mode" from rear panel.
4. Turn on your preamplifier, turn on your AP990C.

## **General Notes about Usage**

If you turn off the AP990C wait at least five minutes before turning it on again. This brief cool down period will reduce stress on the output tubes and potential damage to them.

Aeron does not recommend leaving your AP990C on 24 hours a day as is the custom of some listeners to achieve maximum sonic performance on demand. While this is often recommended for solid-state equipment, Aeron does not recommend this procedure for vacuum tube integrated amplifiers.

**CAUTION:** Always turn the volume control down when changing program sources.

# Operation

## Front Panel Control Functions

**VOLUME CONTROL:** Rotate the down or up volume control decreases or increases the volume level.

**INPUT:** Allows selection of any of three single-ended input sources 1, 2, 3. Switch the input selector button through each input as indicated on the panel.

**POWER:** Toggles power on and off from AC wall outlet to AP990C.

## Remote Control Functions

1. Press the button to choose your desire source.
2. Press Volume “up” or “down” bottom to increase or decrease the volume level.



Remote Control

## **Maintenance**

### **Test for Quiescent current of Power Tube**

1. Set the volume to minimum.
2. Turn the band switch to "V1", the current meter will show V1 tube quiescent current meter should show 20-30mA.
3. After test, switch need set to "OPERATE", can play music now.

\*All quiescent current test of power tube as same.

\*\*If have quiescent current is out of work required, please see the following bias adjustment setting.

### **Bias Adjustment Setting**

1. If "V1" quiescent current is out of work required, please set the volume to minimum first.
2. Switch set to "V1", use a flathead screwdriver adjust to potentiometer "V1 BIS ADJ", please note the value of the current meter. And different tube current will be adjusted as follow:

-KT-88 — 20-24mA

-KT-100 & KT-120 — 24-30mA

-KT-150 — 28-34mA

3. After adjustment, all power tube's switch need set to "OPERATE", can play music now.

\*All power tube current adjustment as same.

\*\*For the best results, operate and adjust the AP990C at 220V AC. Adjustment must be made under zero-signal conditions after least 15-20 minutes of uninterrupted stabilization time.

## **Maintenance**

### **Servicing**

**CAUTION:** Your AP990C contains sufficient levels of voltage and current to be lethal. Do not tamper with a component or parts inside the unit. Refer any needed service to your authorized Aeron dealer or other qualified technician. Should service be necessary, please contact your Aeron dealer, or Aeron Customer Service Email: [info@lhe.com.hk](mailto:info@lhe.com.hk) or [postmaster@stereoland.info](mailto:postmaster@stereoland.info).

### **Cleaning**

To maintain the visual appearance of your AP990C, occasionally wipe the front panel and top cover surfaces with a soft damp (not wet) cloth to remove dust. A mild, non-alkaline soap solution may be used to remove fingerprints or similar smudges. Cleaners containing abrasives should not be used as they will damage the brushed grain of the front panel finish.

### **Disposal and Recycling Guidelines**

To dispose of this electronic product, do not place in landfill. This product may contain regulated materials which upon disposal require special reuse and recycling processing. Please contact your dealer or importing distributor for instructions on proper disposal of this product on your country. Packing and shipping materials may be disposed of in a normal manner.

## **Limited Warranty**

Aeron products are covered by 2-Year Limited Warranty, or a 90-Day Limited Warranty on vacuum tubes. This Limited Warranty initiates from the date of purchase, and is limited to the original purchaser, or in the case of demonstration equipment, limited to the original purchaser, or in the case of demonstration equipment, limited to the balance of warranty remaining after original shipment to the retailer or importer.

The authorized importing retailer or distributor has accepted the responsibility for warranty of Aeron products sold by them. The specific terms and remedies for fulfillment of the Limited Warranty may vary from country to country. Warranty service should normally be obtained from the importing retailer or distributor from whom the product was purchased.

In the unlikely event that technical service beyond the ability of the importer is required, Aeron will fulfill the terms and conditions of the Limited Warranty. Such product must be returned at the purchaser's expense to the Aeron factory, along with a photocopy of the dated purchase receipt for the product, a written description of the problem(s) encountered, and any information necessary for return shipment. The cost of return shipment is the responsibility of the purchaser.

## **AERON AP 990C Specifications:**

<b>Power Output:</b>	50Wx2 (KT-88)
<b>Frequency Response:</b>	20Hz-50kHz (5W)
<b>Distortion:</b>	0.1% (10W)
<b>S/N Ratio (LINE):</b>	86dB
<b>Input Sensitivity:</b>	300mV
<b>Input Impedance:</b>	80k ohms
<b>Balanced Impedance:</b>	95k ohms
<b>MM Impedance:</b>	47k ohms/68pF
<b>MM Input Sensitivity:</b>	3.5mV
<b>S/N Ratio (Phono):</b>	78dB
<b>Output Impedance:</b>	4 ohms or 8 ohms
<b>Max Power Consumption:</b>	320W
<b>Power Supply:</b>	AC115V/230V/50-60Hz
<b>Tubes:</b>	4xKT88, 2x12AX7, 2x6SN7
<b>Dimensions:</b>	430x350x180mm (LxWxH)
<b>Weight:</b>	30kg

### **Note:**

Power tubes can be replaced by matched pairs of KT-100, KT-120, KT-150

The manufacturer herewith declares that the product is in conformity with the provisions of the CE directive(s) including all applicable amendments.



### **European Distribution**

Audio4 branch of Stereoland—Bolzano—Bozen—ITALY

[www.audio4.it](http://www.audio4.it) - [www.aeron-audio.it](http://www.aeron-audio.it)

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