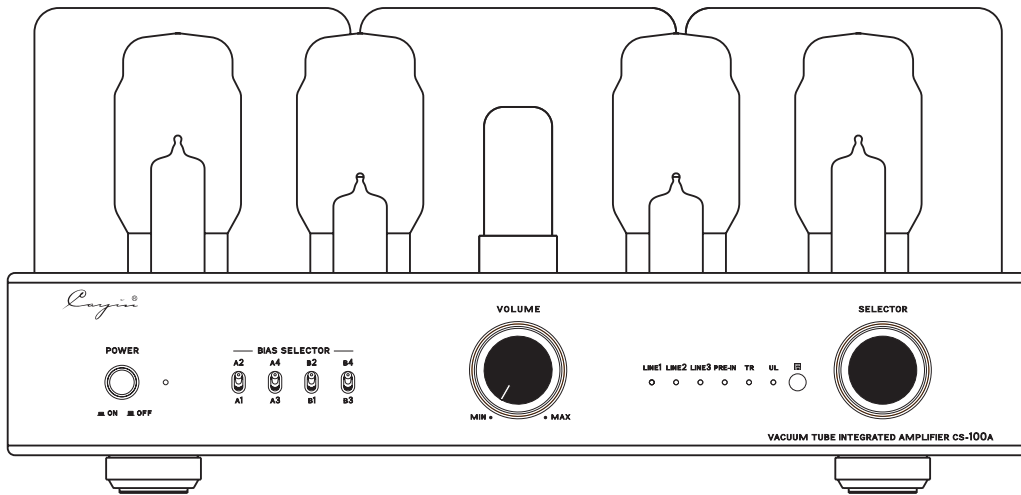


*Cayin*®



# CS-100A | Vacuum Tube Integrated Amplifier

User's Manual

REV : 1.1



Thanks for choosing **CAYIN CS-100A** Vacuum Tube Integrated Amplifier and please read the user's manual carefully before installation and operation.

In order to prevent damage during transportation, the amplifier is packed with protective foams surrounding the tubes. Before installation and operation, please remove these foams to avoid any risks.

## Table of Contents

<b>Table of Contents</b> .....	1
<b>Package Contents</b> .....	2
<b>Product Features</b> .....	3
<b>Safety Precautions</b> .....	3
<b>Specifications</b> .....	4
<b>Maintenance</b> .....	5
<b>Warranty Service</b> .....	5
<b>Precautions</b> .....	6
<b>Front Panel</b> .....	7
<b>Rear Panel</b> .....	8
<b>Top Panel</b> .....	9
<b>Remote Control</b> .....	10
<b>Installation</b> .....	11
<b>Tube Replacement</b> .....	11
<b>Audio Connection</b> .....	12
<b>Speaker Connection</b> .....	13
<b>Turn on</b> .....	14
<b>Small Tips</b> .....	14
<b>Troubleshooting</b> .....	15
<b>How to Install Vacuum Tubes</b> .....	16

**NOTE:**

---

**CAYIN CS-100A** Vacuum Tube Integrated Amplifier is designed and manufactured with our original parts and reaching the best results. We are not responsible for problems and damages caused by non-original parts replacement in the amplifier.

---

## Package Contents

---

Please carefully check the package first and then open it.

Package contents include:

- |                          |          |
|--------------------------|----------|
| 1. CAYIN CS-100A         | 1 piece  |
| 2. Main Fuse             | 2 pieces |
| 3. Power cord            | 1 piece  |
| 4. Remote Control        | 1 piece  |
| 5. (AAA) Battery of 1.5V | 2 pieces |
| 6. Users' Manual         | 1 piece  |

**Recommendation:**

Keep all packing materials for future use .

**NOTE:**

---

Please make sure local voltage level is matched with the input level of the amplifier, which indicates on the rear panel. Too low or too high voltage may cause problem. Please contact our company or our local agent if you've found improper voltage.

---

**All other parts except above are not included.**





## Product Features

- ◆ Eighty watts per channel in Class AB Ultra-linear mode, Fifty watts per channel in Triode mode, push pull amplifier design.
- ◆ 6SN7GTB voltage amplification stage, 12AU7EH phase inverter and voltage amplification, 12BH7EH voltage amplification and driver stage, KT88 or EL34 output tubes.
- ◆ Three pairs of line inputs, one pair of Pre-In and one pair of Sub Output. Standard with remote volume control, has 4 ohm and 8 ohm speaker impedance.
- ◆ Triode or ultra-linear mode switches, EL34 or KT88 selection, external bias adjustment with meter monitoring.
- ◆ Anodized aluminum front, fully vented chassis with excellent gorgeous finish, hand-made construction with the finest point-to-point wiring, Soft-start circuit to protect the amplifier for extended life of sensitive components.
- ◆ With Pre-In input CS-100A can work as a Power amplifier.
- ◆ Premium Parts: Alps volume control, Audio grade capacitors and carbon film resistor, Toroid transformer for power supply, Wide bandwidth EI output transformer, Ceramic tube sockets, etc.
- ◆ Available front finish: Silver and Black.

## Safety precautions

1. Unplug the power cord if you are not going to use the product for an extended period of time.
2. The machine will become hot after working for a long time. Please keep the unit's ventilation open and install the amplifier at a well-ventilated place to avoid troubles and fire hazard.
3. Forbidden to operate when the output is open or shorted.
4. Do not attempt to service this product yourself. Opening the cover may expose you to dangerous voltage or other hazards.
5. We are not responsible for any problems caused by checking and opening without permission of our company. For service, Please contact a qualified service technician.
6. Do not place any objects filled with liquids such as vases or some others on the top or around.
7. Clean only with dry cloth.
8. Please move the amplifier carefully not to drop the unit or be subject to other strong shocks.

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN		<ul style="list-style-type: none"> <li>◆ To reduce the risk of electric shock, do not remove the cover.</li> <li>◆ No user serviceable parts inside. Refer servicing to qualified service personnel.</li> <li>◆ To reduce the risk of fire or electronic shock, do not expose the unit to rain or moisture.</li> </ul>
---	---	---	--



The lightning flash with arrowhead symbol is intended to alert user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of a risk shock to persons.



The exclamation point is intended to alert user to the presence of important operation and maintenance (servicing) instructions accompanying the appliance.

## Specifications

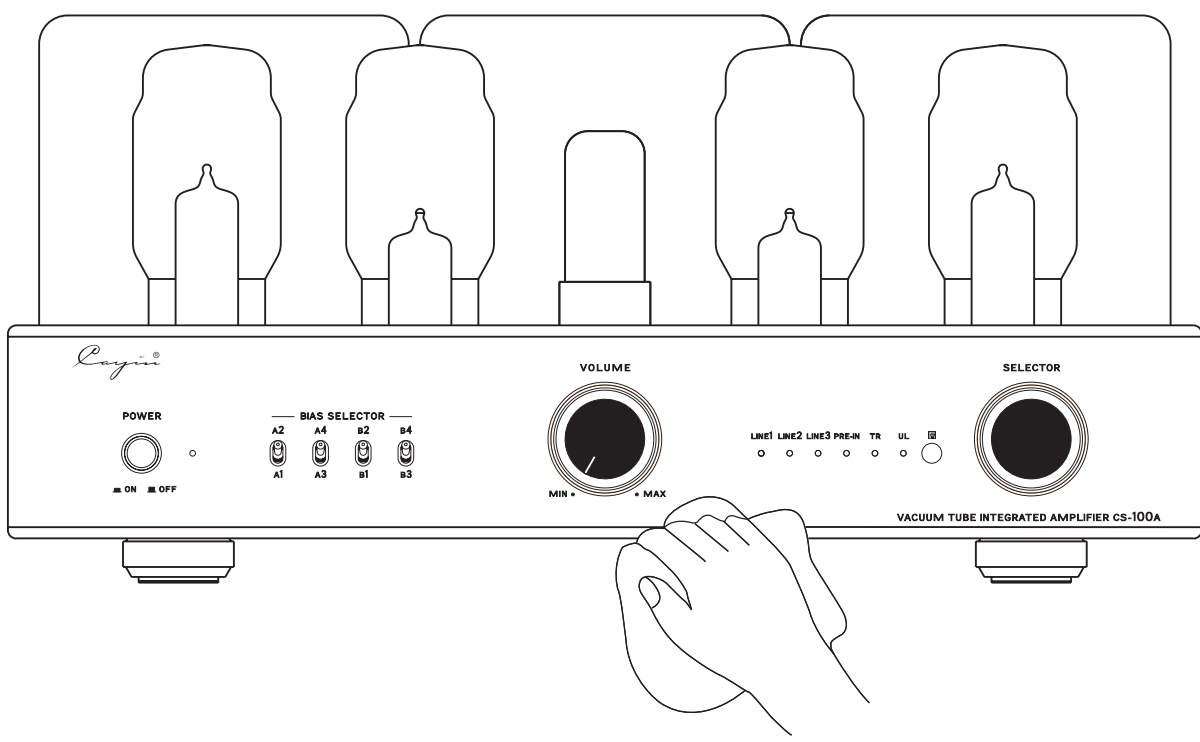
Power Output	TR:50W+50W (RMS Triode mode) UL:80W+80W (RMS Ultralinear mode)
Frequency Response	8Hz~75kHz (-3dB)
THD	1%(1kHz)
S/N Ratio	92dB
Input Sensitivity	450mV (Integrated) 1300mV (PRE-IN)
Input Impedance	100kΩ
Output Impedance	4Ω, 8Ω
Input Terminals	LINE1,LINE2,LINE3,PRE-IN
Output Terminals	SUB OUT
WDH	420mm×394mm×200mm
Tube	KT88(EL34)×8、6SN7GTB×1、12AU7EH×2、12BH7EH×2
Net Weight	29.5kg
Max Power Consumption	480W
Working Condition	Temperature : 0°C~40°C    Moisture : 20%~80%
Storage Condition	Temperature : -20°C~70°C    Moisture : 20%~90%



## Maintenance

**NOTE:**

- ◆ Use the soft dry cloth to clean up the chassis regularly.
- ◆ Do not use any chemicals for cleaning.



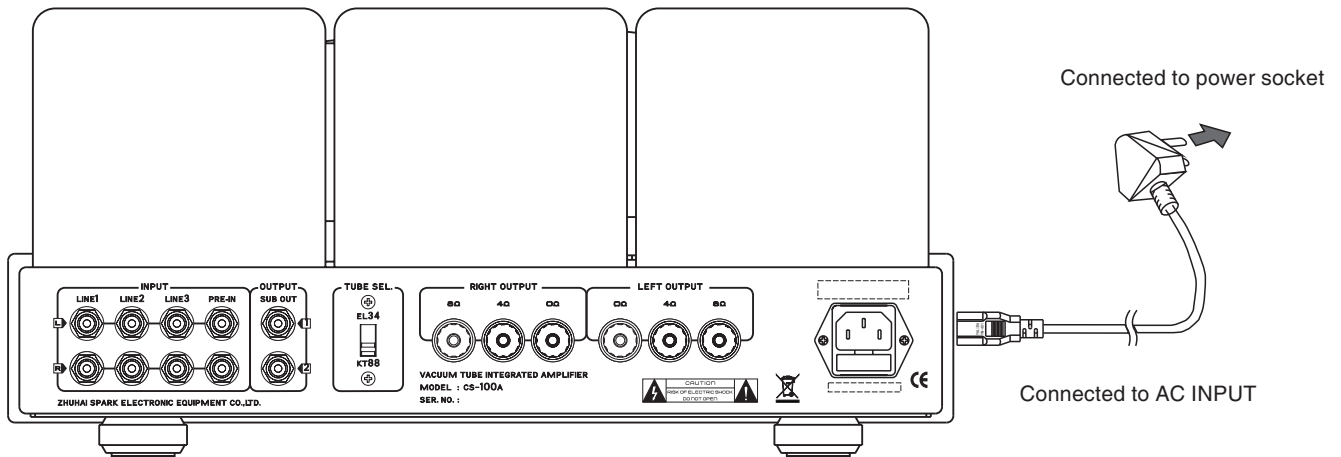
## Warranty Service

- 1.This product is warranted for a period of twelve months beginning from the date of purchase.
- 2.The defective product must be returned to your dealer or our company for repairing when your dealer or our company accepts your requirement.
- 3.The warranty doesn't extend to any product that has been opened by you without permission of our company.

**NOTE:**

The information in this manual is subject to change without further notice.

## Precautions



### Connection of power cord:

Connect the speaker cables and signal cable first and then insert the power cord into the power socket.

### NOTE:

- ◆ Connect the power only after finishing other connections.
- ◆ It is normal that power transformer becomes hot for extended period of operation.
- ◆ Unplug the power cord if you're not going to use the product for an extended period of time.
- ◆ Please make sure corresponding voltage is the same as required. We are not responsible for damage caused by misuse of unsuitable voltage.



## Front Panel

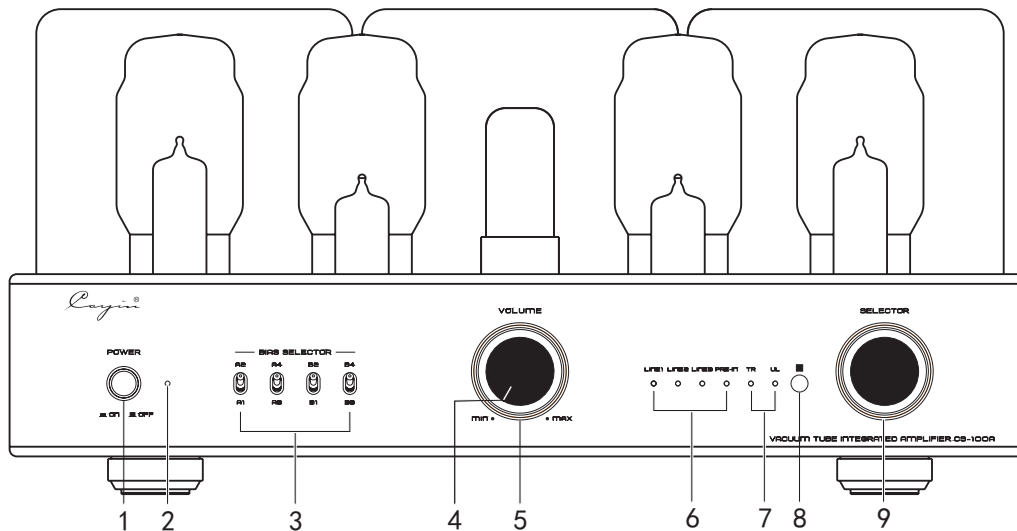


Diagram 1 : CS-100A FRONT

### 1. Power Switch

Used to switch on/off the amplifier.

Note: Unplug the power cord if you're not going to use the product for an extended period of time.

### 2. Power indicator

Turn on the amplifier the power indicator will be on.

### 3. Bias Selector Switch (A1、A2、A3、A4、B1、B2、B3、B4)

Used to select corresponding tube for bias adjustment.

### 4. Power Indicator/Mute Indicator

Used to indicate the working state. The indicator will be on when it is working normally. The indicator will flicker for 30 seconds when it delays to work. The indicator will keep flickering when it is at mute state.

### 5. Volume Knob

Used to control volume

### 6. Input Selection Indicator

You can hear sound from LINE1 when LINE1 indicator is on.

You can hear sound from LINE2 when LINE2 indicator is on.

You can hear sound from LINE3 when LINE3 indicator is on.

You can hear sound from PRE-IN when PRE-IN indicator is on.

Cayin CS-100A has memories and it will default last operation state when turning on.

### 7. Triode/ Ultralinear

It is at triode working state if the TR indicator is on.

It is at ultralinear working state if the UL indicator is on.

Cayin CS-100A has memories and it will default last operation state when turning on.

### 8. IR Remote Sensor

Used to receive the code of remote control.

### 9. Input Selector Knob

Used to select four kinds of audio sources. The input selection indicator will be on according to the input audio sources. This function can be operated on the remote control.



## Rear Panel

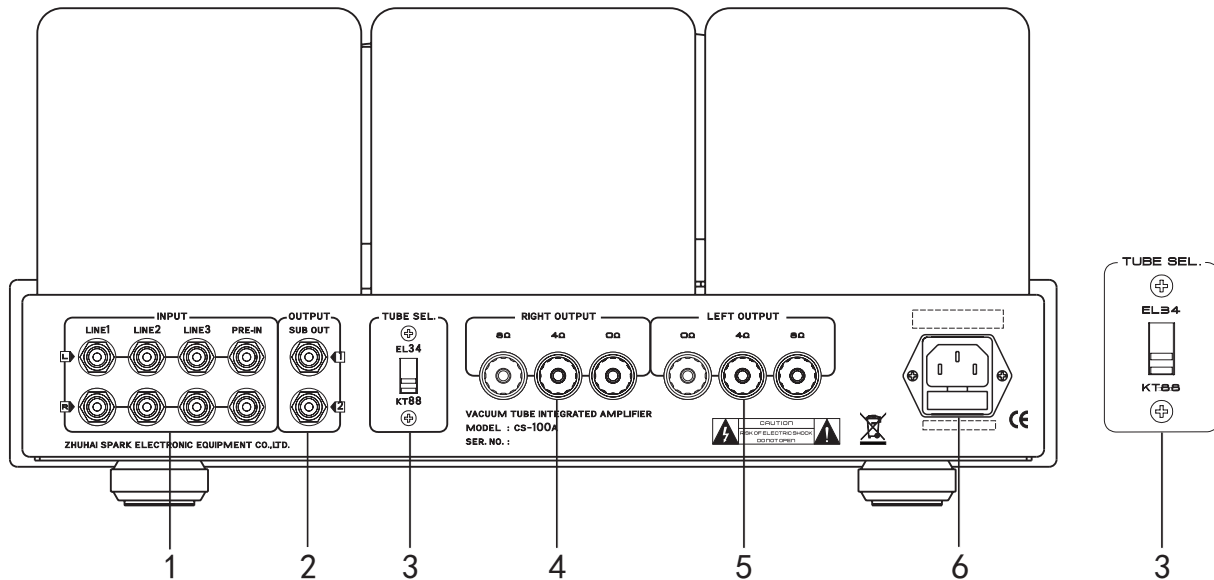


Diagram 2 : CS-100A BACK

### 1. Signal Input Terminal

Used for audio source input.

### 2. Signal Output Terminal

Used for audio source output.

### 3. Tubes Selection Switch

Used to select tube EL34 or KT88.

### 4. Right Channel Output

Used to connect with the right channel of speaker.

### 5. Left Channel Output

Used to connect with the left channel of speaker.

### 6. Power Socket with Main Fuse

Main fuse is located just below the power socket.

Replace the fuse with the same type as indicated.

### Power tube replacing:

1. Refer to the "Tube Replacement" on page 11, find out what types of tubes you can use for replacement.
2. Tube Sel. on the rear panel must be turned to position KT88, if you are going to use KT88 series of tubes for replacement.
3. Tube Sel. on the rear panel must be turned to position EL34, if you are going to use EL34 series of tubes for replacement. Bias adjustment methods please refer to page 9.

⚠ Please turn off the amplifier when you are turning the Tube Sel. Switch.



# Top Panel

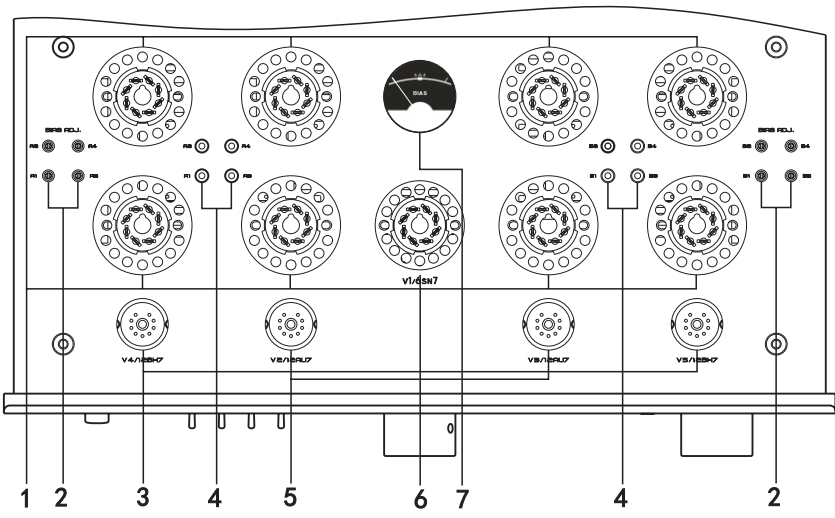


Diagram 3 : CS-100A TOP



Diagram 4  
Bias meter when not working

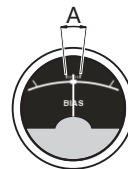


Diagram 5  
Bias meter during working  
Note: When working normally, the pointer should stay within the A zone, still, it would move for the voltage fluctuation.

**1. A1、 A2、 A3、 A4、 B1、 B2、 B3、 B4:KT88/EL34**

Turn the Tube SEL. to position KT88 on the rear panel, if you are going to use KT88 Tube.  
Turn the Tube SEL. to position EL34 on the rear panel, if you are going to use EL34 tube.

**2. Bias Adjustment (A1、 A2、 A3、 A4、 B1、 B2、 B3、 B4)**

Used to adjust bias of corresponding power tube (A1、 A2、 A3、 A4、 B1、 B2、 B3、 B4)

**3.V4、 V5: 12BH7EH Tube**

**4.Tube Indicator((A1、 A2、 A3、 A4、 B1、 B2、 B3、 B4)**

**5.V2、 V3: 12AU7EH Tube**

**6.V1:6SN7GTB Tube**

**7.BIAS Meter**

**Bias adjustment for the power tube:**

Turn the Bias Selector Switch to its opposite direction without releasing it, adjust the corresponding Bias Adjustment Swith with flat screwdriver, and inspect the Bias Meter on the top panel to make sure the pointer keeps in the center. Bias adjustment for A1.A2,A3 and A4 are the same.After all have been adjusted, do it one more time to make sure all the bias level of A1,A2,A3 and A4 are the same.

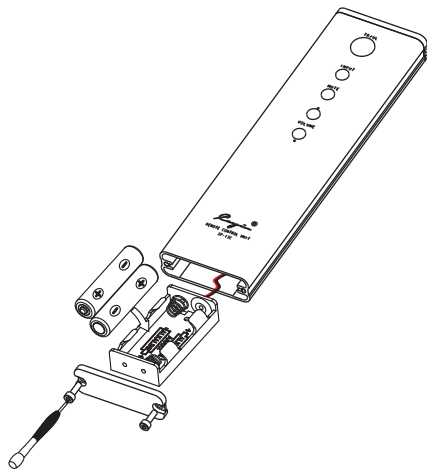
**Sample of bias adjustment for power tube A1:**

1. Turn the Bias Selector Switch A1 to its opposite direction without releasing it.
2. Adjust the corresponding Bias Adjustment Switch A1 with flat screwdriver until the pointer of the bias meter keeps in the center. The same for A2, A3 and A4.

**NOTE:**

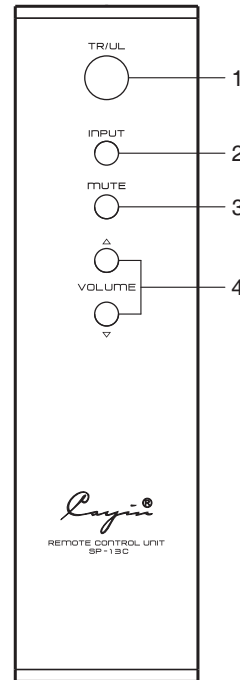
- 1.Be careful of the high temperature of the tubes during operation.
- 2.Replace the tubes carefully and correctly.
- 3.Tubes must be matched for well function.

# Remote Control

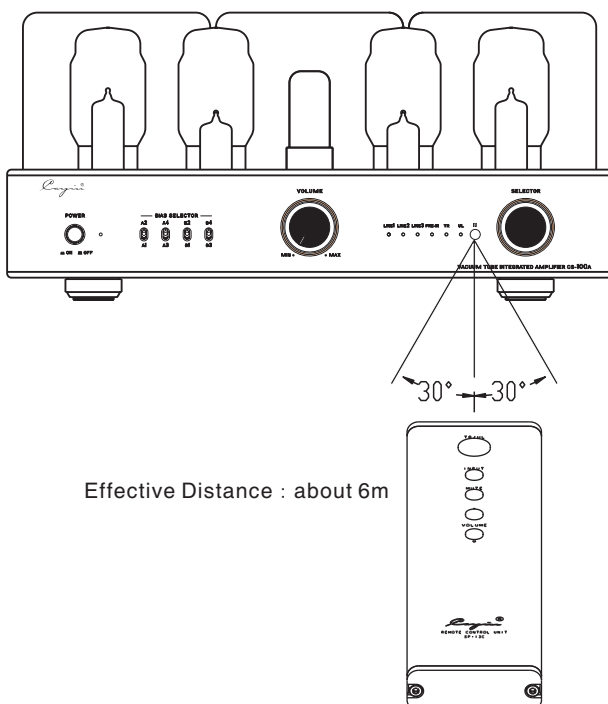


## Installation

1. Place the remote control upside up. Screw the rear cover open with the screwdriver.
2. Pull out the battery case carefully (do not break the wires connected).
3. Put in the batteries with correct polarity.
4. Push in the battery case and screw the rear cover close.



1. Triode/Ultralinear Selector
2. Audio Source Input Selector
3. Mute Button
4. Volume Control Selector



## NOTE:

- ◆ Don't drop the remote control. Keep the remote control dry.
- ◆ Replace the batteries timely.
- ◆ Don't mix new and old batteries together and use the batteries with the same specification.
- ◆ Take out the batteries if you don't use the remote control for an extended period of time.
- ◆ Batteries with high quality are recommended.



## Installation

### Carefully read and follow the manual for installation:

- ◆ Do not place the machine near heat sources such as radiators, heat registers or other products that produce heat.
- ◆ In order to avoid being overheated please keep the unit's ventilation open.
- ◆ Do not expose this appliance to rain or moisture.
- ◆ Keep the amplifier in a certain distance so that it can be easily connected.
- ◆ Amplifier should install steadily and make sure all four feet are on the same level.
- ◆ Keep the amplifier over 15cm's distance to the surrounding walls.

### NOTE:

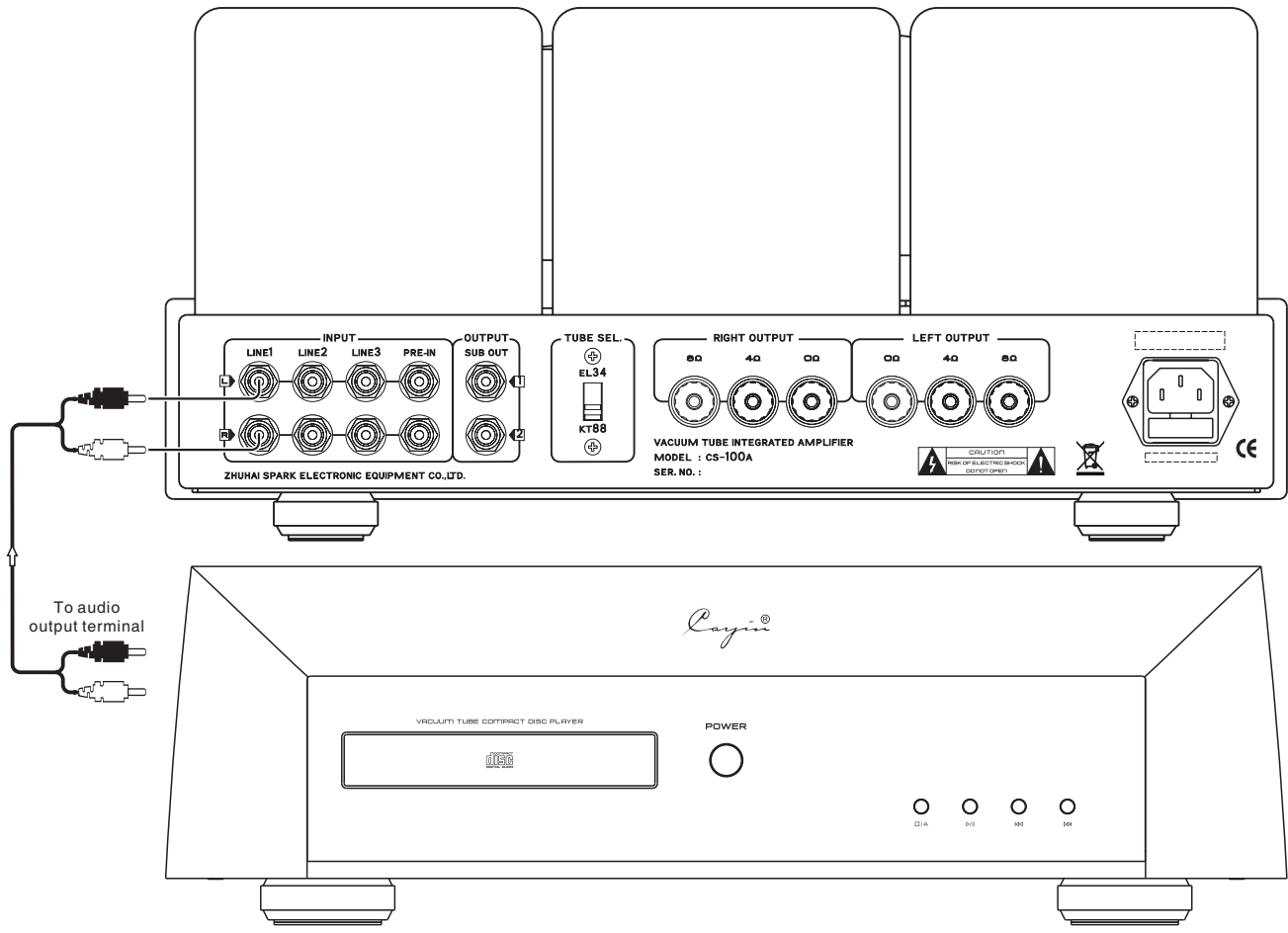
Please make sure local voltage level is matched with the input level of the amplifier, which indicates on the rear panel. Too low or too high voltage may cause problems or shorten the amplifier's life.

## Tube Replacement

Tubes for the Machine	Tube Replacement
6SN7GTB	6SN7GT、6H8C、ECC32、6N8P
12AU7EH	12AU7、ECC82、E82CC、ECC802S
12BH7EH	12BH7
KT88	6550EH、KT88EH、6550、KT90、KT100、KT120
EL34	6CA7、EL34EH

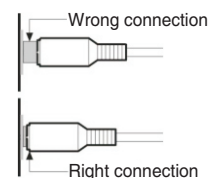
# Audio Connection

Connection method of **CAYIN CS-100A** with other audio equipments take pictures below for your reference.



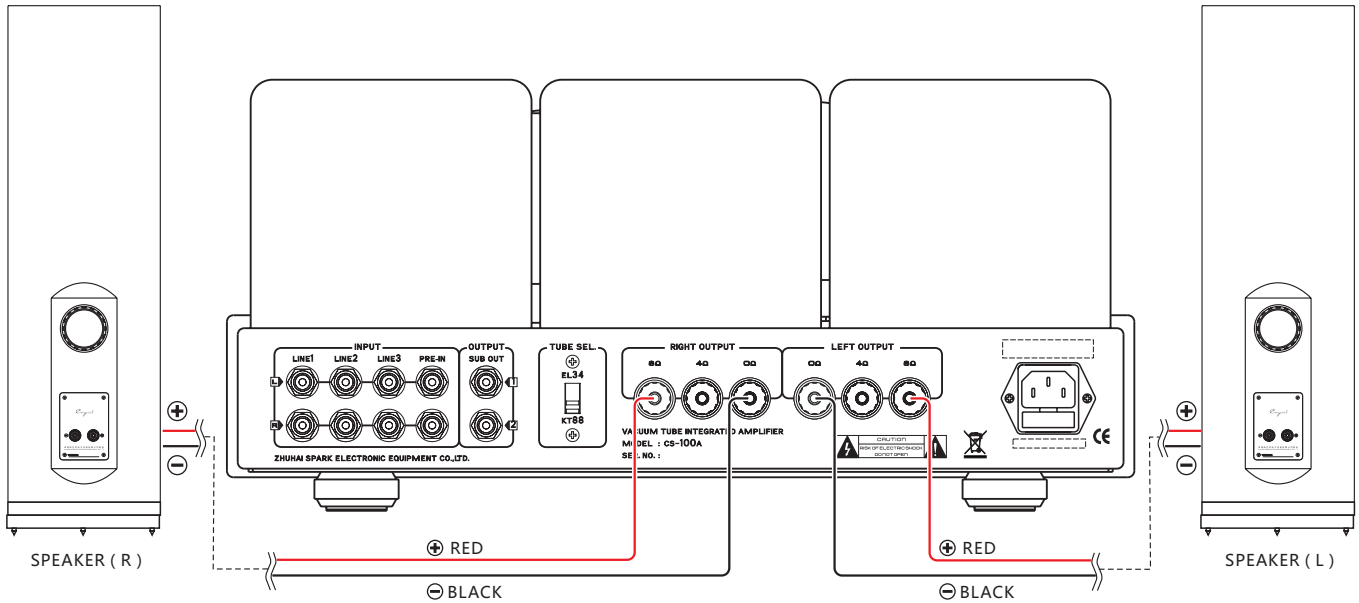
**NOTE :**

- Please refer to the manuals of other connected equipments during the installation.
- Do not insert the power cord into the main socket before all other equipments are well connected.
- R refers to right channel while L represents left channel.
- Please take the right guidance for connection as wrong connection may cause noise, low-grade function or damage.
- Do not fasten signal cable together with power cable and speaker cables. It will worsen the acoustic fidelity.





# Speaker Connection

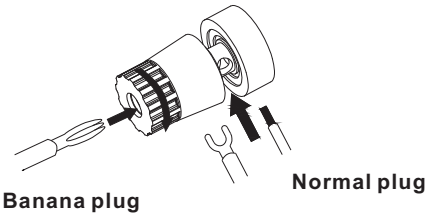


### Check the impedance of your speakers:

Attach the positive from your speaker to the 4 or 8 ohm terminal and the negative to the 0 ohm terminals separately. If your speakers are 6 ohm, 4 ohm or 8 ohm (recommended) terminal is preferential and it would not cause damage to the amplifier. Connecting the left and right speakers according to the guidance can make sure of the acoustic fidelity.

### Connection of speaker cables:

1. Unscrew the terminal knob
2. Insert the speaker cable
3. Screw the terminal knob



### NOTE:

- Connect the speaker cables with the amplifier after it is well connected with the speakers.
- Connect both of the speakers to make sure of the acoustic fidelity.
- Please notice the signal direction indication of the cables.
- Do not mix up the positive and negative ends of speaker cables or it will cause short circuit.

## Turning On

Before turning on the amplifier please make sure all connections are right and power supply is stable.

- Turn on the amplifier, the power indicator will be on and the working indicator will keep flickering.
- The working indicator will be on after 30 seconds. It means that the amplifier is working normally. If the working indicator is off, please turn off the power and contact with our local agent or our company.
- Select the right audio source channel, adjust the volume to a certain position and then you can enjoy the music you prefer.

### NOTE:

1. When the audio system is under working state, don't unplug the signal cable or speaker cables, or it will cause damage to the amplifier and other equipments.
2. It should at least takes 2 minutes before you turn on the power again, or it will cause damage to the vacuum tubes.

## Small Tips

**Read the Manual** — Please read the user's manual carefully before installation and operation.

**Keep the Manual** — Please keep the manual for future reference.

**Warning Signs** — Don't tear off or rub off the serial number.

**Operation** — Do the operations as you are instructed in the Manual.

**Parts** — If you are going to use parts not supplied by our company like power cord, fuses etc please make sure that parts you used are compatible with the safety requirements. Or it will cause fire or electric shock.

**Placement** — Put the amplifier on a level place. Make sure that it doesn't bring damage to the children, adults and the amplifier itself.

**Power** — Please make sure the local voltage is the same level as indicated on the rear panel.

**Overload** — If the power socket is overloaded with other equipment, it will cause fire or electric shock.

**Warranty Service** — Do not open the product and change the components inside yourself. Opening the cover may expose you to dangerous voltage or other hazards. The warranty doesn't extend to any product that has been opened by you without permission of our company.

**Troubleshooting** — If any problems when you are using the product, please check according to following tips to look for the exact reason. Please contact with our company if you can't solve the problem.



## Troubleshooting

Please follow the instruction in the manual in order to keep the amplifier work in its best state. If wrongly operated and you thought that would be troubles please check according to following tip to look for the exact reason.

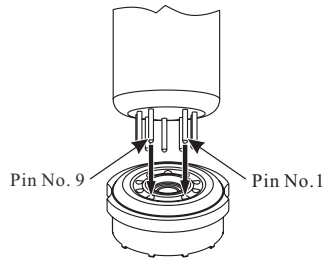
Problem		Cause	Remedy
NO OUTPUT	Power Indicator is OFF.	Power cord is not well-connected.	Check power cable connection or power outlet connection
		Main fuse is out.	Replace with the same type and value fuse.
		Troubles of inner parts or components.	Please contact with local agents or our company.
	Power Indicator is ON.	Volume is at ZERO.	Turn up the Volume.
		NO signal input.	Check the function of the sound source.
			Check the input selection and switch to the proper input.
Sound Distortion	High input signal level.	Turn down the volume to suitable position.	
Noise output	Ground of input signal cable is open or bad contact of the input signal cable.	Replace the input signal cable with a new one.	
	Components or circuits are in trouble.	Please contact with local agents or our company.	
Sound field Positioning is not so good.	Signal input cables or speaker cables are wrongly connected.	Reconnect it as suggested in the manual.	
Malfunction of Remote Control	Be disturbed.	Keep away from the source of disturbance. Turn off and restore.	
	Low Battery.	Replace with new batteries.	
	Obstacles between the amplifier and remote.	Remove the obstacles.	

**NOTE:** *Rayin*<sup>®</sup> is the registered trademark of Zhuhai Spark Electronic Equipment Co., Ltd.



# How to Install Vacuum Tubes

## How to Install 9-Pin Vacuum Tubes

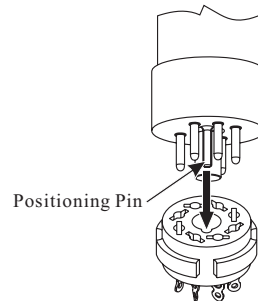


**Applicable vacuum tube:**  
12AU7 (ECC82)、12AX7 (ECC83)、5BK7、12BH7、12AT7 (ECC81)、6922 (ECC88), etc. 9-Pin vacuum tubes.

**Instructions to Change and Install the vacuum tubes:**  
To install a nine-pin vacuum tube, align the pins of the vacuum tube with the holes of the tube socket and insert the tube vertically up and down (as shown in the figure above).

▲ Please note that when installing the nine-pin vacuum tube, pay attention to the alignment of the vacuum tube pins with the holes of the tube socket. Otherwise wrong insertion will cause damage to the vacuum tube and prevent the amplifier from working properly, which may lead to failure of the amplifier.

## How to Install 8-Pin Vacuum Tubes

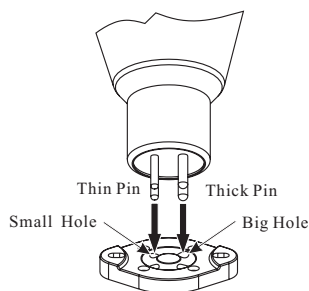


**Applicable vacuum tube:**  
KT150、KT170、KT88、6550、EL34、6V6、6SN7、6SL7、5AR4, etc. 8-pin vacuum tubes.

**Instructions to Change and Install the vacuum tubes:**  
To install an eight-pin vacuum tube, align the positioning pin of the tube with the grooves in the positioning holes of the tube socket, and install the tube by pulling up and down vertically (as shown in the figure above).

▲ Please note that when installing the eight-pin vacuum tube, pay attention to the alignment of the vacuum tube positioning pin with the positioning hole of the tube socket. Otherwise wrong insertion will cause damage to the vacuum tube and prevent the amplifier from working properly, which may lead to failure of the amplifier.

## How to Install 4-Pin Vacuum Tubes

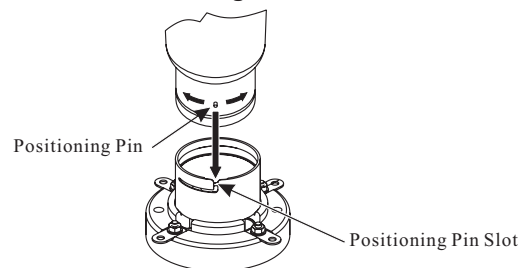


**Applicable vacuum tube:**  
300B、2A3 etc. 4-pin vacuum tubes .

**Instructions to Change and Install the vacuum tubes:**  
To install a four-pin vacuum tube, please pay attention to the thickness of different pins of the vacuum tube and the size of the tube socket hole. Thick pin should be aligned with the big hole, and the thin pin should be aligned with the small hole. Install the tube vertically up and down (as shown in the figure above).

▲ Please note that when installing the four-pin vacuum tube, pay attention to the thickness of different pins of the vacuum tube and the size of the tube socket holes. Otherwise wrong insertion will cause damage to the vacuum tube and prevent the amplifier from working properly, which may lead to failure of the amplifier.

## How to Install Big 4-Pin Vacuum Tubes



**Applicable vacuum tube:**  
845、805、211 etc. 4-pin vacuum tubes.

**Instructions to Change and Install the vacuum tubes:**  
To install the big four-pin vacuum tube, align the vacuum tube positioning pin with positioning pin slot of the tube socket and then rotate 45° clockwise to tighten. (As shown in the picture above). To take out the big four-pin vacuum tube, turn the tube 45° counterclockwise and take it out upward after loosening.

▲ Please note that when installing the big four-pin vacuum tube, pay attention to the alignment of the vacuum tube positioning pin with positioning pin slot of the tube socket and then rotate 45° clockwise to tighten. It is strictly forbidden to install the vacuum tube when the positioning pin is off or missing. Otherwise wrong insertion will cause damage to the vacuum tube and prevent the amplifier from working properly, which may lead to failure of the amplifier.