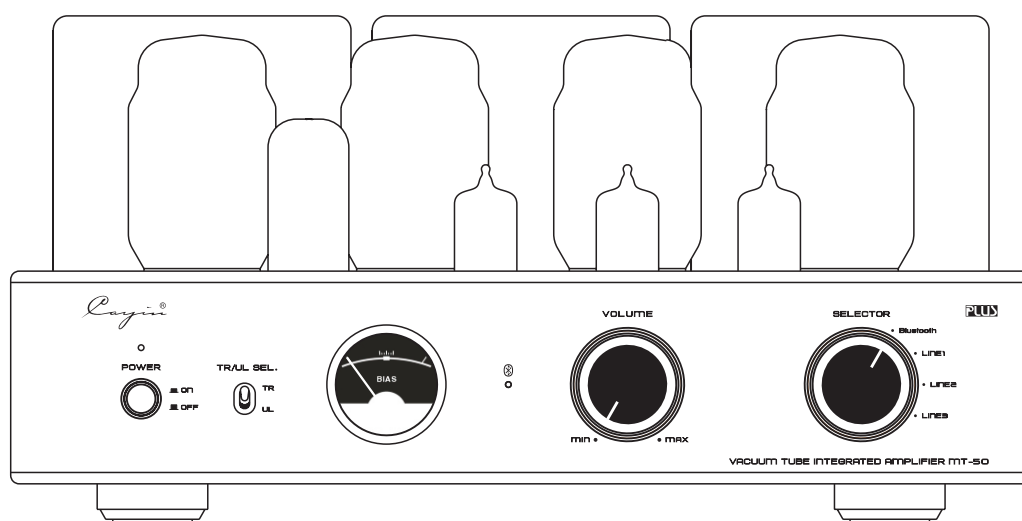


Cayin®



MT-50

Vacuum Tube Integrated Amplifier

User's Manual

REV : 1.1



Thanks for choosing **Cayin MT-50** 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.

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NOTE:

Cayin MT-50 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 MT-50 | 1 piece; |
| 2. Main Fuse | 2 pieces; |
| 3. Power cord | 1 piece; |
| 4. User's Manual | 1 piece; |
| 5. Bluetooth antenna | 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

- ◆ Tube amplifier hand-made construction with the finest point-to-point wiring.
- ◆ Two EI output transformer with wide bandwidth are applied.
- ◆ Specially designed toroid transformer for power supply.
- ◆ Audio grade Japanese Takman carbon resistors for a better sound
- ◆ 5BK7A has been used for voltage amplification and drive amplification.
- ◆ Rectifier RCA 22DE4 has been used for independent power supply.
- ◆ Four EL34(KT88) tubes are used for AB1 push-pull amplification.
- ◆ Designed with Triode and Ultralinear selection. It outputs soft, clean, original sound if operated in Triode mode. Otherwise it output open, bold sound in details if operated in Ultralinear mode.
- ◆ External user BIAS Adjustment is accessible with the BIAS meter for monitoring on the top of the amplifier.
- ◆ With Bluetooth input.
- ◆ Equipped with easily-installed tube cover for protection.

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.



- ◆ To reduce the risk of electric shock, do not remove the cover.
- ◆ No user serviceable parts inside. Refer servicing to qualified service personnel.
- ◆ To reduce the risk of fire or electronic shock, do not expose the unit to rain or moisture.

 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

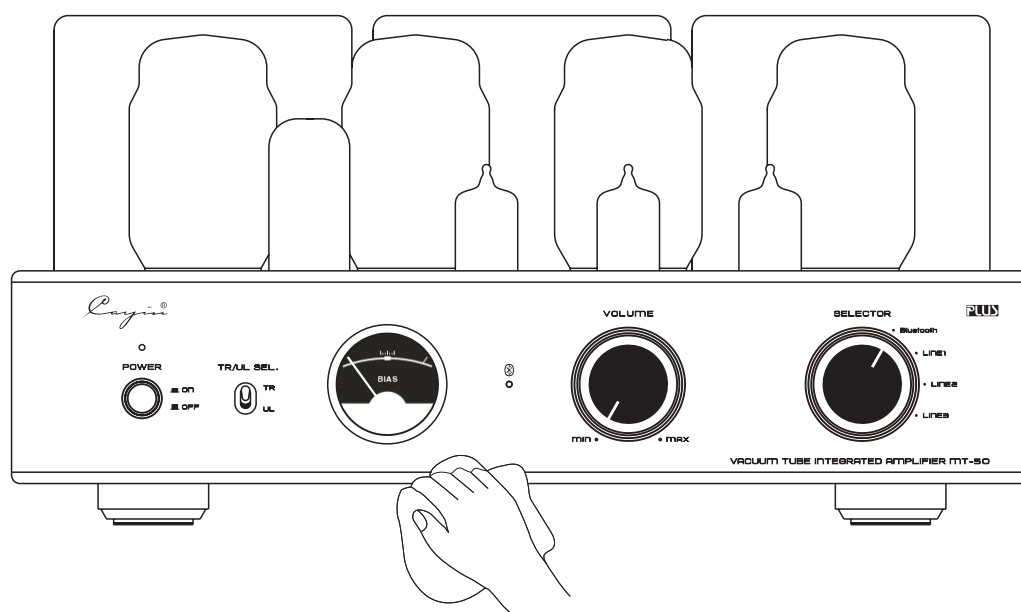
ITEM		EL34 Tube	KT88 Tube
AMP	【Power Output】	TR:18W+18W (RMS Triode mode) UL:36W+36W (RMS Ultralinear mode)	TR:21W+21W (RMS Triode mode) UL:40W+40W (RMS Ultralinear mode)
	【Frequency Response】	10Hz~50KHz (-3dB)	10Hz~50KHz (-3dB)
	【THD】	1%(1kHz)	1%(1kHz)
	【S/N Ratio】	90dB	90dB
	【Input Sensitivity】	300mV	300mV
	【Input Impedance】	100kΩ	100kΩ
	【Output Impedance】	4Ω, 8Ω	4Ω, 8Ω
	【Headphone Output】	16Ω~300Ω	16Ω~300Ω
	【Input Connector】	Bluetooth, LINE1, LINE2, LINE3	Bluetooth, LINE1, LINE2, LINE3
	【W×D×H】	360mm×330mm×180mm	360mm×330mm×180mm
	【Tube】	5BK7A×3, EL34×4, 22DE4×1	5BK7A×3, EL34×4, 22DE4×1
	【Net Weight】	16.5kg	16.5kg
	【Power Consumption】	270W	270W
Bluetooth	【Bluetooth Version】	V4.0	
	【Bluetooth Chip】	CSR8670	
	【High Fidelity DAC】	SBC, AAC, MP3, APT-X	
	【Effective Range】	≤10M	
	【Device Name】	Cayin MT-50	
【Working Condition】		Temp : 0℃~40℃ Humidity : 20%~80%	
【Storage Condition】		Temp : -20℃~70℃ Humidity : 20%~90%	



Maintenance

NOTE:

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



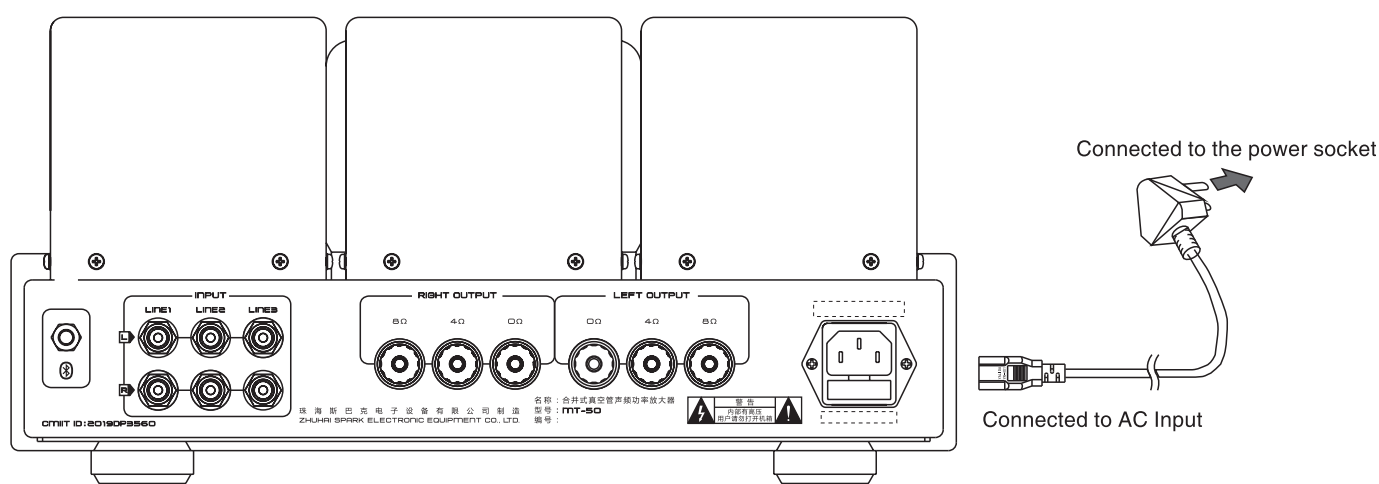
Warranty Service

- 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

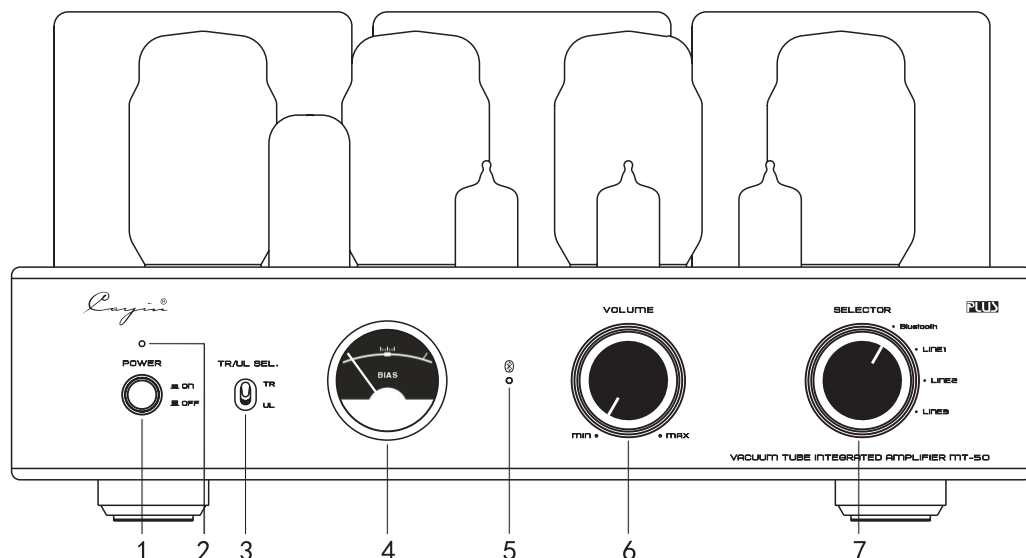


Diagram 1

1. Power Switch

Used to switch on/off the amplifier.

2. Power indicator

Turn on the amplifier the power indicator will be on.

3. Triode/ Ultralinear Selector Button

Used to choose Triode or Ultralinear working state.

4. BIAS Meter

Used to monitor the working current of the power tube.

5. Bluetooth mode indicator:

Indicator flicker:

The Bluetooth will be on and waiting for connection.

Indicator on:

The Bluetooth has been connected successfully.

6. Volume Knob

Used to control volume

7. Input Selector

Used to choose 4 types of audio sources.

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

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.

Rear Panel

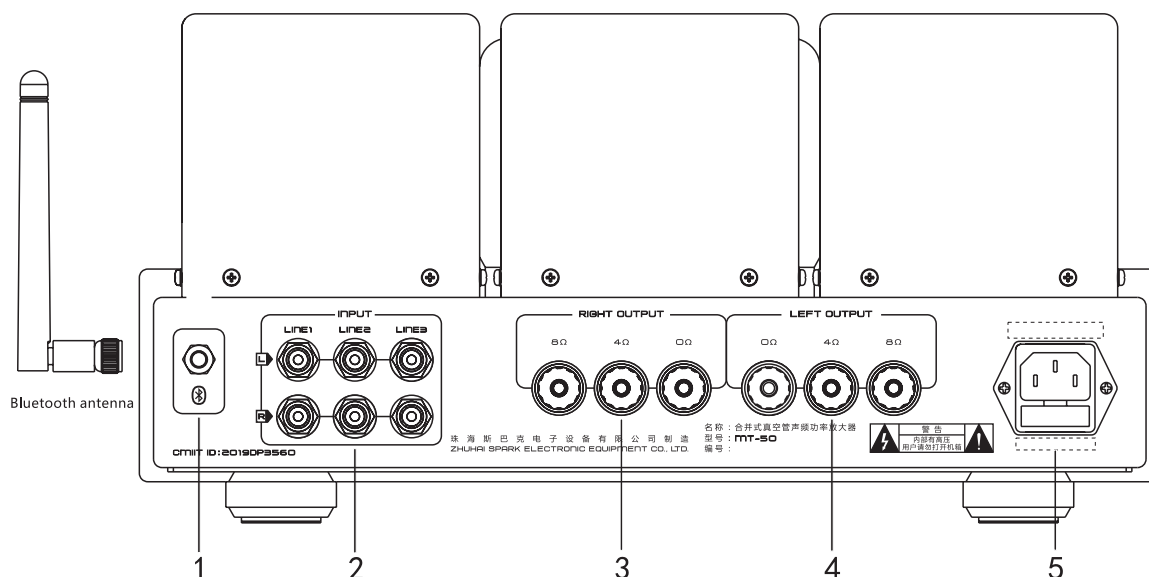


Diagram 2

1. Bluetooth antenna connector

In order to receive Bluetooth input source, please connect the Bluetooth antenna to the connector.

2. Signal Input Terminal

Used for audio source input.

3. Right Channel Output

Used to connect with the right channel of speaker.

4. Left Channel Output

Used to connect with the left channel of speaker.

5. Power Socket with Main Fuse

Main fuse is located just below the power socket.
Replace the fuse with the same type as indicated.



Top Panel

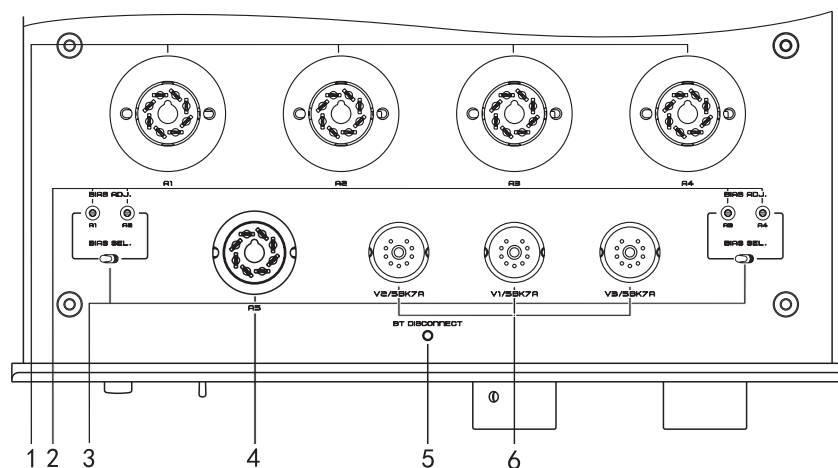


Diagram 3

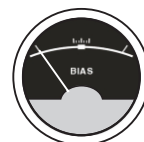


Diagram 4
Bias meter when not working

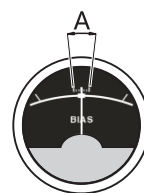


Diagram 5
Bias meter during working
Note: When working normally, the pointer should stay within the A zone, still, it would move for the voltage fluctuation.

1. A1、A2、A3、A4 : KT88(EL34)
2. Bias Adjustment Knob for Power Tubes (A1、A2、A3、A4)
3. Bias Selector Switch (A1、A2、A3、A4)
Used to select corresponding tube for bias adjustment.
4. A5 : 22DE4
5. Bluetooth Disconnect (BT DISCONNECT)
Long press to disconnect the Bluetooth.And Bluetooth will go back to wait for connection.
6. V1、V2、V3: 5BK7A

Bias adjustment for the power tube:

Turn the BIAS SELECTOR Switch to the power tube you are preparing to adjust. Adjust the corresponding BIAS ADJ. small knobs with flat screwdriver, and inspect the BIAS meter on the top panel and 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 to A1;
2. Turn the BIAS ADJ. knob A1, until the pointer of the bias meter keeps in the center.
The same for A2, A3, A4.

NOTE

- ◆ Be careful of the high temperature of the tubes during operation.
- ◆ Replace the tubes carefully and correctly.
- ◆ Power tubes must be matched for well function.

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:

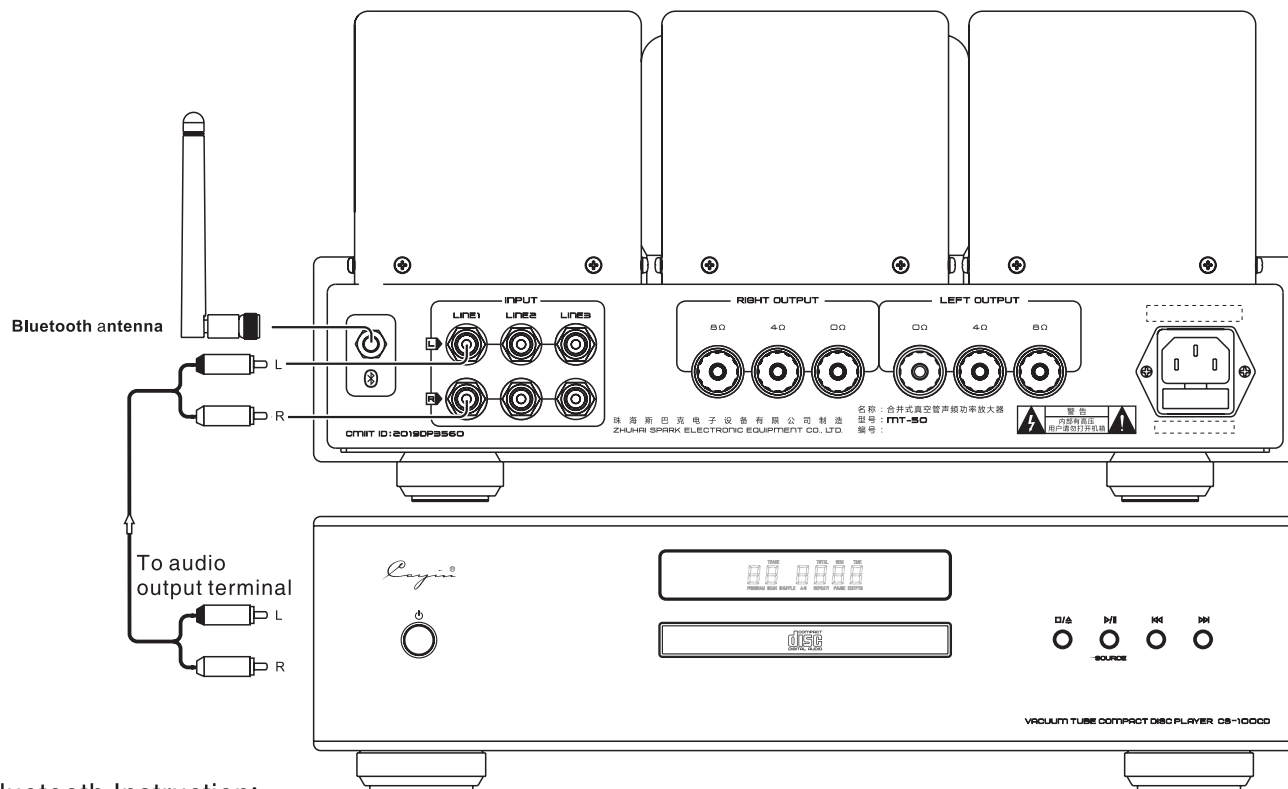
Please make sure local voltage level is matched with the input level of the amplifier, which indicates on the rear panel. Too low or too high voltage may cause problems or shorten the amplifier's life.

Tube Replacement

Tubes for the Machine	Tubes Replacement
KT88	KT88EH、6550、6550EH、KT90、KT100
EL34	6CA7、EL34EH、KT66、KT77
22DE4	22DE4
5BK7A	5BK7-A

Audio Connection

Connection method of **Cayin MT-50** with other audio equipments Take pictures below for your reference.



Bluetooth Instruction:

1. Please turn the knob to Bluetooth before using Bluetooth function.

2. Check the status of the Bluetooth indicator:

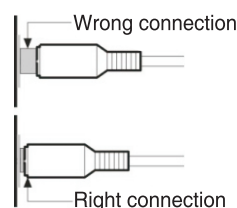
The indicator will flicker when the Bluetooth waits for connection. Please turn the Bluetooth on and search the device name “Cayin MT-50” on the audio source device (Like music player, phone or tablet PC, ect. which can support Bluetooth function.) After connection successfully, the indicator will be on. You can play the audio source on the device by Bluetooth now.

The indicator will be on when the Bluetooth connect to device. If the connected device is what you want, you can play the music by Bluetooth now. If not, please turn off MT-50, and restart it.

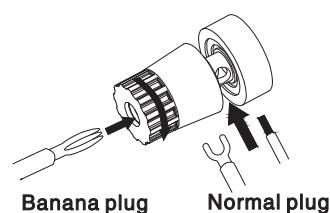
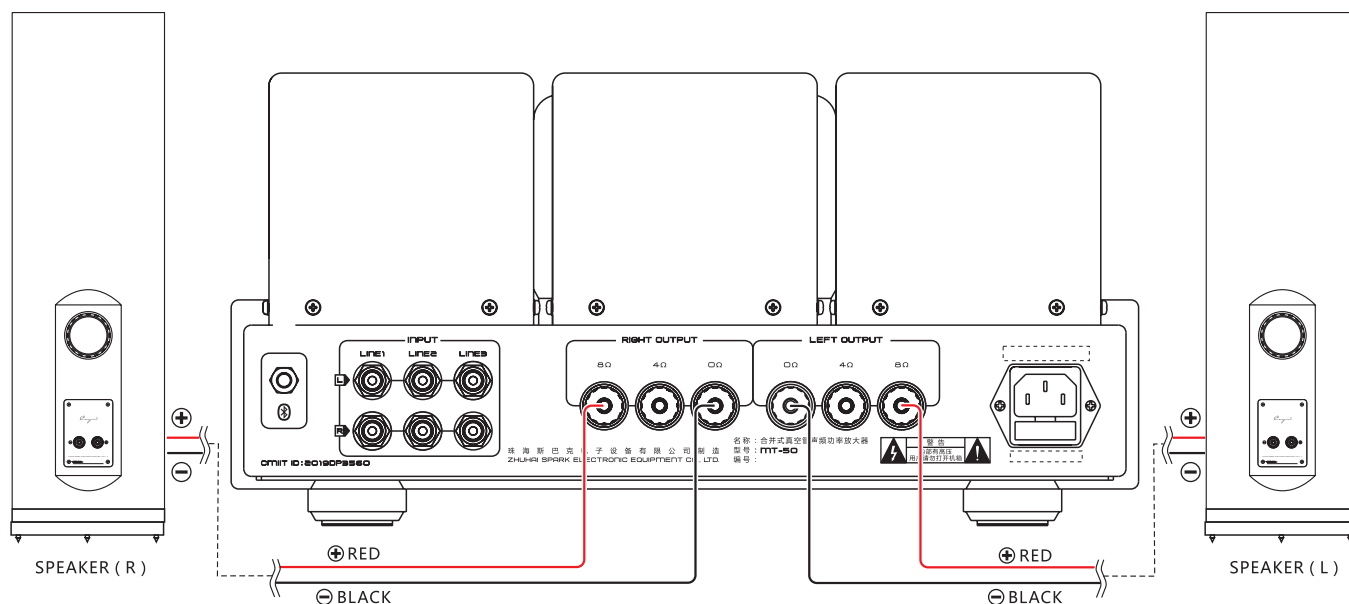
When the indicator flicker, please follow the above steps to connect to a right device.

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 and the power LED will be on. It shines and indicates that the amplifier is working.
- If the LED is not on please 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 tips to look for the exact reasons.

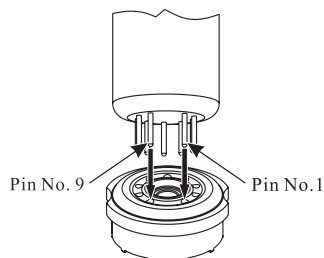
Problem		Cause	Remedy
NO OUTPUT	Power Indicator is OFF.	Power cord is not well-connected.	Check power cable connection or power outlet connection
		Main fuse is out.	Replace with the same type and value fuse.
		Troubles of inner parts or components.	Please contact with local agents or our company.
	Power 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 Bluetooth	Power Indicator is OFF.	Bluetooth haven't start	Restart MT-50
	Power Indicator is ON.	Bluetooth be connected to other device	Restart MT-50

NOTE: *Cayin*® 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:

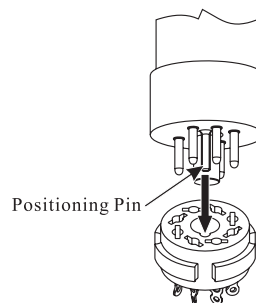
12AU7 (ECC82)、12AX7 (ECC83)、5BK7、12BH7、12AT7 (ECC81)、6922 (ECC88), etc. 9-Pin vacuum tubes.

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:

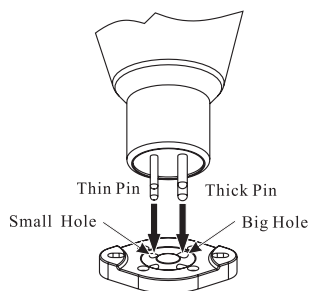
KT150、KT170、KT88、6550、EL34、6V6、6SN7、6SL7、5AR4, etc. 8-pin vacuum tubes.

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:

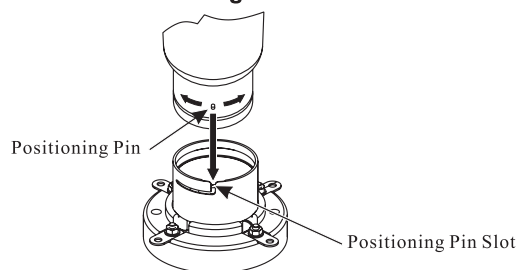
300B、2A3 etc. 4-pin vacuum tubes .

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.