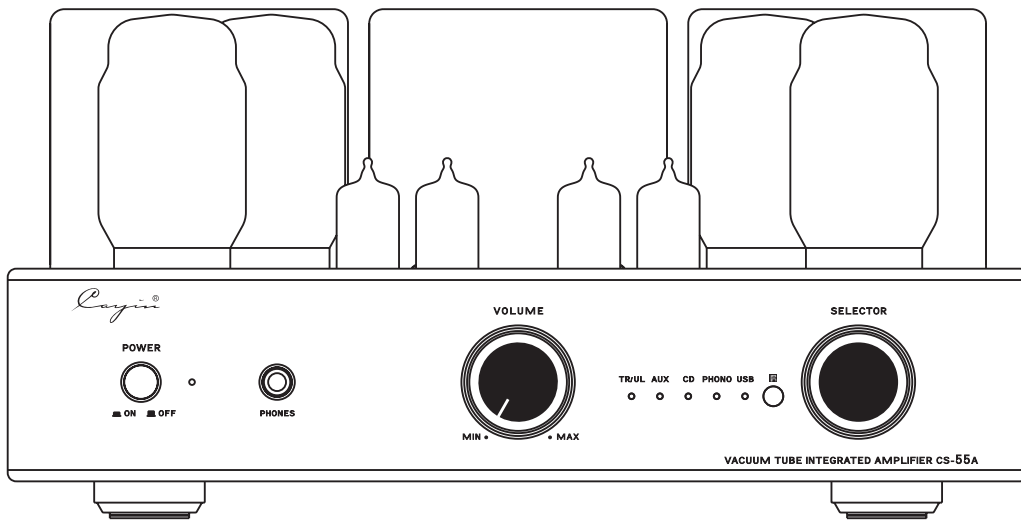


*Cayin*®



# CS-55A | Vacuum Tube Integrated Amplifier

User's Manual

REV : 1.1



Thanks for choosing **CAYIN CS-55A** 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:**

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**CAYIN CS-55A** 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.

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## Package Contents

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Please carefully check the package first and then open it.

Package contents include:

- |                          |          |
|--------------------------|----------|
| 1. CAYIN CS-55A          | 1 piece  |
| 2. Remote Control        | 1 piece  |
| 3. (AAA) Battery of 1.5V | 2 pieces |
| 4. Users' Manual         | 1 piece  |
| 5. Power cord            | 1 piece  |
| 6. USB cord              | 1 piece  |
| 7. Driver CD             | 1 piece  |
| 8. Main Fuse             | 2 pieces |

**Recommendation:**

Keep all packing materials for future use .

**NOTE:**

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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.

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



## Product Features



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- ◆ Hand-made construction with the finest point-to-point wiring.
- ◆ Two EI output transformers with wide bandwidth are applied.
- ◆ Specially designed toroid transformer for power supply.
- ◆ Audio grade capacitors and resistors are used for a better and more sweet sound output.
- ◆ 12AX7/ECC83 and 12AU7/ECC82 tubes are used in the preamp stage.
- ◆ Four KT88/EL34 tubes are used for AB1 push-pull amplification.
- ◆ Triode and Ultralinear selection.
- ◆ External user Bias Adjustment is accessible with the BIAS meter for monitoring on the top of the amplifier.
- ◆ External Tube Selection Switch between EL34 and KT88 on the rear panel for easy tube replacement.
- ◆ Four pairs of input include one USB input, one Phono input and two line inputs.
- ◆ CS-55A takes outstanding USB audio technology which utilizes high speed USB 2.0 receiving and decoding 32bit/384kHz high resolution digital signals. Internal USB DAC which supports asynchronous clocking.
- ◆ Equipped with remote control.
- ◆ Soft start function (about 30 seconds).
- ◆ CS-55A can memorize last operation of the unit once turned off.
- ◆ High-quality Japanese ALPS motor potentiometer.
- ◆ Equipped with easily-installed tube cover for protection.


## Safety Precautions

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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.

	<p><b>CAUTION</b></p> <p>RISK OF ELECTRIC SHOCK DO NOT OPEN</p>		
<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

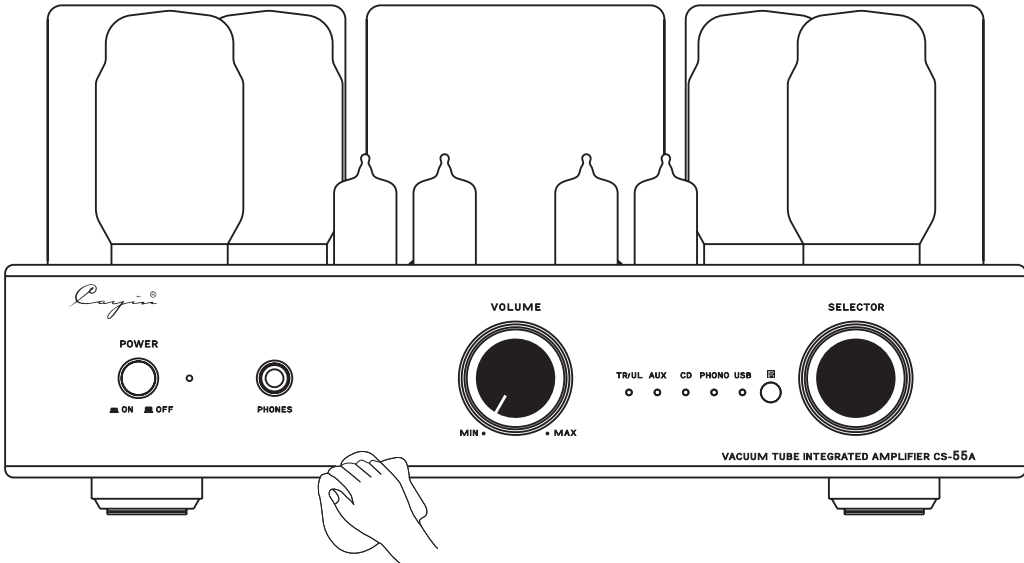
Description		EL34 TUBE	KT88 TUBE
AMPLIFIER	Power Output	TR:20W+20W (RMS TRIODE) UL:38W+38W (RMS ULTRALINEAR)	TR:22W+22W (RMS TRIODE) UL:40W+40W (RMS ULTRALINEAR)
	Frequency Response	5Hz~48kHz (-3dB)	5Hz~44kHz (-3dB)
	THD	1%(1kHz)	1%(1kHz)
	S/N Ratio	92dB	92dB
	Input Sensitivity	280mV	270mV
	Input Impedance	100kΩ	100kΩ
	Output Impedance	4Ω, 8Ω	4Ω, 8Ω
	Input Terminals	USB , PHONO , CD , AUX	USB , PHONO , CD , AUX
	WDH(W×D×H)	360mm×334mm×180mm <sup>3</sup>	360mm×334mm×180mm <sup>3</sup>
	Tube	12AX7/ECC83×2、 12AU7/ECC82×2、 EL34×4	12AX7/ECC83×2、 12AU7/ECC82×2、 KT88×4
	Net Weight	17kg	17kg
	Max Power Consumption	270W	270W
USB DAC	Compatible with Audio Class 1.0 and Audio Class 2.0 Word length : 16 - 32bits Sampling rate : 44.1kHz, 48kHz, 88.2kHz,96kHz,176.4kHz,192kHz,352.8kHz,384kHz Operating System : Windows XP®, Windows Vista®, Windows 7®, Windows 8®, Mac OS(10.6.3 and above)		
PHONO	Input Sensitivity : 3mV Input impedance : 47kΩ RIAA Errors : Lower than ±0.25dB Total Gain : 40dB S/N ratio : 68dB		
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.



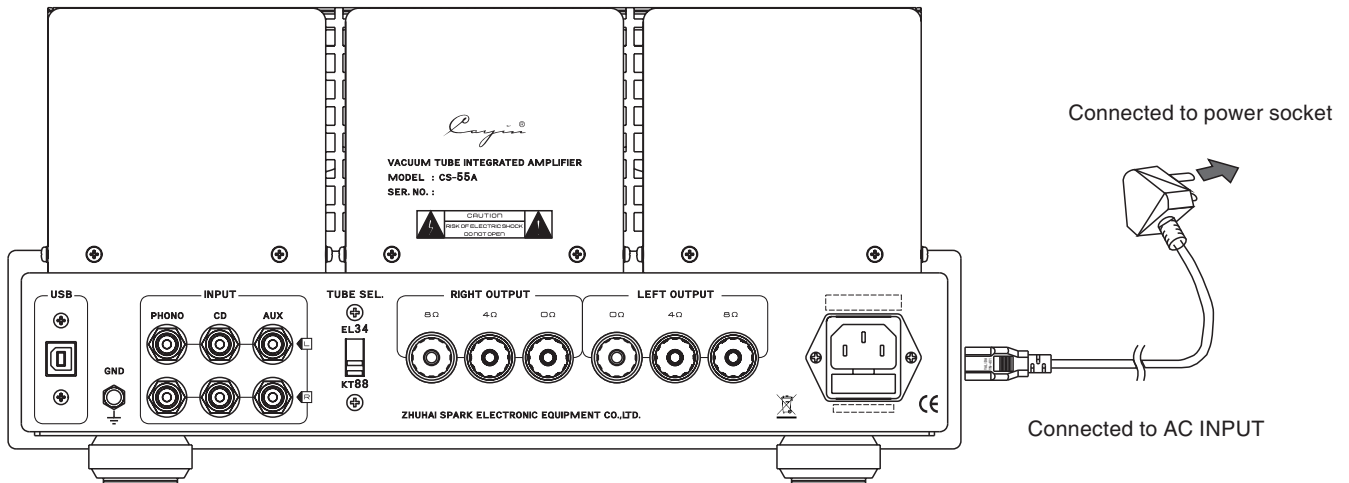
## Warranty Service

- 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 cables 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

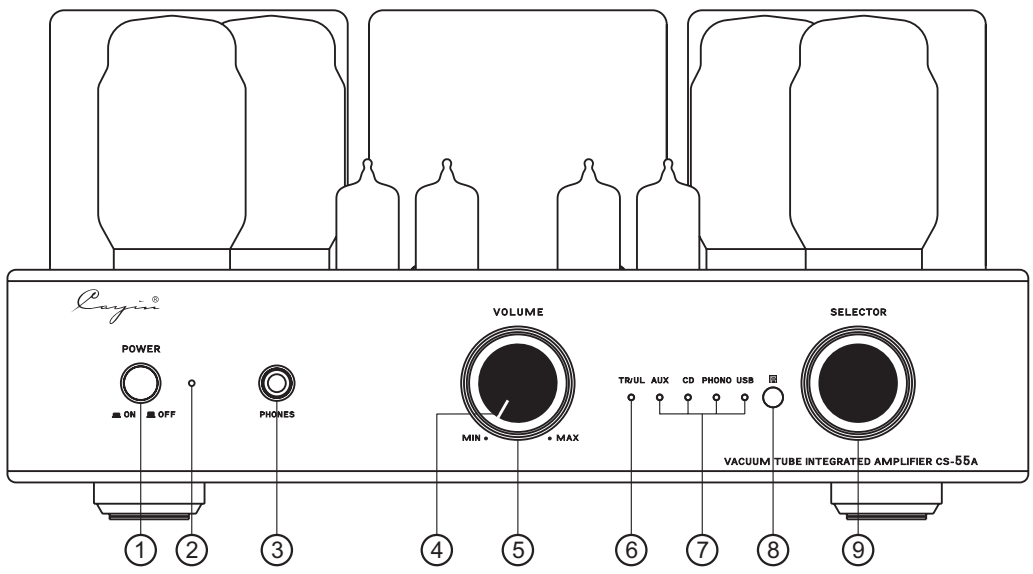


Diagram 1 : CS-55A FRONT

**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. Headphone Jack (PHONES)**

Enjoy the music with your headphone if you prefer.

**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. TR/UL Indicator:**

If the TR/UL LED is Yellow it is working at TRIODE mode.

Or it is Ultralinear working model with a Red LED. Once turned on it will keep working at the same mode before switching off.

**⑦. Input Selector Indicator**

You can hear sound from AUX when AUX indicator is on.  
You can hear sound from CD when CD indicator is on.  
You can hear sound from PHONO when PHONO indicator is on.  
USB Input Indicator: Once USB input has been selected the indicator will light.

Cayin CS-55A can memorize last operation of the unit once turned off.

**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

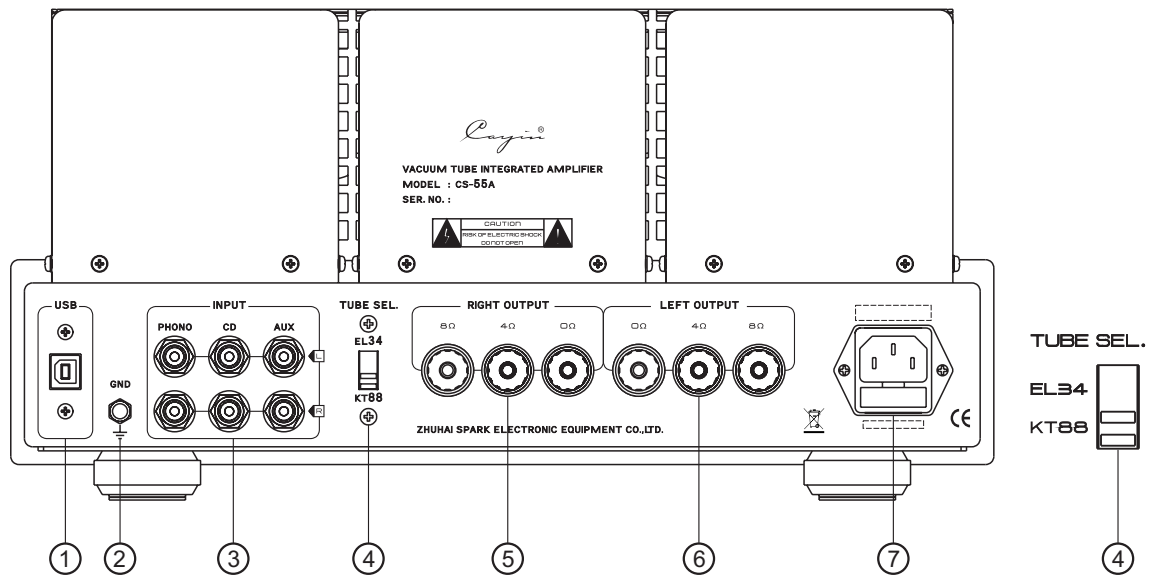


Diagram 2 : CS-55A BACK

### ①.USB Interface

Connect to the computer with USB cable.

### ②.Ground

Ground for Phono input

### ③.Signal Input Terminal

Used for audio source input.

### ④.Tube Selector

Select tube EL34 or KT88 .

### ⑤. Right Channel Output

Used to connect with the right channel of speaker.

### ⑥. Left Channel Output

Used to connect with the left channel of speaker.

### ⑦. Power Socket with Main Fuse

Main fuse is located just below the power socket.  
Replace the fuse with the same type and value.

### Method of Power Tube Replacement:

1. Refer to the "Tube Replacement" on page 13 and find out which kind of tubes can be used for replacement for CS-55A amplifier.
2. Tube Sel. switch 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 instruction please refer to the manual instruction on page 9.

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

# Top Panel

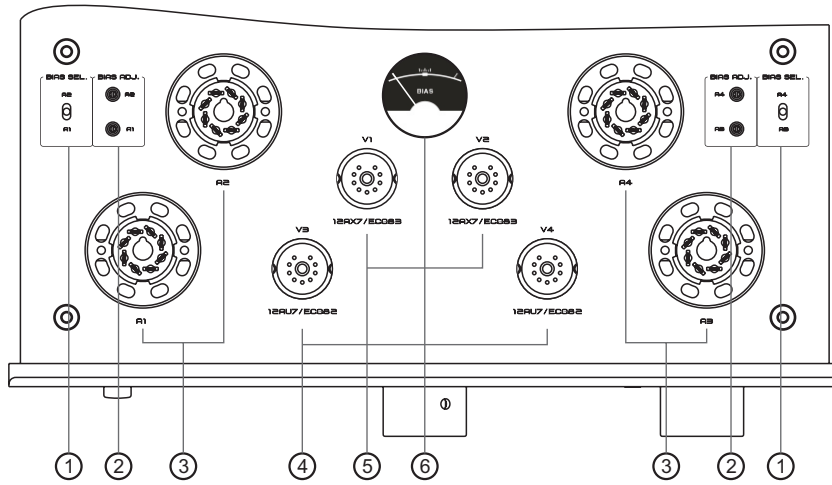


Diagram 3 : CS-55A TOP

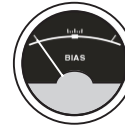


Diagram 4  
Bias meter when not working



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. **Bias Selector Switch (A1、A2、A3、A4)**  
Used to select corresponding tube for bias adjustment.
- ②. **Bias Adjustment Switch(A1、A2、A3、A4)**  
Used to adjust bias of corresponding power tube(A1、A2、A3、A4)
- ③. **A1、A2、A3、A4:KT88/EL34 Tube**  
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.
- ④. **V3、V4:12AU7/ECC82 Tube**
- ⑤. **V1、V2:12AX7/ECC83 Tube**
- ⑥. **Bias Meter**  
Used to monitor the working current of the power tube.

## 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

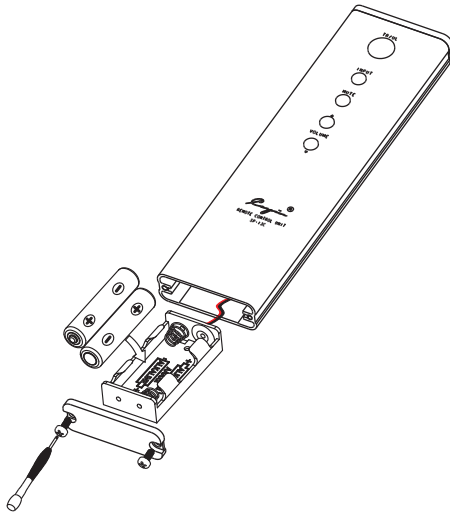
### A1:

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:

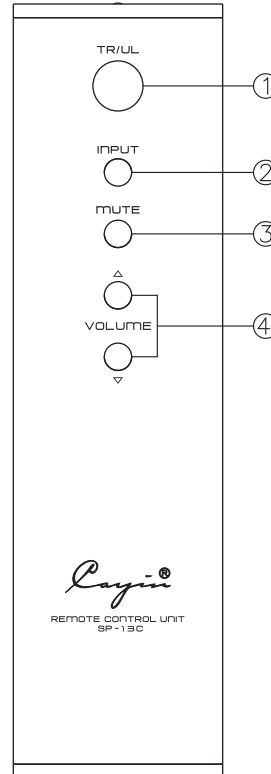
- 1.Be careful of the high temperature of the tubes during operation.
- 2.Replace the tubes carefully and correctly.
- 3.Power tubes must be matched for well function.

# Remote Control

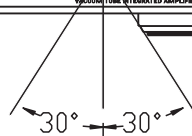
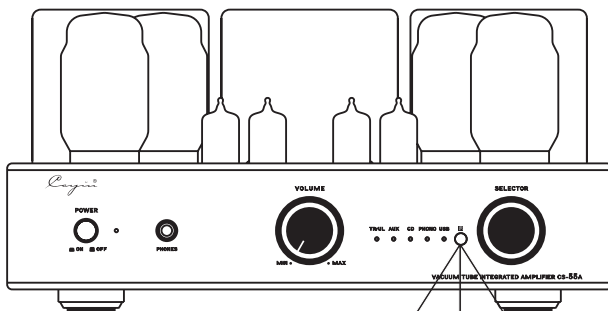


## Installation

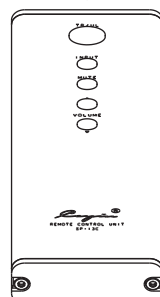
1. Place the remote control upside up. Screw the rear cover open with the screwdriver.
2. Pull out the battery case carefully (do not break the wires connected).
3. Put in the batteries with correct polarity.
4. Push in the battery case and screw the rear cover close.



1. TR/UL Selector
2. Audio Source Input Selector
3. Mute Button
4. Volume Control Selector



Effective Distance : about 6m



## 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.



## Operation system requirement

Computer should meet the following requirements if you are going to use USB audio:

### 1.Hardware requirement:

- ◆ Intel or AMD CPU with 1.2GHz or higher processing speed.
- ◆ Higher than 512MB system RAM.
- ◆ High speed USB 2.0 socket.

### 2.Operation system requirement:

- ◆ Windows system: Microsoft Windows XP、 Windows Vista , Windows 7® and Windows 8®
- ◆ Mac OS X system: Apply OS X (10.6.3 or above)
- ◆ Other system: No support for Linux system or others.

### 3.Suggested Media player:

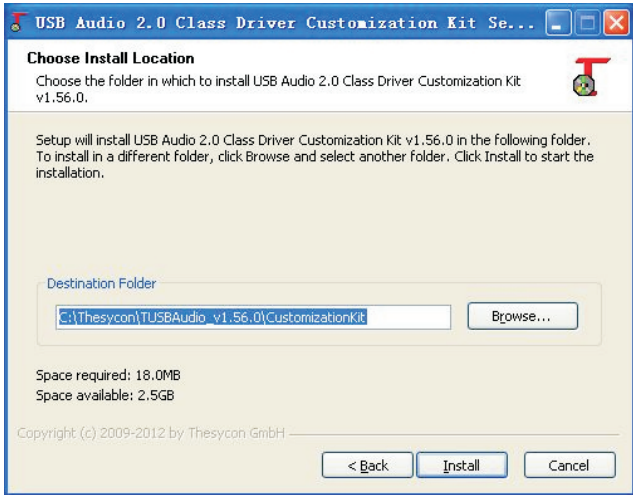
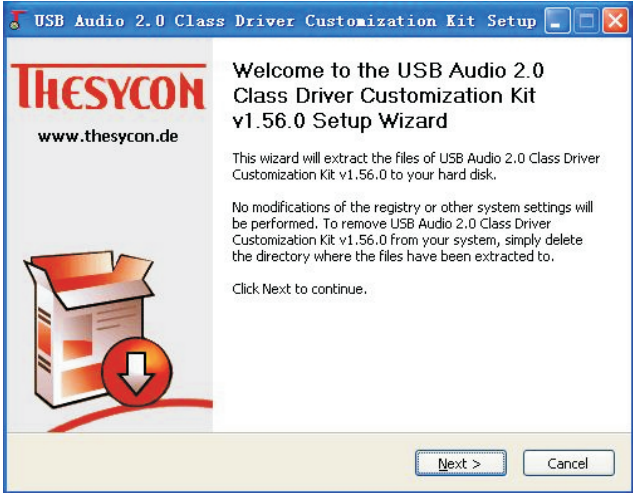
- ◆ Windows system: Foobar 2000 media player (1.0 or above)
- ◆ Mac OS X: Audirvana media player

## Installation of Driver Software

Install the USB Audio driver software first before using the PC-DAC input. Please check as following for the procedures.

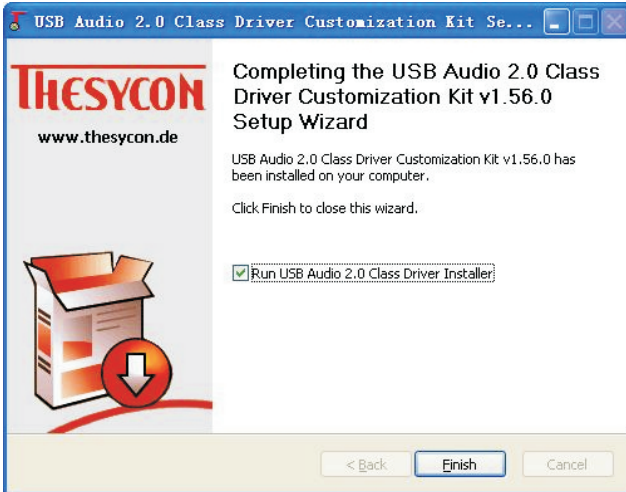
- 1.Connect the amplifier and computer with USB cable.
- 2.Put the driver CD into your computer and open the files. Double-click “T” to run the driver installer. As below:

3. Click “Next” to choose the installation location.

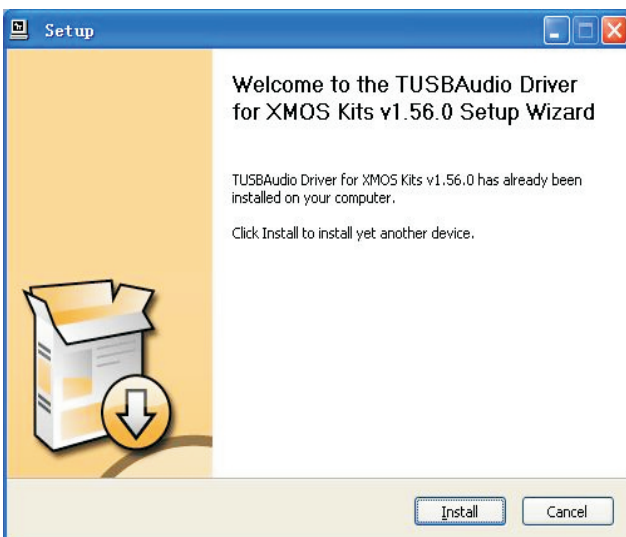


## Installation of Driver Software

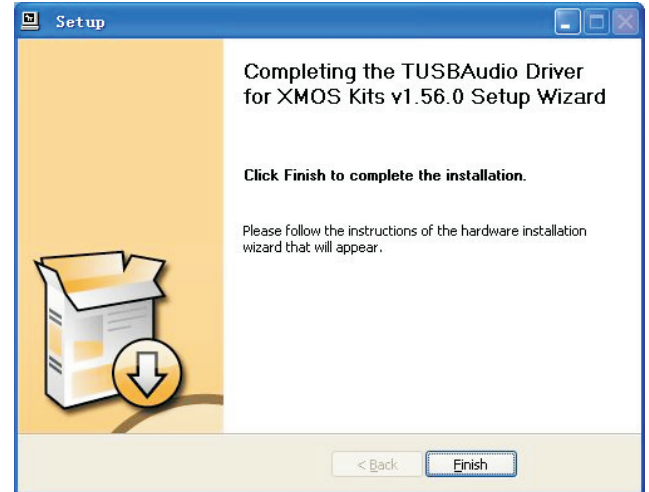
4. Select the installation location and click Install to begin installation of the driver software.



5. Click Finish to finish installation of the driver software and install USB Audio Class 2.0 driver software.



6. Click Install to begin installation of USB Audio Class 2.0 driver software.



7. Click Finish to finish installation of USB Audio Class 2.0 driver software.

8. In Media player please choose Cayin USB DAC as the output instrument and then you can music by USB DAC of the CS-55A amplifier.

Note: No need to install the driver software for Mac System.



## 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.

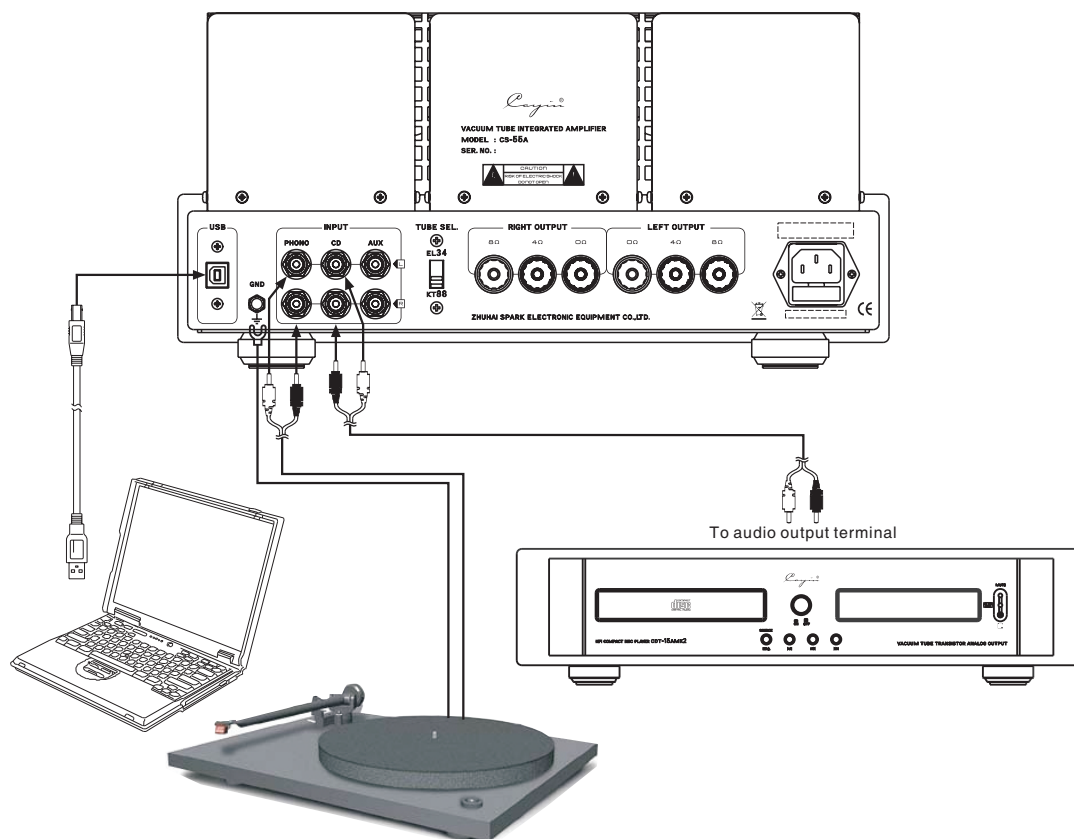
## Tube Replacement

Tubes for the Machine	Tubes Replacement
12AX7/ECC83	12AX7EH, E83CC, ECC803S
12AU7/ECC82	12AU7EH, E82CC, ECC802S
KT88	KT88EH, 6550, 6550EH, KT66, KT90, KT100
EL34	6CA7, EL34EH, KT77

# Audio Connection

Please take the following picture for your reference of the connection methods of CS-55A amplifier with other equipments like Computer, cd player and turntable etc.

Connection with the computer: please use the USB cable attached or other USB cable which complies with USB 2.0 specification to connect the USB Audio input interface and computer.

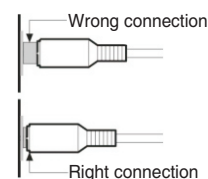


**Note:**

- ◆ Do not mix up the positive and negative ends of speaker cables or it will cause short circuit.
- ◆ Please make sure local power supply is at the same level as the rated voltage level indicated on the rear of the product before connection.
- ◆ In order not to cause noise, low-grade function or damage, please do not insert the power cord into the main socket before all other equipments are well connected.
- ◆ Once switched on there is a period of 35 seconds for pre-heating of the tubes among which there is no signal output.
- ◆ Please switch off the amplifier first if you are going to pull off the USB cable .

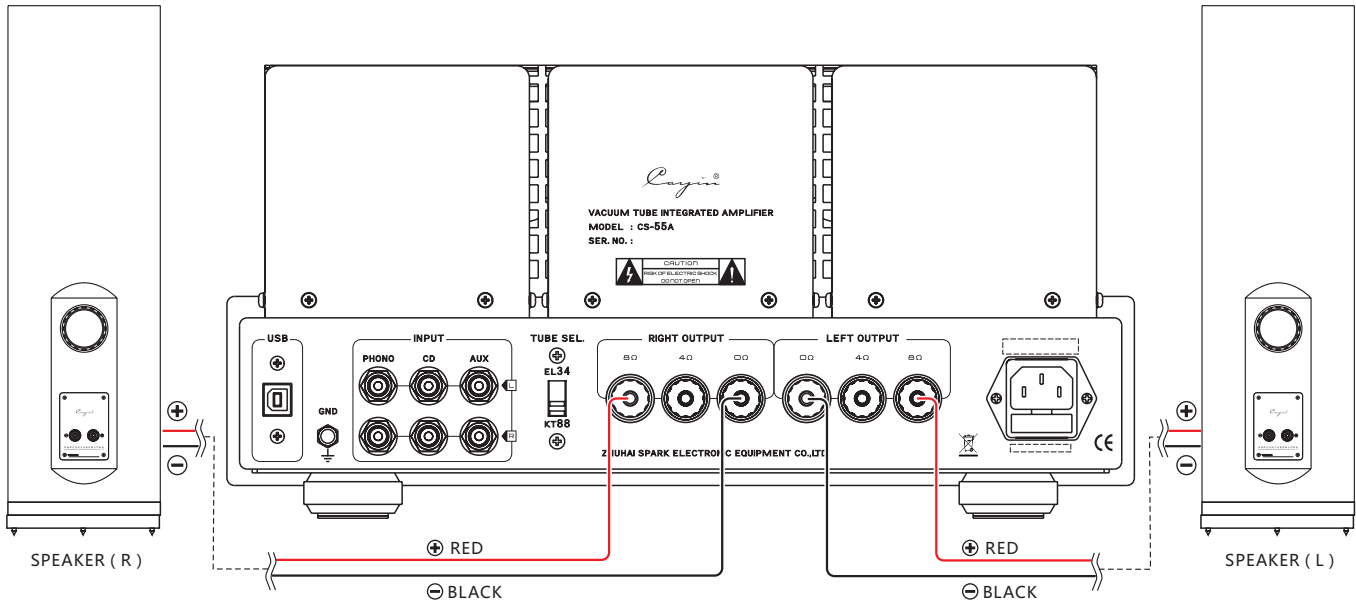
**NOTE:**

- 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

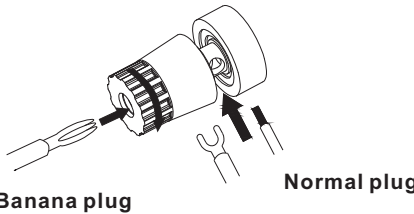


### Check the impedance of your speakers:

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

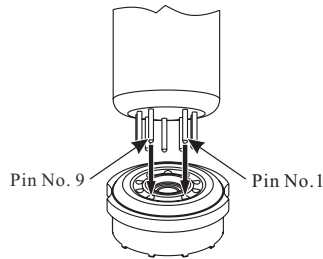
Please follow the instruction in the manual in order to keep the amplifier work in its best state. If wrongly operated and you thought that would be troubles please check according to following tips to look for the exact reasons.

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 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.
Can't lock the USB signal		USB cable is not well connected.	Connect the USB cable well
		USB Audio Device has not been set.	Set USB Audio Device
		No USB data	Keep the Media Player in working state
Computer can't recognize the device		The USB line is not according to the USB2.0 specification	Replace the USB line
		USB driver has not been installed	Install the USB driver
		USB driver error	Restart the computer
The sound is abnormal when the input status is USB		USB socket error	Choose another USB socket
		Computer is too busy	Reduce the running application program
		The hardware resource of computer is too low	Upgrade the computer if necessary

**NOTE:** *Rayii*® 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:**

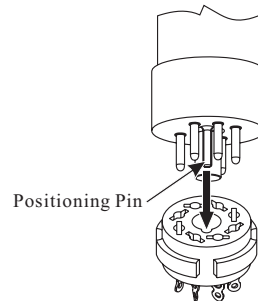
12AU7 (ECC82)、12AX7 (ECC83)、5BK7、12BH7、12AT7 (ECC81)、6922 (ECC88), etc. 9-Pin vacuum tubes.

**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:**

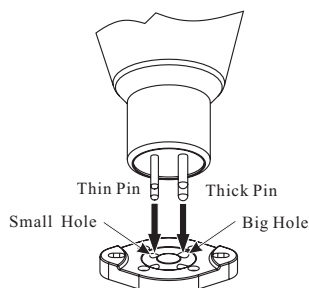
KT150、KT170、KT88、6550、EL34、6V6、6SN7、6SL7、5AR4, etc. 8-pin vacuum tubes.

**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:**

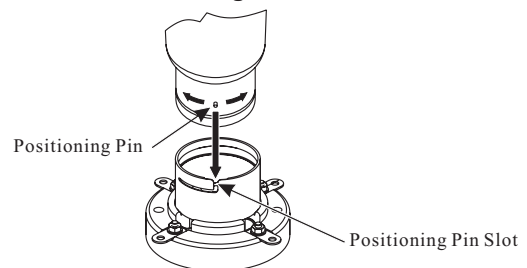
300B、2A3 etc. 4-pin vacuum tubes .

**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.