

*Carot One*

ERNESTOLONE Audiophile Class D Tube Amplifier  
with 24/96 DAC





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## 1. Introduction

Thank you for your purchase of Carot One ERNESTOLONE Class-D stereo Headamp, Preamp with 24bit 96KHz DAC and power amplifier.

Carot One introduces the mini-size Class-T stereo amplifier ERNESTOLONE providing up to 2 x 25W output with the bundled AC power supply unit. With our special techniques in circuit design and component selection, ERNESTOLONE achieves the sound quality of high-end Hi Fi but in a very affordable price.

## 2. Features

- Digital class-D amplification for audiophile quality sound, high power efficiency (90%) and less heat generation
- Tube pre-amplification provide high clarity in reproducing high end recording music
- Digital to analogue convertor to convert your PC music directly through the USB port supporting up to 24bit, 96kHz
- Compact design (mini-size & light weight), easy portable and setup
- Provide up to 2 x 25W output
- An AC adaptor is bundled for continuous power supply.
- MCU programmed power on/off sequence to avoid un-pleasant “pop” noise during power on / off.
- Standard audio and speaker sockets compatible with most audiophile quality cables.
- Built-in over-current protection.
- Built-in over-temperature protection
- Audiophile-graded parts and components
- Air-core inductor used instead of magnetic-core for better sound
- The stylish & specially-plated aluminum case provides not only good-looking, and also provides outstanding shielding capability.



## Safety Guidelines

### Important safety instructions

This product is designed and manufactured to meet strict quality and safety standards. However, you should be aware of the following installation and operation precautions.

#### **1. Take heed of warnings and instructions**

You should read all the safety and operating instructions before operating this equipment. Retain this handbook for future reference and adhere to all warnings in the handbook or on the equipment.

#### **2. Water and moisture**

The presence of electricity near water can be dangerous.

Do not use the equipment near water, for example next to a bathtub, washbowl, kitchen sink, in a wet basement or near a swimming pool, etc.

#### **3. Object or liquid entry**

Take care that objects do not fall and liquids are not spilled into the enclosure through any openings. Liquid filled objects such as vases should not be placed on the equipment.

#### **4. Placing the equipment**

Only use a rack or shelf that is stable and strong enough to support the weight of this equipment.

#### **5. Ventilation**

Do not place the equipment on a bed, sofa, rug or similar soft surface, or in an enclosed bookcase or cabinet, since ventilation may be impeded. We recommend a minimum distance of 50mm around the sides and top of the equipment to provide adequate ventilation.

#### **6 Heat**

Locate the equipment away from naked flames or heat producing appliances such as radiators, stoves or other appliances that produce heat.

## **7 Climate**

The equipment has been designed for use in moderate climates and in domestic situations.

## **8. Cleaning**

Unplug the unit from the mains supply before cleaning.

The case should normally only require a wipe with a soft, lint-free cloth. Do not use chemical solvents for cleaning.

We do not advise the use of furniture cleaning sprays or polishes as they can cause indelible white marks.

## **9. Power sources**

Only connect the equipment to a power supply of the type described in the operating instructions or as marked on the equipment.

The primary method of isolating Solo Mini from the mains supply is to use the switch on the rear of the unit. Solo Mini must be installed in a manner that makes disconnection possible.

## **10. Power-cord protection**

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to the point where they exit from the equipment.

## **11. Power lines**

Locate any outdoor antenna/aerial away from power lines.

## **12. Non-use periods**

If the equipment is not being used for an extended period, we recommend that you unplug the power cord of the equipment from the outlet, to save power.

## **13. Abnormal smell**

If an abnormal smell or smoke is detected from the equipment, turn the power off immediately and unplug the equipment from the wall outlet. Contact your dealer and do not reconnect the equipment.

## **14. Servicing**

You should not attempt to service the equipment.

Contact your dealer to arrange servicing.

### **15. Damage requiring service**

The equipment should be serviced by qualified service personnel when:

- A. the power-supply cord or the plug has been damaged, or
- B. objects have fallen, or liquid has spilled into the equipment, or
- C. the equipment has been exposed to rain, or
- D. the equipment does not appear to operate normally or exhibits a marked change in performance, or
- E. the equipment has been dropped or the enclosure damaged.

### **Safety compliance**

This equipment has been designed to meet the EOCENE 60065 international electrical safety standards.

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

### **WARNING:**

Due to the mains switch being located on the rear panel, the apparatus must be located in an open area without anything obstructing access to the mains switch.

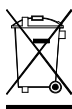
Mains plug/appliance coupler is used to disconnect device and it shall remain readily operable.

### **Correct disposal of this product**

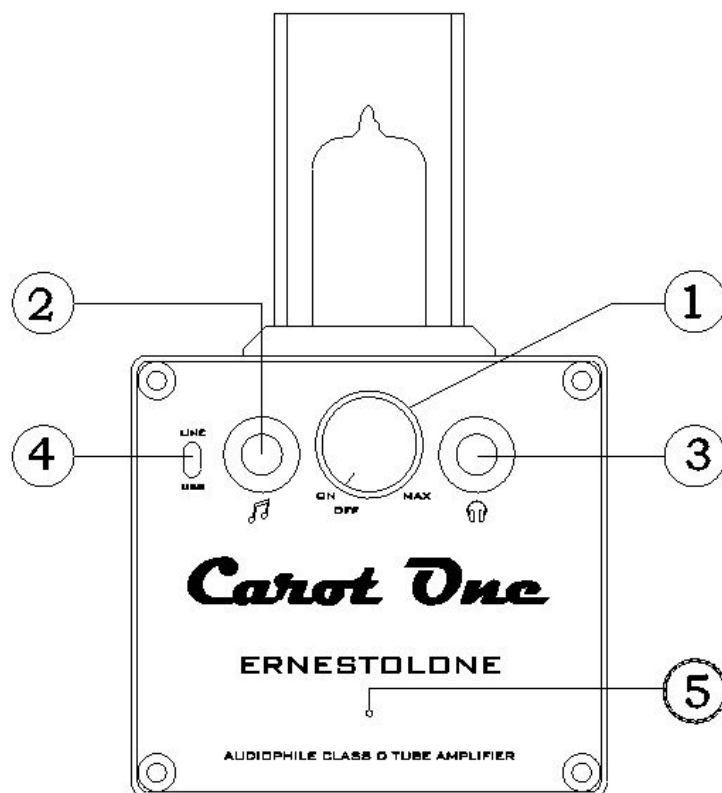
This marking indicates that this product should not be disposed with other household waste throughout the EU.

To prevent possible harm to the environment or human health from uncontrolled waste disposal and to conserve material resources, this product should be recycled responsibly.

To dispose of your product, please use your local return and collection systems or contact the retailer where the product was purchased.



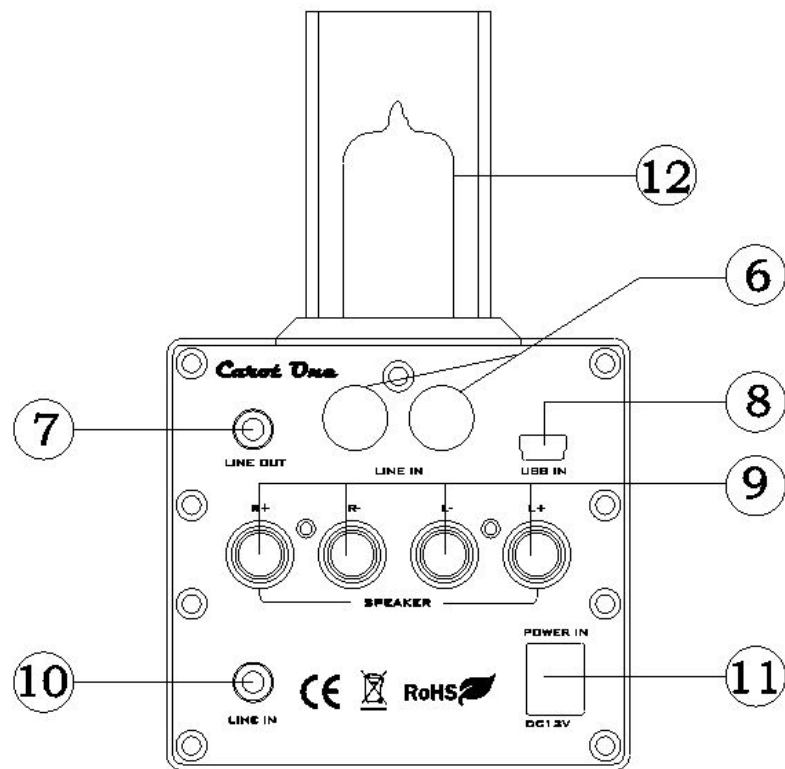
## 3. Overview



1. Volume Controller and Power On/Off.
2. 3.5mm AUX input socket for MP3, etc. (over-ride rear input)
3. 3.5mm Headphone socket
4. Input selector
5. Power Indicator

### **WARNING:**

When plug in your headphone or MP3 into the mini jack (2 and 3), always plug in a vertical way. NEVER shake the mini jack as this will permanently damage the internal structure of the socket causing bad contact of signal.



6. Audio input. The audio signal input (LEFT/RIGHT) connects from audio source (e.g. CD player) to the amplifier by the RCA audio cable.
7. Pre-amplifier audio signal line output, you can connect to external amplifier using this output. Once connected, amplifier of ERNESTOLONE will be overridden.
8. USB input from PC (use supplied USB cable)
9. Speaker Output (Binding Post)
10. Amplifier audio signal line in. You can connect your external pre-amplifier to this input. Once connected, pre-amplifier of ERNESTOLONE will be overridden.
11. Power Supply Socket; Plug the bundled AC Adaptor to this socket to supply power to this amplifier.
12. Vacuum Tube (6922)

## **WARNING:**

When plug in mini jack cable to (7) or (10), always plug in a vertical way. NEVER shake the mini jack as this will permanently damage the internal structure of the socket causing bad contact of signal.



### 3.1 Connection

The mini series is easy to use product. Simply connect your source (CD player, MP3 player, etc..) and speakers following below steps, you can enjoy the high quality music in a second:

- Connect your CD player to the "Line In" RCA socket (6) using normal RCA audio cable (not included)
- You can also connect your MP3 player to the 3.5mm AUX input socket (2) using a mini jack cable (not included). Once this input is used, it will over-ride the rear RCA input (6).
- You can connect your PC/laptop to ERNESTOLONE using the supplied USB cable
- Connect your speakers to the binding post (9)
- Connect the power adaptor to the "Power In" connector (11)

It's now all set and you are ready to enjoy your music.

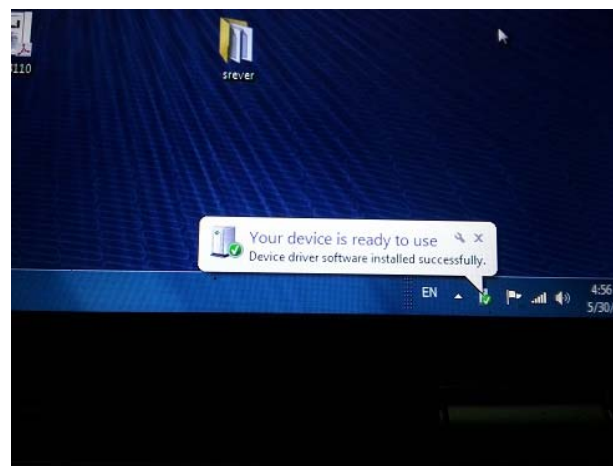
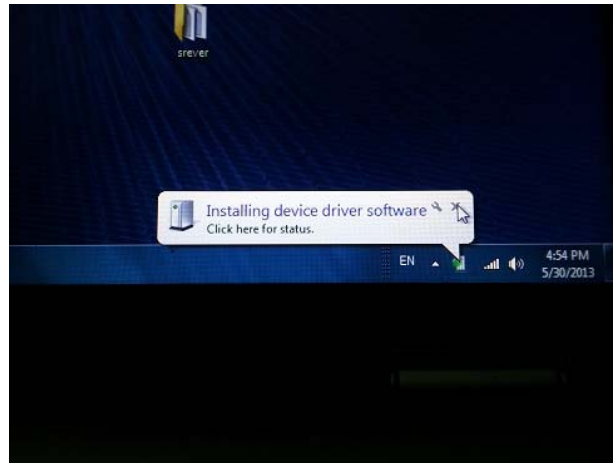
### 3.2 Operation

Please follow the below steps such that you can enjoy the product without any difficulty:

- Turn the "Volume controller" (1) clockwise to turn on your ERNESTOLONE. Now the vacuum tube (12) will slowly turn on and you will see blue light from the top window. After a few seconds, the amplifier will turn on automatically and power indicator (5) will turn to blue color.
- Now, you can use the Input Selector (4) to select music source (line / USB)
- If "USB" input is selected, please refer to below section 3.2.1
- If "line" input is selected, play your source equipment and you can hear music from your speakers. Now, you can control the volume level by turning the "Volume controller" (1)
- There is a "3.5mm Headphone socket" (3) in the front panel. You can connect your headphone to the unit. Once your headphone is connected, the speaker output will be disconnected automatically.
- **To turn off the amplifier**, turn the "Volume controller" (1) counter-clockwise until you hear "click". Now, you will see both the tube (12) and the "Power Indicator" (5) turned off.

## 3.2.1 Selecting USB input

Once your USB cable is connected to ERNESTOLONE, you will see below screen from your PC / laptop:



After your device is installed, you will find ERNESTOLONE in your playback device as below, and your USB is ready for use.





## 4. Specifications

### 4.1 Specification of the Power Amplifier Unit

Output Power	2x25W @4ohm 2x12W @8ohm(RMS)
Signal-to-Noise Ratio (SNR)	98dB
Dynamic Range	98dB
THD+Noise Audiophile Quality	0.03% @ 9W 4Ohm 0.15% @ 8W 4Ohm 0.11% @ 6W 8Ohm
High Power	10% @ 15W 4Ohm 10% @ 10W 4Ohm
Input Audio	IN RCA (Left/Right) x 1
Power Socket	2.1mm x 1
Speaker OUT	Banana socket x4
Other	Volume & Knob Power ON/OFF switch x
Power Indicator	(Blue LED) x1
Power Supply	DC 12V-13.2V (max.)

### 4.2 Specification of the Headphone Amplifier Unit

Signal-to-Noise Ratio	(SNR) 92dB
Power Output	600m Watts per channel on 32 Ohm Headphone
Frequency response	15 Hz - 100 kHz -1db
Input Impedance	10k Ohms
Input Audio	CD IN RCA (Left/Right) x 1 [3Vpp max.]

### 4.3 Specification of the PC USB

USB version	USB2.0 Full speed compliant supported USB Audio Class 1.0
Resolutions	16/24 bit supported
Sampling rate	8/16/32/44.1/48/96 kHz supported



#### 4.4 Specification of the Pre Amplifier Unit

Vacuum Tube	6DJ8/6922 series or 12AU7 series (exchangeable)
Signal-to-Noise Ratio (SNR)	92dB
THD + Noise	0.05% @ 10k ohm    0.15% @ 33 ohm
Input Audio	CD IN RCA (Left/Right) x 1 [3Vpp max.]
Output Audio	OUT 3.5mm x 1
Headphone	OUT (3.5mm) x 1
Knob Audio and power switch x 1	
Power Indicator	(Blue LED under Tube Socket) x1 Volume Knob x 1
Power Supply DC 12V-13V (max.)	

#### 4.5 Specification of the AC Adaptor

AC Input Universal AC 100V-240V/50-60Hz  
DC Output DC 12V 5A (60W)  
DC Plug DC 2.1mm  
Ripple & Noise  $\leq 25\text{mV}$   
Over-load Protection 105%-150%  
Over-voltage Protection 115%-150%  
Dimensions (L)78mm x (W)50mm x (H)33mm

## 5. Technical Notes (for professional user only)

Carot One has already pre-set the jumpers and fine-tuned the DC bias voltage of each ERNESTOLONE with the packaged vacuum tube before shipping. However, changing different tubes to taste for different sound is the great fun for many audiophiles and also a great feature of ERNESTOLONE.

There are some important notes should be aware before changing tubes.

ERNESTOLONE supports two major tube series:

- (1) 6DJ8, 6922, 6N11, 6H23n, ECC88, E88CC, etc., and
- (2) 12AU7, 5963, 5814, ECC82, etc.

If you change the tube within the same series, it needs to re-tune the DC bias voltages ONLY.

If you change the tube from another series, it needs both to re-tune the DC bias voltages and re-set the jumpers. Otherwise, the tube may be burnt out.

The power amplifier jumper setting for Different Tube Series

You can simply configure the amplifier to support the two different tube series by resetting the jumpers in DP1 in the PCB as shown in section 5.1.

**(Remember to power OFF the machine before setting)**

## 5.1 DC Bias Voltage Tuning

Since each tube might deviate a bit in parameters, especially from different series, it needs to re-tune the DC bias voltages to guarantee the machine is working in the best point and performing the best sound quality.

There are two blue precise adjustable potentiometers (P1, P2) for tuning the DC bias voltage of each channel. The DC bias has been tuned in factory. But after run-in for a period or changed another tube, it would be deviated that the fine-tuning is needed.

Before you tune these, you need a screwdriver (take off the case), a small screwdriver. (Turn the screw of the potentiometer) and a (digital) multi-meter to detect the DC bias voltage:

1. Use screwdriver to take out the two upper level screws in the front panel & another two screws in the back panel. Then, open the upper case.
2. Power ON the machine with no audio signal input.
3. Wait at least 5 minutes for the machine to run in.
4. Use the multi-meter to detect the DC voltage between the test point A (L) [red] in the PCB & the GND [black] (e.g. the ring of the power switch or the outer ring of those RCA sockets) of the LEFT channel.
5. Turn the screw on the top of the P1 potentiometer by a small screwdriver clockwise or anticlockwise until the voltage as close as to +6~+8V.
6. Then, repeat step 4 and 5 for the RIGHT channel by changing the test point to A (R) [red] and turning the screw on the top of the P2 potentiometer.
7. Power OFF the amplifier.
8. Cover back the upper case and tighten the screws.



## 6. Troubleshooting

If your machine is out of order, it may not be very serious. Before you call your local distributor or us to repair, you are suggested to check the following:

SYMPTOM	POSSIBLE CAUSE	REMEDY
cannot power ON indicator not bright	power cords not properly connected	properly connect the power cords
no sound at all	The audio cable not properly connected	properly connect the audio cable
	wrong input is selected	check input selection
	the speaker cables not properly connected	properly connect the speaker cables
	Your PC has not finish recognize ERNESTOLONE	Wait until the last screen is seen
USB DAC issue	No driver installed	Make sure PC support plug and play
		Try another USB port
Sound quality problem	Playback at low sampling rate	In your device player setting, select higher sampling rate
Hum	tube not fully pushed in	Insert Tube securely
	audio connector plug not fully pushed in	Insert plug securely
sound out(s)	loose connection	check input and output connections.

## 7. Accessories

- . USB 2.0 cable x 1
- . EH 6922 Vacuum Tube x1
- . +12V power supply x 1
- . User Guide x 1

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Website: [www.carotone.it](http://www.carotone.it)

Email: [info@carotone.it](mailto:info@carotone.it)

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