

# Spartacus

## Mono Power Amplifier

by Thrax Audio

### Operating Manual

Manual issued 05/03/2012

#### CAUTION

THE UNIT CONTAINS NO USER SERVICEABLE PARTS. DO NOT REMOVE THE COVERS. LETHAL VOLTAGES ARE PRESENT WITHIN THE CHASSIS.

NEVER OPERATE THE AMPLIFIER WITH THE CHASSIS COVERS REMOVED.  
DO NOT OPERATE THE UNIT IF WET OR NEAR WATER.

THE AMPLIFIER IS FAIRLY HEAVY. BE SURE TO USE PROPER LIFTING TECHNIQUES TO AVOID BACK STRAIN AND INJURY. BE CERTAIN TO INSTALL IT IN A SECURE LOCATION FROM WHICH IT CAN NOT FALL OR TIP OVER.

**WARNING:** Do not allow anything to touch the tubes in normal operation - they become very hot. Take care to keep everyone, especially children and pets, from being able to reach and touch the tubes, which become extremely hot and may cause serious injury. Never touch a tube if the glass is broken. The internal structures carry high voltage and could present a serious, possibly lethal shock. If a tube breaks, unplug the amplifier and wait 30 minutes, then remove the tube. Keep flammable objects away from the amplifier.

TIME SPENT FAMILIARIZING YOURSELF WITH THIS MANUAL WILL BE WELL REWARDED.

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## IMPORTANT SAFETY INSTRUCTIONS

**READ ALL INSTRUCTIONS:** All the safety and operating instructions of your Thrax Audio equipment should be read before power is applied to the equipment.

**RETAIN OWNER'S MANUAL:** These safety and operating instructions should be retained for future reference.

**HEED WARNING:** All warnings on the unit and in the operating instructions should be adhered to.

**FOLLOW INSTRUCTIONS:** All operating and use instructions should be followed.

**CLEANING:** Unplug the unit from the wall outlet and leave for at least 30 min. - make sure the unit is not hot before you start cleaning. Use dry or damp soft cloth to clean the surfaces. Do not use corrosive, abrasive or spray for cleaning.

**VENTILATION:** Do not block any ventilation openings. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers). The unit should not be installed in a built-in location such as a bookcase or rack unless proper ventilation is provided.

**GROUNDING:** Do not defeat the safety purpose of the grounding-type plug. A grounding-type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

**POWER CORD PROTECTION:** Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.

**LIGHTNING:** Unplug this apparatus during lightning storms or when unused for long periods of time.

**SERVICING:** Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as if the power-supply cord or plug is damaged, liquid has been spilled inside the appliance or it has been exposed to moisture, the appliance does not operate normally, or has been dropped.

**DO NOT OPEN THE CABINET:** There are no user serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your warranty.

**WARNING:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

## INTRODUCTION

The Spartacus mono power amplifier is the world's finest audio amplifier and an absolutely unique component. Its unusual topology, premium parts, and flexibility make it a pleasure to hear and operate. Spartacus is two stage shunt regulated Directly Heated Triode power amplifier.

### Features

2 inputs – one unbalanced on RCA and one balanced on XLR

Amplification level switch – low, medium and high

Speaker impedance switch - 4 Ohm / 8 Ohm

### Inside you get

Tube rectified choke input PSU feeding film reservoir capacitors. Then each stage has it's own constant current fed shunt regulator.

The input/driver stage is a single ended directly heated triode with grounded cathode and fixed bias and loaded with a rather special Japanese transformer.

The output stage is a pair of directly heated triodes operating independent windings on the same Japanese Permalloy core transformer biased trough innovative servo circuitry. The heating of all the filaments is done trough voltage controlled current sources.

The case is made of plates of different thickness machined solid aircraft grade aluminium.

## SPECIFICATION

- Inputs
  - 1 unbalanced RCA connector
  - 1 balanced XLR connector
- Output ..... up to 70W in 4  $\Omega$  or 8  $\Omega$
- Power supply ..... 115 or 230 V
- Power consumption ..... 380W
- Dimensions ..... 210W x 440D x 420H mm
- Weight ..... 35Kg
- Finish ..... Black or Silver anodized aluminum
- Tube compliment :
  - 1x PX 25 amplification
  - 2x EML520B-V3 amplification
  - Г-811 shunt regulator
  - ЦГ-13П voltage reference
- 2x 6 $\Delta$ 22C rectifier

## UNPACKING AND INSTALLATION

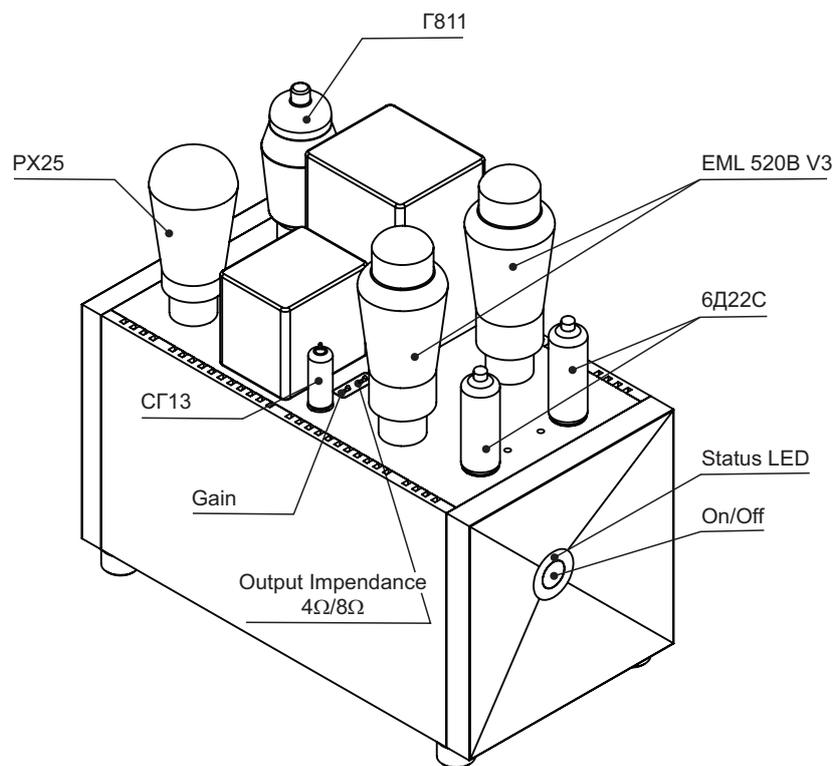
### Unpacking

All Thrax Audio shipping boxes have been specially designed to protect their contents and special care has been taken to prevent damage under normal shipping conditions. Mishandling should be evident upon inspection of the shipping container. Carefully remove your new component from its packing and examine it closely for signs of shipping damage. We strongly recommend saving all original packing to protect your component from damage should you wish to store it or ship it at a later date.

The Spartacus is shipped with the vacuum tubes removed. Tubes are supplied in separate box. Unpack carefully, keep in mind Spartacus weights 35 kg!

### Installing the vacuum tubes

The drawing below shows the tube location.



Fit each tube into the matching socket firmly, noting the location of holes in the socket and pins of the tubes, taking care to make sure that pin pattern corresponds to holes in tube socket.

Tubes EML520 B V3 , PX25 and Г811 are fitted with two large and two small pins, pay attention to align properly.

Tubes 6Д22C and Г811 are fitted with caps – fit the cap carefully, do not apply excessive force.

When inserting and removing tubes, handle them by their bases, not by their glass bulbs.

## INSTALLATION

- Provide adequate ventilation. Do not operate on carpet or any other surface that might block air flow. The chassis will become warm in normal use!
- Do not allow the chassis to touch any metal parts, such as the frame of an equipment rack. This might create a parallel ground path that could degrade the sound of your system.
- Input connection is via single ended RCA jacks or XLR jacks (which can be from balanced or unbalanced sources).
- Connect the input and speaker cables.
- Connect the power cables from the power supply to the power amplifier.
- Connect the power supply to the power source indicated on the voltage selector card (visible by the main fuse), either 115 or 230 volts AC. The voltage may be select by means of the removable selector card located behind the fuse in the power connectors. Remove the cards and reinstall so that the desired voltage may be read; be certain to change the fuse to the correct value. Connect the power supply to the power source indicated on the rear panel. Avoid power conditioners that float the ground pin. ALWAYS connect power cord to component before plugging it into an AC outlet, and make sure that unit's power switch is set to the "OFF" position before making the final connection. For best performance, try to route the power cord away from signal cables.
- Power requirements are approximately 380 watts per channel. Pay close attention to power quality, and be aware that different power cords can alter the sound.
- Set the output impedance switch to either "4 ohm" or "8 ohm" to suit your loudspeaker. Connect the speaker cables: the black lead goes to "-", the red lead goes to "+". For further information see Tips : Impedance Matching.
- Select the appropriate sensitivity of the input via the "Gain" switch. It has 3 positions:
  - H – high gain – to be used with preamplifiers with very low output impedance capable to drive 600Ohm loads and provide 2V undistorted in it.
  - M – medium gain – moderate input impedance matching most equipment it needs 4V well within the capabilities of most preamplifiers.
  - L – low gain – to be used with some tube preamplifiers with higher than usual output impedance it would need to deliver 8V for full power. See Tips: Input gain
- Set the input type switch to XLR or RCA, to match the source and cables.

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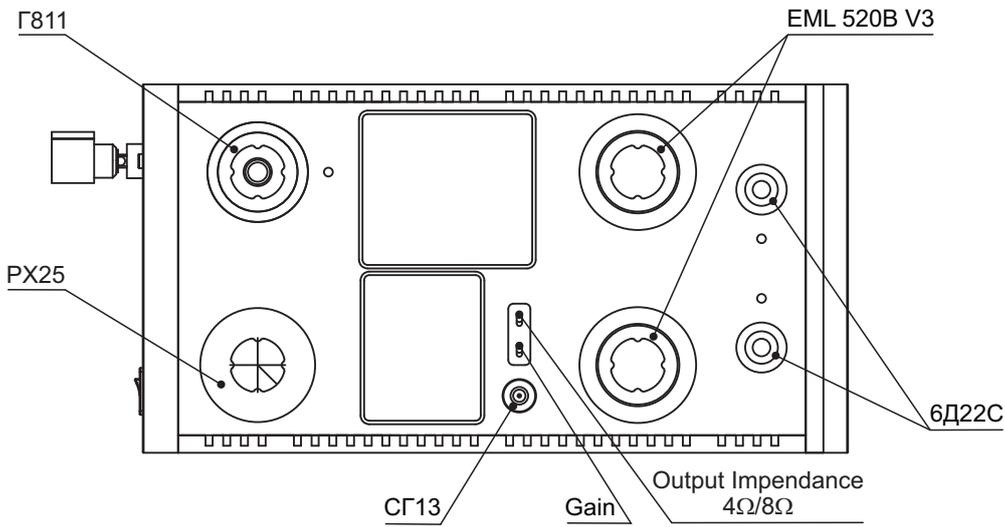
# TOP PANEL

## Amplification level switch

- low, medium and high positions to match to the preamplifier output.

## Output impedance switch

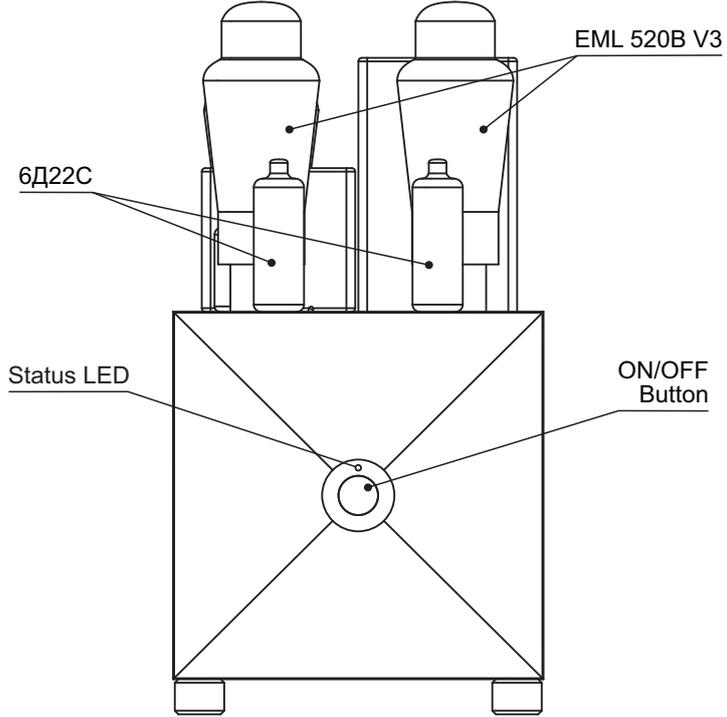
- 4 Ohm / 8 Ohm to match the loudspeaker impedance.



# FRONT PANEL

## "ON/OFF" Button

Switches the unit on and off. See OPERATION SECTION for details.



## BACK PANEL

### Inputs

A XLR jack is provided for balanced connection to a pre-amplifier.

The "INPUT SELECT" switch is set to the BALANCED (down) position - the switch lights red.

RCA (single ended) connection normally is made to the RCA jack.

The INPUT SELECT switch is set to "RCA" (up) - the switch lights green.

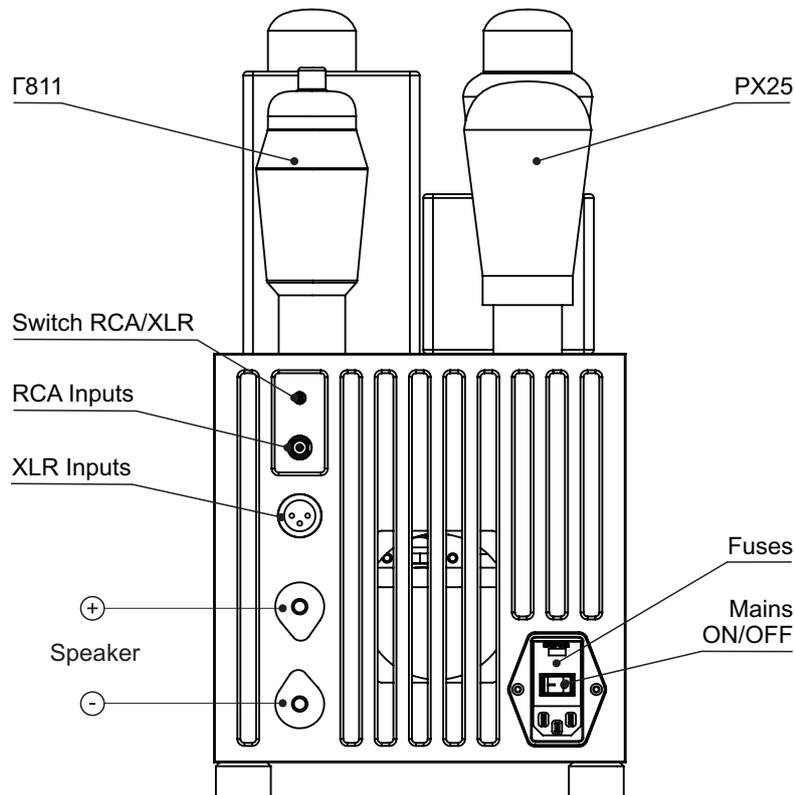
**NOTE:** Do not remove and connect input cables or speaker cables while is amplifier is running. Doing so risks damage to your loudspeakers or the amplifier. Do not operate the amplifier without a loudspeaker.

### Speaker output

The speaker cables connect to the Speaker Connectors. Either banana jacks, bare wires or spade plugs can be used. If bare wire is used, be careful that no stray strands get loose that could cause a short-circuit. The "Common" or "Ground" lead connects to the black jack. The "Hot" lead goes to red jacks. Bare wires and spade plugs must be tighten by rotating the ratchet screw clockwise.

### A/C Fuses

There are fuses located in the IEC power connector on the back panel. For 220 volt operation 6.3 amperes "slow blow" fuses are used. For 110 volt operation the fuses should be 10.0 amperes. If power does not come on, contact your authorized service representative or consult the factory for more information.



## OPERATION

For initial power up press the main switch located on the back panel. The LED on the front panel lights red indicating the unit is now in stand by mode.

To switch the power amplifier on press the "ON/OFF" button located on the front panel. The LED indicator flashes red to green whilst warming up for about 3-4 minutes. Red LED turns to green when your Spartacus is ready for use.

If after switching the unit on by pressing the ON/OFF button, the front LED flashes in red, this is to indicate a malfunction. Please turn the unit off and seek advice from your Thrax Audio dealer.

To turn the power amplifier off press the "ON/OFF" button. However if you are not going to use the amplifier for a long period we recommend turning it off, using the power switch on the back panel, to save power.

As with all high fidelity products, the sound characteristic changes somewhat as it warms up. Best sound will be achieved after about 15 minutes of operation.

Any time that the Spartacus power amplifier has not been used for a few weeks the sound may be different. This is also normal for high resolution audio equipment. Optimum sound should return after a few hours of operation, preferably with an audio signal.

Note that although your Thrax Audio System has been run for 72 hours at the factory, it will continue to "break in" for approximately 150 hours. Also be aware that many components display the need for a new break in period after being transported in unheated cargo aircraft.

## **Impedance Matching**

The available impedance settings on your Spartacus are:

- 8 ohms – use for speakers rated 6 to 16 ohms
- 4 ohms - use for speakers rated 2 to 6 ohms

Since the impedance of most loudspeakers vary over a wide range experimentation is essential. Most speakers have a rated impedance of 4 or 8 ohms. We recommend starting with the 8 ohm connection; after you know the sound of that connection, try the 4 ohm connection. Choose the connection that sounds best to your ears.

## **Input Gain**

The sonic signature of the power amplifier changes slightly with this switch as the load presented to the preamplifier changes drastically. Depending on the quality of the preamplifier and its output impedance and drive capability you might get better results on a different setting than the recommended. Interconnect cables present a different coloration at the different gain setting. Choose the setting that matches your taste and system.

## **Tube replacement**

Your Spartacus has a built in timer that counts the tubes working time. When tube replacement is due, after switching the unit on, the green LED will keep flashing after warm up time elapses. You may continue using your Spartacus mono amplifier but the sound quality will soon start to deteriorate. We strongly advise you to order replacement tubes from your Thrax Audio dealer as soon as possible.

After replacing the tubes you should reset the timer - in stand by mode (main switch on the back panel is on) press the "ON/OFF" button on the front panel for 10 seconds.

