

# LAB 12

Owner's Manual

## **suono Mk2**

25W Class A Single Ended Power Amplifier

[www.lab12.gr](http://www.lab12.gr)

v1.11

# LAB 12

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## Table of Contents

|  |           |
|--|-----------|
| <b>It is yours.....</b>                      | <b>4</b>  |
| <b>Unpacking and warnings.....</b>           | <b>4</b>  |
| <b>Features.....</b>                         | <b>5</b>  |
| <b>Installation &amp; Placement.....</b>     | <b>5</b>  |
| <b>Suono Tubes Position.....</b>             | <b>6</b>  |
| <b>Front Panel.....</b>                      | <b>7</b>  |
| <b>Rear Panel.....</b>                       | <b>8</b>  |
| <b>Main connections.....</b>                 | <b>9</b>  |
| <b>Bias Setting.....</b>                     | <b>10</b> |
| <b>For the safety of your equipment.....</b> | <b>10</b> |
| <b>Specifications.....</b>                   | <b>11</b> |
| <b>Warranty.....</b>                         | <b>12</b> |

## **IT IS YOURS!**

Thank you for selecting Lab12 suono, an audiophile Class A power amplifier. Every component on it is designed to provide smooth and untreated sound. It is a full tube amplifier with 6n2p NOS Russian driver tubes and KT150 or KT120 on power stage. Suono can cooperate gratefully with any preamplifier on the market and it is the perfect match for Lab12 pre1. Suono has the ability to nail you down on your couch and make you listen all your music collection again. Full power for your speakers is here, but the most remarkable point is that you will receive a fluid, wide and addictive consonant sound with any choice of music style. All components are carefully chosen after hours of listening and testing, while paying great attention to every detail affecting the outcome. Like every Lab12 device, suono has an ultra-solid construction with glass blasting anodized finishing and retro analogue V/U meters.

Do not forget that your suono is totally handcrafted with perfectly matched parts of the finest selections. In order to reach the optimal performance, your suono needs at least 150 hours of listening. In this time all components go from “burn in” period to stable.

Before setting up your new suono, we encourage you to thoroughly read this manual to properly acquaint yourself with its features. We love music and audio devices and we have built your new device with emotion and personal treatment.

The information contained in this manual is subject to change without notice. The most current version of this manual is available on our official website at <http://www.lab12.gr>.

## **Unpacking**

Suono should be removed from its box with care. Remove all the foam protective pieces of the box before you unpack suono. Unpack suono with your hands on both sides of the device.

## **Warnings**

No user serviceable parts are included inside. Do not unscrew the cover; high voltages remain after disconnecting from mains. In case your device requires any kind of service or upgrade, please ship or take your equipment to an authorized dealer or directly to Lab12.

Always use the same type of fuse for replacement.

## Features

- 6550, KT88, KT120, KT150 compatible
- Low noise toroidal power transformer
- Easy Manual Bias Adjustment on the top of the housing
- Triode / Ultra Linear selector switch
- No feedback design.
- SRSG® implementation
- Fine symmetry® implementation
- Analog retro Nissei VU meters
- 5mm Aluminum face panel
- Five Years Guarantee

## Installation & Placement

**Lab12 suono** should be placed on a solid flat surface. You should avoid placing it near a heat source as this could compromise suono's performance and reliability.

Carefully put the tubes in dedicated sockets. Make sure that the tubes are perfectly snap into sockets. See bellow page.

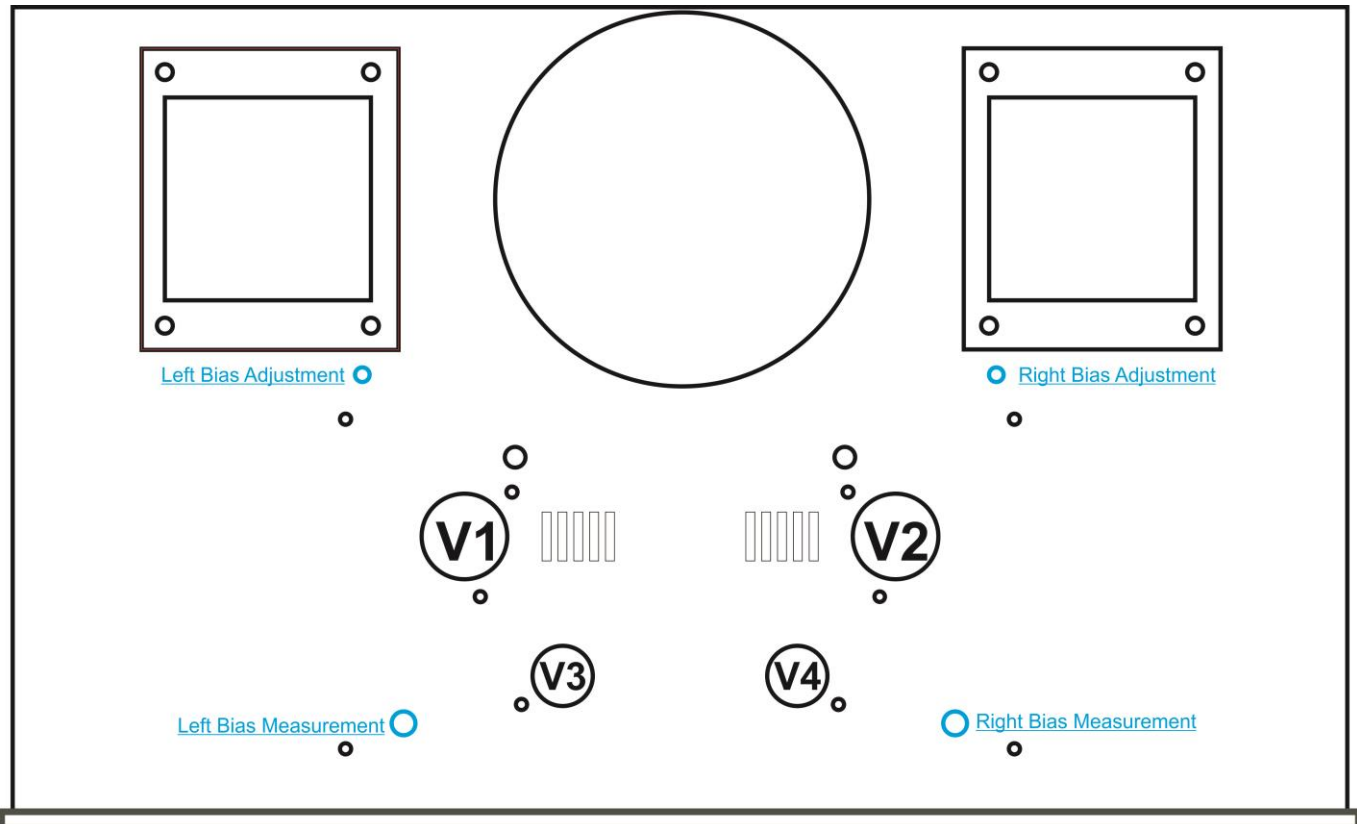
Due to high power tubes' design, suono's chassis could be hot so you should never place another hot component directly near this device. **Make sure that the device has enough space to ventilate.**

**Tubes will be hot, this is normal. Be careful not to touch the tubes during the operation to avoid any injuries.**

Take care of the glass blasting anodized finish of front panel with a soft cloth. No need to use any sprays or polishes. Never use cleaners containing abrasives, as this will damage the surface.

## Suono Tubes / Bias Positions

Insert the tubes carefully in each position. All of the tubes are marked with the position number that was placed during calibration and factory burn in of suono. All tubes included in the box are perfectly matched during calibration to achieve a perfect balanced operation.



Please locate the bias measuring and adjustment positions on top of housing.

V1 : KT150 / KT120

V2 : KT150 / KT120

V3 : 6n2p

V4 : 6n2p

## Front Panel



SUONO Front panel

In the front panel you will see three indication LEDs and two VU meters.

The three LEDs **(C)** indicate that the device is powered on.

To the left of the 3 LEDs, you will see a retro analog VU meter **(A)**. You can accurately monitor the output level of left channel on dB scale.

To the right of the 3 LEDs, you will see a retro analog VU meter **(B)**. You can accurately monitor the output level of right channel on dB scale.

## Rear Panel



SUONO Rear panel

In the rear panel you will find the connection inputs and outputs.

On the right side you will find an **IEC AC input**. Below IEC input **(A)**, the main fuse holder **(B)** and the **Power switch (C)** are located.

A pair of RCA connectors **(F)** is located about in the middle of the back panel. It is the input of the signal from your preamplifier.

Below signal input you can find the speaker outputs. **(D & E)**. You have the choice of 4 or 8 ohm output for perfect matching with your speaker impedance.



## Main connections

Connect a High-Grade Power cable to the IEC input and to your wall socket. Make sure that your wall socket provides a good ground before connecting the power cable. You must supply 230 to 240 Volt AC/ 50Hz (115 to 120 AC Volts / 60Hz). (Every **suono** is tuned and calibrated using the **Lab12 Knack mk2 Power Cable**. We strongly suggest using this cable).

## Connect to your Preamplifier

Connect the preamplifier analog output to the analog line level input of your suono Power Amplifier. Make sure about the correct channel connections. We suggest using a good quality interconnect cable pair.

## Connect your Speakers

Connect your speakers to the additional output of suono (connect speakers from 2 to 4 ohm at **4ohm** positive bind, speakers from 6 to 16 ohm at **8ohm** bind). Make sure about the phase and polarity of speakers, always connect "plus" (red) bind of suono to "plus" (red) bind of speaker and same with black.

## Triode / Ultra Linear

You can choose the operation of suono between Triode or Ultra Linear pentode mode, to tune the sound closest to your taste.

This can be done through two toggle switches on the top cover. Position both switches towards to transformers for Triode mode or towards to tubes for Ultra Linear pentode mode.

**Always do this selection with your amplifier turned off.**

## Notes:

Suono is fully compatible with the best octal tubes (6550, KT88, KT120, KT150). You can use any of these four types of tubes with no problem. **Please always set correct bias after any tube change, always use matched pairs of tubes (contact Lab12).**

## Bias Setting

**Please contact a qualified person or your local dealer if you are not sure about this procedure.**

You can easily set the bias of each tube from the top panel of the amplifier.

You must use a DC multimeter. Please set multimeter in 5VDC range.

Turn on the amplifier (with connected speakers at outputs and connected inputs without signal).

Connect minus (black) terminal of multimeter at any minus (black) speaker bind. Connect plus (red) terminal of multimeter at measurement point (please see **page 6**) of tube you need to bias.

Use trimming screwdriver to set the voltage at 950mVDC (KT150 setting) or 850mVDC (KT120 setting) from corresponding trimmer (please see **page 6**).

Follow the same procedure for each tube.

**Wrong bias will destroy your tubes and possibly your amplifier. Always adjust new tubes bias current immediately after turning on.**

**Repeat bias procedure at least 3 times the first 5 hours of use.**

## For the safety of your equipment

**! Make sure that all your equipment is turned off before any connection.**

**! To avoid damaging your speakers you have to turn on suono some seconds after turning on your preamplifier and turn it off some seconds before turning off your preamplifier.**

**! Never turn on suono without connected speakers or preamplifier on it. It is possible to damage tubes or even output transformers.**

## Specifications

- Power: 230VAC 50Hz (115VAC 60Hz)
- Power consumption: 350 VA max
- Output power: 25 Watt per channel (KT 150)
- Frequency response: 20 Hz-25 KHz (-0.9dB)
- Input impedance: 100K ohm
- Recommended speakers: 4-8 ohm
- Tube complement: 2x 6n2p dual triodes, 2x KT120/KT150 Power Pentodes
- Input sensitivity: 600mV triode mode / 700mV Ultra Linear mode
- Inputs: 1x line stereo (RCA connectors)
- Available Colours: Matt Black, Frozen Silver
- Dimensions (WxHxD): 43x19x29 cm
- Weight: 19Kg

## Warranty

Lab12 products are designed and manufactured to the highest standards and deliver high- quality performance, ease of use and ease of installation. We are confident that you will enjoy many years of good service from your product.

In the unlikely event of a failure of the product, we will arrange for your product to be serviced, free of charge, provided that the product was used in accordance with the instructions in the owner's manual.

Lab12 could modify the design or specifications of any product without obligation to purchasers of previously manufactured products.

**This Warranty is provided for the benefit of the first and original purchaser of the covered product and is not transferable to a subsequent purchaser.**

**Vacuum tubes are warranted for the original 90-day period only.**

**This warranty does not affect your statutory rights. EU rules 1999/44/EK.**

**This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.**

\*Το ακόλουθο κείμενο Εγγύησης περιέχει τις Συνθήκες της Πανευρωπαϊκής Εγγύησης και τις οποίες ο κατασκευαστής LAB12 SMPC εγγυάται προς τον τελικό καταναλωτή. Οι όροι της παρούσας εγγύησης είναι πλήρως εναρμονισμένοι με τις διατάξεις της Οδηγίας 1999/44/EK, έτσι όπως αυτή ενσωματώθηκε στην ελληνική έννομη τάξη και δε θίγουν σε καμία περίπτωση τα δικαιώματα που παρέχονται στον καταναλωτή βάσει του εφαρμοστέου δικαίου.

**Lab12 reserves the right to change or modify any of the terms and conditions contained in this Warranty Statement, at any time and in our sole discretion. Any changes or modification will be effective immediately upon posting of the revisions on the Lab12 website, and you waive any right you may have to receive specific notice of such changes or modifications. In the event that there is a difference between this warranty and the provisions in any owner's manuals, warranty leaflets, or packaging cartons, the terms of this warranty, as published on the official Lab12 website, will prevail to the fullest extent allowed by law.**

**For the warranty to be valid:**

1. The Warranty card, which is placed outside the box of the unit, must be filled out by the authorized seller with the Model of the device, Serial Number, Color, Date of Purchase, Customer's Name and Customer's Address, as well as the authorized seller's point sign.
2. A copy of the purchase receipt must also be attached to this card.
3. A photo of the completed Warranty card, along with the purchase receipt, must be sent to [contact@lab12.gr](mailto:contact@lab12.gr) by the end consumer within one month from the date of purchase.

**What is Covered and how long this coverage lasts?**

Only **new** products purchased through an authorized Lab12 dealer, importer or distributor are entitled for warranty coverage. The Warranty is limited to the first original purchaser and is inapplicable for secondhand products. This warranty covers defects in materials and workmanship in this product for 5 years (or a 90-Days Limited Warranty for vacuum tubes) after the date of purchase or no later than 6 years of the date of shipment to the authorized Lab12 dealer or distributor, whichever comes first.

**What is Not Covered**

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing, and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature.

This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any **Tubes Swaps, Repairs or Modifications** attempted by anyone unauthorized by Lab12, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product.

This limited warranty does not cover vacuum tubes (after the 90-Day Limited Warranty), cartons, scratches on equipment enclosures, cables or accessories used in conjunction with this product.

**What we will do to correct problem**

During the Warranty Period, we will repair or replace, at no charge, products or parts of a product that proves defective due to defects in materials or workmanship, under normal use and maintenance.

**How To Obtain Service Under This Warranty:**

You are responsible for transporting your product to (as well as from, in the event that Lab12 finds no defect covered by this warranty) either Lab12 or an authorized point and for payment of all shipping charges. Lab12 will pay the return shipping charges (in the event you return the product to Lab12) if the repairs are covered by warranty, provided that, Lab12 reserves the right to choose the mode, the carrier and the timing of such return shipping (if Lab12 finds that there are no defects covered by this warranty, then you shall be responsible for all shipping charges).

Lab12 has authorized distribution in many countries of the world. In each country, the authorized importing retailer or distributor has accepted the responsibility for warranty of products sold by that retailer or distributor. Warranty service should normally be obtained from the importing retailer or distributor from whom you purchased your product. In the unlikely event that the technical service required is not possible to be fulfilled through the importer/distributor, this product must be returned to Lab12 main factory in Greece to fulfill the terms of this Limited Warranty at the purchaser's expense (except purchasers that purchase their product directly from our main facilities in Greece), along with the Warranty card and a copy of the proof of purchase for the product. As mentioned above, the Warranty card must list the date of purchase, the model, color and serial number of the product, the name and address of the purchaser and the authorized dealer/importer/retailer detailed sign. Additionally, you must provide detailed information on the symptoms or difficulties you have observed with the product's performance by completing a technical support form that will be provided to you by the authorized importing retailer, distributor or LAB12.

To obtain warranty service, you can also contact directly Lab12 at [contact@lab12.gr](mailto:contact@lab12.gr) or +30-2102845173, to determine the most appropriate solution for you. All warranty claims must be made in writing accompanied by the Warranty card and a copy of the proof of purchase.

Lab12 Single Member Private Company

[Contact@lab12.gr](mailto:Contact@lab12.gr)

[www.lab12.gr](http://www.lab12.gr)

We wish you to enjoy your new device exactly as we enjoyed it when we built it for you!

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