

# LAB 12

Owner's Manual

*integre4* <sup>Mk2</sup>

*dual mono toroid*

Audiophile integrated amplifier

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

v1.3

# LAB 12

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## IT IS YOURS!

Thank you for selecting **Lab12 integre4 Mk2 - toroid**, a new age audiophile amplifier designed to be the core of a modern high-end audio system.

Do not forget that your amplifier is totally handcrafted with perfectly matched parts of the finest selections. All components are carefully chosen after hours of listening and testing, while paying great attention to every detail affecting the outcome. As every Lab12 device, integre4 Mk2 – toroid has an ultra-solid construction with glass blasting anodized finishing.

In order to reach the optimal performance, your amplifier needs at least 150 hours of listening. In this time all components go from “burn in” period to stable.

Before setting up your new integre4 Mk2 - toroid, we encourage you to read this manual thoroughly and get familiar with its features.

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

Lab12 integre4 Mk2 – toroid should be removed from its box with care. Remove the top protective foam of the box before you unpack this device. Safely store the tubes boxes until you secure integre4 MK2 – toroid at its final place.

Unpack integre4 Mk2 – toroid with your hands on two sides of amplifier.

Integre4 Mk2 – toroid box contains:

- Integre4 Mk2 – toroid amplifier
- 4 numbered power tubes
- 4 numbered 6N1P driver tubes
- Remote control
- Bias screwdriver
- Owner’s manual

## 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 directly to Lab12 or to one of our authorized dealers or other qualified personnel. Always use the same type of fuse for replacement.

## Features

- EL34, 6550, KT88, KT120 compatible (KT150 from factory)
- Dual toroidal power transformers
- Remote Control
- Large OLED display
- Blue Velvet ALPS motorized potentiometer
- Sophisticated protection and bias monitoring system
- No feedback design
- SRSG® implementation
- Fine symmetry® implementation
- Upgraded noise reduction chassis
- Upgraded output transformers
- Redesigned dual mono topology
- 5mm Aluminum face panel
- Five Years Guarantee

## Installation & Placement

Lab12 integre4 Mk2 – toroid should be placed on a solid flat surface. You should avoid placing it near a heat source as this could compromise the amplifier's performance and reliability. You should never place another component directly on top of this amplifier. Make sure that your amplifier has an adequate flow of air around it. Amplifier could be hot in some points; this is normal and within parts specifications.

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.

Insert the tubes carefully in each position. All tubes are marked with position number that was placed during calibration and burn in of integre4 Mk2 - toroid.

### Integre4 MK2 – toroid Tubes Positions



All in box tubes are perfectly matched during calibration to achieve a perfect balanced operation.

V1 : KT-150	V5 : 6N1P
V2 : KT-150	V6 : 6N1P
V3 : KT-150	V7 : 6N1P
V4 : KT-150	V8 : 6N1P

- ❖ An optional tube cage (LAB12 TG1) for increased safety and a different aesthetic approach of your amplifier is available to obtain.

## Front Panel

On the front panel you will see the OLED display with bias setting trimmers, the navigation rotary knob and the volume control.



Main Power switch **(A)** is located on the top left of your device. You are turning on the main power of your amplifier from this switch.

With the left rotary/push knob **(B)** you can navigate into menu structure.

The OLED display **(C)** is located in the middle of the front panel. Here you can see all the interface menu details. Below the OLED display you will find the 4 trimmers for the bias adjustment **(D)**.

The right motorized rotary control **(E)** adjusts the output volume of amplifier.

Headphone output **(F)** is located on the right top of amplifier. You can connect your headphones with 6.3mm headphone stereo jack.

## Rear Panel Connections



On the rear panel you will find the input and output connections.

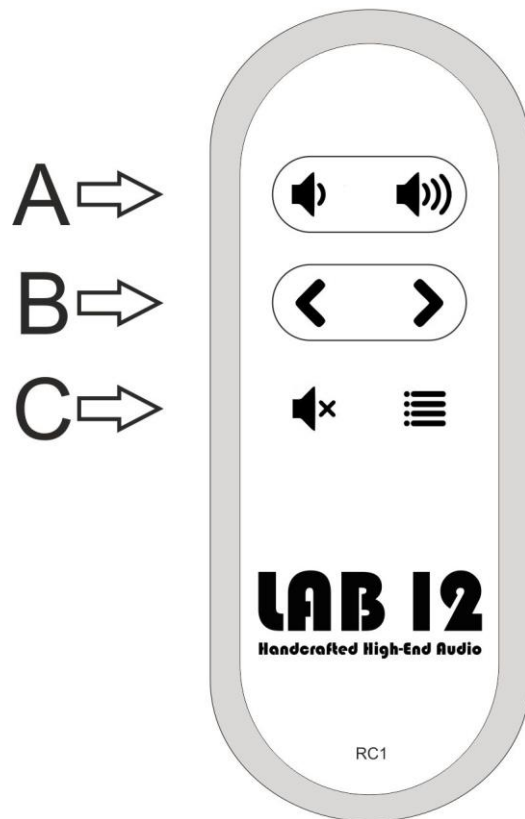
At the left side of the rear panel, you will find five pairs of single-ended RCA analog audio input connectors **(B)** and one pair of XLR input connectors **(A)**. For input 1 you can use only one of the two available types of sockets.

At the right side of the rear panel, you will find two pairs of speakers' outputs **(C)**.

At the right side you will find an IEC AC input **(D)** including a main fuse holder **(E)**.



## Remote Control



Integre4 MK2 – toroid Remote Control

You can fully control your amplifier from IR remote control RC1.

At the top section of the remote control the two buttons for output volume adjustment **(A)** are located.

Below volume buttons you will find two buttons for input selection and menu navigation **(B)**.

Output muting and menu buttons are on the bottom line **(C)**.

## Interface menu structure

Integre4 Mk2 - toroid is a new era tube integrated amplifier; a powerful processor is responsible for the full and safe control of the device. All details can be monitored through the OLED display.

When you turn on your amplifier, the soft start circuit provides about a minute to warm up the tubes.

After warming up time, the amplifier is ready and the menu selections display appears on the OLED display.

	Menu item	Description	Available Actions
1	Input selection	Let you choose the desired input.	Turn the navigation rotary control knob to select the desired input.
2	OLED display contrast adjustment	Configures the OLED display contrast.	Turn the rotary knob to adjust the OLED display contrast.  Push the button again to lock your adjustment.
3	Valves hours	Informs you about the Total working hours of valves.	Push and hold rotary knob to reset this counter. We suggest to reset only after valves changing.
4	Valves bias	Let you adjust the correct bias current for each of power valves.	Turn the rotary knob to inspect the current bias for each power valve. Adjust if needed from corresponding trimmer at the bottom of OLED display. See paragraph <b>Tubes compatibility / bias values</b> for more details. Push again to go back to the main menu navigation.
5	Input options	You can choose the displayed name for any analog input between the given choices or disable this.	Turn the rotary knob to see the available choices for each input. Push again to go back to the main menu navigation.

## Connections

### 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.

Every integre4 MK2 – toroid is tuned and calibrated using the **Lab12 Knack mk2 Power Cable**. We strongly suggest using this cable.

### Connect an analog source

Connect any line level analog source to any of the five available inputs. We suggest using high quality, shielded interconnect cables (RCA or XLR).

### Connect your Speakers

Connect your speakers to the additional output of integre4 Mk2 - toroid. Make sure about the phase and polarity of speakers, always connect 'plus' (red) bind of integre4 Mk2 – toroid to 'plus' (red) bind of speaker and respectively the black one. You can connect any speakers with impedance from 4 to 16 ohm.

### Connect your Headphones

Connect your Headphones to the additional output of integre4 Mk2 - toroid. The dedicated headphones socket exploits the full advantage of tubes and output transformers of your amplifier. You can connect any headphones on this socket. Socket accepts 6.3mm headphones plug.

### For the safety of your equipment

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

**! Never turn on integre4 Mk2 – toroid without connected speakers on it. It is possible to damage the tubes or even the output transformers.**

**! After turning off your amplifier wait at least 10 minutes before turning it back ON.**

## Tubes compatibility / Bias values

Below you will find a bias chart for the most common compatible tubes for integre4 Mk2 - toroid.

**! After changing tubes always turn all the bias trimmers' counterclockwise (cold bias) with bias screwdriver, before turning on the amplifier. Wrong bias will destroy your tubes and possibly your amplifier. Always adjust between following values for each type of tubes immediately after turning on. Repeat bias procedure at least 3 times the first 5 hours of use. Disconnect any input of your amplifier while bias adjustment.**

Tube type	Lower bias limit	Higher bias limit
6L6	11mA	14mA
EL-34	13mA	18mA
6550	23mA	29mA
KT-88	27mA	28mA
KT-120	32mA	39mA
KT-150	38mA	45mA

If you are unsure about correct biasing, please contact lab12 or advise an authorized dealer.

## Specifications

- Power: 230VAC 50Hz (115VAC 60Hz)
- Power consumption: 350 VA max
- Output power: 65 Watt per channel
- Frequency response: 15 Hz – 70 KHz (-1dB)
- Input impedance: 50K ohm
- Recommended speakers: 4-8 ohm
- Tubes complement: 4x 6n1p dual triodes, 4x KT150 power pentodes
- Inputs: (5) 5x unbalanced line stereo RCA connectors, 1x unbalanced line stereo XLR connectors
- Available Colours: Matt Black, Frozen Silver
- Dimensions (WxHxD): 43x19x29 cm
- Weight: 21Kg

## 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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