LAB 12

Owner's Manual

gordian

Multifunctional Power Distributor / Conditioner

www.lab12.gr

v1.7

LAB 12

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IT IS YOURS!

Thank you for purchasing Lab12 gordian. Gordian is an advanced power analyzer, conditioner and distributor dedicated for high-end audio systems.

Keep in mind that gordian is totally handcrafted with perfectly matched parts of the finest selections. OFC Conductors of large cross section, star ground design, high quality tight sockets and industrial grade bindings constitute the unshakable electrical network that delivers power to your system. In order to reach the optimal performance your gordian needs at least 150 hours of listening. In this time all components go from “burn in” period to stable.

Before setting up your new gordian, we encourage you to read this manual thoroughly to properly acquaint yourself 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 gordian removal from its box should be handled with care. You should first remove all the foam protective pieces of the box and then unpack gordian. Unpack gordian placing your hands on both sides of the device.

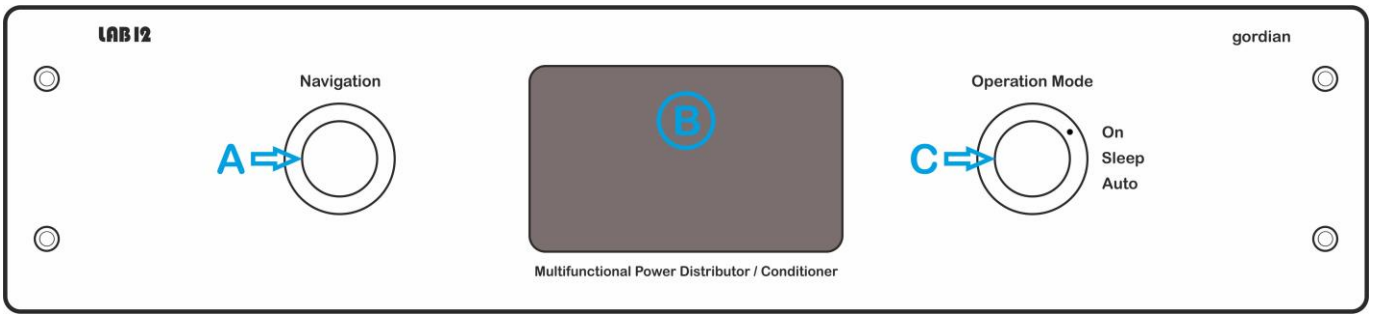
Warnings

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, please ship or take your equipment directly to Lab12 or to one of our authorized dealers or other qualified personnel.

Installation & Placement

Gordian should be placed on a solid flat surface. You should avoid placing it near a heat source as this could compromise the performance and reliability. You should never place another component directly on top of this device. Make sure that your gordian has an adequate flow of air around it. Gordian could be warm in some points; this is normal and within parts specifications. Take care of the front panel’s glass blasting anodized finishing using a soft dry cloth.

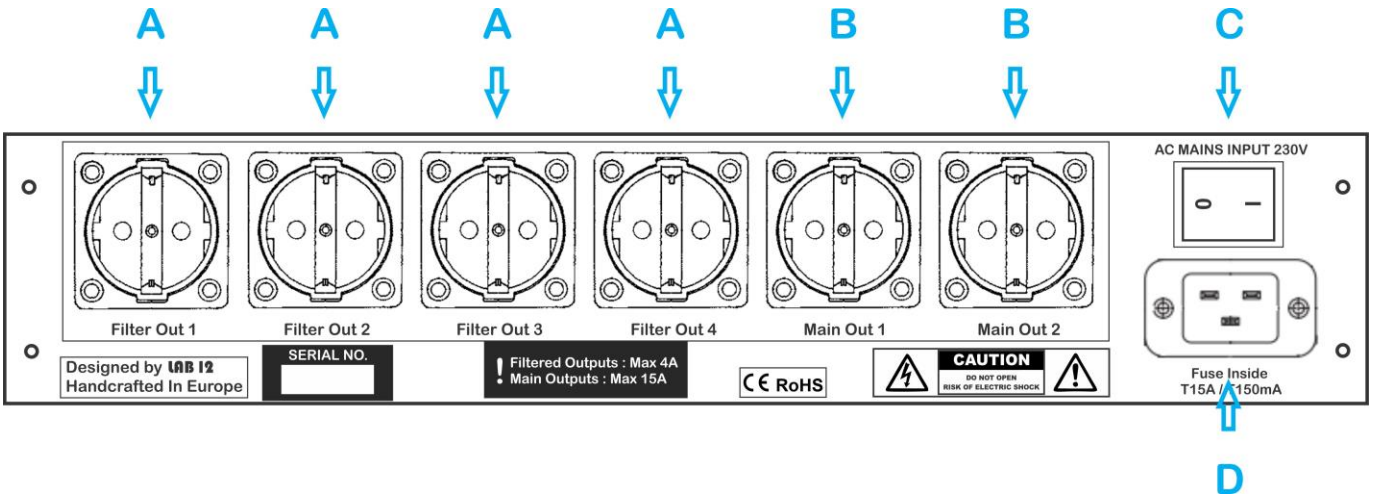
Front Panel



Gordian front panel

In the front panel you will see the OLED display, the Navigation rotary knob and the Operation Mode rotary knob.
The left rotary/push knob **(A)** is there for navigation into device's menu structure.
The OLED display **(B)** is located in the middle of front panel. There, you can see all the interface menu details.
The right rotary knob **(C)** selects the processor operation mode (On, Sleep, Auto).

Rear Panel Connections



Gordian rear panel

On the rear panel you will find the output sockets, the main inlet and the main power switch.
From left to right there are four high filtered, low current outlets **(A)** and two low filtered, high current outlets **(B). When polarity is 'ok', the phase is always in the right-side pin of output sockets.**

On the right side of the rear panel, the main power switch **(C)** and the power inlet **(D)** are located.

Menu structure

All the information for your power line and the configuration of gordian's filter is accessible and updatable through the device's OLED display. You can switch among 11 different menu screens using the "Navigation" rotary/push knob on the left of the face plate. Rotate the knob to navigate through the menu and push it to perform any extra action. See below a brief description of the available menu items.

	Menu item	Description	Available Actions
1	Main AC information	Provides information about the most important characteristics of your power line. That is RMS voltage, frequency, RMS current and power consumption.	-
2	THD Analysis	Provides information about the Total Harmonic Distortion of your system's voltage and current signal.	-
3	DC Voltage and Power Factor Analysis	DC voltage and Power Factor measurement.	-
4	Ground and polarity check	Checks your socket's ground and polarity.	Switch off gordian and invert the direction of your wall socket plug if you see a "Polarity: REV!" message. This is the best for the performance and safe operation of your devices. If you see a "Ground: Broken!" or "Ground: Weak" message this means that gordian has detected a problematic ground connection. Check that your socket plug is firmly connected. If the message remains, then you may need to refer to qualified personnel to have your house's electrical network inspected.
5	EMI noise	Measurement of the EMI noise of your line (frequencies > 10.000 kHz). Output measurement	-

6	Voltage FFT	Frequency analysis of your line's voltage. Inspect here the frequency content of your AC voltage signal (frequency range 50Hz-7kHz).	Push the rotary knob to inspect the frequency content of your voltage signal. You can see the gain of each frequency band by rotating the knob. Push again to go back to the main menu navigation.
7	Current FFT	Frequency analysis of your system's current. Inspect here the frequency content of your AC current signal (frequency range 50Hz-7kHz).	Push the rotary knob to inspect the current content of your current signal. You can see the gain of each frequency band by rotating the knob. Push again to go back to the main menu navigation.
8	Power factor correction configuration	Configures the power factor correction that your filter performs.	Push the rotary knob to select among the available power factor configurations. See paragraph **'Power factor correction configuration'** below for more detailed information. Push the button again to lock your selection.
9	EMI filter effectiveness configuration	Configures the EMI filter effectiveness.	Push the rotary knob to select among the available effectiveness levels. Read paragraph **'Emi filter configuration'** below for more detailed information. Push the button again to lock your selection.
10	EMI filter topology configuration	Configures the EMI filter topology.	Push the rotary knob to select among the available filter topologies. Read paragraph '**EMI filter configuration'** below for more detailed information. Push the button again to lock your selection.
11	Standby current setup	Configures the standby current of your system.	Press and hold the rotary knob to update the standby current of your system. See paragraph **'Operation modes'** below for more detailed information.

Power factor correction configuration

The power factor of your audio system indicates how effectively your system absorbs power from your main AC line. The higher the power factor, the higher the effectiveness of your system's power consumption. You can inspect the power factor of your system at the menu item 8.

WARNING! The power factor of your system may be improved by selecting the proper power factor correction configuration in gordian. However, if the configuration is not the proper one, this may have negative results in your system' s power factor. If you are not sure about what is the best option for your system, set the PF correction mode to 'AUTO' and let gordian adapt the PF correction to the needs of your system and the variations of your system's load. Note that PF correction is usually profitable for power loads greater than 250W.

EMI noise filter configuration

EMI noise is a high frequency electrical noise that affects the power line of all houses' electrical networks. You can see the level of the EMI noise in the input of gordian at the menu item 5.

Gordian, by default, filters a very large percentage of the EMI noise of your line. This noise reduction is occurred in both the input and the output of your gordian power filter. That means that the noise indication you see in the OLED display is the result of the filter existence in your house's electrical network. However, the noise level in gordian's output is always lower than the input's level. EMI indication is factory set to output measurement.

You can fine-tune the EMI filter by configuring the "Filter Effectiveness" (menu item 9) and "Filter Topology" (menu item 10) parameters. Feel free to experiment with these options and stuck to the one that gives you the best sounding result.

In general, "HIGH" Filter effectiveness and "CMF + DMF" filter topology are the more drastic ones. You can take into account the measured EMI level (menu item 5) and the higher band levels of your system's current frequency analysis (menu item 7) to decide on the best filtering configuration.

If you are not sure on what configuration to select, choose "AUTO" and let gordian automatically adapt the filter configuration by mathematically analyzing the frequency content of the signal and the levels of the EMI noise.

Operation modes

On: Gordian's processor is always active and you can see the measurements, settings and automatic adjustments on the OLED display.
Sleep: Gordian's processor and OLED display are inactive. Power output sockets are active, but no changes are occurred on filters and other settings.
Auto: Gordian processor goes to active state only when the standby current exceeds the set value.

You can configure the operation of gordian's processor with the rotary switch on the right side of the face plate. If you want the processor to be always active, switch the knob to the "On" position. If you want the processor to be in sleep mode (output sockets will stay alive), switch the knob to the "Sleep" position. If you want the gordian processor to become active only when your audio system is active and automatically go to sleep when you switch off your system, then you have to configure the "stand by" current of your system and switch the knob to the "Auto" position.

To configure the "stand by" current, shut down all your system's devices and navigate to the standby current setup (menu item 11). Press and hold the navigation button and gordian will store the current consumption of your inactive system. Rotate the operation mode switch to the "AUTO" position and the OLED display will now become active only when your system's current consumption is great enough to indicate that your system is active.

Connections

Main connections

Connect a high grade 20A 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 can supply 230 to 240 Volt AC/ 50Hz (115 to 120 AC Volts / 60Hz). Check the polarity immediately after the first time of usage and correct the wall plug if needed.
Gordian is tuned and calibrated using the **Lab12 Knack mk2 Power Cable**. We strongly suggest using this cable.

Connect devices

You can connect any kind of audio-video devices on the total six power outlets on the back panel of gordian to exploit the conditioned power. Use low filtered outputs **(B)** to connect high current devices (power amplifiers, plasma tv etc.) and high filtered outlets **(A)** for low consumption devices (preamplifiers, cd players, DACs etc.). Live (phase) connection is always in the right pin of each outlet. Never exceed the maximum limits of current for low and high filtered outlets **(low filtered outlets max 15A, high filtered outlets max 4A)**.

For the safety of your equipment

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

! Never exceed the maximum limits of current for low and high filtered outlets (low filtered outlets max 15A, high filtered outlets max 4A).

Features:

- EU, US, UK, Swiss outlets version
- 230V/50Hz, 115V/60Hz version
- OLED display
- Adaptive EMI RFI filtering
- Adaptive Common and differential filters
- Adaptive Power Factor correction
- Overvoltage protection
- FFT analysis
- DC voltage analysis
- THD analysis
- Power consumption analysis
- AC voltage, current analysis
- Sleep mode system
- 5mm Aluminum face panel
- Five Years Guarantee

Specifications

- Number of outlets: 6
- High filtered outlets power (1-4) : 1000W
- Low filtered outlets power (1-2) : 3500W
- Mains inlet: 20A IEC C20
- Mains voltage: 230V / 50Hz (115V / 60Hz)
- Available Colours: Matt Black, Frozen Silver
- Dimension (WxHxD): 43x11x29 cm
- Weight: 8 Kg

Warranty

This device has 5 years warranty for all parts from the day of purchase.

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

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