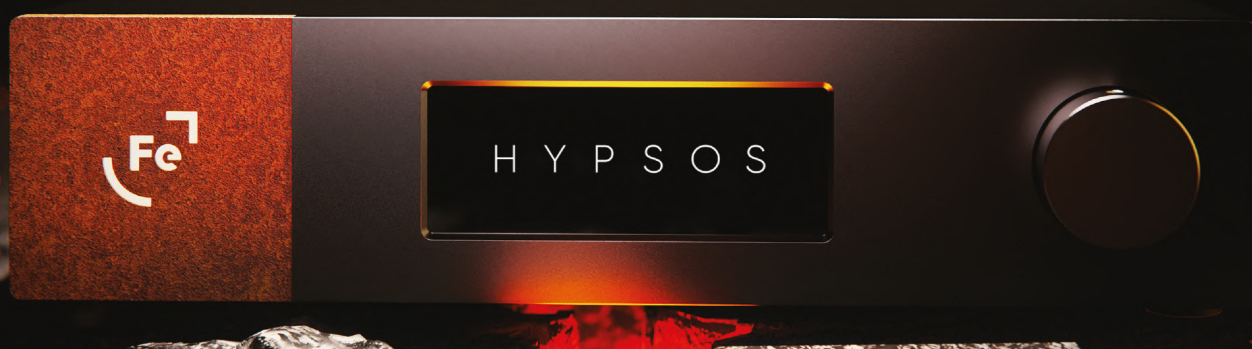


HYPSON
&
HYPSON Dual Output
by **Ferrum**
user's manual



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Thank you for choosing HYPsOS!

HYPsOS is a hybrid power system and combines the best features of both linear and switching power supplies. HYPsOS can power many brands with a simple revolution of a knob. This software based operation is unique to HYPsOS and an industry first! Apart from the ease of operation HYPsOS makes use of a smart combination of existing power sensing techniques, which again sets it apart from the pack. With the HYPsOS power supply your audio system will be taken to the next level!

HYPsOS by **Ferrum**

User Manual September 2024

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1. IMPORTANT SAFETY INFO

Warning: To reduce the risk of fire, electric shock or enclosure discoloration, be sure that the apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed near or on the apparatus.

Note: Always switch off and mute devices when connecting or disconnecting the HYPSON power supply.

Do not allow any objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall outlet. Take the unit to a qualified service person for inspection and necessary repairs.

Read all the instructions before connecting or operating the component. Keep this manual so you can refer to these safety instructions. Heed all warnings and safety information in these instructions. Follow all operating instructions.

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

Do not place the unit on a bed, sofa, rug, carpet, or similar surface that could block the heatsink airflow. If the component is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling.

Keep the HYPSON away from radiators, kettles, heat registers, stoves, or any other appliance that produces heat.

Connect the HYPSON to the power outlet only with an earthed IEC power supply cable or an exact equivalent in a mains socket with protected earthing connection.

The safest and primary method of isolating the device from the mains supply is to disconnect the mains plug. Ensure that the mains plug remains accessible at all times.

Unplug HYPSON during lightning storms or when unused for long periods of time.

Do not attempt to defeat grounding and/or polarization provisions. Do not route the power cord where it will be crushed, pinched, bent at severe angles, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where it exits the back of the unit.

Immediately unplug and stop using the component and have it inspected and/or serviced by a qualified service agency if:

- the power supply cord or plugs have been damaged
- objects have fallen or liquid has been spilled into the unit
- the unit has been exposed to rain



- the unit shows signs of improper operation
- the unit has been dropped or damaged in any way
- when the product exhibits a distinct change in performance.

This indicates a need for service

Warning: When replacement parts are required after the warranty period, be sure the service technician has used replacement parts specified by the manufacturer or have the same specification as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards. Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Note: In households with small children, an adult should provide supervision until the child is capable of following all the rules essential for the safe operation of the unit.

Note: Only use DC cables specified by the manufacturer.

2. BOX CONTENTS

- HYPsOS hybrid power system
- AC power cord
- DC power cord with 5.5/2.5 mm or 5.5/2.1 mm DC jack
- spare fuse
- quick guide

3. DEVICE FEATURES

- Regulated output voltage level in 5-30 V range, current up to 6 A, power up to 80 W
- Hybrid Power System (HYPsOS) design – linear/switching hybrid design to get the advantages from both techniques – low ripple and noise as well as fast transient response and high efficiency
- Sweet Spot Tuning – possibility to fine tune the output voltage for the best sound
- 4-Terminal Sensing Design (4TSD) – ensuring the exact voltage level precisely at the point of the powered device DC input terminal – special cable design and feedback to ensure flat voltage at every moment
- Easy setup procedure – using preconfigured settings from the list of supported devices or setting custom parameters manually
- Advanced automation – trigger in/out connector; possibility to automate power-up of the devices with standby mode even without dedicated trigger connection
- Custom made audio grade power transformer with double shielding
- Double input AC filter
- Automatic Transformer Voltage Adjust (ATVA) and Electronic Output Voltage Polarity Switch
- Tamper-safe design – impossible to accidentally change the electrical settings (voltage, etc.)
- Overvoltage, current limit and short protection
- Compatibility and the best performance with all worldwide mains voltage parameters
- Each unit is unique thanks to corten plate on the front



4. HYPSES OVERVIEW

4.1 Front Panel

- A. Ferrum logo - brightness of logo can be changed in the menu
- B. OLED displays
- C. Encoder knob - this encoder is both a knob and a button. Works as an on/off switch in standby mode and allows you to navigate in the HYPSES menu. To put HYPSES in standby mode press the knob for couple of seconds.

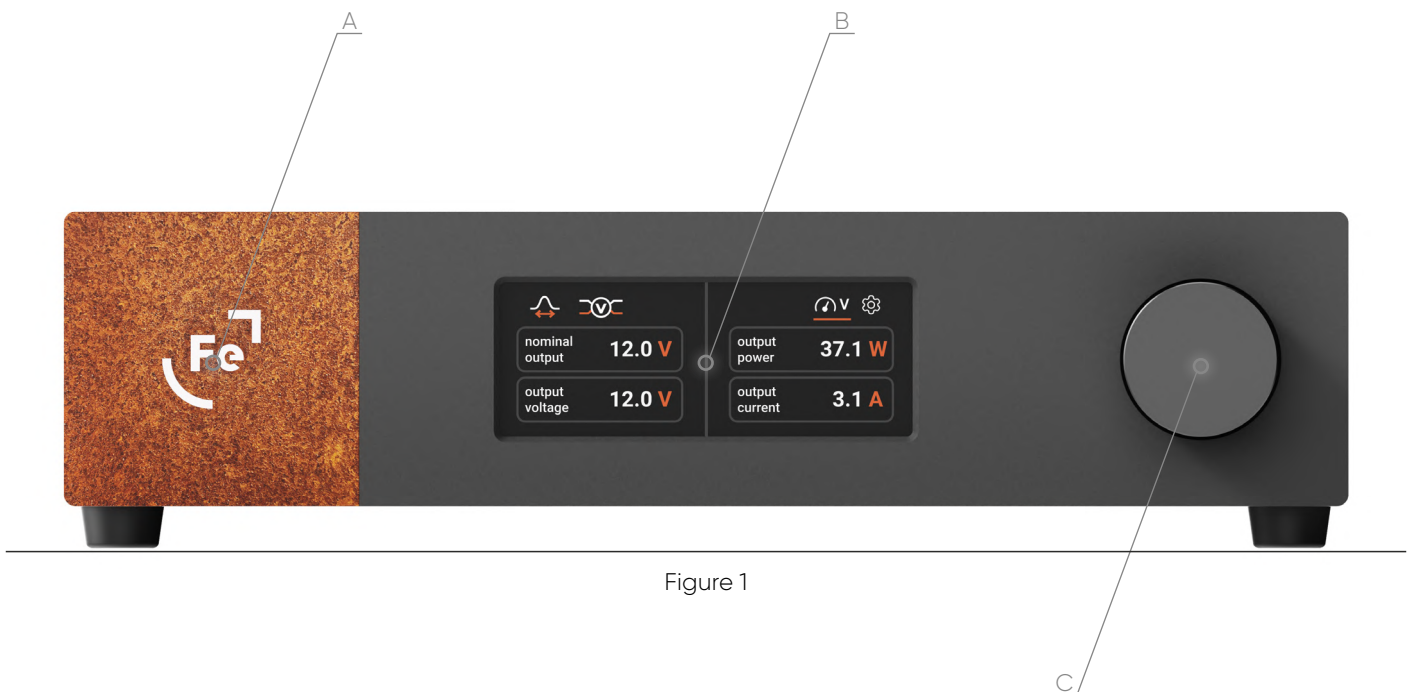


Figure 1

4.2 Back Panel

- A. DC output - here you connect the DC cable. The DC output socket is marked with a red dot. The same dot is also marked on DC cable. To connect the cable properly both dots must be aligned. To disconnect the DC cable, pull the metal ring on the plug in the opposite direction to the device and then pull the cable out of the socket.
- B. MAIN and AUX DC outputs - available only in HYP S O S Dual Output
- C. trigger I/O socket
- D. Micro-USB port
- E. main power switch
- F. fuse
- G. mains IEC connector - place mains power cord at this connector



Figure 2

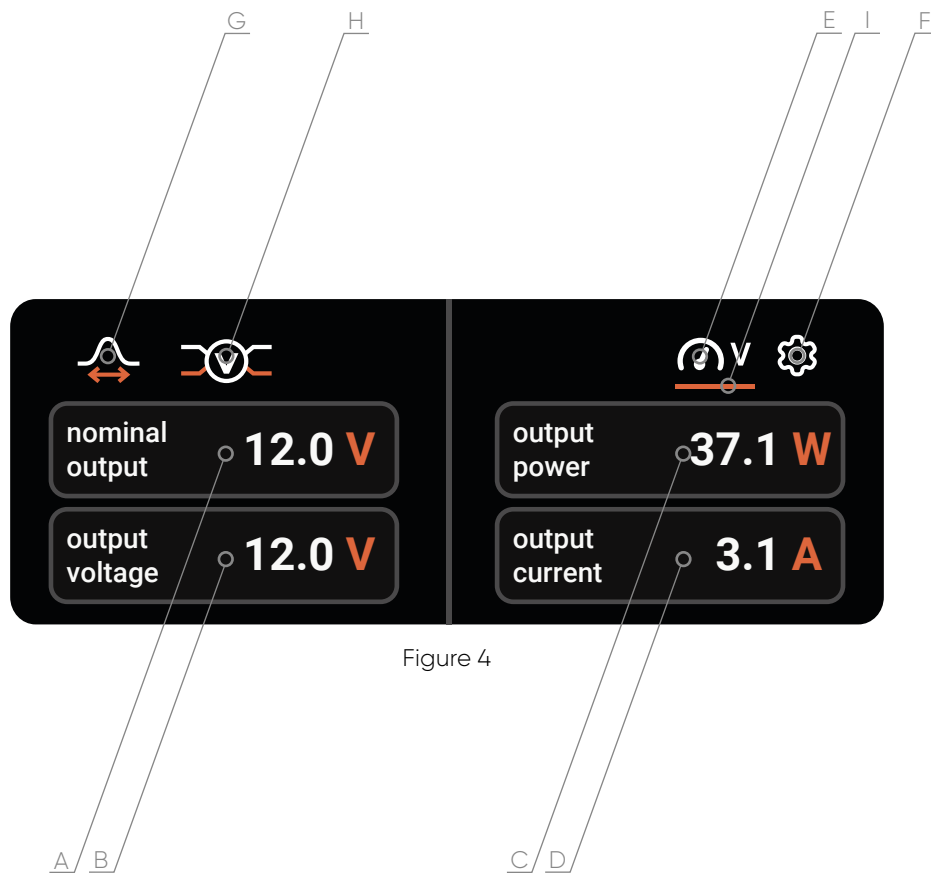


Figure 3



4.3 Main Screen

- A. nominal voltage value set during the process of selecting a device from the list or during manual configuration
- B. measured voltage at the DC HYPSONS output – small deviations in measurement up to 0.2V are possible
- C. current power consumption of the device powered by the HYPSONS
- D. currently measured output current on the DC HYPSONS output
- E. voltage adjustment (Sweet Spot Tuning) – this feature can also be set up in the menu
- F. menu
- G. Spread Spectrum Mode icon – when grayed out SSM is not active
- H. 4T-Sensing Design icon – when grayed out 4TSD is not active
- I. active position indicator



5. CONNECTING THE HYPSES

Note: Please connect all signal cables before connecting DC cable or switching on the HYPSES.

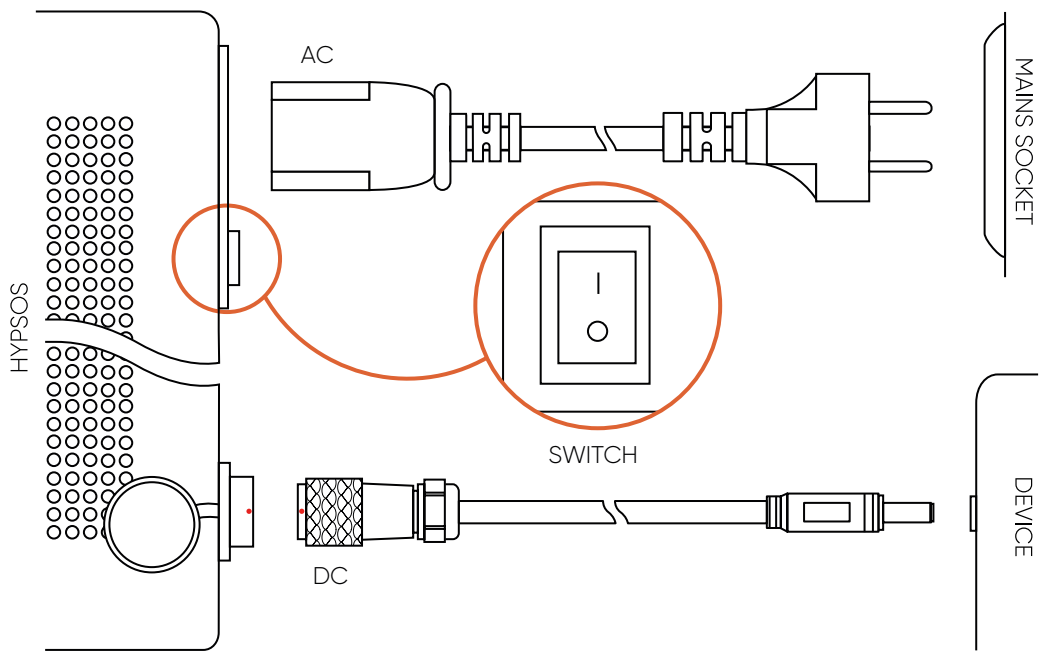


Figure 5

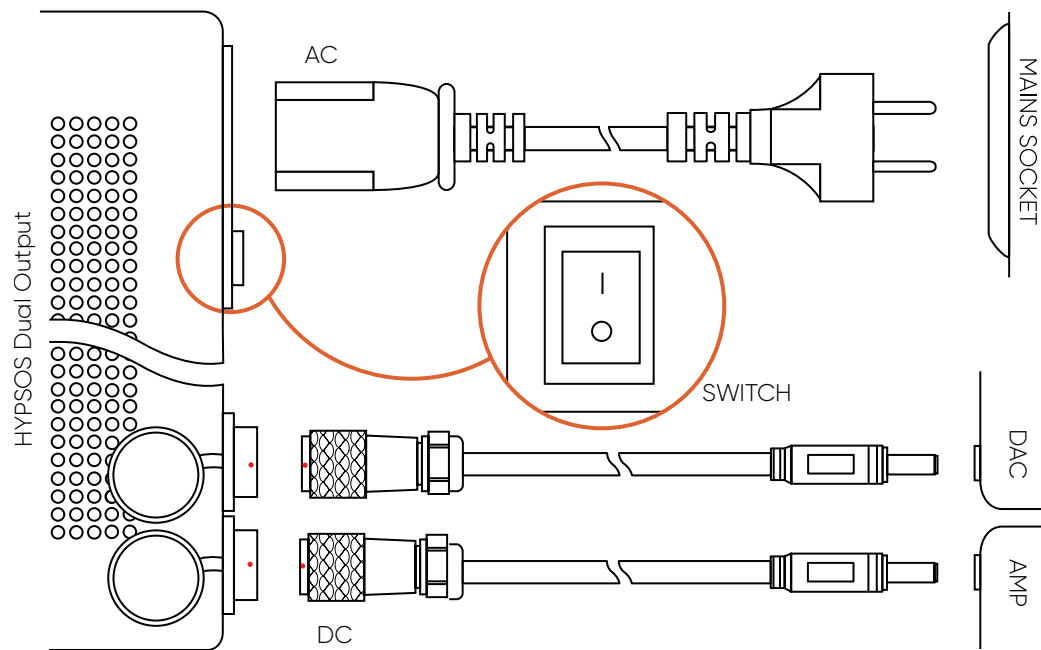


Figure 6

6. GETTING STARTED

6.1 Turning on Your HYPSONS for the First Time

Make sure that all cables are correctly connected to the HYPSONS and powered device (Fig. 5 or Fig. 6). Then use the main switch to start the HYPSONS (Fig. 2E).

The first time you start the HYPSONS, it needs to be configured to properly power other devices.

6.2 Selecting a Device From the List

After start-up press the knob and HYPSONS will display a list of devices, which have already configured presets.

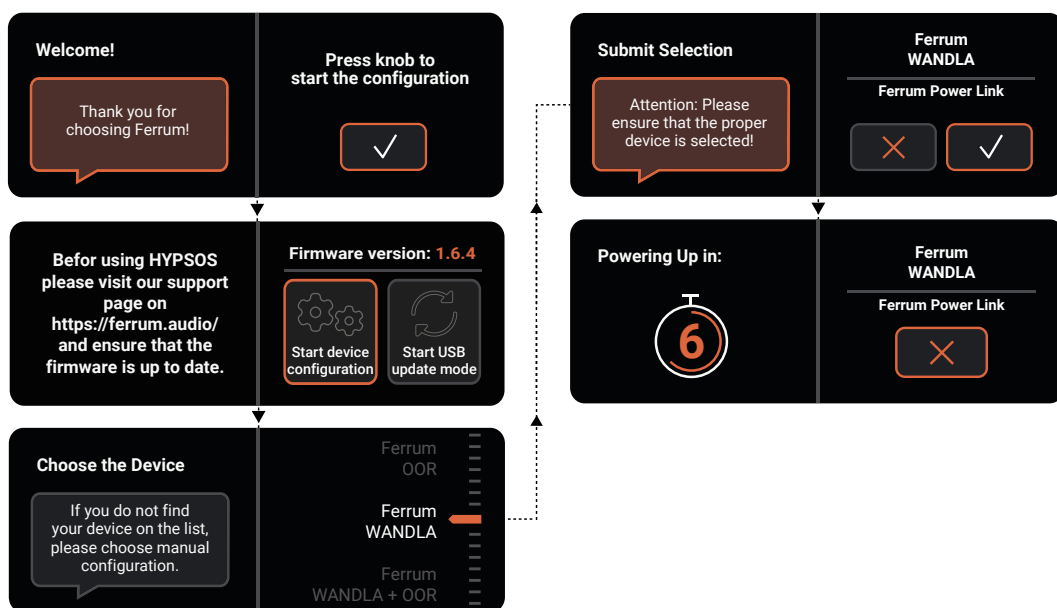


Figure 7

If you see your device in the list, select it and confirm by pressing the dial. HYPSONS will show you a summary of the preset and ask you to approve the settings. It is a good idea to check if the voltage and polarity that HYPSONS proposes are correct for the device you want to power.

Once the settings have been approved, a timer will appear on the screen counting down the time to apply the voltage to the HYPSONS output – you still have 9 seconds to change the settings if necessary. To stop the countdown and return to the settings, press the knob.

After 9 seconds, the previously set voltage is applied to the DC HYPSONS output.

Done!

Note: The list of available devices can be updated by updating the firmware. Let us know if you want us to add a device that is not on the list.



Note: All presets included in HYPSONS are suggested settings only. Before accepting a setting from a preset, the user must verify that it is correct for the device they wish to power with HYPSONS. If there is a parameter mismatch between a preset and the device you are powering, do not use the preset and report it to us. Ferrum refuses every liability for damage to equipment due to an incorrect connected DC output voltage or wrong polarity.

6.3 Manual Configuration

If the device you want to power is not in the list, select "Manual Configuration" and confirm by pressing the dial.

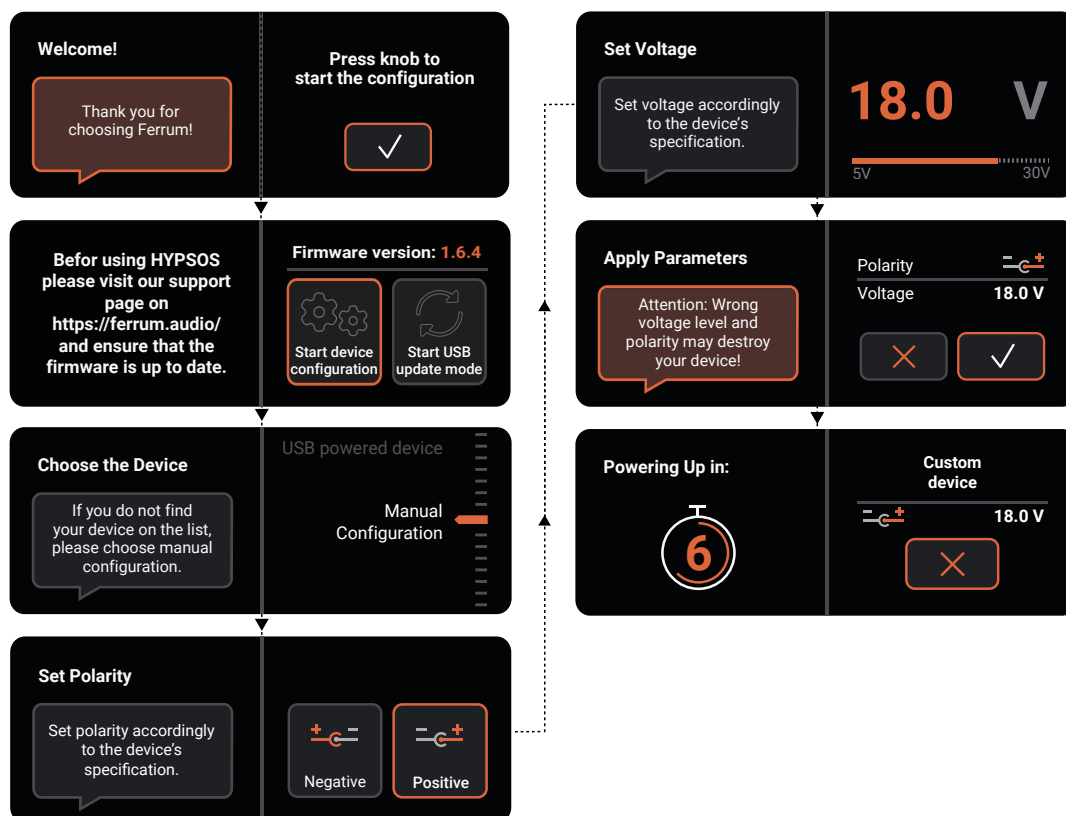


Figure 8

The first window allows you to select the appropriate polarity for your device. You can choose between two options:

- the middle pin of the power plug is the positive pole
- the middle pin of the power plug is the negative pole.

After selecting the appropriate polarity, confirm your choice by pressing the dial. In the next window, select the voltage appropriate for powering your device. You can choose between 5V and 30V. Confirm your choice of voltage by pressing the dial.

Warning: Above parameters should be set according to the recommendations of the manufacturer of the device you want to power! Ferrum refuses every liability for damage to equipment due to an incorrect connected DC output voltage or wrong polarity.



The HYPSES will now show a summary of the settings and ask you to confirm them. Once the settings have been approved, a timer will appear on the screen counting down the time to apply the voltage to the HYPSES output – you still have 9 seconds to change the settings if necessary.

To stop the countdown and return to the settings, press the knob.

After 9 seconds, the previously set voltage is applied to the DC HYPSES output.

Done!

6.4 MAIN and AUX DC Output Differences (for HYPSES Dual Output)

The MAIN DC output utilizes all features that HYPSES can provide so it is most suitable for connecting devices that can draw variable amounts of current – like headphone amplifiers or streaming servers.

The AUX DC output do not supports 4TSD feature so it is more suitable for connecting devices with more stable current draw like a DACs and streaming endpoints.

Note: If the HYPSES Dual Output only powers one external device, use the MAIN DC output of the HYPSES to connect it. The AUX DC output should only be used when connecting two devices simultaneously.

6.4.1 COMPATIBILITY OF VOLTAGE AND POLARITY

Important: Both MAIN and AUX DC outputs always have the same voltage and polarity values. This means that both connected devices must support the same voltage and polarity values (Fig. 9) and comply with the power supply scheme set up in HYPSES.

The total current drawn by the connected devices must not exceed 6A and the total power drawn must not exceed 80W.

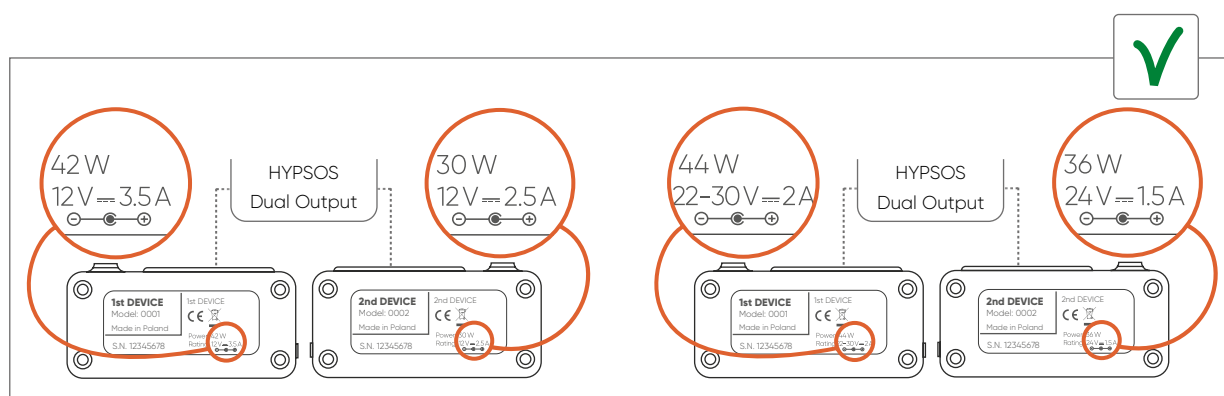


Figure 9

Warning: Do not simultaneously connect two devices that are not compatible in their voltage value and polarity (Fig. 10) to the HYPSES Dual Output. This risks damaging the devices.

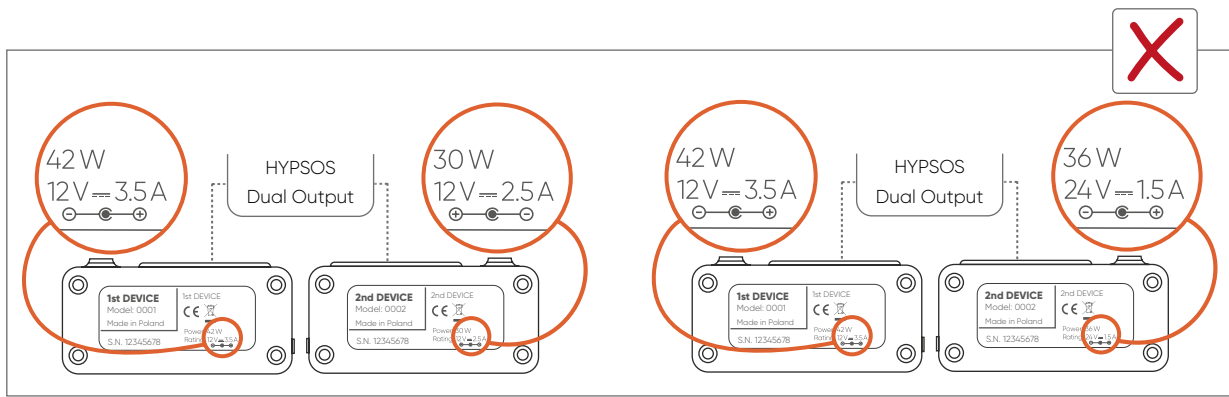


Figure 10

7. NAVIGATION AND MENU STRUCTURE

7.1 Navigation

To open the menu select Menu icon (Fig. 4F) on the screen by rotating the knob (Fig. 1C) and then pressing it to confirm.

Use the knob to navigate through the menu.

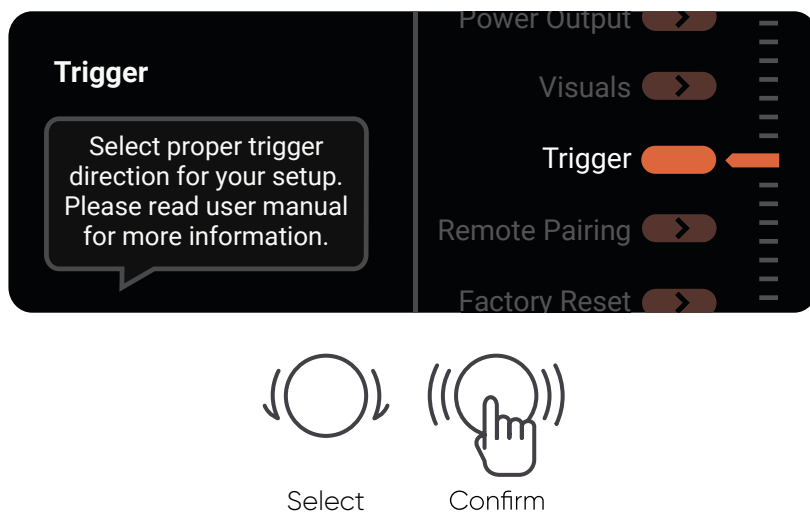


Figure 11

To go back to the previous screen select "Back".

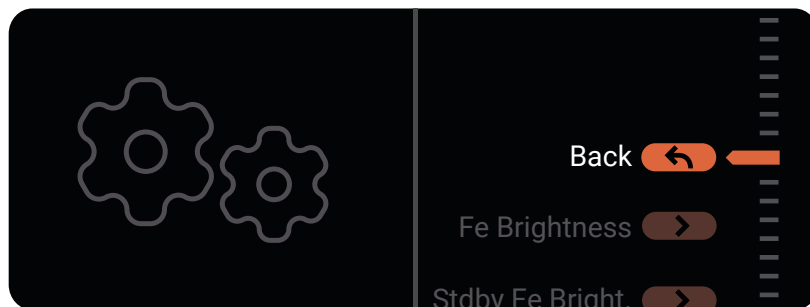


Figure 12

Icons:

-  - Means action. When you enter this item it will take you to another screen.
-  - Indicates the information that is displayed on the left screen.
-  - This will take you to previous screen.
-  - Shows the currently set parameter value on the button. When you enter this item, you can change the value.

7.2 Menu structure

7.2.1 POWER OUTPUT

7.2.1.1 Current Device

Display the parameters of the currently powered device.

7.2.1.2 Reconfigure

This feature allows you to go through the initial setup process of selecting a HYPSON powered device from the list or manual configuration.

7.2.1.3 Voltage Adjustment

This function can also be set from the home screen (check [Fig. 4E](#)). Allows you to fine-tune the output voltage to get the best sound on a device powered by HYPSON. The range in which the voltage can be adjusted will be different for different devices. Some allow you to use a larger range. The standard "Voltage Adjustment" range is 95% to 105% of nominal voltage for safety reasons. You also cannot set the voltage lower than 5V or higher than 30V.

Warning: Please use this function with caution!

Once you have decided to find your sweet spot, you must confirm the start of the procedure.

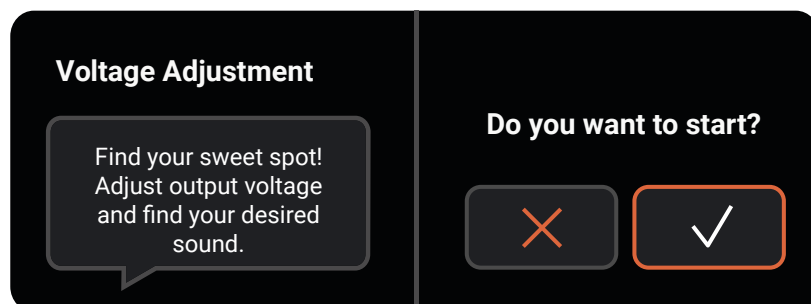


Figure 13

In the next step you can modify the voltage level. Now you have the option to increase or decrease the DC voltage.



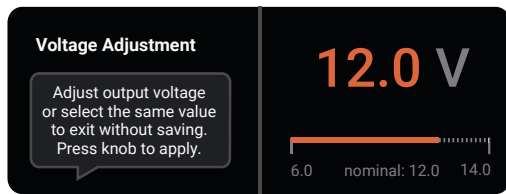


Figure 14

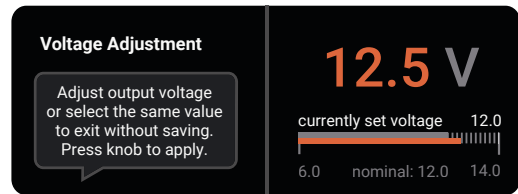


Figure 15

Confirm the voltage level by pressing the knob. After 4 seconds, the newly set voltage will appear on the DC output.

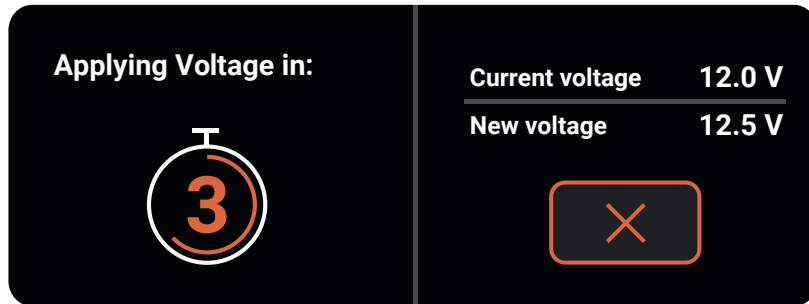


Figure 16

You can interrupt the countdown by pressing the knob.

When the timer has finished the countdown simply push the knob to go back to the main screen.

Note: Ferrum will not be held liable for damage to the device being powered when the voltage level you set will damage it.

7.2.1.4 Power in Standby ON/OFF

When turned on, the HYPSONS will continue to provide DC, even if it is in Standby mode. To return to the previous screen press the knob.

7.2.1.5. 4-Terminal Sensing ON/OFF

Possibility to turn on or off 4TSD (4-Terminal Sensing Design) - this technology results in more clarity and resolution, where without the sound will be more weighted. To return to the previous screen press the knob.

7.2.1.6. Spread Spectrum Mode ON/OFF

When turned on, switching frequency modulation is activated in the HYPSONS power switching circuit. This might influence the reproduction of high frequencies in some devices. To return to the previous screen press the knob. This button gives access to the functions of the device and the Standby button.



7.2.2 VISUALS

7.2.2.1 Fe Brightness

Allows you to change the light intensity of the Ferrum logo when the HYPSONS is turned on. There are 10 brightness levels to choose from or you can turn off the backlit completely.

7.2.2.2 Standby Fe Brightness

Allows you to change the light intensity of the Ferrum logo when the HYPSONS is in standby. There are 5 brightness levels to choose from or you can turn off the backlit completely.

7.2.2.3 Display Brightness

Allows you to change the display luminosity. There are 10 brightness levels to choose from.

7.2.2.4 Display Auto Off

Allows you to select the time after which the display will be switched off. You can select from: disabled, 3s, 5s, 10s, 15s, 30s, 45s, 60s, 90s. The default is 60s.

7.2.2.5 Auto Return

Allows you to select the return time after which the display will go back to the main screen. You can select from: disabled, 3s, 5s, 10s, 15s, 30s, 45s, 60s, 90s. The default is 60s.

7.2.3 TRIGGER

7.2.3.1 Input

When selected, the Trigger input wakes up HYPSONS. This option might be selected when you want to turn on your system by external device like amplifier.

7.2.3.2 Output

When this option is selected, the Trigger output wakes up the external device. This option can be used when you want to wake up an external device, such as DAC, by turning on the HYPSONS.

7.2.4 REMOTE PAIRING

Pairing procedure - Apple remote

Procedure can be done in two ways:

1. The Apple remote can be paired exclusively with HYPSONOS.
2. The Apple remote can be paired with currently paired devices and with HYPSONOS.

If you want to pair the Apple remote exclusively with HYPSONOS - Enter the "Remote pairing" procedure, then press and hold Menu and Select buttons over 5 seconds while pointing the remote control towards HYPSONOS.

If you simply want to pair your Apple HYPSONOS remote control, but want it to remember another device you've paired earlier - enter the "Remote pairing" procedure, then press and hold the Menu and Next buttons over 5 seconds while pointing the remote control towards the HYPSONOS.

If you want to interrupt the remote pairing process, press the knob.

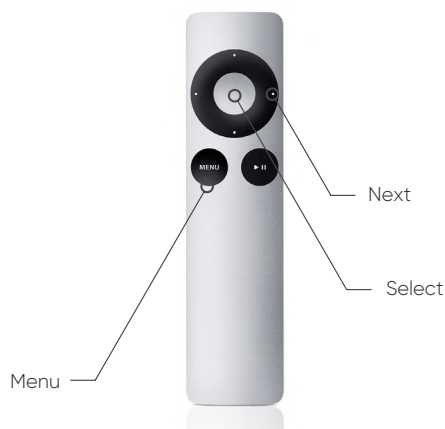


Figure 17

7.2.5 FACTORY RESET

Allows you to restore HYPSONOS to its factory settings. This process is irreversible!

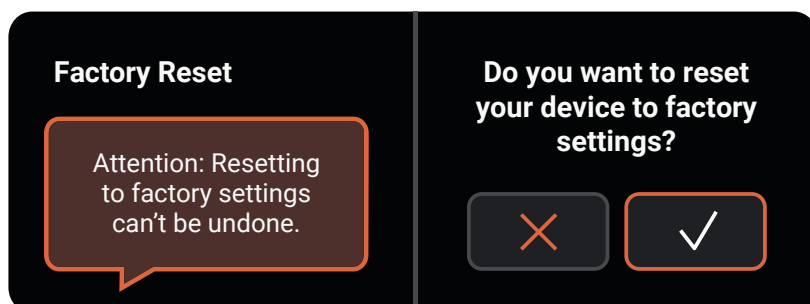


Figure 18

The cross mark will take you back to the menu. Select the tick mark to start the HYPSONOS reset process.



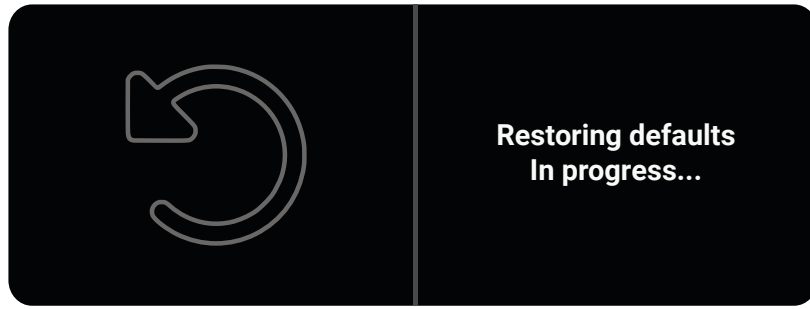


Figure 19.

7.2.6 INFORMATION

7.2.6.1 Contact

Here you will find information how to contact us.

7.2.6.2 Firmware

Shows currently installed firmware version. Pressing the knob will start USB firmware update mode.

Note: For more information on the firmware upgrade process, see paragraph "[8. Firmware Update](#)".

7.2.6.3 About product

Some information about motherboard version, motherboard serial number etc.

7.2.6.4 Licenses

Licenses used to create HYPSSOS software.

8. FIRMWARE UPDATE

To update the firmware, please download the Ferrum Control application.

Note: For Windows it is also required to install the USB driver. For macOS, there is no need to install the driver.

You can download the USB driver from our website: <https://ferrum.audio/support/>

The Ferrum Control app is available in the Microsoft Store and in the App Store – a direct link is also available on our site: <https://ferrum.audio/support/>

1. Open Ferrum Control app.
2. Connect HYPSSOS via micro USB cable to your computer and turn it on.

Note: Make sure the micro USB cable you are using supports data transmission.

3. In the menu of HYPSSOS find the "Information" tab and select it by pushing the knob. Then find the "Firmware" tab and push the knob again.
4. By using the knob, confirm you want to go into "USB update mode".

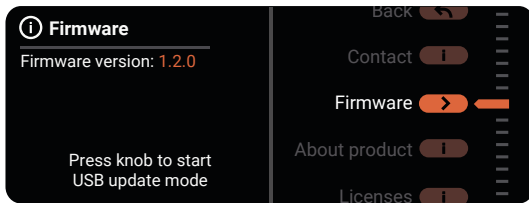


Figure 20

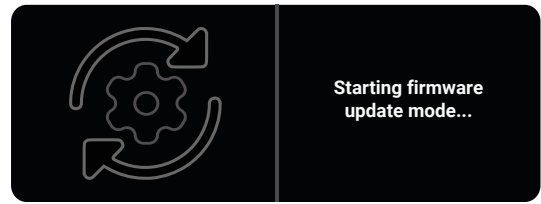


Figure 21

5. HYPSSOS will be displayed in the Ferrum Control app.

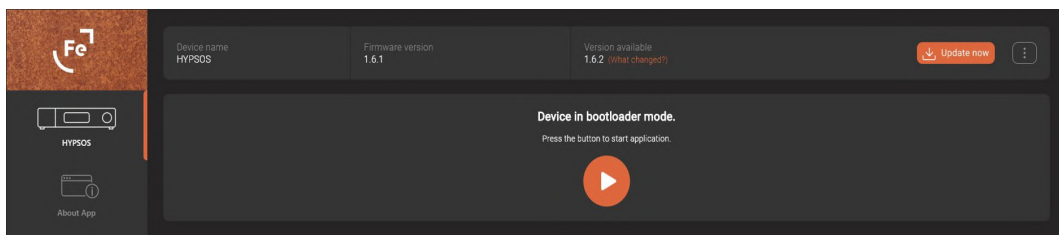


Figure 22

6. If the "Check for update" button is visible click on it to check if there is new firmware available. Alternatively you will see the "Update now" button. Click on it and then click on the "Start update" button to begin the update procedure.

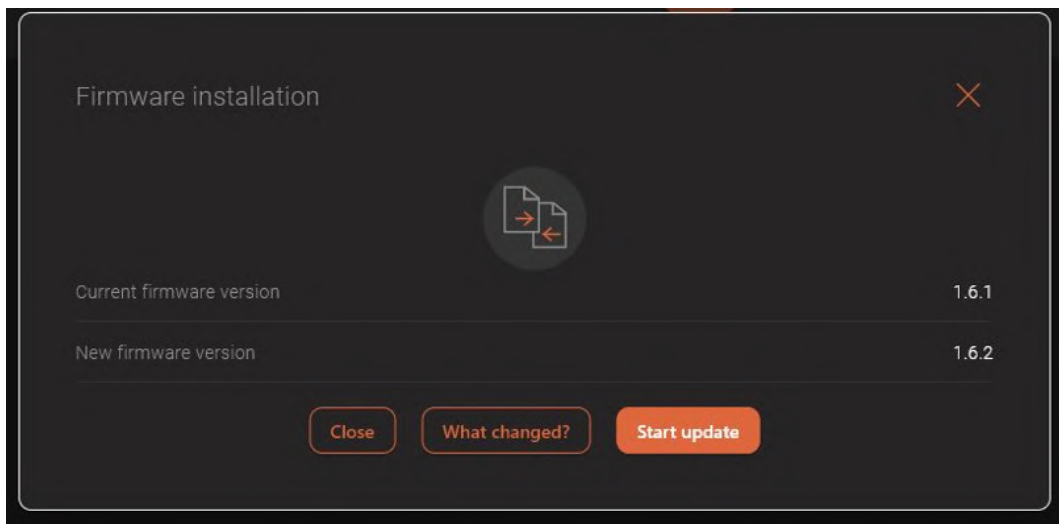


Figure 23

7. The Ferrum Control application will inform you when the firmware update process is complete. Click on the "Close" button to close the update window.



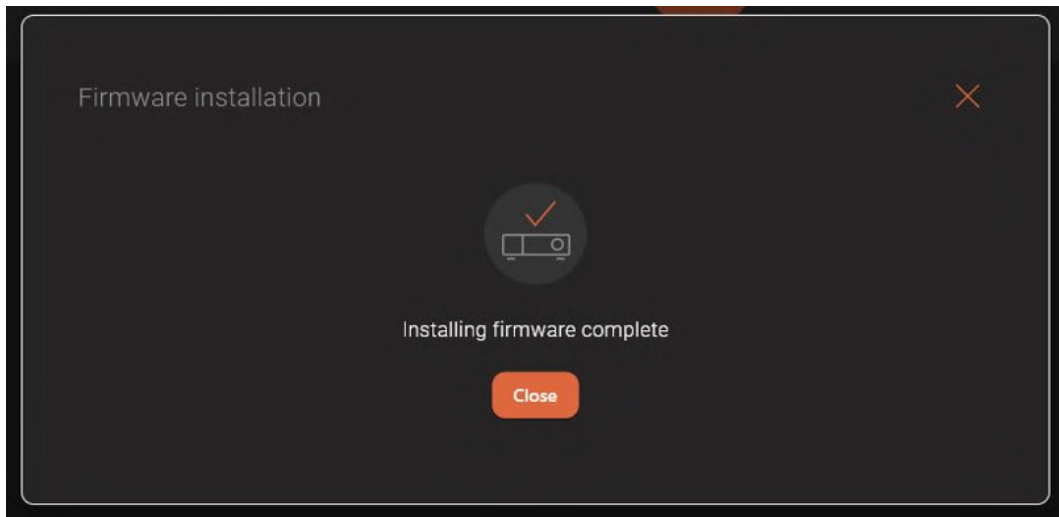


Figure 24

8. To return from "USB update mode" to normal HYPsOS operation click on the  button. HYPsOS will reset and turn on with the last memorized settings.

9. FUSE REPLACEMENT

Fuse is located in the neighborhood of AC mains socket ([Fig. 2F](#))

To replace the fuse you can use a flat screwdriver to remove the plastic enclosure where fuse is hidden. Check if the thin wire inside the fuse is intact. If it's not intact, use a spare fuse for replacement. Spare fuse is hidden inside the fuse enclosure ([Fig. 25](#)).

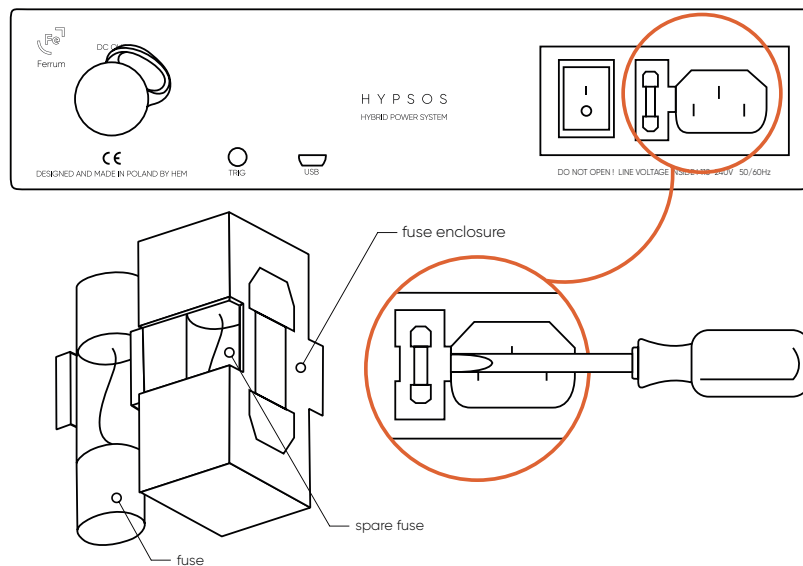


Figure 25

10. TECHNICAL SPECIFICATION

- Power Input: Factory configured 110-120/220-240V_{AC} ~50/60 Hz (EU/US version) or 100V_{AC} ~50/60 Hz (JP version)
- Output Voltage Range: 5-30 V
- Maximum Continuous Output Current (for DC V_{OUT} below 13.3V): 6 A
- Maximum Continuous Output Current (for DC V_{OUT} higher than 13.3V): $I_{OUT} [A] = 80 [W] / V_{OUT} [V]$
- Maximum Impulse Current: 9 A
- Maximum Impulse Power: DC V_{OUT} * 9 A (270 W for 30 V)
- Maximum Continuous Output Power (for DC V_{OUT} below 13.3V): $P_{OUT} [W] = V_{OUT} [V] * 6 [A]$
- Maximum Continuous Output Power (for DC V_{OUT} higher than 13.3V): 80 W
- Dimensions (W x D x H, without knob, feet and connectors): 21.75 cm x 20.6 cm x 5 cm / 8.6" x 8.1" x 2.0"
- Net weight: 3.1 kg / 6.8 lb
- Primary winding fuse (external): 5x20mm - slow blow 2 A 250 V for EU/US version, slow blow 3.15 A 250 V for JP version
- Secondary winding fuse (internal): first 4 A slow blow Littelfuse 154004.0T, second 8 A fast Littelfuse 154008.0
- Power Consumption (input 230V_{AC} 50 Hz, output 12V_{DC})
 - ◆ 6 VA (idle)
 - ◆ 31 VA - (@ 15 W load)
 - ◆ 98 VA - (@ 60 W load)
 - ◆ 134 VA - (@ 80 W load)

11. WARRANTY

Each individual HYPSONS undergoes comprehensive quality control and a complete test before shipping.

This PSU is warranted by Ferrum to the owner against defects in workmanship and materials used in manufacture for a period of three years from the date of purchase.

If you suspect that your product is faulty, please contact the place of purchase or you contact Ferrum support. Prior to shipping for warranty services the customer or dealer must obtain an RMA number from Ferrum for warranty services. Units sent without an RMA number will not be accepted.

Proof of purchase in the form of a bill of sale or received invoice, which is evidence that this product is within the warranty period, must be presented to obtain warranty service. This warranty is void and inapplicable if the factory applied serial number has been altered or defaced from this product. Faults due to customer misuse, unauthorized modifications or accidents are not covered by this warranty.

Please pack the product very carefully, preferable in the original packing, to be sure no damage can be done during shipment.

Ferrum is not responsible for accessories, items left in the packaging and the box in which the device has arrived for service. Ferrum reserves the right to use a replacement box if necessary.



12. CONTACT FERRUM

In case of questions, problems or suggestions regarding its form or contents, please contact us via our support system available on our website: <https://ferrum.audio/support/>

13. WARNING

Excessive sound pressure from speakers and headphones can cause hearing loss. In order to use this product safely, avoid prolonged listening at excessive sound pressure levels.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

All interface cables used to connect peripherals must be shielded in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

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.

This product with the CE marking complies with the EMC Directive issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European standards:

Safety

IEC 62368-1:2014 Additionally evaluated to: EN 62368-1:2014, EN 62368-1:2014/A11:2017

EMC

CISPR 32:2015, CISPR 35:2016, IEC 61000-3-3:2013, IEC 61000-3-3:2013/AMD1:2017, IEC 61000-3-2:2018, CISPR 32:2015/AMD1:2019

Additionally evaluated to: EN 55032:2015/A11:2020, EN 55032:2015/A1:2020, EN 55032:2015, EN 55035:2017 and 47CFR PART 15B, ICES-003 (ISSUE 7)

This product is intended for use in the following Electromagnetic Environments: E1 (residential), E2 (commercial and light industrial), E4 (controlled EMC environment, ex. TV studio).



14. INFORMATION ON DISPOSAL FOR USERS OF WASTE ELECTRICAL & ELECTRONIC EQUIPMENT (PRIVATE HOUSEHOLDS)

The Wheelie Bin symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment. To properly dispose harmful substances and recycle the product, the user is obliged to return it at the point of collection of electrical and electronic equipment waste. For more information please contact your local authorities, waste disposal units or retailer.

