



# HERITAGE SERIES POWER SUPPLY UNIT DA CONVERTER & PREAMPLIFIER

User's manual

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## TABLE OF CONTENTS

TABLE OF CONTENTS.....	2
INTRODUCTION .....	4
CONTACT .....	4
DOCUMENT OVERVIEW .....	4
UNPACKING .....	4
READ THIS BEFORE OPERATING YOUR UNIT .....	5
DESCRIPTION OF THE POWER SUPPLY .....	6
FRONT PANEL .....	6
REAR PANEL.....	7
BUTTONS .....	8
BLOCK DIAGRAM OF THE POWER SUPPLY UNIT .....	9
DESCRIPTION OF THE D/A CONVERTER III .....	10
REAR PANEL.....	10
DESCRIPTION OF THE PREAMPLIFIER .....	11
REAR PANEL.....	11
INTERCONNECTION OF THE DEVICES .....	12
POWER SUPPLY & D/A CONVERTER.....	12
POWER SUPPLY & PREAMPLIFIER.....	13
POWER SUPPLY, D/A CONVERTER & PREAMPLIFIER.....	14
FEATURES.....	15
TOPOLOGY .....	15
MODULAR SYSTEM .....	15
POWER TRANSFORMER.....	15
MICROPROCESSOR UNIT .....	16
SCREEN .....	16
PROTECTIONS AND ERRORS .....	16
QUICK GUIDE .....	17
VOLTAGE SELECTION .....	17
POWER ON .....	17
MAIN SCREEN (D/A CONVERTER) .....	17
MAIN SCREEN (PREAMPLIFIER) .....	18
MAIN SCREEN (D/A CONVERTER & PREAMPLIFIER) .....	18
SETTINGS.....	19
MENU HIERACHY .....	19
CONFIGURATION OF THE DEVICES .....	20
RECORD .....	20
DAC INPUT .....	20
BALANCE.....	20
NAMES.....	20
PROC ROUTING .....	21
INPUT LEVEL .....	21
DISPLAY .....	21
PREFERENCES .....	22
STANDBY.....	22



SOFTWARE DRIVERS .....	22
FIREWIRE .....	22
USB .....	22
SPECIFICATIONS .....	23
POWER SUPPLY UNIT .....	23
D/A CONVERTER UNIT .....	24
PREAMPLIFIER UNIT .....	25
GENERAL INFORMATION .....	26
COMMENTS .....	26
TECHNOLOGY & DESIGN .....	26
IMPORTANT NOTICE .....	26
LIMITED WARRANTY CERTIFICATE .....	27

## INTRODUCTION

### CONTACT

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### DOCUMENT OVERVIEW

This document is the user manual for the Orpheus Media Heritage series POWER SUPPLY, D/A CONVERTER III & PREAMPLIFIER.

### UNPACKING

First check and identify the contents of your power amplifier package, as listed below:

- ✎ 1 Orpheus Heritage POWER SUPPLY
- ✎ 1 D/A CONVERTER or/and PREAMPLIFIER
- ✎ 1 Orpheus Heritage line user's manual CD-ROM
- ✎ 1 Certification concerning the power amplifier

## **READ THIS BEFORE OPERATING YOUR UNIT**

- ✎ Please read this manual carefully, to assure proper operation and performance.
- ✎ Switch off the unit before connecting or disconnecting any input or output cables.
- ✎ Do not touch the inner pins of rear panel connectors, electrostatic discharge may cause permanent damage to the unit.
- ✎ Choose the installation location for the unit carefully. Avoid placing it in direct sunlight or close to a source of heat. Avoid also locations subject to vibration and excessive dust, heat, cold or moisture.
- ✎ To reduce the risk of fire or electric shock, do not expose the unit to rain or moisture.
- ✎ Do not use force when operating switches, knobs and other controls.
- ✎ Do not open the chassis or attempt any repairs by yourself, as this may result in damaging the unit and exposing you to electrical shocks. If a foreign object should get into the unit, contact your local dealer.
- ✎ When planning not to use the unit for a long period of time, it is advisable to disconnect the power plug from the wall outlet.
- ✎ To prevent lightning damage, disconnect the power plug when there is an electrical storm.
- ✎ When moving the unit, be sure to first disconnect the power plug and all connected wires from the unit.
- ✎ When disconnecting the power plug from the wall outlet, always pull directly on the plug, never pull the cord itself.
- ✎ Do not attempt to clean this unit with water or chemical solvents, as this may damage the unit or the finish. Use a clean, dry cloth.
- ✎ Keep this manual in a safe place for future reference.

## DESCRIPTION OF THE POWER SUPPLY

The Orpheus Heritage POWER SUPPLY is the state of art of analog and digital electronics technologies combined together. The performance of this oversized power supply is able to provide enough power for the D/A CONVERTER and the PREAMPLIFIER with only one external device.

### FRONT PANEL



① **Illuminated Orpheus logo**

When the unit is turned on, the Orpheus logo is illuminated by a blue backlight.

② **Screen**

TFT LCD color display with a diagonal of 4.3" and a resolution of 480 x 272 pixels.

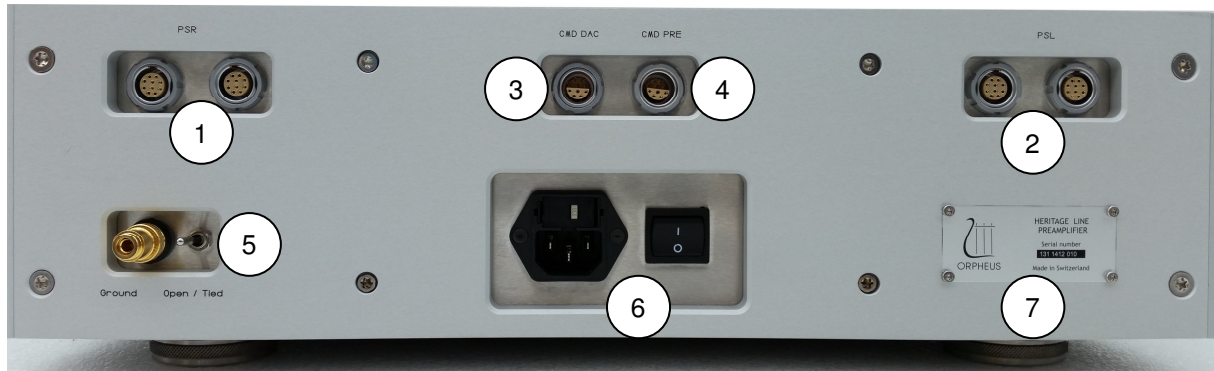
③ **Infrared receiver**

The power amplifier can be controlled with a remote control.

④ **Standby led**

When the unit is in standby mode, this led is lit in blue.

## REAR PANEL



- ① **PSR (power supply right)**
- ② **PSL (power supply left)**
- ③ **CMD DAC (digital commands ONLY for the Heritage D/A converter)**
- ④ **CMD PRE (digital commands ONLY for the Heritage preamplifier)**
- ⑤ **Ground connector**

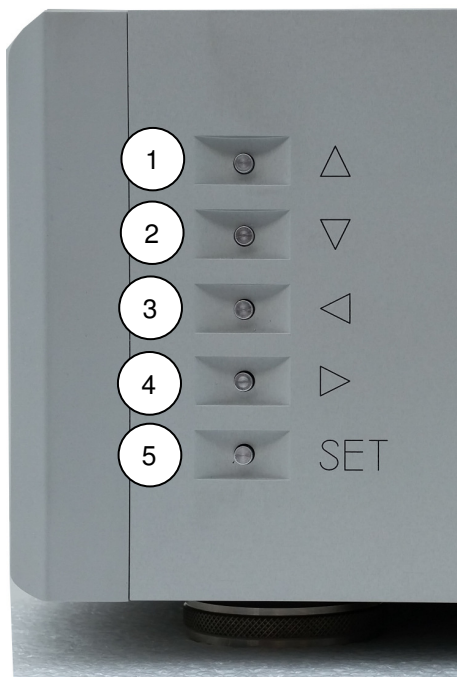
When the switch is open, the ground connector is connected to the earth potential. When the switch is on the position tied, earth and internal ground and ground connector are tied together.

- ⑥ **Main switch and power inlet**

The unit can be supplied with 100 / 110 / 230 voltage. The voltage selection is made inside the device. To power on the unit, switch the main power switch.

- ⑦ **Serial number**

## BUTTONS



① **Up**

Volume up. Return from the selected menu (when under the men

② **Down**

Volume down.

③ **Left**

Enters the power amplifier menu or selects the displayed option. After few seconds, the menu will leave himself and the main screen show the usual information.

④ **Right**

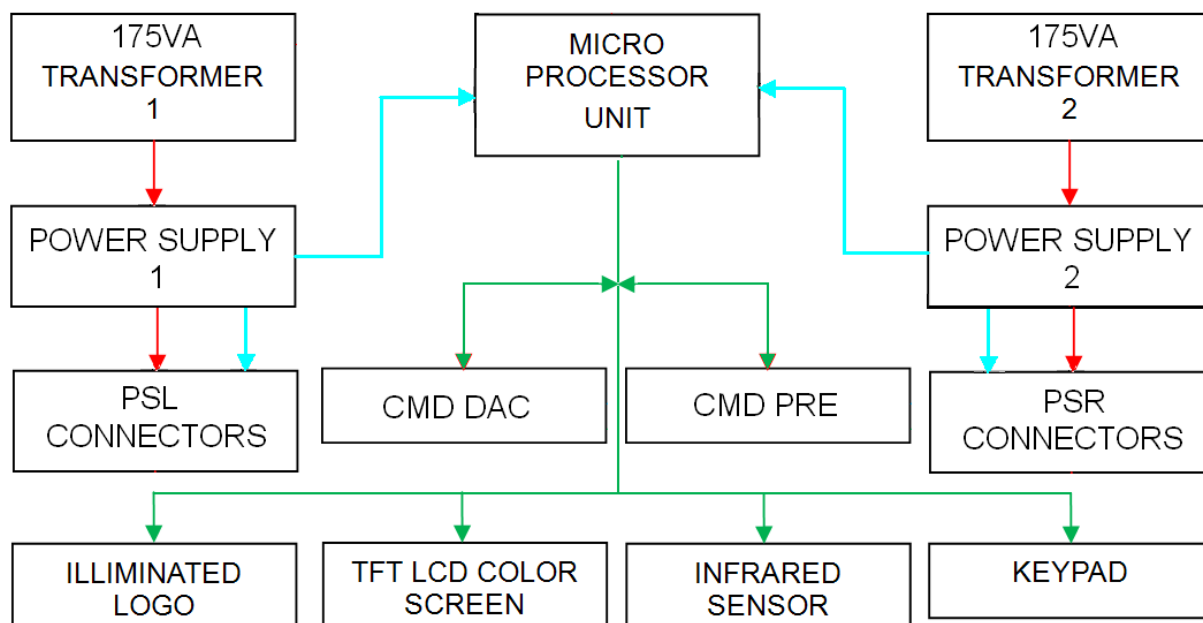
Connector for the digital commands dedicated for the preamplifier.

⑤ **Set**

Enters the power amplifier menu or selects the displayed option. After few seconds, the menu will leave himself and the main screen show the usual information.



## BLOCK DIAGRAM OF THE POWER SUPPLY UNIT



Legend :

- Digital data
- Analog power
- Digital power

## DESCRIPTION OF THE D/A CONVERTER III

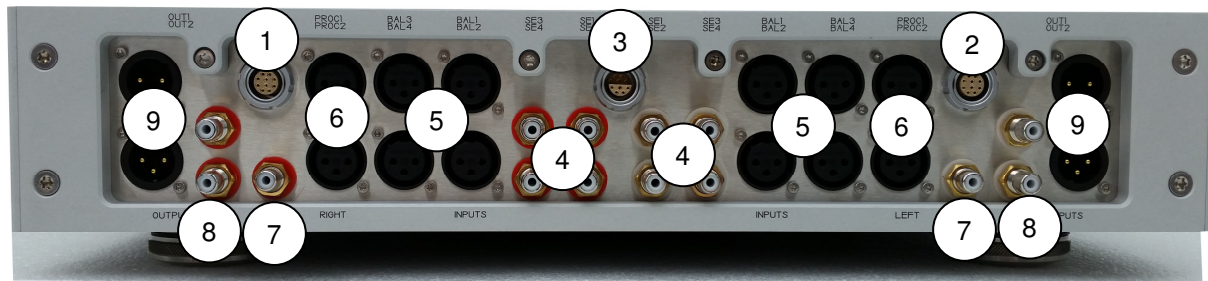
### REAR PANEL



- ① **CMD DAC (digital commands ONLY for the Heritage D/A converter)**
- ② **PSR (power supply right)**
- ③ **PSL (power supply left)**
- ④ **Digital inputs**
  - AES1 / 24 bits / 192 KHz
  - RCA1 / 24 bits / 192 KHz
  - USB / 24 bits / 192 KHz (native DSD available using ASIO drivers)
  - Orpheus DSD (native DSD)
  - TOSLINK / 24 bits / 96 KHz
  - RCA2 / 24 bits / 192 KHz
  - AES2 / 24 bits / 192 KHz
- ⑤ **Orpheus DSD connector**
- ⑥ **Word clock in**
- ⑦ **Word clock out**
- ⑧ **Balanced and unbalanced right outputs**
- ⑨ **Balanced and unbalanced left outputs**

## DESCRIPTION OF THE PREAMPLIFIER

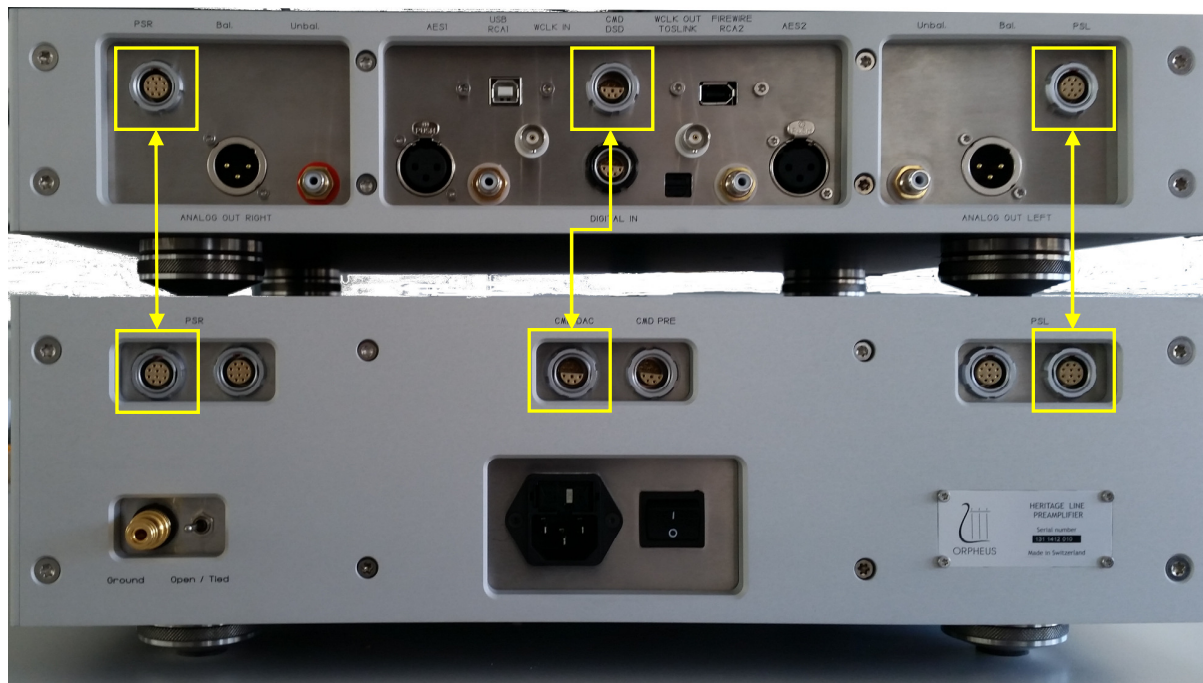
### REAR PANEL



- ① **PSR (power supply right)**
- ② **PSL (power supply left)**
- ③ **CMD PRE (digital commands ONLY for the Heritage preamplifier)**
- ④ **Unbalanced inputs**
- ⑤ **Balanced inputs**
- ⑥ **Processor inputs**
- ⑦ **Record output**
- ⑧ **Unbalanced outputs**
- ⑨ **Balanced outputs**

## INTERCONNECTION OF THE DEVICES

### POWER SUPPLY & D/A CONVERTER



After turning ON the machine, the power supply will automatically detect the Heritage D/A converter and will be ready to correctly interface this audio bloc.

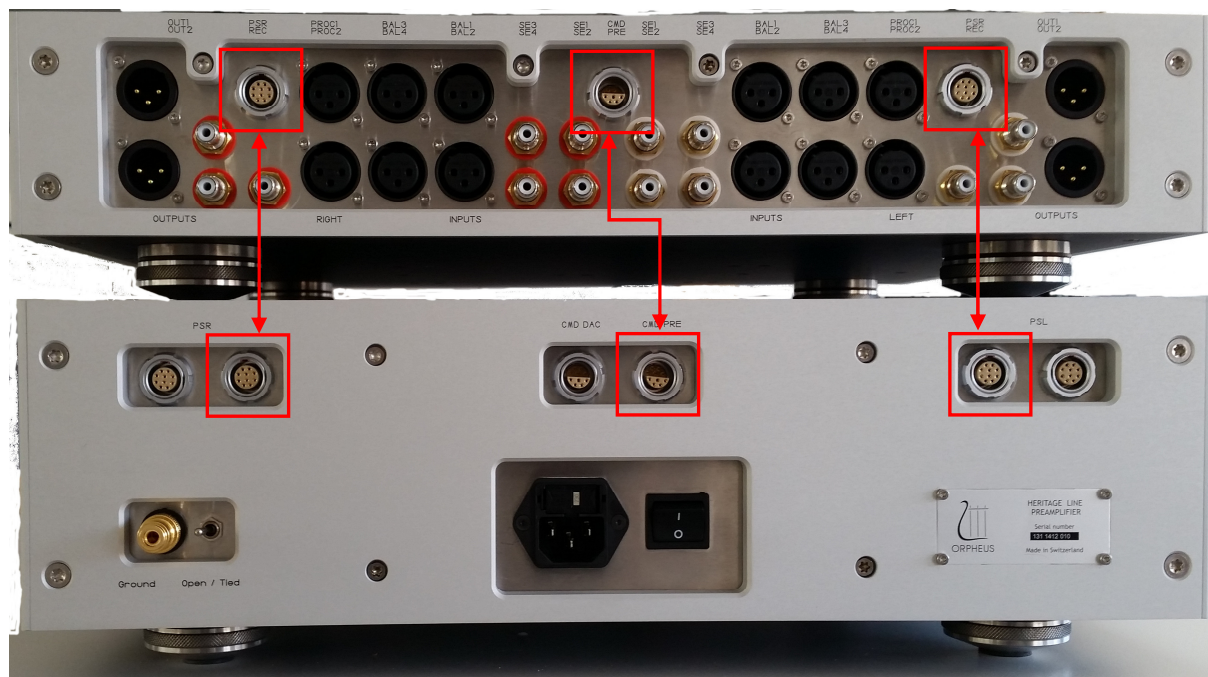


When interconnecting the units, the power supply must be turned OFF.



Be careful to correctly interconnect the commands from the PSU to the D/A converter unit. Crossing the command cables will result in an incorrect autodetection and operation of the devices.

## POWER SUPPLY & PREAMPLIFIER



After turning ON the machine, the power supply will automatically detect the Heritage preamplifier and will be ready to correctly interface this audio bloc.



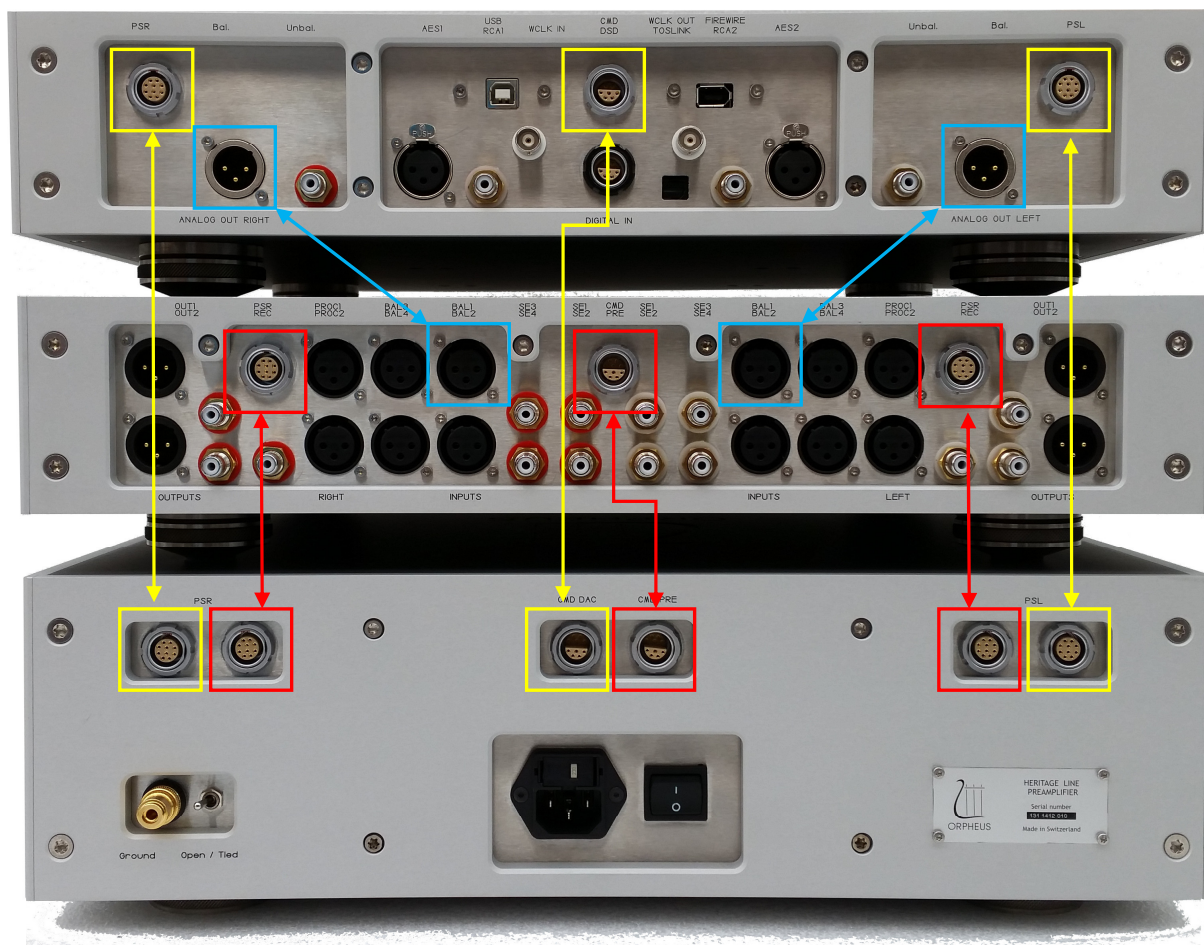
When interconnecting the units, the power supply must be turned OFF.



Be careful to correctly interconnect the commands from the PSU to the preamplifier unit. Crossing the command cables will result in an incorrect autodetection and operation of the devices.



## POWER SUPPLY, D/A CONVERTER & PREAMPLIFIER



After turning ON the machine, the power supply will automatically detect the Heritage D/A converter and preamplifier in order to correctly interface these audio blocs.



When interconnecting the units, the power supply must be turned OFF.



Be careful to correctly interconnect the commands from the PSU to the D/A converter and the preamplifier unit. Crossing the command cables will result in an incorrect autodetection and operation of the devices.



With this configuration, the default audio connection between the D/A converter and the preamplifier is:

- Balanced outputs of the D/A converter
- Balanced in input 1 (BAL 1) of the preamplifier.

The customer can configure other audio interconnections between the D/A converter and the preamplifier under the menu DAC INPUT.

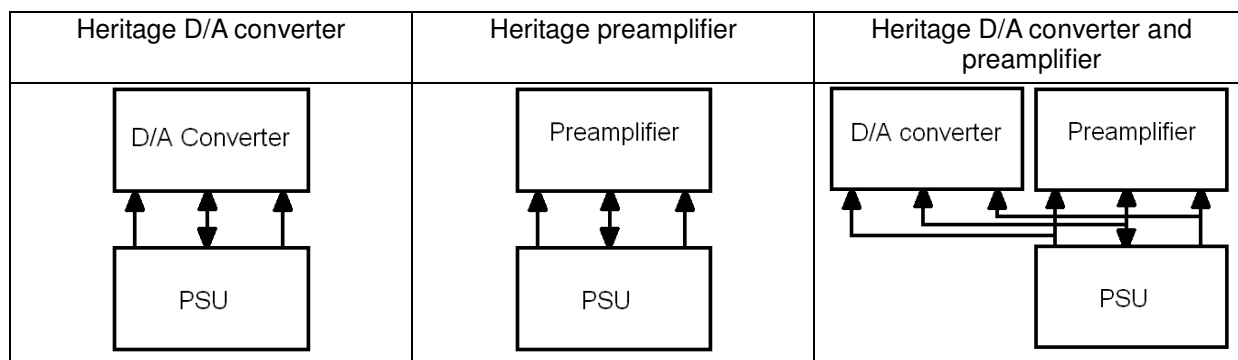
## FEATURES

### TOPOLOGY

The internal topology of the power supply is a complete dual mono architecture. Using two separated power supplies and amplifier boards in stereo and bi-amp mode, makes the two channels of the amplifier totally independent to minimize channel-to-channel crosstalk. The power supply is physically separated from the audio units for better noise isolation (residual noise and 50 Hz and 100 Hz due to the rectifier diodes). The same power supply is able to provide enough power for the D/A converter unit and the preamplifier at the same time. This makes this system modular and several ways to connect it are possible.

### MODULAR SYSTEM

Several ways to connect the audio units are available according customer preferences.



### POWER TRANSFORMER

The power transformers used in this power supply were specially designed in collaboration with a well-known company manufacturing transformers for specific audio applications.

The transformers supplying the electronic power components have a power of 175 [VA] each. They consist in two separated windings of 150 [VA] each for the analog power supplies and one winding of 25 [VA] for the digital systems. One is used for the positive analog voltage and the other winding is used for the analog negative voltage. We use two different windings in order to avoid any possible interference between the different voltages and currents of the power supply. The two low-noise power transformers are able to provide a total amount of power of 350 [VA]. The transformers are also equipped with a magnetic shield covering the entire capsule to reduce magnetic perturbations inside the unit.

## **MICROPROCESSOR UNIT**

This card is the brain of the entire audio system. This card is cadenced with a PIC32 from the latest generation of Microchip controllers. Its goal is to check, control and protect the device. It will communicate with the screen, thermal sensors, current sensors, photocouplers and keypad. A specific program has been developed to manage correctly all these functions with minimal delays.

## **SCREEN**

The displayed use in the power amplifier has a resolution of 480 x 272 pixels with a diagonal of 4.3 inches. This TFT LCD screen is able to show up to 16.7M different colors. For our application, only 48 colors will be selectable in the settings under the menu DISPLAY. All pixels are coded on 24 bits per pixels.

## **PROTECTIONS AND ERRORS**

The amplifier has several internal protections constantly monitored by a central processor unit. If any error occurs, one of the following messages will be shown on the screen:

### **NO DEVICE DETECTED**

If no device is attached to the power supply unit, this message will be shown on the screen. It can also be an interconnection problem with the two units. Be careful to correctly connect the units as described on this manual. If you restart your machine and this message is displayed again on the screen, contact your local dealer.

### **PSU ERROR**

If the voltages of the power supplies are not correct, the display will show this message. A problem has occurred on the power supply unit. It can also be an interconnection problem with the two units. Be careful to correctly connect the units as described on this manual. If you restart your machine and this message is displayed again on the screen, contact your local dealer.



## QUICK GUIDE

### VOLTAGE SELECTION

Outside the machine, located close in the main inlet, you can find a fuse drawer. This main inlet is also a voltage selector. Be careful to correctly select the AC voltage of your country before switching on the machine.



- ① **Fuse drawer**  
Fuses type:  
2 x T5A for 230V network.  
2 x T10A for 100V & 115V network.
- ② **Main switch**

### POWER ON

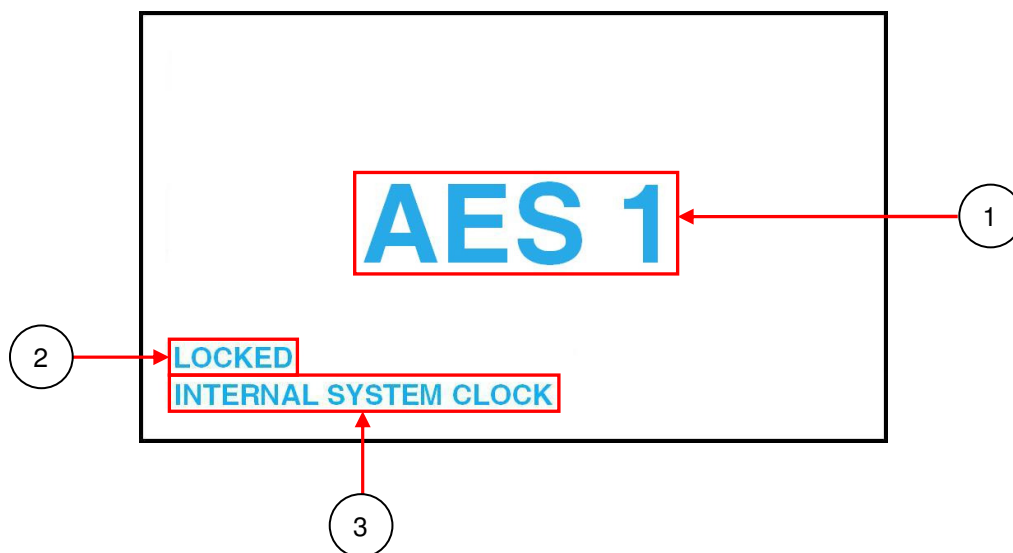
Flip the main power switch located on the rear panel from OFF to ON.

After switching on the unit, the display shows:

- Orpheus logo
- Heritage series logo
- The devices automatically detected
- Device starting

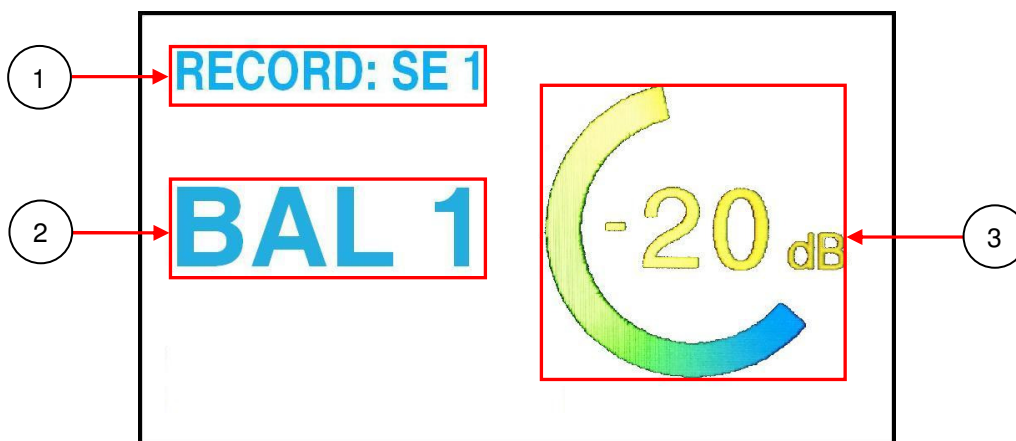
After passing all the internal tests through this starting procedure, the main screen will be shown.

### MAIN SCREEN (D/A CONVERTER)



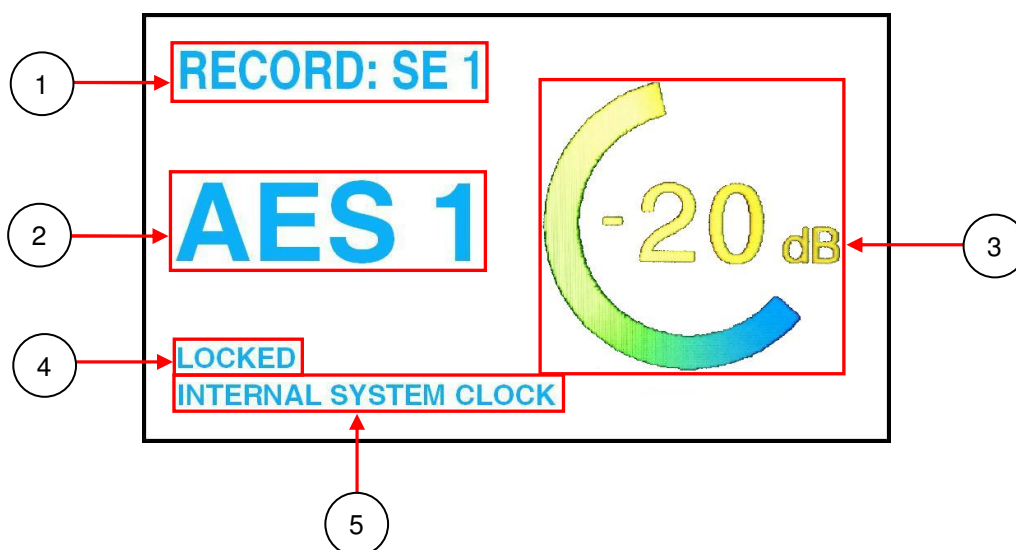
- ① **Digital input selected of the D/A converter**
- ② **Digital input status**
- ③ **System clock operating**

## MAIN SCREEN (PREAMPLIFIER)



- ① Input routed to the record output (bypass)
- ② Analog input selected of the preamplifier
- ③ Analog volume

## MAIN SCREEN (D/A CONVERTER & PREAMPLIFIER)

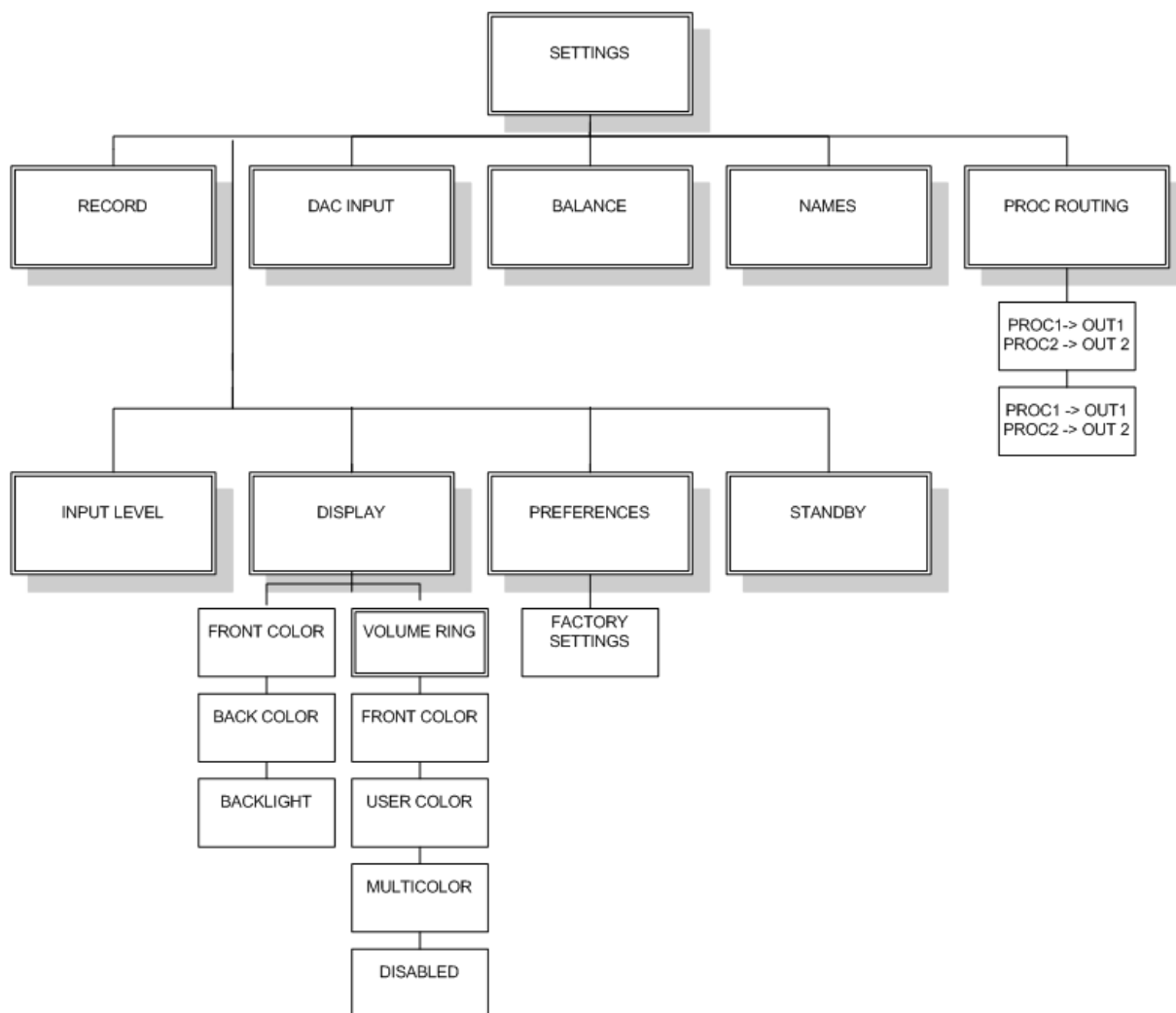


- ① Input routed to the record output (bypass)
- ② Digital or analog input selected
- ③ Analog volume
- ④ Digital input status
- ⑤ System clock operating

## SETTINGS

### MENU HIERACHY

This is the menu structure when the D/A converter and the preamplifier are connected with the same PSU (Power Supply Unit).



## CONFIGURATION OF THE DEVICES

Press **SET** to enter the setting menu. To go left press **◀** and to go right press **▶**. Press **SET** to enter a submenu. To leave the submenu, you can press **△**.

Each time you leave the settings menu, the power supply unit automatically saves of the preferences previously selected.

If you are lost in the settings, let the system return to the main screen automatically by itself. After approximately 4 seconds of control button inactivity the display returns to the previous menu until it quits completely the menu and go back to the main screen.

## RECORD

This menu is enabled when the preamplifier is connected.

The customer can select an input which will directly be routed to the record output without volume control (bypass).

## DAC INPUT

This menu is enabled when the D/A converter and the preamplifier are interconnected with the same power supply unit.

To correctly control both units, the servo control need to know on which input of the preamplifier the D/A converter is connected. By default, BAL 1 is selected. Nevertheless, the customer can change the default settings.

## BALANCE

This menu is enabled when the preamplifier is connected.

Balance steps are:

CENTERED (default), -0.5dB, -1dB, -1.5dB, -2dB, -2.5dB, -3dB, -4dB, -5dB, -6dB, -8dB, -10dB, -15dB, -20dB, -25dB, -30dB, -40dB, -50dB, MUTE

## NAMES

The customer can modify the names according its needs. The maximal length for the input names is of 10 characters.

## PROC ROUTING

This menu is enabled when the preamplifier is connected.

The processor input is a special input (bypass). It is useful to connect an audio processor or a D/A converter with volume control integrated.

If digital or/and analog filter are used to separate high and low frequencies, the routing of these inputs can be separated or tied together.

## INPUT LEVEL

The input level of each input can be adjusted of +/- 10 dB by steps of 0.5 dB according the audio device connected.

## DISPLAY

**BACKLIGHT:** Modifies the backlight of the screen.

**FRONT COLOR:** Modifies the front color of the screen. (Text color)

**BACK COLOR:** Modifies the color of the back ground.

## VOLUME RING

**MULTICOLOR:** The color of the volume ring will change according the volume of the preamplifier selected.

**USER COLOR:** Modifies the volume ring color.

**FRONT COLOR:** The volume ring is displayed with the same color as the front color.

**DISABLED:** The volume ring is not displayed in the screen.

## PREFERENCES


The various parameter settings allows personalized unit configuration. Nevertheless, it is always possible to call back the initial factory settings.

**FACTORY SETTINGS:** Restores the default factory settings.

Orpheus Heritage power amplifier factory settings values:

RECORD:	NONE
DAC INPUT:	BAL 1
BALANCE:	CENTERED
NAMES:	
D/A CONVERTER:	AES 1, RCA 1, USB, DSD, TOSLINK, FIREWIRE, RCA 2, AES 2
PREAMPLIFIER :	SE 1, SE 2, SE 3, SE 4, BAL 1, BAL 2, BAL 3, BAL 4, PROC
PROC ROUTING:	PROC1 -> OUT1, PROC2 -> OUT2
INPUT LEVEL:	ALL PREAMPLIFIER INPUTS SET TO 0dB
DISPLAY:	
VOLUME RING:	MULTICOLOR
BACKLIGHT:	100%
FRONT COLOR:	ORPHEUS NAVY BLUE
BACK COLOR:	BLACK

## STANDBY

Press  on the remote control, or go on the settings find STANDBY and press SET. To operate the machine again, press any control button of the unit or any button of the remote control. After initialization, the machine is ready to operate again.

The power consumption of the Orpheus Heritage SACD in standby is 4.5 [W].

## SOFTWARE DRIVERS

The external audio cards need drivers in order for correct operation. Install the drivers before connecting the USB and the firewire cards.

### FIREWIRE

The drivers ASIO are provided on the CD of the user's manual on the path: Drivers/Firewire. According the operating system installed, you need to select the correct folder in order to install the correct driver.

### USB

You need only to install the drivers if you are using an operating system of Windows. The drivers are provided on the CD of the user's manual with the path: Drivers/USB. According the operating system installed, you need to select the correct folder in order to install the correct driver.

## SPECIFICATIONS

### POWER SUPPLY UNIT

**Main voltage:** 100 [Vac] / 120 [Vac] / 230 [Vac]

**Dimensions (W x L x H):** Power supply: 440 [mm] x 420 [mm] x 120 [mm]

**Power transformers:** Low noise toroidal power transformer of 175 [VA].  
Total power of 350 [VA].

**Analog windings:** 35V each / 2 x 150 [VA]

**Digital windigs:** 6V each / 2 x 25 [VA]

**Capacitance:** Total capacitance of more than 115 [mF]

**Ground:** Digital and analog ground separated  
Ground connector present on the rear panel for external grounding.

**Weight:** Power supply: 24.3 Kg

**Power consumption:** Standby: 4.5 [W]  
With only the D/A converter: 57 [W]  
With only the preamplifier: 19 [W]  
D/A converter and preamplifier: 76 [W]

## **D/A CONVERTER UNIT**

**Inputs :** AES1 / 24 bits / 192 KHz  
RCA1 / 24 bits / 192 KHz  
USB / 24 bits / 192 KHz (native DSD available using ASIO drivers)  
Orpheus DSD (native DSD)  
TOSLINK / 24 bits / 96 KHz  
RCA2 / 24 bits / 192 KHz  
AES2 / 24 bits / 192 KHz

**Outputs :** 2 x balanced  
2 x unbalanced

**Sensitivity :** 2.4 Vrms for unbalanced outputs @ 0dB  
4.8 Vrms for balanced outputs @ 0dB

**Word clock:** 44.1 KHz, 48 KHz, 88.2 KHz, 96 KHz, 176.4 KHz and 192 KHz

**Input impedance:** Unbalanced outputs 47 K $\Omega$   
Balanced outputs 95 K $\Omega$

**Output impedance:** Unbalanced outputs 75  $\Omega$   
Balanced outputs 150  $\Omega$

**Frequency response :** < 0.01dB 20 Hz to 20 KHz

**Total Harmonic distortion:** 1KHz / Output voltage 4.8Vrms  
115 dB

**Signal on Noise Ratio:** 1 KHz / Output voltage 4.8 Vrms  
SNR 120 dB

**Noise floor:** 140 dB

**Dimensions (W x L x H):** 440 [mm] x 420 [mm] x 80 [mm]

**Weight:** 14.5



## PREAMPLIFIER UNIT

**Inputs:** 8 x unbalanced  
8 x balanced  
4 x balanced processor inputs

**Outputs:** 4 x unbalanced  
4 x balanced  
2 x unbalanced record outputs

**Input impedance:** Unbalanced outputs 47 K $\Omega$   
Balanced outputs 95 K $\Omega$

**Output impedance:** Unbalanced outputs 75  $\Omega$   
Balanced outputs 150  $\Omega$

**Maximal input voltage:** 11 Vrms

**Maximal output voltage:** 8 Vrms (6.2 Vrms saturation level)

**Frequency response :** +/- 0.002 dB 20 Hz to 20 KHz

**Total Harmonic distortion:** 1 KHz / Input voltage 11 Vrms / Output voltage 2 Vrms  
THD+N Balanced 101 dB / 0.0008%

**Signal on Noise Ratio:** 1 KHz / Input voltage 11 Vrms / Output voltage 2 Vrms  
SNR 105 dB

**Noise floor:** > 130 dB

**Crosstalk:** Channels right and left totally separated  
Crosstalk between channels > 95 dB

**Propagation delay:** 100 nS

**Slew rate:** 10 V/uS

**Digital volume control:** From -100 dB to +10 dB by 0.5 dB steps

**Input level:** Separated input level adjustment for all channels +/- 10 dB by steps of 0.5 dB

**Balance:** Centered / -0.5 dB / -1 dB / -1.5 dB / -2 dB / -2.5 dB / -3 dB / -4 dB / -5 dB / -6 dB / -8 dB / -10 dB / -15 dB / -20 dB / -25 dB / -30 dB / -35 dB / -40 dB / -50 dB / Mute

**Dimensions (W x L x H):** 440 [mm] x 420 [mm] x 80 [mm]

**Weight:** 13.8 Kg

## **GENERAL INFORMATION**

### **COMMENTS**

Constructive feedback is always welcome.

Please feel free to forward us your comments at the address listed on last page or to your local dealer or distributor.

### **TECHNOLOGY & DESIGN**

The unit has been entirely manufactured and assembled in Switzerland; conceived by ORPHEUS Media sàrl.

### **IMPORTANT NOTICE**

ORPHEUS Media Sàrl reserve the right to make changes to their products or discontinue any product or service without notice. Adequate operating safeguards must be used to minimize hazards. Reproduction of user manual information is permissible only if it is without alteration and is accompanied by all relevant conditions, limitations and notices. Source must be clearly identified when reproducing user manual information.

## LIMITED WARRANTY CERTIFICATE

ORPHEUS Media guarantees that the product described below is free of defective material and workmanship. The warranty extends for a period of one year form original purchase date, but at maximum two years form manufacturing date. ORPHEUS Media agrees to repair or replace defective parts or the complete unit at its option, provided that the equipment is returned exclusively to the original dealer.

This limited warranty is contingent upon proper and normal use and installation, and does not cover damage due to external causes, including but not limited to, accident, careless handling, improper installation or connection, problems with electrical power, electrical contact or electrical grounding, liquids, chemicals, oxidation, corrosion, exposure to the elements, service or repair not authorized by ORPHEUS Media, usage not in accordance with product instructions, failure to perform required preventive maintenance, and problems caused by use of parts and components not supplied or authorized by ORPHEUS Media. Removing, altering, tampering with serial number voids the limited warranty. The limited warranty does not extend to or include consequential damage, and does not apply in any case for damage occurring during shipping or installation.

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ORPHEUS Media Sàrl – March 2014

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Officer**

Fabien Tallant



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Manager**

Kathia Briand



**Software Manager**

Julien Schlaepfer



**Hardware Manager**

Sergio Carreira

