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Introduction

We at PHISON AUDIO has set a goal with the PD2 pre-amplifier. We wanted to design a unit that is timeless both in design and build up and for this reason the PD2 is highly modular. At the same time, we wanted the design be best possible in terms of circuit topology, layout and parts used. We always chase new design and parts and want our customers to be able to get it and that is the reason for the modular design. The essence of our design is to extract all information from the music material without a compromise on the musicality.

Safety Instructions.

When using this product make sure that everything is powered up in right sequence. A good practice is to use the following sequence for Power ON and Power OFF.

POWER ON SEQUENCE: SOURCE->PD2->POWER AMPLIFIER

POWER OFF SEQUENCE: POWER AMPLIFIER->PD2->SOURCE

Also note that the product has to be configured for the correct Mains voltage. When shipped from Factory the product is supplied with a label on the bottom of the chassis with the configured mains voltage. 115VAC is the range 100 – 120VAC and 230VAC is the range 220 – 240VAC.

If the fuse blows replace it with 1A Quick Acting 5x20mm fuse. If it happens often, please contact the dealer/factory.

Changing Mains voltage – Authorized personal only.

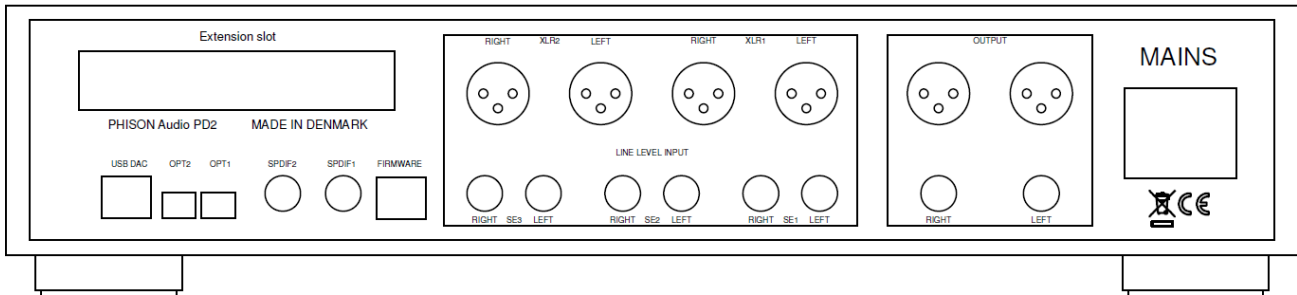
Changing Mains voltage needs to be done by trained and Authorized personal only. Inside the chassis there is potential lethal voltages present.

General installation notes.

This device is designed for use in an indoor environment only. Installation is only permitted in an environmental indoor climate with a temperature of between 0°C and +50°C / 32°F and 122°F, humidity between 25% and 80%, and a maximum temperature of +50°C / 122°F.

Back panel layout.

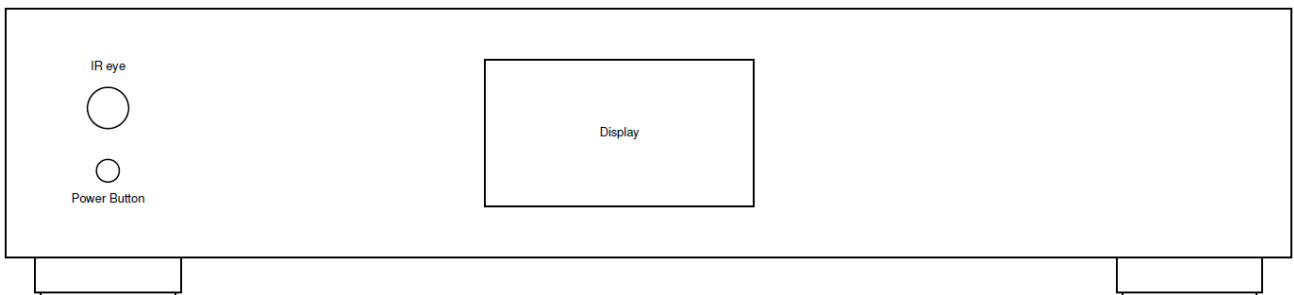
The back panel is more or less self-explaining, but we have to note that there are 2 USB connectors. They are not interchangeable. The USB connector marked "FIRMWARE" is used to upgrade the pre-amplifier firmware and nothing else. The USB connector marked "USB DAC" is the input from the source. It is UAC2 compliant meaning async transfer.



Front panel layout.

The front panel consist of a centered 4.3" TFT display with touch. All menu settings need to be done on the touch display. The power button turns the analog stages off to save power when not in use. When doing a FIRMWARE upgrades the power button is needed to be hold pressed when powering the unit up. The display remains black when in FIRMWARE upgrade mode. After an upgrade it is necessary to turn the unit completely off and leave it off for 2 minutes before powering it up again.

In normal use the user should not press the power button during power up.



Apple IR remote layout.

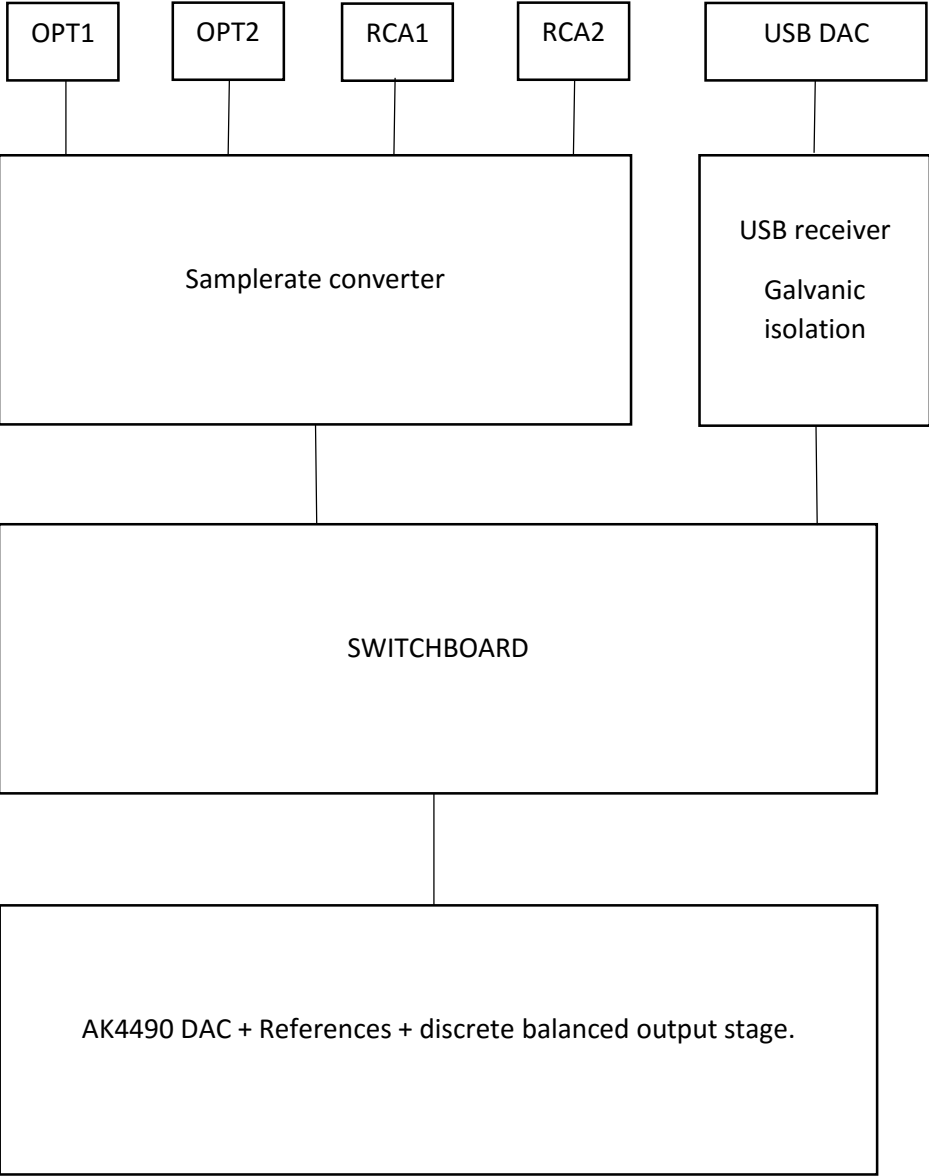
We have provided a layout where the user can use a standard apple IR remote.

- 1) Volume Up
- 2) Channel select -
- 3) Volume Down
- 4) PCM filter select
- 5) MUTE ON/OFF
- 6) Channel select +
- 7) DSD path Normal/Bypass



DAC description.

The DAC has two paths, SPDIF input through optical receivers or RCA connectors and USB interface. The SPDIF inputs are run through a samplerate converter where they are upsampled to 192Ksamples and 24bit. The optical inputs works up to 96Ksamples, the RCA connectors works up to 192Ksamples. The USB interface does not go through SRC to be able to deliver PCM 384Ksamples and DSD 256 and DoP128. The USB is galvanic isolated removing digital noise from the source.



DAC PCM filter.

The onboard AK4490 DAC used has 4 filter settings we can choose from on the fly.

Filters that can be chosen between is:

- 0) Traditional delay, Sharp roll off.
- 1) Traditional delay, Slow roll off.
- 2) Short delay, Sharp roll off.
- 3) Short delay, Slow roll off.

DSD bypass mode.

When playing DSD/DoP streams it is possible to choose between standard path or bypass path. The Bypass path disables the DAC attenuator completely. The attenuator is set to “no” attenuation in “Normal” path, but the Bypass is in theory a shorter path leaving a math section out of the DAC DSD signal path.

USB drivers and operating system.

The “USB DAC” interface will on OS/X, IOS (Through Camera connector kit) and Linux run without the need for drivers for windows we provide a driver. It will show up as “xCore USB Audio 2.0”

Analog Volume control.

The analog volume control is fully balanced with state of art R2R 4Q DAC as attenuator. To lower the noise as much as possible the attenuator has an internal constant impedance of 5K where in many designs 10K, 20K or even 100K is used in the attenuator.

The range of the attenuation is -120 to +12dB in 0.5dB steps.

By pressing the center button on the remote the volume is muted to -120dB. It shows up as "MUTE" in the display marked as RED as well.

Gain stages.

All gain stages are JFET folded cascode enabling true single gain stage technology followed by a high quality buffer. The design of the gain stages is a carefully selected blend of JFET's and bipolar transistors to give optimum performance.

MENU system.

The menu system is used to change default settings that will be loaded on a power on and the menu system can only be accessed through the touch panel. When entering the MENU system, we have tried to keep it self-explaining, but a few words are needed to be said about the menu system. When there is possibility to store settings an “STORE” button appears, if you choose not to store there an escape (“ESC”) button.

The layout of the menu system is as following.

- MENU
 - “BACKL” – Backlight settings menu.
 - “AUDIO” – Default Channel and volume level.
 - Before entering this menu make sure that the unit is on the selected channel and Volume as it cannot be changed in the menu.
 - “MISC” – IR remote ID set or clear menu.
 - The apple remote has a build in ID number ranging from 1 – 255. When it is “0” in the menu no filter to the remote ID is chosen.
 - “FILTER” – DAC filter setting menu.
 - In this menu it can be chosen what the default filter for PCM is and the default Normal/Bypass mode is for DSD/DoP streams.

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