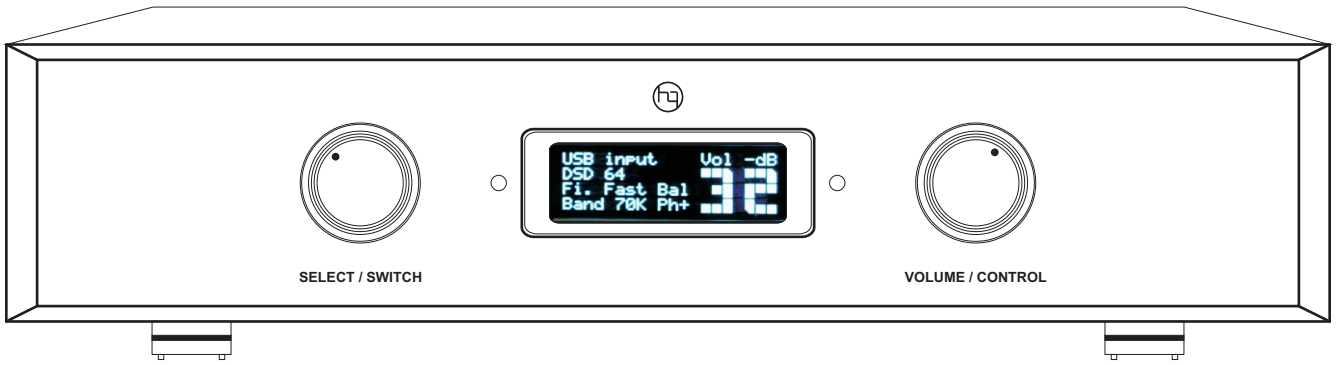
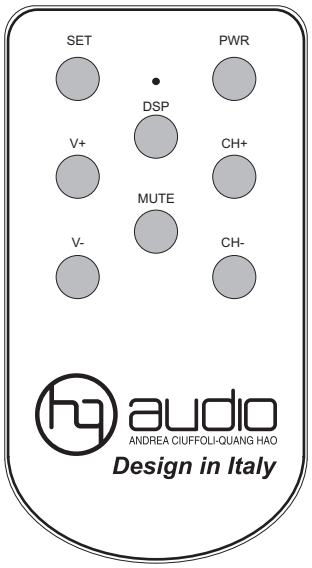




REFERENCE MANUAL
DAC-DSD DIGITAL TO ANALOGUE CONVERTER

Installation and Setup.

Unpacking

The content should include:

- HQ - REFERENCE DAC
- Remote Control
- This User Manual

Retain the packing for safe transport of your unit.

Connecting to the Mains

Check to make sure your DAC unit has been manufactured for operation at your AC line Voltage. Attempting to use the DAC at any voltage other than the specified on the rear of the unit may damage the unit. Damage caused by improper operation is not covered by warranty. If the voltage specified is different from your AC voltage, contact your dealer..

Placement

The unit is designed to run warm during normal operation but ensure you do block any ventilation openings.

Place the unit on a shelf or table. If you use an equipment Rack ensure the unit has adequate ventilation and is on its own shelf. Ensure your mains voltage corresponds to the rating plate on the rear of the unit.

Connecting Directly to a Power Amplifier

Avoid allowing static shocks to be applied to the inputs or outputs. To prevent static shocks, touch any grounded surface, such as the DACs chassis, before connecting or removing a cable. It is unlikely that a static shock will damage the unit, but it may cause circuitry to "lockup". Inputs and outputs can be safely connected to the DAC unit before it is powered up.

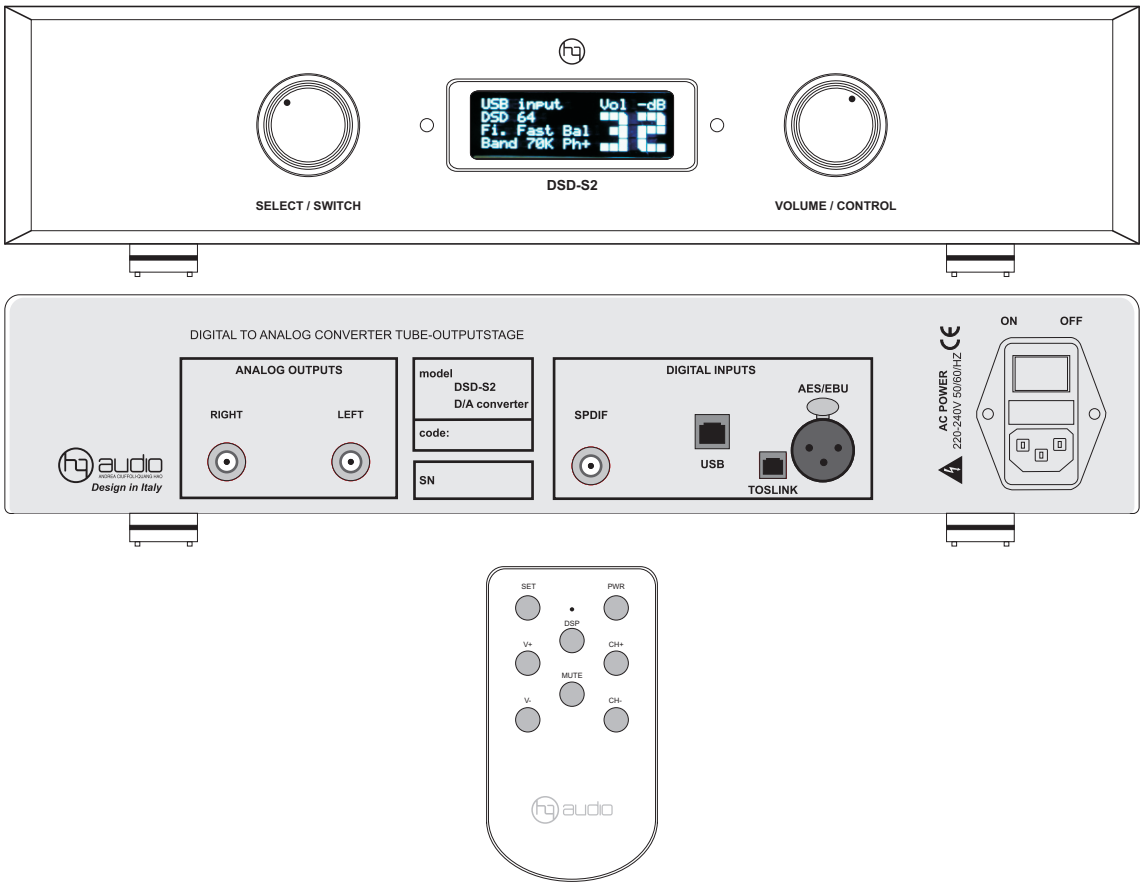
We strongly recommend that you use your DAC unit directly to your power amplifier. Even if you purchased your DAC unit with the intention of connecting it to your preamplifier, we suggest that you try direct connection to your amplifier. Many listeners are surprised by the improvement in performance over even the most expensive preamplifiers.

To connect your DAC unit to a power amplifier, ensure that your power amplifier is turned off then connect your analog interconnects from the DACs analog outputs to the amplifier's inputs.

Using with a Preamplifier

While the DAC unit was designed to be used without a preamplifier, no compromises were made in its design that will prevent excellent operation in a conventional system with a preamplifier.

When using a preamplifier, set the DAC units volume control to its maximum level.



Description.

Description

The HQ Reference DAC and DSD-DAC is a Stereo High fidelity DAC unit and includes advanced specification with high performance. There are several of customizable settings within the HQ Reference DAC to optimize sound quality for a wide range of setups.

Please read this Manual before installing and operating the unit to take full advantage of all the features of this unit.

Signal input

- Coaxial S/PDIF - RCA phono coaxial
- Optical - TosLink optical
- AES/EBU - balanced
- USB 2.0 - Amanero USB

Signal output

- Tube Unbalanced stereo analog output
- 32bit Digital Volume Control

Operating features

• Stand by. on/off

• Automatic detect / decode of external digital input source.

• Multiple selectable digital filer settings with preset selection.

• Analog output level and input preset selection.

• Full featured aluminium IR remote control

• Tube output to drive direct almost any amplifiers

Front panel control functions

POWER: stand by on/off
INVERT: output polarity
INPUT: select (advance)
MUTE: outputs

In frared remote controlfunctions

POWER: stand by on/off
MUTE: outputs
USB: input select
RCA: input select
XLR: Input select
OPT: Input select

Digital circuits:

The DAC unit is based on the ES9018 Sabre32 reference DAC chip from ESS Technologies. It has a patented 32-bit hyberstream DAC architecture and Time Domain Jitter elimiminator. The Dac chip has build in filters for both PCM and DSD and these filters can be adjusted by the user.

The Dac board is supplied from 9 low noise regulators where 5pcs are discrete extreme low noise shunt regulators are used for the most critical circuits.

The analog output is true unbalanced.

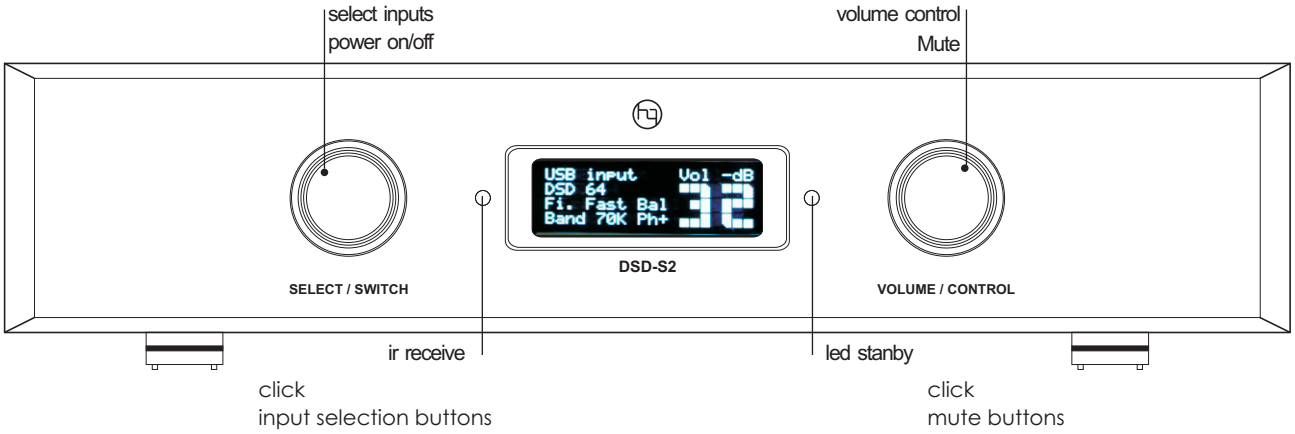
Analog circuits

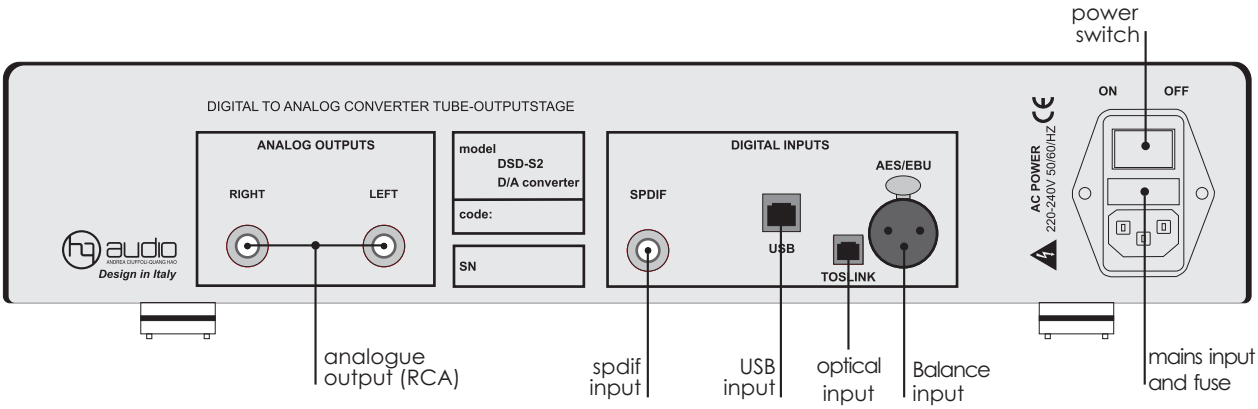
The DAC unit can be delivered with Analog Tube circuits.

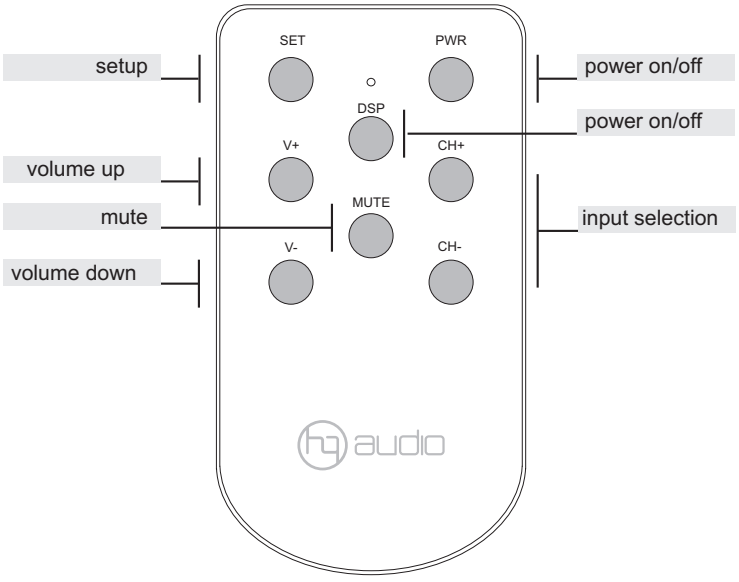
The Analog circuits are designed as a input stage is a differential amplifier with 2 x 12 AU7.

This is circuit provides voltage gain and exhibits a fine CMRR, it delivers what a good balanced circuit should deliver. the a balanced input signal from the differential amplifier and converts it to an unbalanced output., low output impedance, low distortion, and great CMRR. it is the cathode follower uses a push-pull topology with 2 tube 12AU7.

Controls and Connectors.







Operational.

Button onr front

Switching On and Off:
Connect power to the unit and switch the mains on. Switch on the unit.
When switching off the unit: switch off the amplifier first.
When switching on the unit: The display shows the welcome screen. After a short period the display menu shows.

Selecting input:
Push S+ or S- buttons on the front panel to select the wanted input. When the input is selected and locked, the front panel displays input type, which can be either PCM or DSD. For PCM input the sampling frequency shows and for DSD input the sampling rate shows.

Altering the Volume Level
The volume can be adjusted by using the front panel buttons V+ or V-. The front panel displays the volume level.

Mute:
To mute the analog output, push the Mute button. Push the Mute again for unmute the analog output. The Front panel will display the Mute status.

Features:
The front panel features the Bal/unbal function by pushing both S+ and S- at the same time. This feature will improve the analog output sound performance on the RCA connector only. If you are using the balanced output then the analog output signal will silence.

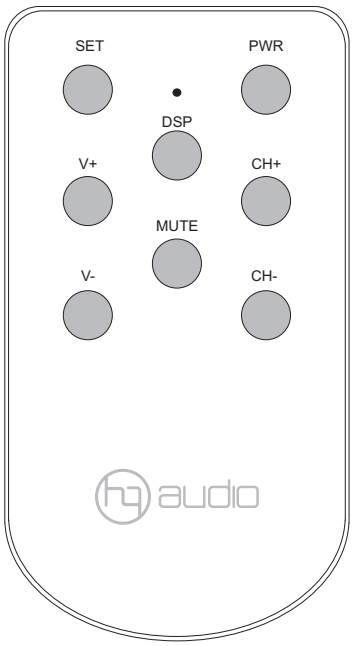
Operational using the Remote Control

Custom default start up setting:
It is possible to change the default start up setting. E.g. if the optical input is often used, it can be a nice feature to have the DAC unit start up with the Optical input as default.
By pushing the **DSP** button in the "setting state" the unit will save the status for next switch-on.
Phase invert, Digital filter selections, volume level and input selection.

Selecting input:
Push CH+ or CH- buttons on the Remote Control to select the wanted input.
When the input is selected and locked, the front panel displays input type, which can be either PCM or DSD. For PCM input the sampling frequency shows and for DSD input the sampling rate shows.

Volume Level:
The volume can be adjusted by using the Remote Control buttons V+ or V-. The front panel displays the volume level.

MUTE:
To mute the analog output, push the Mute button. Push the Mute again for unmute the analog output. The Front panel will display the Mute status.



Digital filter selection:
The unit offers a wide choice of filters to enhance your listening experience. Two digital filter settings are possible, sharp roll-off and a slow roll-off for PCM mode. For DSD mode, there are 4 available filters with cut off at 47kHz, 50kHz, 60kHz and 70kHz.

For filter selection use the Remote Control.
Enter the programming mode by Pushing the SET button.

PCM filters: Select sharp roll-off or slow roll-off by pushing the buttons V+ or V-.

DSD filters: Select cut off at 47kHz, 50kHz, 60kHz or 70kHz by pushing the buttons CH+ or CH-

Select the desired filter setting and Save the new setting by pushing the **DSP** button followed by the SET button.

DISPLAY Light:
Push the PWR button on the Remote Control for switching On and Off the display backlight.

Phase invert:
Note: Phase invert is only possible when using following inputs:
AES, COAX, OPTICAL.

Change phase by pushing **SET** for stepping in to the setting state, push the **MUTE** button for Phase invert.
For saving the new setting: push the DSP button followed by SET.

Quick installation.

enjoy the music

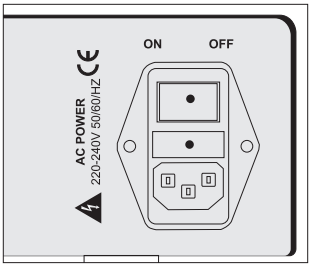
1. Check carefully the input connector and AC = 220V mains.

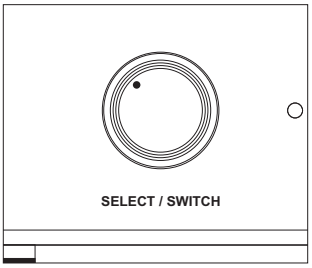
2. turn on the power switch behind the DAC.

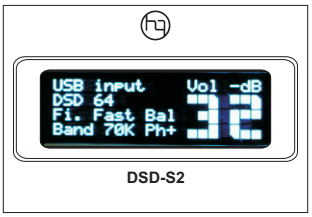
3. Press the left button or button **SELECT / SWITCH** - on the remote control, the DAC is booted, the screen flickered to display the information.

4. Turn on and wait 45 seconds amplifier, sound is played through the DAC and you start enjoying the music.

5. Turn off and open the DAC in standby: using the PWR button on the remote control or press button **SELECT / SWITCH** on the front panel.

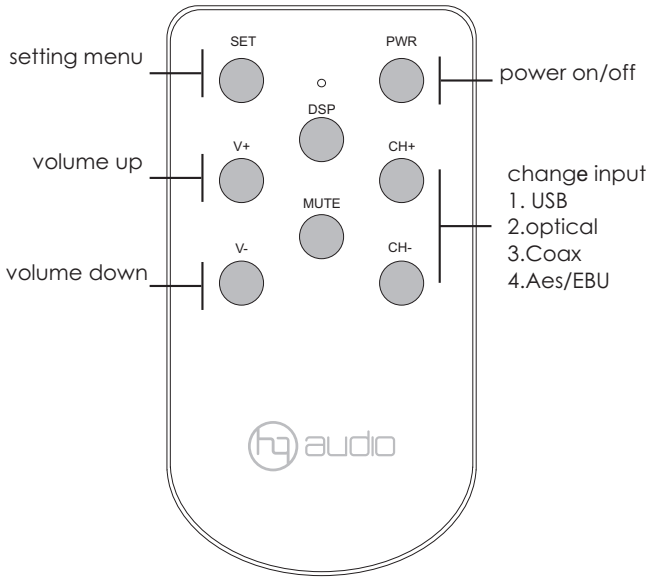




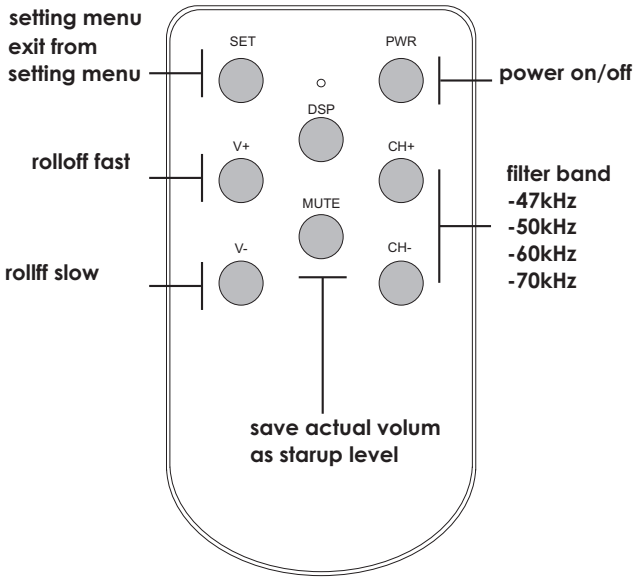


Control guide

Normal play



Setting menu



Drivers Setup.

OEM Combo384 Module

Windows ASIO Driver Installation

http://www.amanero.com/drivers.htm

The first step required in the Windows setup process is to install the ASIO driver:

• Don't connect the DAC unit to the PC until the driver is installed.

Don't worry if you've connected the device already. Just disconnect it.

• Download the latest driver from http://www.amanero.com/drivers.htm

• Don't use setup packages downloaded from other websites.

• Unzip the installation package and double-click on Install.exe to start the installation. Follow the instructions. In most cases you just need to accept the defaults on the following screens.

Mac/Linux ASIO Driver Installation

• No Drivers for these operating systems is needed.
• See limitations in specification.

DSD-Direct Stream Digital

Direct Stream Digital, also known as DSD format - this format is not new as many people think, it is as old as digital but it wasn't used for consumer audio or home audio - before. It became very popular after 2010 and continues to make its way into our homes.

It encodes the music in the data stream differently, looks differently and sounds differently. It is the format in which the SACD discs were recorded and a format in which the analog master tapes were backed up by record companies. It is currently the format in which the master recordings are made in record industry.

Music player setup.

The Music player

To use Hq- Reference DAC and DSD-DAC with all the PCM sampling frequency and DSD sample rates, it is necessary configure the Music player (Foobar2000, Jriver or similar) to use: Windows Audio Session API (WASAPI), Kernel streaming (KS) or Audio Streaming Input Output (ASIO).

Using the default Windows driver called Direct Sound (DS) the DAC unit will work only at a specific frequency set in the Windows Audio control panel.

To work with the Kernel streaming (KS) and the Audio Streaming Input Output (ASIO) it is necessary set as predefined a different sound device on Windows Audio control panel to keep the Amanero free for the application control.

The Kernel streaming (KS) is the lower level mode to operate on Audio device so there are lower stratification in the software stack. The Windows Audio Session API (WASAPI) give less problems and it work very good with PCM and DSD tracks. Set the Windows with no sound to avoid that the system messages interference during the reproduction.

To use Foobar2000

To use Foobar2000 is much more complex

You can follows the guide on: http://hifiduino.wordpress.com or this following images.

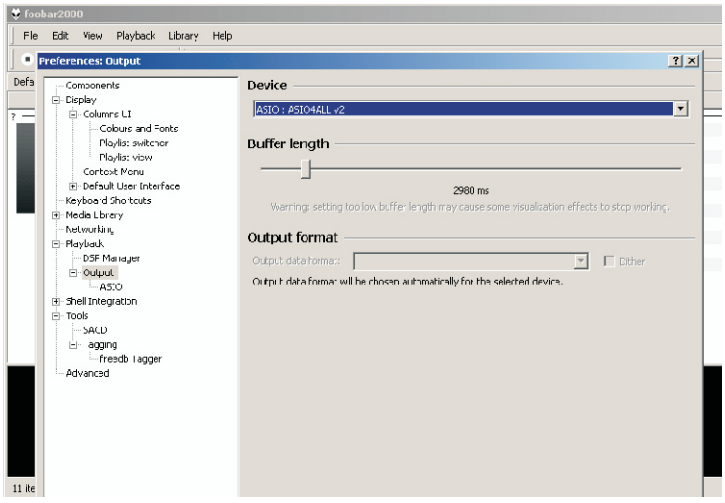
download the last player SACD support (foo_input_sacd-0.6.1.zip to get foo_input_sacd.dll and ASIOProxyInstall-0.6.0.zip)

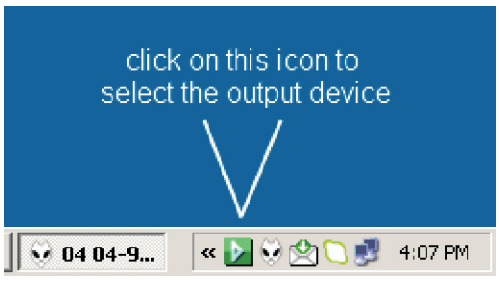
ASIO4ALL (ASIO4ALL 2.11 Beta1 to get foo_dsd_asio.dll)

Kernel Streaming support necessary to play 384KHz tracks (foo_out_ks.dll)

copy foo_input_sacd.dll, foo_dsd_asio.dll and foo_out_ks.dll in the directory C:\Program\foobar2000\components

If you select as output device the ASIO4ALL when you start to play any tracks an little icon will be insert in the Appl. Bar.





Music player setup.

JRiver DSD setting screenshots

The JRiver is more simple and with this configuration you can play 44,88,96,192,384KHz, DSD files and SACD ISO.

download the last player: http://www.jriver.com.

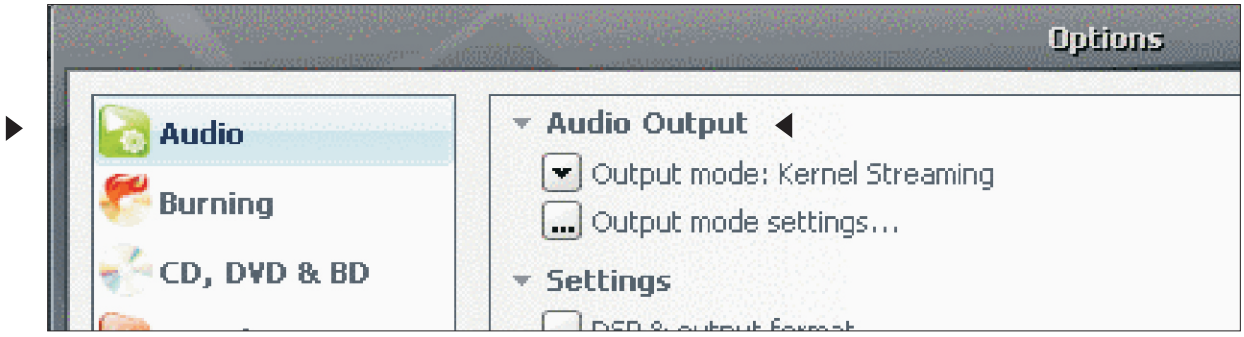
it's best to buy a license for Jriver

Direct Stream Digital, also known as DSD format - this format is not new as many people think, it is as old as digital but it wasn't used for consumer audio or home audio - before. It became very popular after 2010 and continues to make its way into our homes.

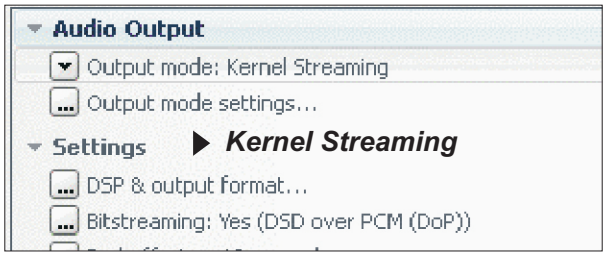
It encodes the music in the data stream differently, looks differently and sounds differently. It is the format in which the SACD discs were recorded and a format in which the analog master tapes were backed up by record companies. It is currently the format in which the master recordings are made in record industry.

1. Open Jriver and Tool/Options

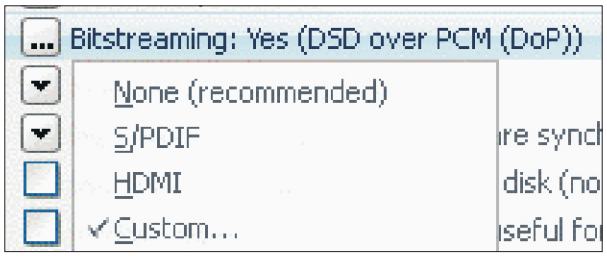
2. Tool/Options/Audio



2. Audio Output /Output mode/ kernel Streaming



3. Audio Output /Output mode/ Bitstreming: Yes over PCM(DoP)



4. DSD over PCM(DoP) DoP Format: DoP 1.0 (0XFA / 0x05)

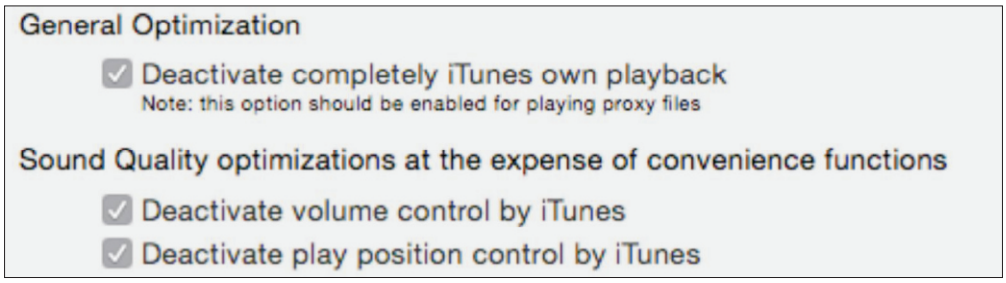
5. Ok and save Now playing

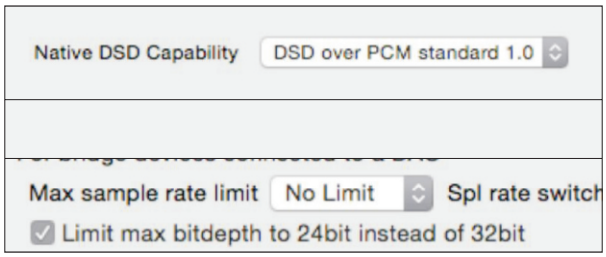
Music player setup.

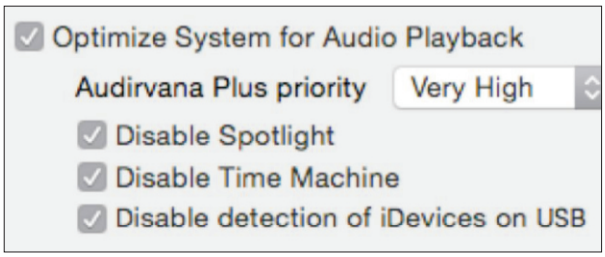
Audirvana on MAC OS configuration:

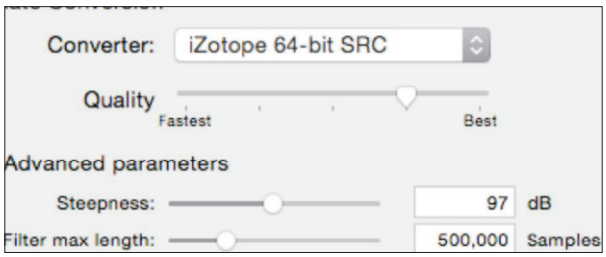
The **Audirvana** is more simple and with this configuration you can play DSD files and SACD ISO.
download the last player: https://audirvana.com/

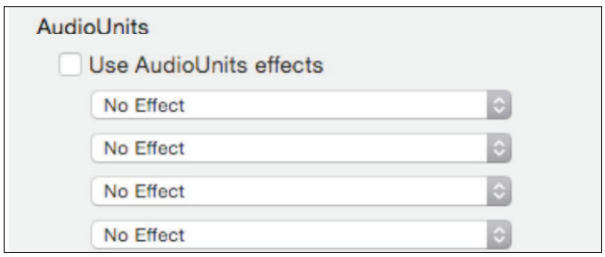
***it's best to buy a license for* Audirvana**











Frequency Asked Questions.

Balanced or Unbalanced connection?

If your amplifier has a true balanced input, we recommend to use the balanced analog output from your New DAC. All things beingequal, properly implemented balanced (also called differential) circuitry sounds better than unbalanced circuitry. The DAC unit is a true balanced design. It generates the inverted signal in the digital domain and all subsequent processing is done in balanced mode. The DAC is designed to maintain many of the advantages of true balanced design when using the unbalanced outputs. In addition, the DAC analog output stage is capable of driving both types of outputs simultaneously.

Bypassing the Volume Control?

Because the Digital Volume control does not include any analog circuitry, there is none to be bypassed. Even the mathematical program step that performs the Digital Volume Control calculation is an integral part of the HQ Reference DAC filter algorithm and therefore cannot be bypassed. If you do not need the Volume Control, set it to its maximum level of -0dB on the display. and save this level for the next switch-on using the remote command (SET + DSP).

Bypass the Preamplifier?

A preamplifier is unnecessary when using your DAC unit. The DAC Unit provides all the necessary control functions of a preamp while the signal is still in the digital domain. This avoids the sonic degradation caused by analog circuitry, switches, and wire. The DAC units Analog output stage can drive any power amplifier and any interconnects, even at very long lengths.

Leave the DAC unit with the power on?

The DAC unit is designed to be left with the power on with noharm or wear to the unit. If desired, the front display can be turned off (see Turning off the Display under Remote Operation). Leaving the power on allows the circuitry to remain in thermally stable, which provides better performance and longer life.

Careful listeners will notice that the sound of the DAC unit will improve steadily after the unit is powered up. A new unit will undergo more dramatic changes when power is applied for the first time. If you turn off your DAC unit for more than an hour, you will find that the unit will undergo similar, but less dramatic improvement once power is reapplied.

Does the Volume Control compromise resolution?

The unit uses the latest generation proprietary digital volume control.

The volume level can be varied in the digital domain by means of mathematical manipulation of the signal, eliminating the distortion and noise that are inevitable with even the best analog volume controls. While conventional thinking indicates that reducing the volume digitally can sacrifice low level resolution, the DAC unit uses an innovative digital filtering algorithm produces a 32 bit output rather than the 16 bits stored on the CD. This high-resolution signal is then used in the computations which in turn reduce the volume level. This new signal is fed directly to the DAC inside the chip. Through this innovative method, the DAC unit maintains high resolution even at the lowest volume control settings.

Specifications.

Specifications

Audio Outputs:	2 x RCA phono
Output impedance: (analog)	undrer 600 ohms
Output Levels:	3.0V RMS fixed
Frequency Response:	10Hz to 20kHz +0.1dB
Total Harmonic Distortion:	<0.015%
Resolution:	32bits
Digital Inputs:	1 x Amanero USB 1 x Coaxial S/PDIF - RCA phono 1 x Optical - TosLink optical 1 x AES/EBU - balanced
Input Format Support:	USB: 44.1kHz to 384kHz (32 bit) S/PDIF: 32kHz to 192kHz (up to 32 bit)
Mains Power:	220V, 50/60Hz
Power Consumption:	<100W
Dimensions (H x W x D):	90 x 350 x 430mm
Weight:	8kg
Finish:	Silver

Note: *Specifications may be subject to revision.*

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