Odéon-lite
Owner's Manual

24 bit Digital to Analog Converter
with Solid-Tube™ Technology

Birdland Audio

http://www.birdland.com

Dear Audiophile,

On behalf of Birdland Audio, I would like to thank and congratulate you on your acquisition of our Odéon-lite 24 bit Digital-to-Analog Converter (DAC). As digital techniques have greatly improved over the past years and with the recent availability of 24bits / 96kHz masters on DVD, we wanted you to be ready to jump to the next level of digital with the best quality DAC we could provide at the most reasonable price.

The Odéon-lite reflects our latest research in digital filtering techniques. Not only does it convert any digital format at sampling rates of 32kHz, 44.1kHz, 48k, 64k, 88.2k and 96kHz but it also upgrades digital input to virtually create a full 24 bits if the input data path is less than that. The Odéon-lite takes advantage of our 16 years of experience and includes our highly acclaimed Solid-Tube™ output stages giving you the most natural sounding DAC available today at any cost.

For the last couple of years, many audiophiles have been waiting for the next high-end digital audio format to surface. We believe the Odéon-lite is the ideal answer thanks to the wide variety of digital formats supported. Its 24 bits digital upgrade filter will transform the CD collection you already own to as close to nirvana as possible and, at the same time, bring tears to your eyes as you experience high resolution 24/96 DVD audio.

I am sure that you will appreciate the Odéon-lite as much as I do. I wish you many hours of pure pleasure as you listen to music the way it should sound.

Sincerely,

Gilles Gameiro
President / Design Engineer

Table of Contents

1 - Safety instructions and important notes

The Odéon-lite 24 bit digital-to-analog converter has been designed with safety in mind. Improper use could result in electric shock or fire hazard. Please read the following safety instructions carefully.

1 Do not remove the unit's cover as you will be exposed to dangerous voltages which may result in electric shock, this will also void the warranty. Refer servicing to qualified technicians only.

2 When connecting components to your Odéon DAC, it is a good idea to turn the entire system off or to make sure that it is not connected to the an electrical outlet.

3 To reduce the risk of fire or electric shock, do not expose the Odéon DAC to rain or heavy moisture. Wait at least one-half hour before plugging the unit in after transferring it from a cold place to a warmer room allowing for internal condensation of water to dissipate.

4 The Odéon-lite does not have any vent openings for cooling but it does require about one inch of open space above and on the sides. Do not cover the unit. It should not be used in a built-in installation such as a bookshelf or rack unless proper ventilation is provided.

5 When using the Odéon-lite connected directly to an amplifier (without a preamplifier) it is recommended to lower the volume knob to the minimum before turning your Odéon DAC on. Failing to do so could send high audio levels to your amplifier and could **overload and damage your amplifier or speakers.**

2 - How to properly care for your DAC

Heat
Keep the Odéon DAC away from heat sources such as radiators, space heaters, stoves, or other sources.

Water and moisture
Do not use the Odéon DAC near water sources such as bath tubs, sinks, wash bowls, swimming pools, or other sources that may lead you to get water in the unit. Do not spill liquid of any kind on the unit.

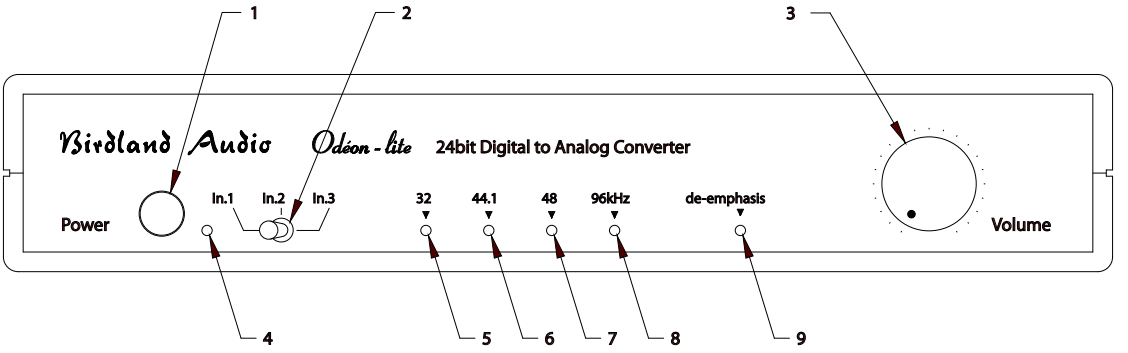
Stack and height
Do not stack too many components or heavy objects on top of the Odéon-lite. Doing this could cause damage or deformation to the unit's case.

Cleaning
Use a simple damp soft cloth to clean. Do not use liquid or abrasive cleaners.
Make sure your Odéon-lite DAC is not connected to the electrical outlet before cleaning it.

Protection
For added protection, you may choose to disconnect your Odéon from the wall outlet if you are planning to leave it unattended for a long period of time or during storms. This may prevent damage due to lightning.

Volume
Reduce the volume on your preamplifier or Odéon to the minimum level before turning on the unit. Doing so will prevent sudden loud volume sounds which could cause speaker, amplifier, or hearing damage.

3 - Identification of controls



Controls

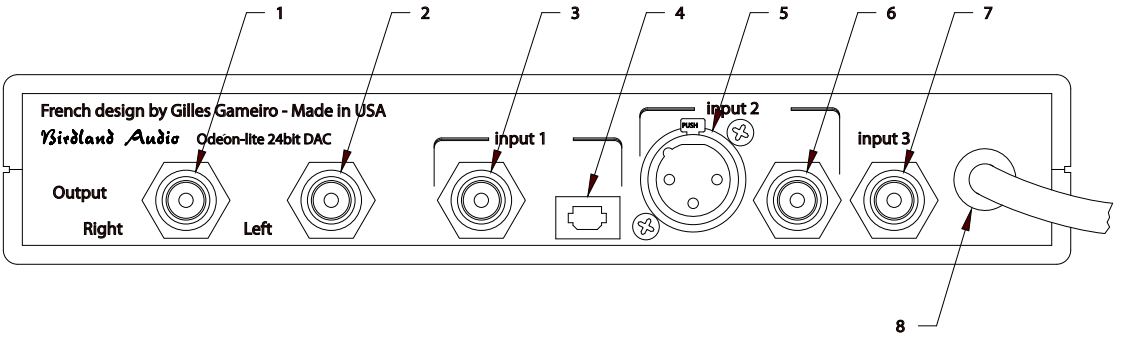
1 - Power Switch
2 - Digital input selector
3 - Volume Control

Indicators

4 - Power on indicator

5 - 32kHz digital conversion
6 - 44.1kHz digital conversion
7 - 48kHz digital conversion
7 & 8 - 64k or 88.2kHz digital conversion
8 - 96kHz digital conversion

9 - De-emphasis material conversion



Connections

1 - RCA, Right Analog Output
2 - RCA, Left Analog Output

3 - BNC, Digital Input 1
4 - Fiber, Alternate Input 1

5 - Balanced XLR, AES/EBU Input 2
6 - RCA, Alternate Input 2

7 - RCA, Input 3

8 - Power cord

4 - Understanding the Odéon-lite

The Odéon-lite is a 24 bit Digital-to-Analog Converter (DAC) which can convert digital formats up to 24 bits at sampling frequencies of 32kHz, 44.1kHz, 48kHz, 64kHz, 88.2kHz and 96kHz. It supports any combination of the above resolutions / sample rates. Most common combinations in the consumer market are 16bits/44.1kHz for CDs and 24bits/96kHz audio DVDs (Digital Versatile Disk) sometimes also called DAD (Digital Audio Disk).

Common digital audio sources include CD transports or players, DVD players, DAT tape machines, etc. These sources can be connected to the Odéon-lite inputs using either a Balanced XLR digital interconnect cable (commonly called AES/EBU), a RCA or BNC digital interconnect cable (commonly called S/PDIF), or a fiber optic link (commonly called Toslink). The Super Audio Disk format - recently introduced by Sony/Philips - does not offer a way to carry digital data out of the box and is not compatible with widely used S/PDIF or AES/EBU consumer and professional formats.

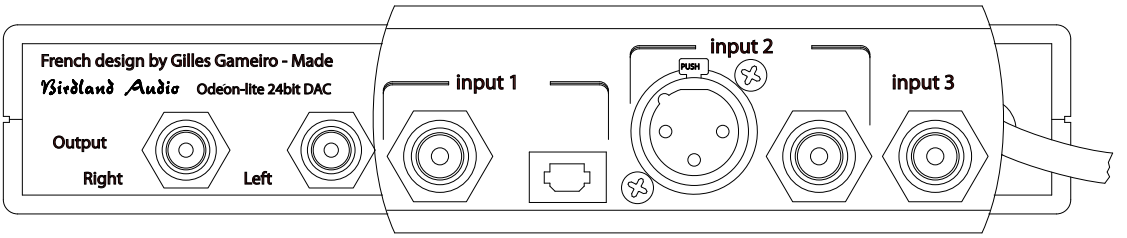
The Right and Left outputs on the back of the unit provide the resultant analog signal (from the digital input conversion) and can be connected directly to amplifier blocks, to a preamplifier, or to an integrated amplifier. When using the Odéon-lite with a preamplifier or integrated amplifier the volume knob should be set to the 12 O'clock position.

The Odéon-lite is the result of out latest research in both Digital and Analog domains along with the highest quality components providing you with the most natural sounding DAC you can get at any cost. It is the first and only DAC that includes our own digital filter which upgrades the input creating 24 bits out of any lesser resolution (such as 16 bit CDs) recordings before sending the data to the DAC chip. By using this specialized circuitry, the Odéon-lite is able to improve the conversion process by minimizing artifacts caused by anti-aliasing present in 16 bit CDs.

The Odéon-lite also includes our highly acclaimed Solid-Tube™ technology in the output stage. Solid-Tube™ is our building block technology for analog stages. It is a clever and innovative combination of JFET, MOSFET and Bipolar transistors such as each technology works to hide the shortcomings of the others while extracting only the most desirable linear characteristics of each. Solid-Tube™ outputs are experienced as a very natural and extremely open sound stage where the system disappears to leave only the music. This clinically accurate and transparent sound comes with a touch of warmth otherwise found only in tube electronics.

5 - Connecting the Odéon-lite

5.1 - The Digital Inputs



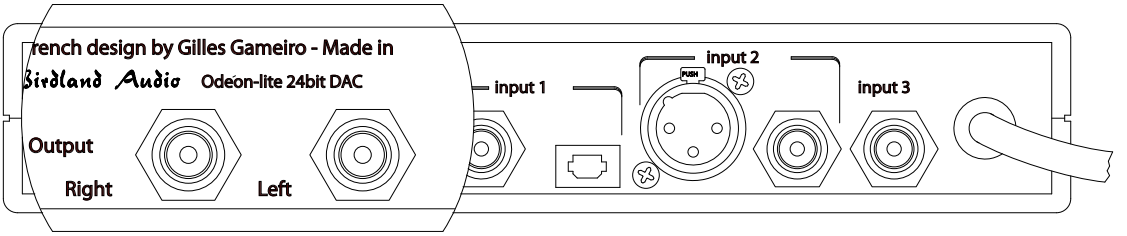
There are three digital inputs on the back of the unit. These can be used to connect digital sources such as CD and DVD players/transports or any other digital sources. The Odéon-lite DAC will receive and decode digital audio data according to the AES/EBU IEC-958 (S/PDIF) standard or, the EIAJCP340/1201 professional and consumer formats. The digital inputs are activated using the front panel selector switch (see control #2 on page 6).

You can use the Odéon-lite DAC to convert all digital audio formats which adhere to the standards listed above. You can use the Odéon-lite to play DVD movies in a downmix 2 channel mode. When doing so, connect the AC3/PCM output of the DVD player directly to one of the Odéon's digital inputs and make sure to switch the DVD player output format to PCM, not AC/3. RF outputs from laser disk players cannot be connected directly to the Odéon DAC without the use of a RF to AES3 converter.

Use only one of the two connectors available for inputs 1 and 2 at any given time. Either the optical or the BNC connector should be used for input 1, and either the RCA S/PDIF or the AES/EBU XLR connector should be used for Input 2. The Odéon-lite will automatically select the format that is connected, for each input, but never connect both connectors, at the same time, on the same input.

There was a time when optical receivers did not perform as today. Recent technologies offer excellent constant time delay optical transmitters and receivers. Because the Odéon-lite internally re-clocks the input signal, the effect of digital cables on the unit is virtually undetectable. Today, toslink is a reliable way to interconnect digital gear while insuring separation of the units' grounds, and offers signal immunity to EMI/RFI.

5.2 - The Analog Output



There is one set of analog outputs in the back of the Odéon-lite. This output is variable which means that its level is controlled by the volume control on the front of the Unit. This permits a direct connection of the Odéon-lite DAC to amplifier blocks. The volume control is performed in the analog domain and does not degrade the quality or resolution of the digital signal.

You can use the analog outputs as a direct connection to amplifier blocks (without a preamplifier) and use the volume control on the Odéon-lite. If using with a preamplifier, then you would use the volume control on the preamplifier and leave the Odéon-lite's volume control set to mid-range (12 o'clock).

If you plan to use the Odéon-lite in a system with a preamplifier, and if you use that system mainly as a 2 channel audio system, we recommend that you try bypassing the preamplifier and connect the Odéon-lite directly to your amplifiers. Best results are usually obtained by reducing the number of active components in the analog chain of a system.

The volume control is not a digital multiplication, but a high quality analog passive potentiometer that yields a maximum output impedance of 2.5 kΩ. This design offers an advantage in that it eliminates an extra active stage after the volume control and provides the most transparent sound possible with no added distortion. This also means that you should not use long and unshielded interconnect cables as they tend to gather noise. As a general rule, long unshielded interconnection cables are not recommended. If you have no choice, then try to chose a shielded interconnect cable.

6 - Technical Specifications

DAC characteristics

Frequency Response	5Hz to 23kHz $^{+0}_{-1}$ dB [1]
Dynamic Range	better that 106dB
Signal/Noise Ratio	better that 115 dB

Output characteristics

Channel Separation	118 dB
Output Impedance	less that 2.5kΩ
Output Level 12 O'clock	500mV RMS
Max Output Level	3.2V RMS (4.5 Volts peak)

Mechanical

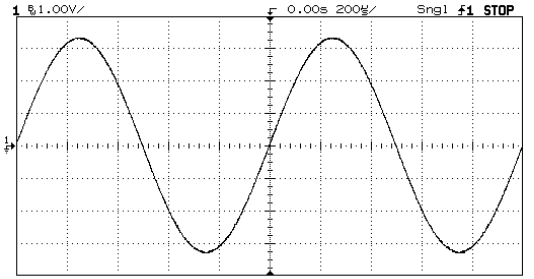
Front & Back Panels	5052 Grained and Anodized Aluminum	
Weight	1.35 Kg	(3 lbs)
Dimensions	41 x 225 x 165mm	(1.6" x 8.9" x 6.5")

Electrical

A/C Input Supply	115 Volts AC (unless otherwise specified)

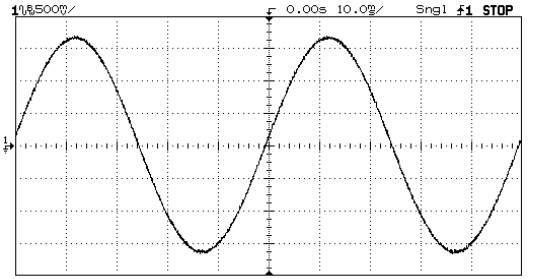
[1] Measured at 48kHz sampling rate.
Birdland Audio reserves the right to modify any specification without prior notice.

1 KHz sinewave at 0dB



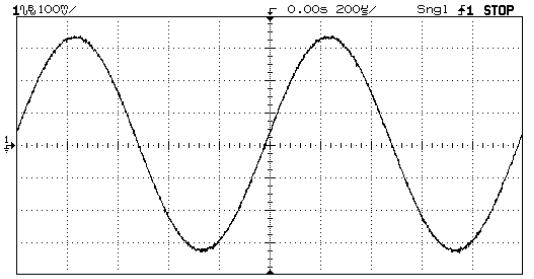
Time - 200µs/div Sensitivity - 1V/div

20 Hz sinewave at -6dB



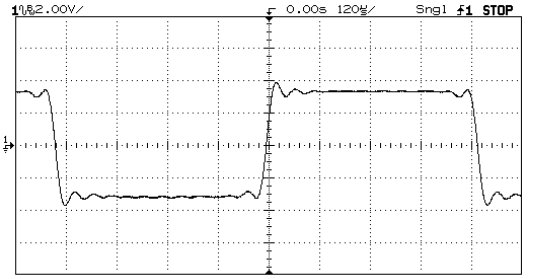
Time - 10ms/div Sensitivity -500mV/div

1 KHz sinewave at -20dB



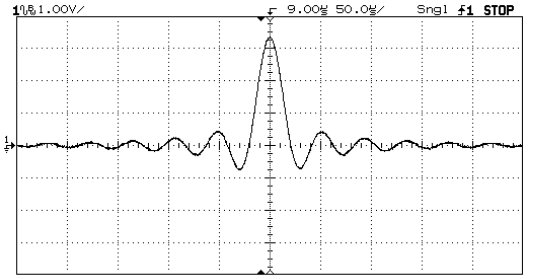
Time - 200µs/div Sensitivity -100mV/div

1 KHz squarewave at 0dB



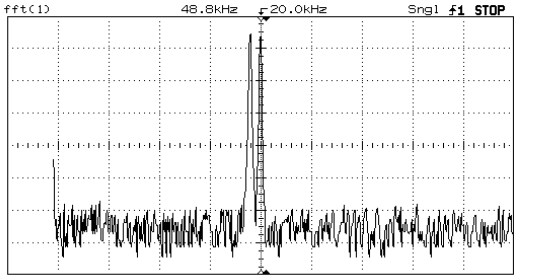
Time - 120us/div Sensitivity - 2V/div

Single impulse full scale



A Single pulse is filtered to produce the full scale

19kHz and 20kHz at 0dB



This plot shows an attenuation of less that 0.5 dB

Note: all measurements performend with analog output normalized at 2V for full scale output (Volume

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