

OWNER'S MANUAL

AudioNemesis
Enjoy the Music

Superior Audio Products
Handmade in Italy



DIGITAL TO ANALOGUE AUDIO CONVERTER **DC-1 Upgrade Edition**

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INTRODUCTION

Thank you for your purchase of the **AudioNemesis DC-1 Upgrade Edition!**

This product represents a great evolution in audio technology at affordable price. It represents an important step to Music bringing the listener to emotion of live Music events. This product is designed for the best quality of sound and reliability, matching unprecedented performance with convenience not obtainable from most high performance products.

All **AudioNemesis** products are made for helping you in listening to your favorite Music for many years; no compromises in core parts.

AudioNemesis products are not made for a limited life, every part is used to take you in listening to you favorite Music for a very long time: we respect You and Music above all.

THANK YOU FOR CHOOSING AUDIONEMESIS

INTRODUCTION

- Read carefully these instructions before turning on this appliance. Keep these instructions in a sure place for future readings.
- Heed all warnings.
- Follow all instructions.
- Do not use this device near water, or with high humidity, or under the rain or moisture.
- Do not install near heat sources such as radiators, stoves or other apparatus (including amplifiers) producing heat.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- This device can be used only for purposes it is designed for.
- Never open the appliance: risk of electric shock. Refer servicing to qualified personnel only.
- Do not modify the appliance.
- Use high quality cables and power cord. Protect the cord from being walked on or pinched, particularly at plugs, extension cords and the point at which they exit the unit.
- The device is connected to ground through the power cord. Be sure that the power cord you are using has the ground connection. Be also sure that your connector has the ground connection. A grounding type plug has 2 blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit, into your outlet, consult an electrician for replacement of the obsolete outlet.
- Before connecting this appliance to the mains, be sure that the voltage information in the rear label of the appliance is compatible with your mains voltage.
- If the appliance had wide thermal shocks (for example, from low external temperature to high room temperature), do not turn on the appliance, but wait till the appliance temperature equals the room one (about 1 hour).
- Unplug this device during lightning storms or when not used for long periods of time.
- Refer all servicing to qualified service personnel only. Servicing is required when the unit has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the unit has been exposed to rain or moisture, does not operate normally, or has been dropped.

No expressed or implied warranty is made for any AudioNemesis product damaged by accident, abuse, misuse, natural or personal disaster, unauthorized modification. Any disassembly, components or parts replacement, perforation or modification of the chassis or modifications performed to the unit will void the warranty.

CAUTION

To reduce the risk of electric shock do not remove the cover or the front panel or any other part. Inside there is no user serviceable parts. Refer servicing to qualified personnel only.

WARNING

To reduce the risk of electric shock or fire, do not expose this appliance to moisture or rain.



This symbol, wherever it appears, alerts you to the presence of dangerous voltage (inside the enclosure) that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.



This symbol, wherever it appears, alerts you to the need of specific disposal, due to recycling, following the Directive 2002/96/EC (WEEE). Please refer to your National Register for the correct procedure or call your official **AudioNemesis** dealer / distributor.



This product complies with the EMC directive (89/336/EEC) and the low voltage directive (73/23/EEC).

A LETTER FROM FABIO CAMORANI

Dear Audio Enthusiast,
Thank you for your purchase of the **DC-1 Up-grade Edition**.

AudioNemesis was born to offer serious and reliable products, instruments for Music lovers. At the centre of all **AudioNemesis** products there is only Music. Most of competitors are offering products for impressing Audiophiles, but after a few discs only, audiophiles feel the need for a change! This is due to a poor and not natural sound. The reproduction of Music is a repeatable event by definition and also unperfect. I think that reproduction may have many interpretations. The one by **AudioNemesis** put Emotion behind everything, a step ahead, because this is the only common element between Produced (Live) Music and Reproduced (Home) Music. Emotion is the essence of the Music. Listening to Music using **AudioNemesis** products you will have all the Emotion of Live Music, without special effects, without pretending, no false creations. Natural feeling, richness of harmonics, details of the event: everything is reproduced with a very clear sense of LIVE, without false aspects, without false sounds.

When the **DC-1** was introduced in 2005, it was a very good success. Like all other **AudioNemesis** products, **DC-1** was designed without preconceptions, without following trends, and without following the latest technology "innovation". On the contrary, circuit simplicity and a minimum number of components is a key element. Less is better, but we do want to use the right device for the right purpose in the right way. Our products are simple appliances, using only the minimum quantity of parts for the proper work, following "the simpler the better, but not even simpler". **DC-1** was understood as a very special product, designed and built in a unique way for its class, an instrument for Emotions, for Music. It was clear it's design is a breaking point, because it's totally different from what offered by the market, a simple circuit, full of uncommon choices for its class and rare in absolute, no matter the cost. The market of digital to analogue converters in this class (but also up to a few times the cost) is full of similar products, similar in schematic and sound. And maybe with the latest chip. It's very rare to see original designs, with real study and research on sound (with clear ideas and listening tests).

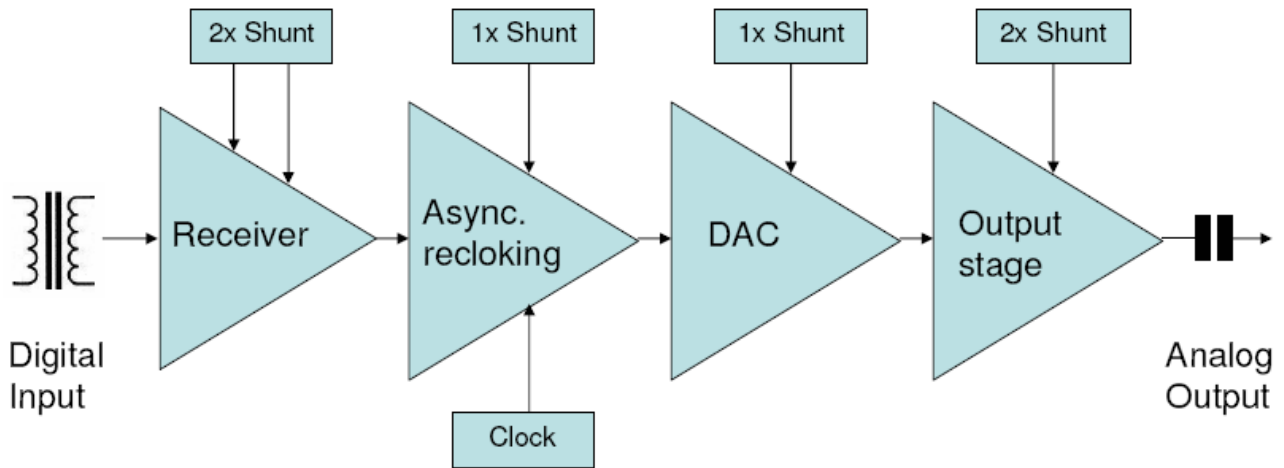
However. We never stopped developing this concept. We made a lot of tests, we listened to all comments and critics from our customers. This way we found new improvements. From these points the Up-Grade KIT was born, in December 2007. And in August 2008 we introduced the **DC-1 Upgrade Edition**, an already up-graded **DC-1**.

If You have the **DC-1** in your hand, You are a Music lover. I'm sure you'll love it, and you'll listen to your favourite Music for many years using the **DC-1**.

Sincerely,
Fabio Camorani

DC-1 D/A AUDIO CONVERTER: PRODUCT PHILOSOPHY AND DESIGN

This is the simplified structure of standard **DC-1**:



We didn't use anything useless for the music, starting from the **chassis**, a simple but very effective design. Its impact to the final cost is not critical, despite the fine construction and design. The front panel is in Plexiglas with the name **AudioNemesis** with rear blue leds and the rest of the chassis is painted with a special scratch-proof black paint, also able to reduce unwanted vibrations.

Mains voltage is often distorted and full of noise. For this reason in the **DC-1** there is a custom **filter** for the mains voltage before the main power transformer (and not a standard one).

The **power transformer** seems standard but it is custom designed and built for **AudioNemesis**, with a low loss, high efficiency, grain oriented silicon core.

Power supply is very important for the final sound. For this reason, in the **DC-1** there are seven (7) regulators, one for each main component of the circuit, instead of two (2) as usually done by other manufacturers. Usually, in almost all products these regulators are series type and made by integrated circuits, but in **DC-1** six (6) of them are **shunt** type! Only in very few products, no matter the cost, we can find shunt regulation. This kind of regulation is very effective from the sound point of view, but it's more difficult and expensive than the series type. Who can try series vs shunt regulation can understand without any doubt the sound difference!

Diodes are really very special devices. They are fast-soft recovery type in TO-220 case and they have top performance in terms of speed (<25ns) and smoothness, improving in a dramatic way the sonic performance! There is only one input connection, the SPDIF 75ohm, using a gold plated RCA connector with Teflon insulation followed by a pulse transformer of the highest quality, not so common even in high cost products. This component is the top-of-the-line by **Scientific Conversion**, with only 0,5pF (!). We don't use cheap pulse transformers, but the best! This choice is very important to reduce the noise, as shown in AES Journal articles (www.scientificconversion.com). Even if it's clear the advantage, it's not so common to find a digital transformer also in cost-no-object products.

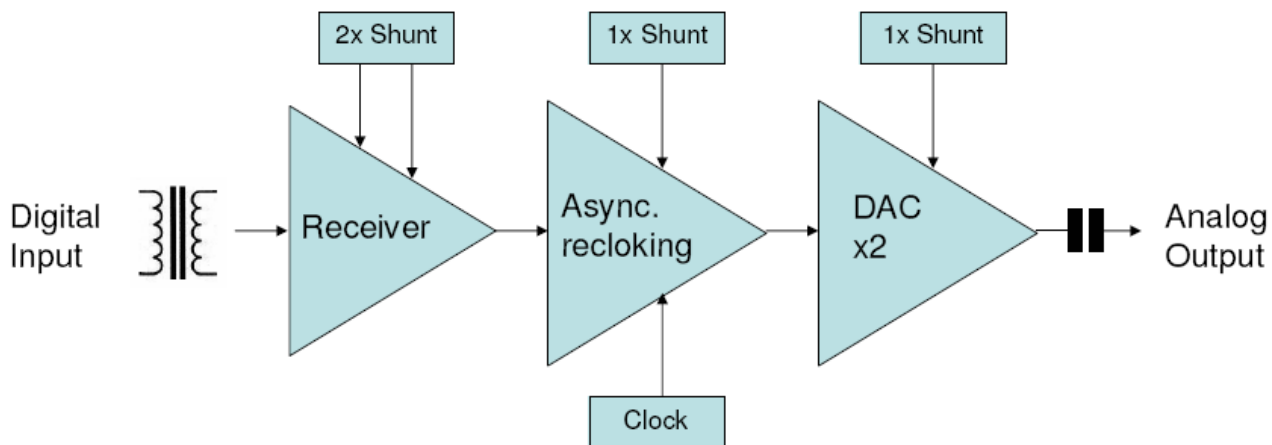
After the transformer there is the digital receiver, able of high jitter rejection.

The signal then goes from the receiver to the converter chip through an asynchronous **reclocking** circuit. This is another unusual choice. This circuit is another time unusual and allows to de-correlate the input jitter to the audio signal. This is another unusual choice, and it allows having an output jitter uncorrelated to the signal (the input jitter is correlated instead). This way we have a low jitter sound. The used oscillator has a high stability of only a few ppm (parts per million) to maximise the result.

The digital to analogue conversion is without oversampling (**zero-oversampling**). This technique is now rather known (www.sakurasytems.com/articles/Kusunoki.html) and known are also many related designs. But even if rather simple, this technique is hard to be implemented in a top quality sound. To verify this, audiophiles can compare the **DC-1** to other zero-oversampling "similar" designs.

The digital to analogue chip is a 16bit multibit type.

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While standard **DC-1** used one 16bit d/a converter chip, the Upgrade Edition is using 2 chips in parallel, for better resolution and driving capability. Moreover, in Upgrade Edition the signal is taken directly from the dac chips, avoiding any analogue stage or output buffer. In Standard **DC-1** a Class A buffer isolated dac from the output. Now a very expensive and exceptional capacitor connects the dacs to the output RCA connectors. This capacitor is branded **AudioNantes!** This capacitor is wound onto a nylon core using a 10 μ M (630Vdc) polypropylene film. This winding technique allows the winding to be controlled in terms of winding tension resulting in a tight winding devoid of as many air pockets as possible. Controlling the critical production processes the sonic outputs resulting from resonances within the component are reduced from the level seen within other capacitors. This capacitor is really superior and it is the result of a 2 year research programme. They have very low self-inductance and very low ESR, with very high temperature and frequency stability. Compared to other expensive capacitors, this model is far superior in any aspect, such as micro and macro dynamic, harmonics, micro and macro details. Hand soldered terminations are in pure copper for better sound results.

Another exclusive, a proprietary use of a very expensive product, called **HDG** (High Density Graphite). This is a very special graphite created for very extreme applications, such as industrial, aerospace, military etc. and able to absorb vibrations in a very effective way. Using this device, we can absorb unwanted vibrations so dangerous in analogue and digital chips. In effect, a silicon wafer is very sensible to vibrations because is very thin: the use of HDG allows results behind your imagination!

All components are top quality, not common industrial devices, but special devices chosen after listening tests.

The **PCB** follows professional high quality standards and is designed **without edges**. All final bypass capacitors of the power supplies are very near to the relative part of circuit.

Thanks to the very high quality design and building, the **noise** is very low, lower than high priced products, but without any feedback or feed-forward technique.

Each **AudioNemesis** product has a test of at least 30 minute at the end of the production chain, then it is individually checked. We suggest a minimum of 100 hours of break-in, better if 200 hours. A warm-up of 30 minutes is suggested before any use for the best performance.

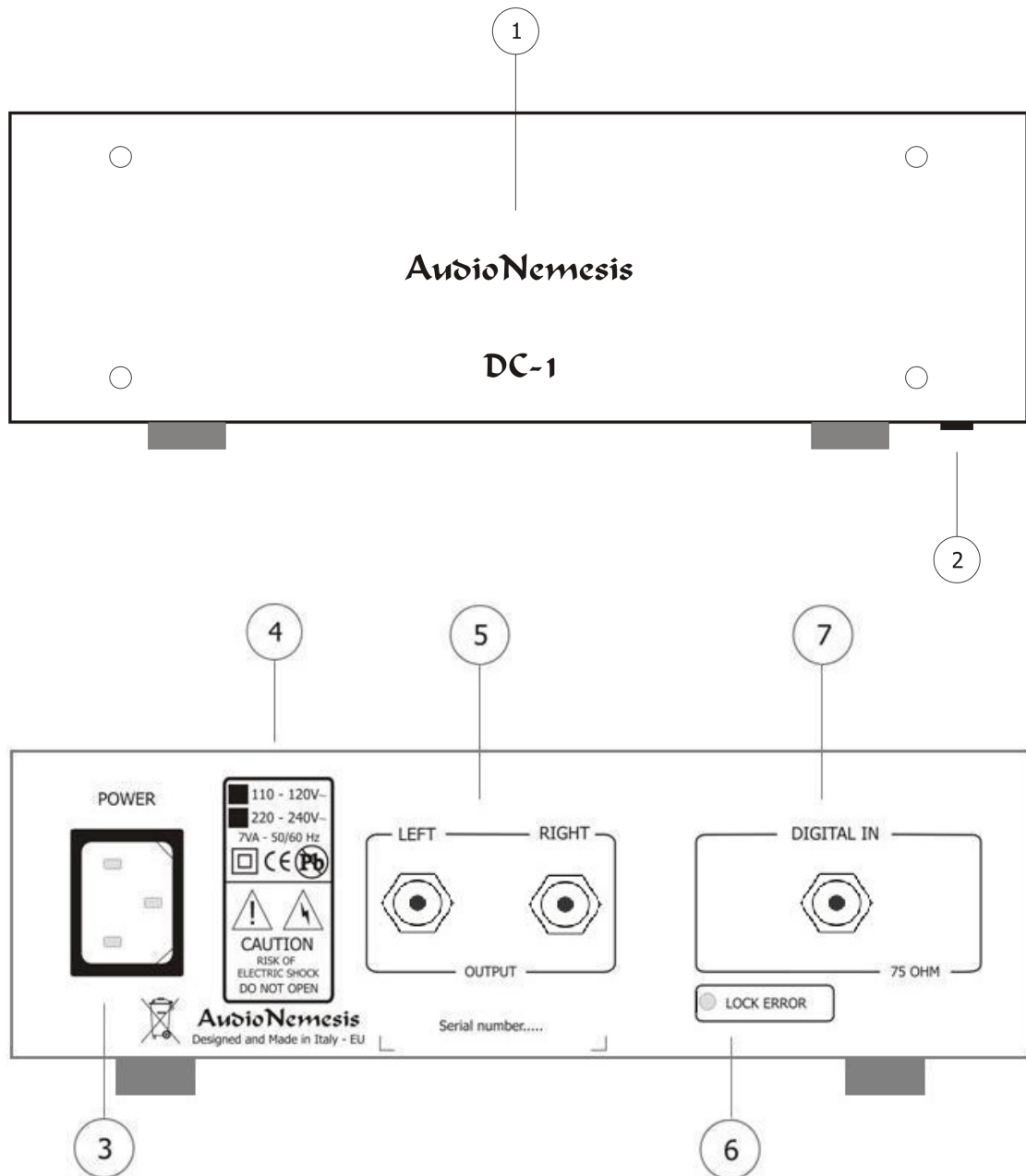
AudioNemesis DC-1 Up-grade Edition competes with much more expensive products, from higher class, with no fear of comparison. Use this product for many days, listening to Music and only Music, live with it. Then go back to the old previous product and listen again: the upgrade using the **DC-1** zero-os converter will be so clear you can't believe!

SPECIFICATIONS

Power Supply:	110/120 Vac or 230/240 Vac 50/60 Hz +/- 10%
Power consumption:	7 Watts max
Frequency response:	20Hz to 20 KHz + 0dB/ -1dB
Output level @ 0 dB:	1,3 Vrms @ 1kHz digital full scale
Output:	Inverting
Converter:	16 bit
Oversampling:	0 times
THD:	<0.3% @ 1,3 Vrms @ 1kHz
Output impedance:	<700 ohm
Input:	Gold plated RCA, Teflon - S/PDIF 75 Ohm - 24 bit/96 KHz
Output:	Gold plated RCA, Teflon - unbalanced
Dimension (WxHxD):	23 x 8,5 x 34 cm.
Weight:	3.5 Kg
Shipping weight:	3.8 Kg

All specifications can change without notice.

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1. Name AudioNemesis

When the item is ON the name turns ON with a blue light.

2. On-switch

The on-switch is in the lower part of the chassis, front-right side.

3. Mains connector

Always connect the power cable with the on-switch turned OFF (on-switch pushed to the rear side of the chassis)

4. Mains characteristics

Verify that the data reported on the rear panel of the chassis match the characteristic of the mains line of your country.

5. Analogue outputs

Connect the analogue signal cable to these output pins. Then connect the other side of the cable to your preamplifier or integrated amplifier etc. Be sure that the output characteristics of this unit match the input characteristic of the unit you want to connect to.

6. **Red LED for digital error**
This LED turns on when the input digital signal is un-correct, not valid or not present.
7. **Digital input**
Connect this input pin to the digital cable from your CD player or transport.

HOW TO USE THE APPLIANCE

- **How to turn on the converter**
Turn ON the appliance AFTER turning on the CD player / transport first.
- **Mains voltage**
No power cable is offered with this appliance. Please use a good quality power cable: this improves the performance of this d/a converter.
- **Connection cables**
No digital and analogue cable is offered with this appliance. Please use good quality cables both for digital and analogue connections. Using good quality cables may give a very big improvement in sound quality reproduction and gives you even better Music listening sessions.
- **Mains filtering**
In this appliance there is a high quality mains filtering unit. This is a custom design to assure the highest final quality and to meet CE requirements. Before using an external filter, conditioner, stabilizer or any other appliance please do a deep listening session to verify effectiveness, to avoid sound quality problems.
- **Cleaning**
Use a high quality lint-free cloth that has not been treated with chemicals of any kind. Dampen the cloth with warm water only. Do NOT use cleaning agents of any kind, such as alcohol or other common cleaning products.

TROUBLE-SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
The appliance does not turn on	Main voltage is not present, the power cable is not properly connected or it is damaged	Be sure that the turn on switch is in ON position. Verify that the power cable is properly connected and that it's in proper working condition.
There is no output signal	The digital cable is not properly connected or it is damaged	Verify that the digital cable is properly connected and that it's in proper working condition. Turn off then turn on the appliance.
The LOCK ERROR LED is flashing	The CD player has the PAUSE function active, the disc is damaged or is not original and the transport can't read it	Press PLAY in your CD player, use original discs
The appliance does not work properly, it has distortion, it works to strokes	Main voltage with noise or incorrect main voltage	Remove the sources of noise or use stabilizers, verify that the appliance is connected to the right main voltage as reported by the rear label (4)

For any other problem, please contact your dealer.

WARRANTY RECORD FORM

Model: Audio D/A Converter DC-1 Upgrade Edition

S/N:

Owner's information

Last name First name.....

Address.....

City ZIP Code.....

Country

Purchasing:

Warranty: This appliance has a limited warranty of 3 years from the date of purchasing on labour and parts . The mechanical and electronic components of this appliance are warranted to be free of defects in material and workmanship for that period. The warranty does not include damage due to misuse or abuse or modified products and also does not include consequential damage. The warranty begins on the date of the original retail purchase, as noted on the bill of sale or receipted invoice from an authorized **AudioNemesis** dealer or distributor.

Privacy: All data from this document will be used for standard administration records and warranty and will be protected and taken secure.

Note: Every effort is made to ensure the highest standard of quality. The producer reserves the right to change the specifications without any notice. The specifications and the design of the device may differ from the information given in this manual.