# ATLANTIC-5

## **D**ital to **A**nalog **C**onverter

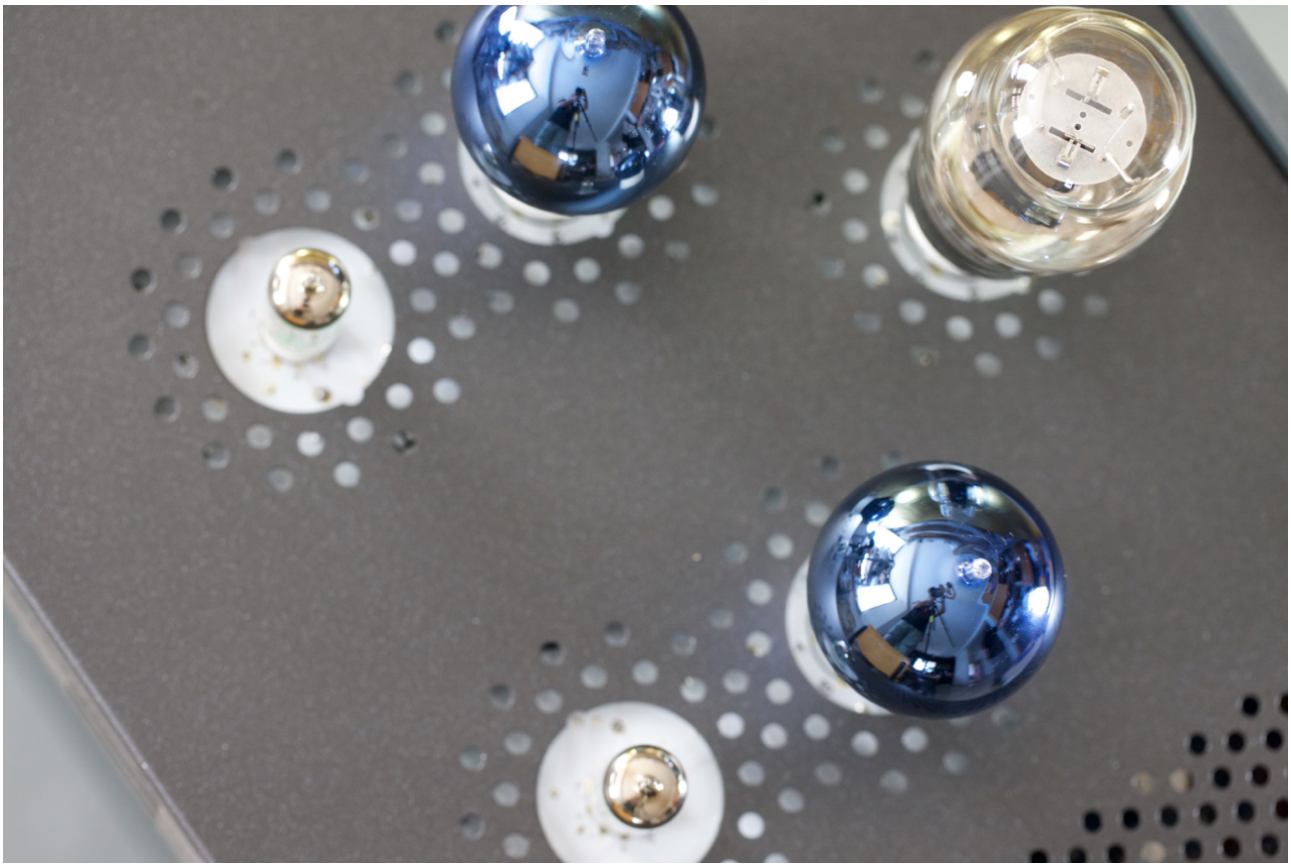

# USER MANUAL

WARNING: as every of our products comes with a 7 days testing period (please to confirm it - ask your dealer first), during this time it is not allowed to open the DAC. The screws are protected with a seal. You have to decide, if you like the sound and you want to keep it. After the 7 days period expire – your DAC is a keeper, and you may open the hood. This does not invalidate the warranty, however – any modifications – no matter how small – invalidate the 5 years warranty. Changes, upgrades and mods must be pre-authorized in writing, even tube change. DACS returned during the test period with the seal broken will not be refunded and will be sent back.

THE SHORT MANUAL

1. Plug in 2. Enjoy

# REMEMBER - THE FRONT PANEL LED RING BUTTON IS NOT A POWER SWITCH BUT USB INPUT SWITCH.



## Short description

Atlantic-5 was built on the basis of our 20 years experience with the tube technology.
The success of LampizatOr DACs was mainly due to our approach to the analog stage with tubes, backed by the tube power supplies etc.
As a result you get a reference performance of world class, fabulous sound.
Some main characteristics are:

- **ELEGANT TIMELESS CHASSIS AND FRONT PANEL - A CLASSIC LAMPIZATOR NO-NONSENSE DESIGN. UPGRADE PATH FOR OWNERS (TO HIGHER MODELS)**
  **UPDATE PATH FOR OWNERS - FOR NEW FEATURES AND SPECS**
  **TRADE IN PATH FOR BIGGER MODELS, EVEN AFTER WARRANTY**
  **3 YEARS WARRANTY**

## Highlights

- Fully tubed, single ended and balanced output stage Zero feedback, zero silicon design
- Phenomenally transparent and dynamic
- True analog sound from Lampizator - the tube expert
- All tube design of maximal purity
- TrueCopper Lampizator capacitors
- 2-layer, double copper, layered PCB
- Indirectly heated diode rectifier
- Massive choke in power supply CLC section
- In house proprietary design digital conversion “engine 12”
- all tubes are running in most puristic single ended triode mode (even if the tubes are nominally tetrodes or pentodes)


LAMPIZATOR

## A quick guide to a smooth start

VOLTAGE: All Atlantic-5 DACs are shipped with the voltage of MAINS according to the country of destination. If you bought the DAC second hand and you are in different voltage zone - the DAC can be converted by switching the special switch at the back.
It is not necessary, but advisable that the power cable used is a quality one, not simply a computer cable. It is also advisable to use some kind of AC filter – in many cases this brings nice results. Generally under-filtering is better than over-filtering.
Due to multitude of AC plugs around the world - we don't supply any AC cable at all.


## Introduction

Thank you for choosing Lampizator Atlantic-5. We created it with huge research effort to deliver not only world class musical performance, rivalling the most expensive DACs money can buy, but also to offer very long life of the product. Simply speaking – if you adhere to some basic precautions listed below – the product should last a lifetime and hopefully in this period – will never be outperformed by a competing product.
"Whose lifetime?" one might ask – well – let's not go into details – enough to say it should work flawlessly for the foreseeable future.
The Atlantic-5 should be future-proof. Shall we ever launch a major upgrade to the electronic or mechanical part – you can get the upgrade at very reasonable cost. Shall you decide you need some added features – you can also get them at reasonable cost anytime in the future - any option you initially forgot.
We can't be 100% sure, but it is extremely unlikely that the market and the industry in the future will embark any technology of music storage faster than 192 kHz and with more resolution that 32 bits. We already hit the human ear limits, not to mention the real needs of mass consumers (MP3).

# Data formats

The DAC is capable of automatic recognition of all sampling rates from 32 through 44,1 to 768 kHz and bit rates from 16 to 32. Also DSD is recognised and automatically switched, making mixed playlist possible. DSD formats 64x and 128x and 256x and 512x are switched also automatically. Since few if any transports offering SPDIF format of the 192 kHz exist in the consumer market, it is hard to guarantee the operation but on the professional ones which we tried – it worked. From our experience the transmitters of S/PDIF are incapable of making good square wave over 48 kHz, so if you play a 192 kHz file, be aware that on one hand you “play” more detailed data, but at the same time your signal is waaay more distorted so at the end of the day for this reason alone it may not be worth it to chase the hi-rez rabbit.
If you use USB connection, all our DACs will play up to 768 kHz and 32 bits. This theoretical limit does not imply that you need RECORDINGS of that resolution, which don’t exist by the way, but that you can use up sampling to play regular files. We however listen to all recordings at the resolution settings they were recorded.
By PCM files we mean all known file formats like: MP3, MP4, Aiff, Flac, WMA, WAV, APE, Ogg, and many more less known types. PCM abbreviation stands for pulse code modulation.

# DSD

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 is VERY different than our well known PCM format as found in our CD files, MP3, FLAC or WAV - AIFF. It encodes the music in the data stream differently, looks different and sounds different. 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 sometimes the session recordings are made in record industry.
In Atlantic-5 DAC - we use AUTOSENSING and automatic switch from DSD to PCM and back. Used doesn’t need to do anything just enjoy.
Atlantic -5 DAC will automatically recognise and switch all DSD speed rates from normal 64 SACD format to 2x (128x) and quad 256x format (with special software only ) . 512 is supported only with the use of very good and fast streamers that are very rare but our DAC will play it.

# Audio volume level

Tube technology allows us to set practically unlimited volume level at the output, up to 10 x higher than from a normal CD player. We have decided to adhere to one internally set standard: the test tone of 1 kHz at -20 dB produces an output of sine wave 300 mV AC under the amp load of 47K. Thats equivalent of circa 3 V pp. @ 0dB which is circa 2 V RMS. Shall this be inconvenient for some reason – it is adjustable in the range of 0-1000 mV by just one resistor change. The test tone is available from us via email in the form of WAV or AIFF or FLAC or MP3 file.

Generally - we prefer the sound of the DAC with high output levels, and most amps don’t have any problem with that. A simple potentiometer or stepped attenuator takes care of that. Only solid state chip based preamps will saturate and distort thats why we need to know in advance about such solid state chip volume system being driven by the DAC. We will keep then the volume level at the “book” level of 2 V pp.(Lo-gain switch position) Having said that - chip volume systems and preamps with opamps belong in home theatre (cheap one) and DEFINITELY not in high end. For the joy and satisfaction of the music lover the LampizatOr DAC **should not be** used with opamp based preamp, no matter how good. Because the op-amp feedback loops will remove the whole joy of music as delivered by the tubed DAC.

# The heat issue

Many people are concerned about the heat inside the player.
We want you to relax about it - that this is NOT an issue. The DAC operates well below half of its maximum allowed temperature. Tubes are DESIGNED to be hot, this is their very nature. Thats why they have internal heaters and when they are not at optimal operating temperature – they sound bad.
The other components are guaranteed up to 105C and we are expecting no more than 45 degrees Celsius in the air inside the DAC.
Our only advice is do not heat the box additionally by placing it - for example - on top of a hot class A amplifier. Give it some space around to allow free air flow and adequate cooling.

**Optimal placement**

Apart from the heat issue as described above, the DAC has no special placement requirements. Just remember to keep the S/PDIF cable not longer than 1,5 m (5 feet) and RCA chinch cables – not longer than that either. USB cables should not exceed 2m and MUST NOT have ferrite filters on them.
Since tubes are microphonic, they hate vibrations. Therefore it is forbidden to place the dac on top of the speakers or a sub. Choose least vibrating location, preferably at least one foot behind the plane of the speakers.

**Power on-off cycle**

The tube lifetime, almost like the life of a car engine in cold climate – is determined largely by the on-off cycle. The heat expansion coefficient of the glass is so much different than that of the metal, that the air-tight seal of the metal pins can leak oxygen inside the tube and eventually kill it. Even if it is just one molecule per day. So in other words it is better to keep the DAC always on, than to switch it on and off more than necessary.
The Lampizator DAC with tube rectifier has a slow start feature which brings the high voltage supply gradually up, at the rate of two- to five volts per second. The PSU reaches 250 V DC after 90 seconds. This helps to extend tube life. The DAC is also equipped with voltage down feature (bleeders) which reduce the power voltage upon switch-off at roughly the same rate.
On top of that – the tubes are operated always around 25% of full nominal power, which greatly increases their life expectancy. Combining all the factors together, the tube lifetime should be anywhere between 10 and 20 years, assuming the player is switched off only once per day, for the night.

# Cabling and cable handling

Just to be sure that we know what we are doing:

- AC cable can be freely plugged and unplugged during operation. It is OK for the DAC but NOT OK for the amplifier and speakers. A loud thump may appear after switch off. Please turn your volume fully down before switching off the DAC.

- S/PDIF cable can be plugged and unplugged when the transport is powered off. The DAC can be on. However doing it on „hot” when all is working – is not dangerous for the DAC as long as the AC power supply has the GND for all products (DAC, transport, amps).

- Signal cables can be plugged / unplugged with the amplifier volume turned fully down. XLR cables can be unplugged and plugged at any time because it is in their professional nature to do so.

Please use a decent AC cable. We suggest spending minimum around 100-200 Euro for a good AC cable, but not much less. The black AC “computer grade” cables are not good enough for serious audio.
Please use a decent digital interconnect. In our DAC it is completely unimportant what is the wave characteristic impedance of the cable (the famous 75 Ohms). Just use the cable that sounds good to you. Analog as well as digital interconnects can be tried. Best results are obtained with silver cables. Let your ears decide, not specs of the cable.
**Lampizators produces all types of cables for audio systems - you can order them from us with confidence of tremendous value for money**.

# Tube rolling and replacement

We sell the DAC with the best tubes we can find **in consistent sustainable supply**. Therefore we feel you should not be tempted to change them for any reason.
If you feel that you MUST try other types of tubes – we need to pre-authorize it in writing. Otherwise you loose the warranty, sorry.
Here are some practical tips for tube rolling:

1. Tube compatibility - many people ask “is the tube X compatible with Y?” and the answer is of course - it depends. Tubes can have completely different bases but be compatible by parameters and can be swapped by means of an adaptor. A good example are ECC40, and 6SN7GT - different bases but very close parameters. Or ECC88 and 6DJ8. Or 6H8C and 6N1P.

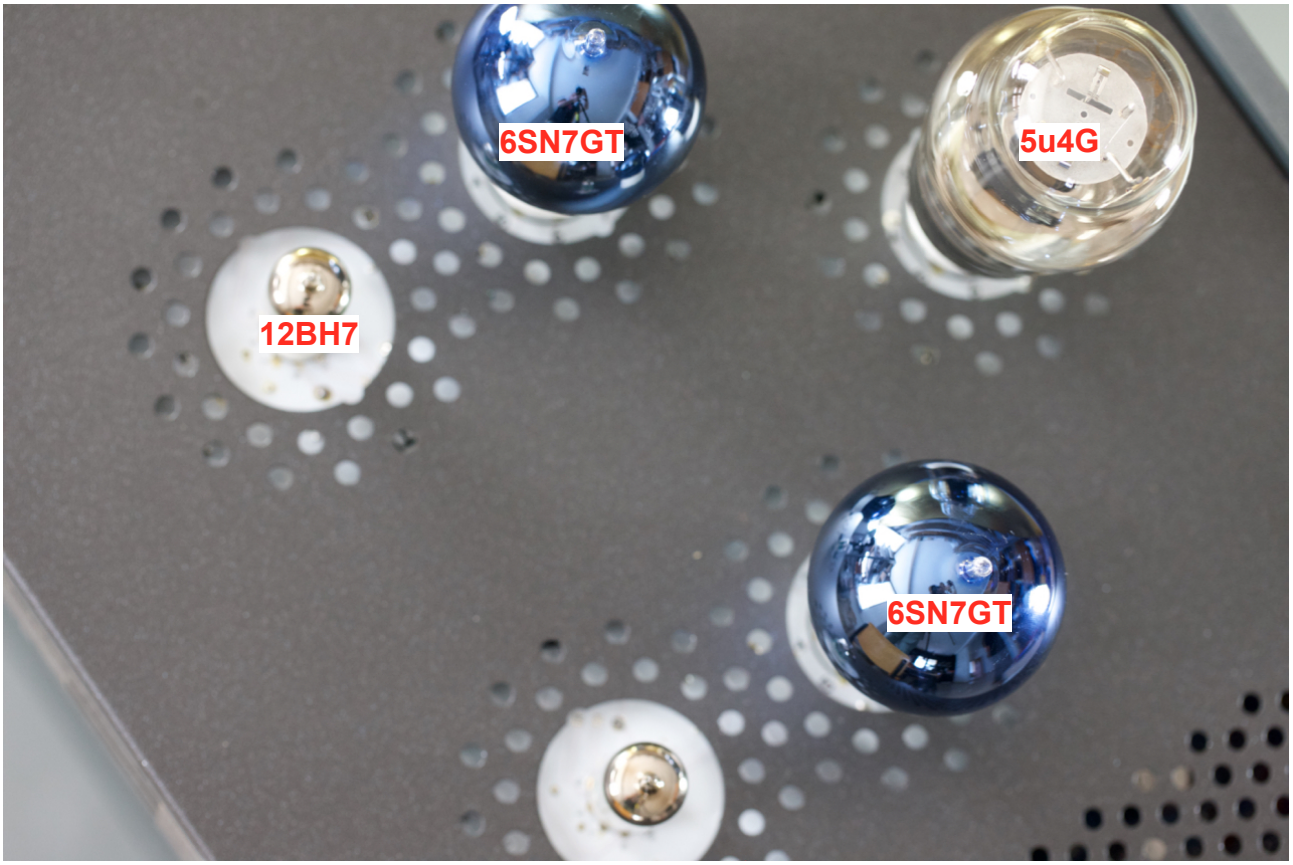
2. Other scenario is when the tubes have same base (say-noval) but they have different pinouts. So we CAN NOT inter-change the two tube types but we CAN use an adaptor. Same base type and same pinout DOES NOT MEAN that the tubes are interchangeable - best example is cc81 and cc82 - same base, same exact pinout but completely different parameters. Or octal 6SN7 and VT99 - both octal, same parameters, different pinout.

3. Some tubes can have same base, same pinout and same parameters except the different heaters. Best example is ECC82 and 12BH7 - the former uses half heating of the latter. They can be used with a switch or within limited timing or with extra care, depending on the heater arrangement in our DAC. Another example are completely different tubes that miraculously are perfectly interchangeable - like E182CC with 5687.

4. DHT triodes used in our Pacific and Golden Gate DACs are yet another can of worms. Most DHT tubes have the same base (four pin) and the same pinout (two fat legs are heaters and cathode, two slim legs are Grid and Anode. The problem is that these tubes have completely different heater demands. Our Golden Gate and Pacific DAC are designed to accept ALL KNOWN dht triodes from this group: 101D, 45, 245, 345, 300B. People keep discovering more and more compatible triode types every month.

5. Our Atlantic DAC is designed to accept all known octal base power tetrodes and pentodes - hence the nick-name Tube Roller’s Paradise.

We supply the tubes that are purchased new from reliable sources. They are tested and matched.




## Atlantic-5 particular tube rolling tips:

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We use one tube per channel. And one tube per phase (positive and negative.
Thats why the SE (single ended) DAc has two music tubes plus rectifier and the balanced unit has 4 music tubes and one rectifier.
If you listen to the balanced DAC using RCA cables - you listen to IDENTICAL scenario as the SE DAC and two negative phases are un used and ignored.

**We run pentodes, tetrodes and triodes (like 6J5 is a triode) in the triode mode, with the 2nd and 3rd grids strapped to different fixed voltages. We use automatic bias circuit, no negative feedback and single ended scheme with anode follower and resistive loading. This is the most puristic way of listening to tube product.**

**Rectifier Rolling**
Our excellent Directly Heated Dual Diode Rectifier 5U4G contributes 10% to sound quality and you can use 5Y3, 5R4, 5C3S, GZ34, GZ37, 274B, and all other rectifiers which have: 5V heaters, Anodes on pins 4 and 6, heaters and cathode on pins 2 and 8, and 2 to 3A heater current. We use one tube per DAC.

Rectifiers are generally less rolled but many customers report that huge leaps in synergy can be achieved when, after choosing the optimal music tubes, we also choose optimal rectifier.
How can we tell the rectifiers ?
At Lampizator we use generally two sub-groups of rectifier diodes: directly heated and indirectly heated.


**Directly heated diodes used in our Atlantic DAC** are older in design than indirectly heated , physically larger, and have 4 pins versus 5 and use 5V heaters versus 6,3.
PINOUT: 2-8 is heater 5,0 V AC. Pin 8 (or2) is also cathode. Pins 4 and 6 are two anodes. Other pins - even if existing - are not connected. To test - just use a meter and check resistance in ohms between the pins. IN A RECTIFIER THE ONLY TWO PINS WHICH SHOW ANY OHM READING AT ALL, ARE HEATER PINS. THE READING SHOULD BE IN SINGLE OHMS like 2 Ohm.
Some people report back that the directly heated diodes sound better than their indirectly heated counterparts, but this hasn't been verified in any semi scientific way. Generally we expect the directly heated diodes to have up to 400% higher current capability as well as voltage max. It al depends on the DEMAND of our circuit. Some Lampizator tube stages demand only 2 mA in total, some can demand 40mA and more. Atlantic-3 DAC demand in total for 2 channels is 20 mA for the SE or 40 mA for the balanced version.
To change music tubes you must switch off the amp. DAC can continue to work.
The rectifier can be changed safely DURING LISTENING without even turning down the volume.

## Ageing problems

As already explained above, the DAC should age very very slowly.
The digital PCB should last a lifetime. The transformer, the output caps, the cables, plugs, sockets – should last a lifetime. There are only 5 electrolyte caps which we selected from premium brands and they should last circa 20 years. Other than that we suggest to change tubes every 10 years.

So - short of a thunder-strike – we expect no failures or ageing problems before 20-30 years.

## Fuse Change

The DAC is equipped with a non-repairable 20 mm glass fuse circuit breaker inside the IEC-AC socket at the back. There is also one spare fuse provided in the little drawer removable when changing the fuse. The fuses are 1,6A (or 2A for USA/Japan/Taiwan) they are slow blow, and overrated by the factor of 3. Therefore it is impossible for the fuse to blow without a specific reason - a failure inside the player. Consequently, if the fuse burns, it is a signal to send the dac for service and NOT change the fuse. Obviously the second fuse will burn as well.
WE ABSOLUTELY DO NOT ALLOW changing the fuses for any larger size than 2 A or installing the “audiophile silver bolts” in place of the fuse. Fuses are there mainly to SAVE YOUR LIFE. And we mean that. You can experiment with audiophile grade fuses but not DEAD BOLTS please.

# COOPERATION WITH THE PREAMP

The load presented by the preamp or amp or simply the next analog component that the DAC sees, should be as high as possible. It is measured in kilo-Ohms and 47 Kilo Ohms is a perfect ballpark value. More is VERY rarely seen. 20 K is next common value, and it is great too. 20 K is kind of on a low side, but we can handle that. Lower than 10k is bad news. But our Atlantic-3 DAC will handle 10 as well because we configure the DAC with additional cathode follower, low impedance buffer stage.
Having said that - every properly designed amp or preamp keeps the load value above 40k. And if it doesn't - we simply don't choose such amp because it was not designed with audiophiles in mind.

# DIGITAL INPUTS

There are three data types that our DAC can read internally: biphase, i2s and USB. The bi-phase can come in many forms, but the most common are:
S/PDIF (Sony/Philips data inter face) by means of single ended square wave of amplitude around 0,5 V pp
AES/EBU - the same as S/PDIF but the signal is a mirrored (balanced) pair of square waves around 2,5 V pp (max. 5 V pp)
TTL - just as S/PDIF but 5 V pp
TOSLINK - a fiber optic transmission of S/PDIF producing at the DAC the 5 V TTL electrical signal.
RS422 - it is practically the same as AES/EBU
**The i2S** is the same as biphase but separated into 4 signals - each carrying only one type of information. Biphase encodes 4 groups of informations in one signal stream. Specifically they are: System Clock, Bit Clock, Left/Right Clock and Data. We can install these four in any type of connector, because there is no standard. Most customers use RJ45 LAN socket or simply four RCA sockets just like in TV RGB.
The TOSLINK connection
Is toslink bad or not ? That is the question. Like everything in life - it can be bad or it can be good. By using own experiments and oscilloscope observations we concluded, that Toslink is not bad and not inferior to RCA SPDIF if implemented properly. Toslink is EXTREMELY demanding about the power supply quality. That's why we build for toslink separate dedicated power supply and with this supply the response is instantaneous and there is no deformation of square wave. Usually Toslink ports are installed in cheap low end gear and the power supply to Toslink is completely neglected. Not in LampizatOr DAC. If you have Toslink in your DAC you can be sure it will sound good and not degrade the sound. Of course providing that the transmitter part of the link is at least semi decent.
NOTE: All Apple products which have headphone output (iMac, MacBook, Power MAC, MAC-Mini, iPhone, iPad, iPod) - have a secret toslink transmitter hidden inside that port. Just buy the special cable - Toslink Minijack and when placed in the headphone output of an Apple product - will emit light with SPDIF in it. That is a very good way of using MAC computers as transports.
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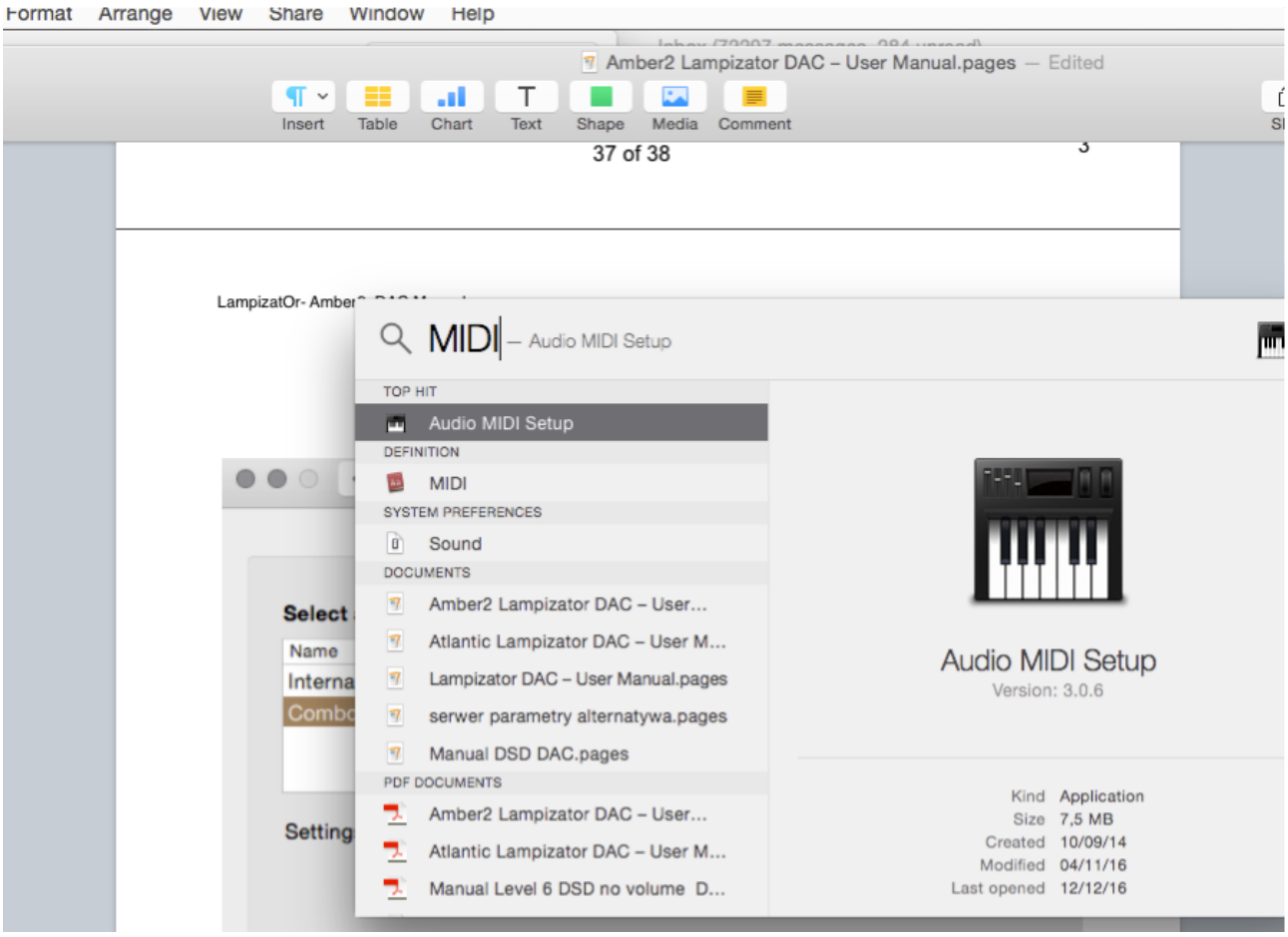
LampizatOr- Atlantic-3 Manual
USB playback
USB data requires installation of additional converter module to convert the "packet" data into a steady i2S stream. Our asynchronous converter has internal RAM and two own clocks and own power supply and own power transformer secondary winding.
The USB module requires a driver for Windows to recognize it. MAC OS and LINUX work without any need for extra drivers.
We use one vendor of USB modules:
For Atlantic-3 we use **"**LJ-Lampizator" USB module: the driver is at http://www.jlsounds.com/drivers.html
Our USB converter is capable of working with 32 bit files with 760kHz signal frequency. Only USB2 rated cables will work.
USB cables with ferrite filters (the "thingie" on the cable ) will not work.

# I PLUGGED EVERYTHING BUT I GET NO SOUND

Quick check list:
Is the voltage at the back switch selected to your country?
Is AC power switch at the back thrown to ON and red lamp on the switch illuminated red?
Is ring on the front illuminated ?
Is the ring button pressed in (meaning USB input engaged in non-Volume Control DACs)
Is the ring button OUT - meaning SPDIF input engaged - in non-VOLUME CONTROL DACs
In DACs with more than one SPDIF input (also Toslink, BNC, AESEBU) is the rear panel's toggle switch pointing towards the right input?
Are analog RCA cables leading to the amp connected to OUTPUT sockets, and NOT the preamp input sockets (in Vol-CTRL DACs?)
Is the Amplifier powered, connected, input selected correctly, un-muted, with speakers connected ?
If you use a computer with USB connection - is the driver recognised ? Is Windows driver installed
Is the computer's output device properly defined to be Lampizator USB and not speakers, SPDIF, Toslink or Intel?
Is the computer's digital volume control set to maximum ?
Is the USB cable not of USB1.0 type, not longer than 2 m and not with ferrite rings on it?
In Vol-CTRL DAC is the mute dis-engaged (see the screen) and is volume NOT on -63 DB but at least on -20dB? Is the input selected according to display - on proper input ? Cycle INPUTS to go through the input list.

# MAC OS operation of USB output:

MAC OS dos not require any driver installation. Somehow miraculously the MAC computer knows how to handle all USB devices. Microsoft, even 15 years later, still cant figure out how to do it. They are probably still scratching their heads.
After plugging the DAC by the USB cable and turning it on, within 3 seconds the device should show up on the MAC.
Note: the device will be described as Lampizator DAC.
To verify what is going on, please go to the “apple sign” in top left corner of the screen and choose PREFERENCES and then the loudspeaker icon - SOUND.
Above: on that list the Lampi should appear under INTERNAL SPEAKERS.
Next thing to check is MIDI SETTINGS of the MAC computer. We go to the top right corner of the screen and press SPOTLIGHT (Loupe):
We type in the search line MIDI SETUP and -> enter.
In the MIDI setup we can choose frequencies of sampling we use for the USB output. We don’t think that the higher the better but your own test should confirm that.
WARNING. After the first connection to the MAC - it will connect automatically in 780 kHz mode which is too high. Please take it down to 44,1k and after that any other frequency of files will be activated automatically. The DAC may be silent before you do that.



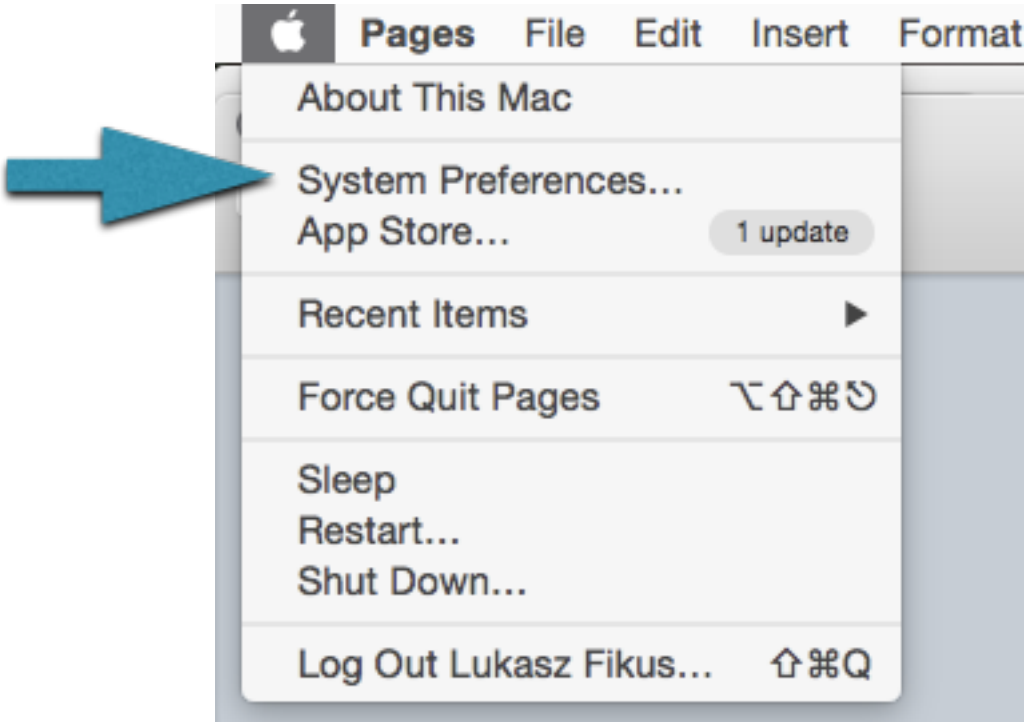
## USB operation basics

USB operation is very straightforward providing we dont have a very messed up Windows computer. With Windows - normal housekeeping hygene applies.

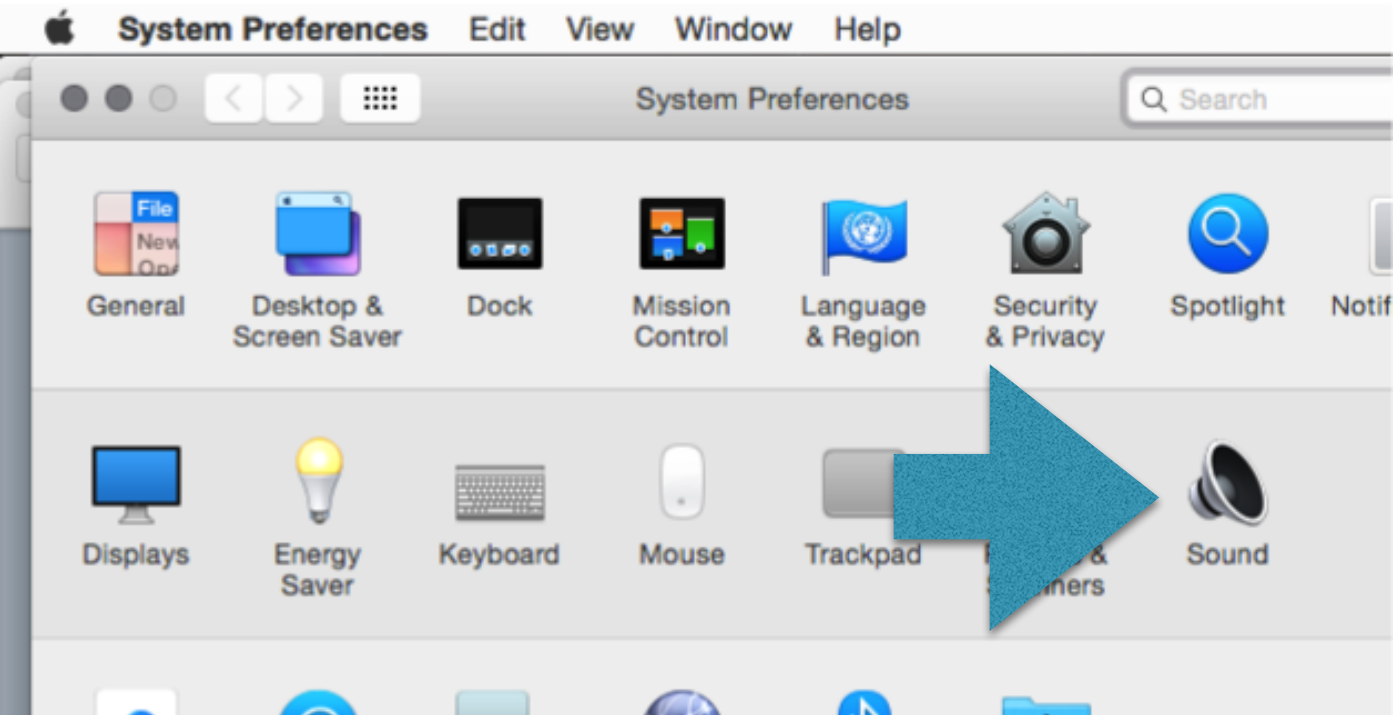
Generally speaking: the better the computer the better the sound.

A 10 years old recycled office laptop will play great but not as great as a dedicated music computer, streamer / server.
MAC OS - every version from oldest to newest - will play immediately without any problems. No drivers are needed.
LINUX has no problem playing music without any drivers.

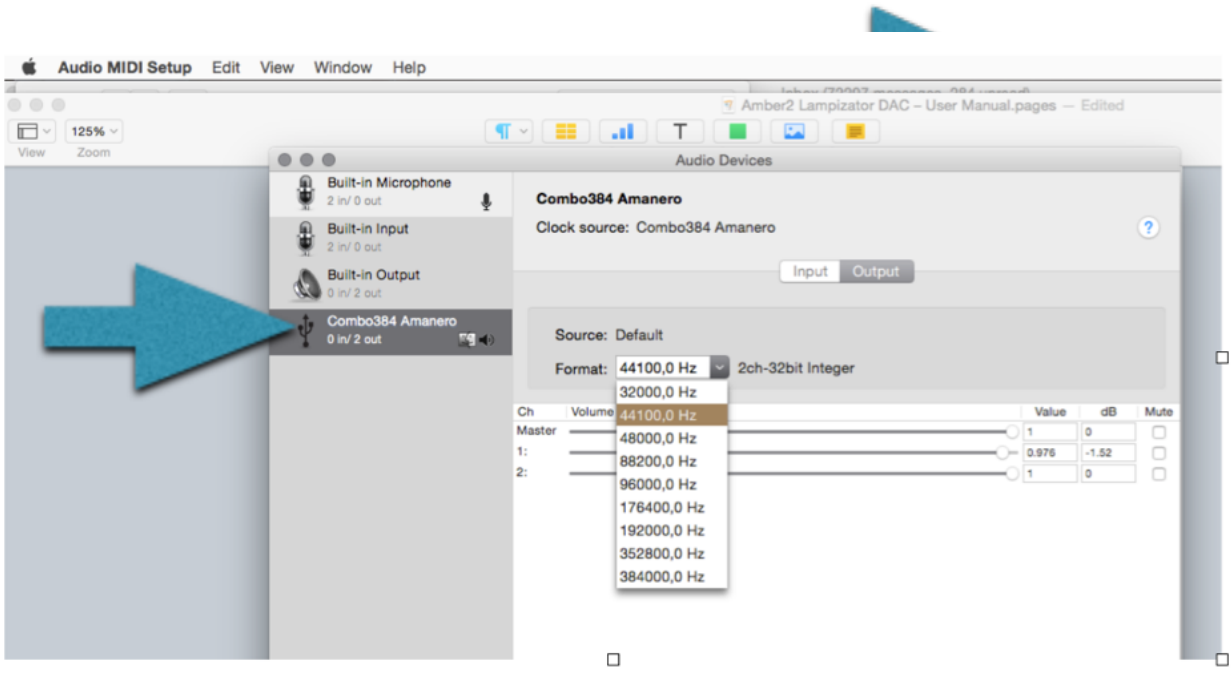
If it does play immediately - don't do anything. If it doesn't and the DAC is set to USB operation (remember front button on the non-Volume Control DACs and remote selection on VC DACs) you first to to top left corner - A[redacted] and choose System Preferences:




In the preferences choose the SPEAKER - SOUND icon.




The critical factor is: to see the LAMPIZATOR USB selection. If it is visible but not selected - select it and exit this menu.
Next go to the top MAC screen right corner and select SPOTLIGHT LOUPE:
When SPOTLIGHT search opens - type MIDI and enter.
MIDI CONTROL SECTION will open and show you output device - COMBO384
Now you can choose output format. REGARDLESS of the file format if you choose here - the MAC OS will upsample the file to the desired format. Up to 384 kHz.




ATTENTION: it can happen sometimes that the MAC will automatically select 768 kHz as the fastest speed negotiated by the MAC and USB port but the MAC will not play it. and the DAC may

not play sound even if it theoretically should. This causes the frustration of no sound from the get go.
Please choose 44,1 and listen. It should work. The selection does not require any action like SAVE or APPLY or RESTART - just select and listen.
While you are at it you can listen for yourself maybe you will prefer the sound upsampled. For PCM I recommend 176400 as the best option of upsamplig because it is 4x Red Book. 192 is not a multiple of 44,1 so it is not recommended. YMMV.

# MUSIC PLAYBACK SOFTWARE

Although iTunes will work and sound nice, the specialised software is much better.
We tried Audirvana JRiver, VLC, Foobar, Roon and all of them work very nicely. JRiver does movies too. ROON does Tidal and Qobuz seamlessly. etc etc.
iTunes will not play FLAC or DSD at all.
All in all ROON is the most attractive proposition if you can swallow the price. Thats what we use and almost everybody we know.

# LINUX

In Linux everything is automatic and no settings are needed. It should play immediately.
Sometimes when you plug Linux straight after Windows - the driver in our DAC may still remember Windows and not play. Reboot the DAC please by cycling the power at the back for 10 seconds.
Lampizator manufactures superb, highest end music servers called The Superkomputer and a cheaper version called The Komputer and they both work on Linux with ROON software. (and HQPlayer too).
Windows
All Windows will play through our DAC although to get stellar performance one needs to do lots of setup.

# LISTENING TO THE MUSIC

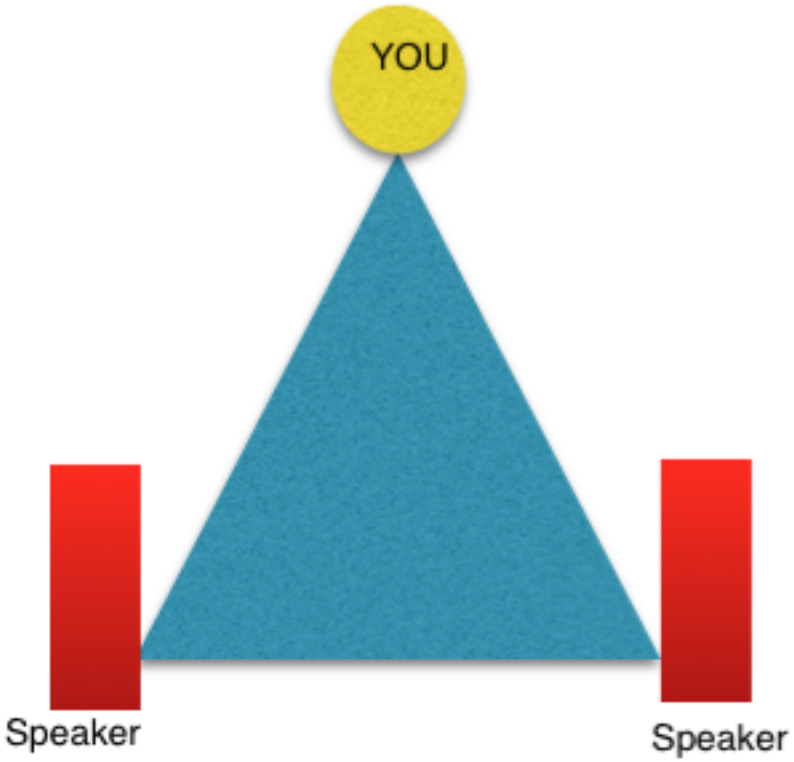
some practical tips

Please use good shelf for the DAC. Do not place it on speakers, subs, or even on transports or amps. Again - tubes hate vibrations.
If you try the special devices for placement, we feel that: granite or marble is bad (ringing). Cones are just plain ridiculous and stupid. Cones are for uneducated people. Ceramic ball bearing feet are great. Good wood is great if thick. Others - please try.
The way stereo sound is created inside the DAC can - under optimal condition - re- create the musical experience as it sounded live. It means that two speakers can cause us listeners to hear sounds everywhere around us, above, below, far in front, almost close to our face, and also behind us. This type of imaging is our goal. The sound must be able to get detached from the speakers (so called disappearing act) and the more our DAC helps doing it - the higher we value it (and price accordingly). We voice our DACs to be as 3-D as possible with the beginning of that 3D as close to listener as possible.

From our experience speakers should be positioned following the basic rules of LampizatOr Nirvana Room:

1. Speakers and listener's head form unilateral triangle (3 x 60 degrees) with the distance between speakers being exactly equal to distance head-speaker.

2. Head must be in exactly middle of the speaker base and the speaker base must be exactly symmetrical versus side walls. We place speakers and measure the distance from side walls with 1 cm accuracy.




3. The distance of the speakers to the side walls and speakers to rear wall should not be equal. We recommend 1,4 times smaller or 1,4 times larger distance- but not

equal. We measure that counting from the magnet of the bass driver.

4. Distance from rear wall of speaker and rear wall of the room should be no less than 0,5 m or 2 feet.

5. Ideally, the tweeter should be at the height of the ear or up to 10 cm higher, but nOT LOWER. Speakers with tweeters lower than 90 cm sound terribly wrong. In such event do everything you can to elevate the speaker by means of stands, bases or just cement block or at least lower the listening seat as much as possible.

6. The chair or sofa should not have the back support higher than the person's shoulders - in other words - should not be just behind the ears

7. Feet are the second ears of our body. They receive a lot of vibration stimulation and the brain combines this with the hearing. So we advise to have a piece of floor without any carpet directly where our feet are. Listening with feet (preferably bare) on the hard floor greatly enhances our perception of music. It is advisable to have rug or carper between listener and speakers but not under the feet.

8. It is advisable to put something soft directly on the wall behind the speakers

9. The so called toe-in - the degree by which the speakers face the listener and not alongside the walls straight - is very critical. The rule of thumb is to toe in half way between standing straight and aiming at the listeners ear. Or slightly more straight, but not more towards the head. Over- toe-in kills the soundstage.

## BURN IN PERIOD

The DAC comes straight from our factory after around 24 Hours of testing so it is not exactly "new" but it is not burned-in enough. Our customers report back, that after 3 days of constant powering (playing or not) the DAC opens up significantly. Further improvements are observed after up to 7 days when things stabilise.
Additional one day burn in is needed after every time the DAC: travels somewhere (vibrations), or is disconnected for over a month or is subject to cold temperature - like in the car trunk, when left overnight.
When the DAC is fully burned in, the sound quality is stable, and we only need to warm it after powering every day.
The DAC starts to play after 10 seconds.
The tubes reach full technical parameters and stabilise after 40 s. but that does not mean that the DAC sounds it's best yet.
The whole system reaches operating temperature plateau after circa 20 minutes and it is ready for serious listening.
ENJOY YOUR MUSIC LIKE NEVER BEFORE !

# SOME Q & A

1. WhyAtlantic?

Atlantic is our Polish sea, that falls into our marine naming scheme, after Adriatic, Atlantic and Pacific. Small it may be - but this is a very fine sea, good for sailing and with some of the best white sandy beaches in the world.

2. Why exposed tubes? In this price point users usually want to see the tubes and enjoy the nigh-time glow. Also our relatively small housing will have more space for good components and fully balanced topology once the tubes are out. Tube rolling is also easier this way.

We don’t use much ventilation because with five tubes being outside of the box the temperature rises only a few degrees.

3. Should I upsample to DSD all the time, even PCM red book files? Yes you can, many people like it. Only the streamer must support it.

4. Why Copper capacitors?

Since there are only 4 components in total in our signal path - it is important to use these 4 parts from the highest quality group. the output capacitor is one of the four so we wanted to use the best available at any price. So here it is - our Lampizator house branded copper cap which matches the 4 known copper brands in quality of sound.

5. I have both SE and XLR inputs on my amp, which connection should I use ?

If your amp has XLR, probably it is balanced and it will sound much better with balanced XLR connection. SE output is EXACTLY the same on our DAC as the XLR, but the next component (preamp, amp) responds with better soundstage and bass when XLR is used. Having said that - many preamps and amps have fake XLR or in not fully fake, they have “balancing device” added like balancing transformer or balancing opamp. In any way - the sound may NOT BECOME BETTER than from straight RCA inputs. You may enquire if the product you use is FULLY BALANCED and not merely XLR equipped.

# Specifications

**SPECIFICATION - BALANCED**
PCM 768 kHz, DSD x512, fully balanced from input to output
Output impedance 1000 ohm per phase
Output level: 3 Vpp  single ended @0dB (for balanced out this is per phase)
Operating systems: USB input is compatible with Windows, Linux and MAC (the only limitation is that MAC plays max DSDx256)
Tube Compliment: Output - 2 pieces of EL34  or KT88
Power supply - one rectifier : 5C3S or 274B or 5U4G.
Select colours: Front panel: charcoal powdercoat (default) or optional: silver powder, black anodised.
Top chassis: charcoal, or fake copper powder, at extra cost: real copper.
Front button: Blue, Orange, White, Red, Green
Warranty 3 years.
Weight: 13 kg net, 16 kg shipping gross
Size: 430 mm W x 140 mm H x 330 mm D, tubes add circa 20 cm in height
Power consumption: 40 Watts

# Rear panel layout

AES/EBU input
USB input
SPDIF input
TOSLINK input
Analog outputs RCA Single Ended and Balanced XLR (optional)
input selector rotary switch
Serial number
Power button
IEC power inlet socket  and the red 115V AC / 230 V AC switch