



AYA II

S/PDIF & USB D/A Converter

User Manual

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IMPORTANT PRECAUTIONS

1. **Make sure you use earthed mains socket and three lead/prong mains cable/connedctor for PC before connecting it to this DAC!!!**

Since very most of PCs use switching supply, their ground could otherwise notably shift over the earth voltage, up to the whole 100V. Connecting such a PC to the DAC may result in the DAC or PC damage.

2. Do not expose this device to rain or moisture, excessive heat or mechanical force.
3. Use this device exclusively with specified mains voltages.
4. Unplug the device from the wall outlet during a lighting storm.

To prevent the risk of electric shock, do not remove the cover!
This device contains no user serviceable parts inside.
Refer servicing to qualified servicing personnel only.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

Thanks for choosing AYA II Digital to Analog converter.

This User Manual comprises introducing information on use and performance of AYA II. For more info please refer to the Audial site, www.audialonline.com/ayall/, or send your questions to info@audialonline.com.

Getting started

Other than D/A converter itself, a packing box is supposed to comprise:

1. Mains cord
2. RCA female to BNC male adapter
3. Printed copy of this manual
4. Invoice (for units sold directly by Audial).

RCA to BNC adapter is supplied to help experimenting with different S/PDIF cables since these, per rule, come fitted with RCA connectors. This adapter is not a long term solution since S/PDIF transmission line is supposed to be 75 Ohm line, and hence we highly recommend using the real 75 Ohm BNC plugs; RCAs don't belong here.

Use of mains cable of higher quality than the one supplied is also highly recommended, whether an after market or DIY one. Solid core cable is suggested.

Connections

No special knowledge is required to connect AYA II into the system.

Mains connector is standard IEC C14 (cable is supplied, as stated above).

The AYA II comprises two inputs:

- 1: S/PDIF (BNC connector), intended for connection with dedicated CD transport, or appropriate digital output found on the integrated CD players, or any other device comprising adequate S/PDIF output (soundcards etc.), and
- 2: USB (standard USB B connector) which has to be connected with USB host, which is most often a personal computer with adequate USB port (either 1.1 or 2.0).

The AYA II uses native Windows 98SE/Me/2000/XP/Vista and Mac OS 9.1/OS X 10.1 drivers. No additional drivers are required. Connecting the AYA II to the PC for the first time, the installation wizard will appear and it will guide through the

process. If it doesn't, it is probably because the given PC previously had a session with the same decoder used in the AYA II. In this case, it should simply recognize the AYA II in a couple of seconds.

Use of foobar2000 is suggested. To learn how to bypass Windows kMixer, please visit www.audialonline.com/articles/kmixer.

Everyday use

The AYA II is easy to use device, and has two switches only.

The mains switch is located at the rear panel, within the block comprising also IEC mains connector and fuse.

The AYA II may need a few weeks of burning in. Leaving it constantly powered on for days or weeks is however not recommended, because used TDA1541A D/A converter chip utilizes a classic TTL architecture, and thus dissipates more heat than is usual for devices of this kind. After initial few weeks of burning in, it will be normally enough to leave the unit powered on for about one half of hour before critical listening.

The toggle switch on the front panel is the input selector (down for USB and up for S/PDIF). LEDs located at the front plate display lock i.e. activity of particular interface. When S/PDIF input is selected, USB stage is disconnected completely from the rest of the unit, including its ground, thus cutting the path to possible noise entering audio system from PC.

Earthing

The chassis of AYA II requires connection to the safety earth. Normally this is done by use of three prong mains cable. It is however important to remember that a galvanically coupled system requires only one connection to the safety earth. This in

practice means that if your (pre)amp also has a chassis connected to the safety earth, a “ground loop” may occur. This problem can be solved by omitting connection to the safety earth in one of devices, so by use of two prong mains cable, or connecting it to the mains socket which doesn't comprise safety earth. In this case the device without own connection to the safety earth will use a safety earth of the other one, via ground connection. It is important to use reliable ground connections in this case.

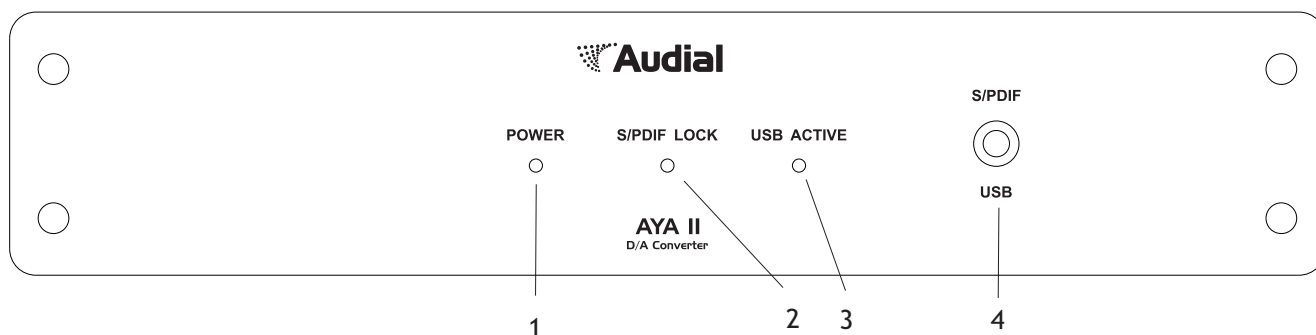
Ground loop can also occur when PC is used as a source, because PC **must** use safety earth, for its switching supply. Short mains cables and short connection between PC and the DAC is then recommended anyhow, but one can also experiment with optical USB decouplers.

Warranty

Audial claims proper working of this product for two years. Audial is obliged to correct any malfunction within this period, at no charge, either by competent repair service, or by swapping the sold unit by the new one.

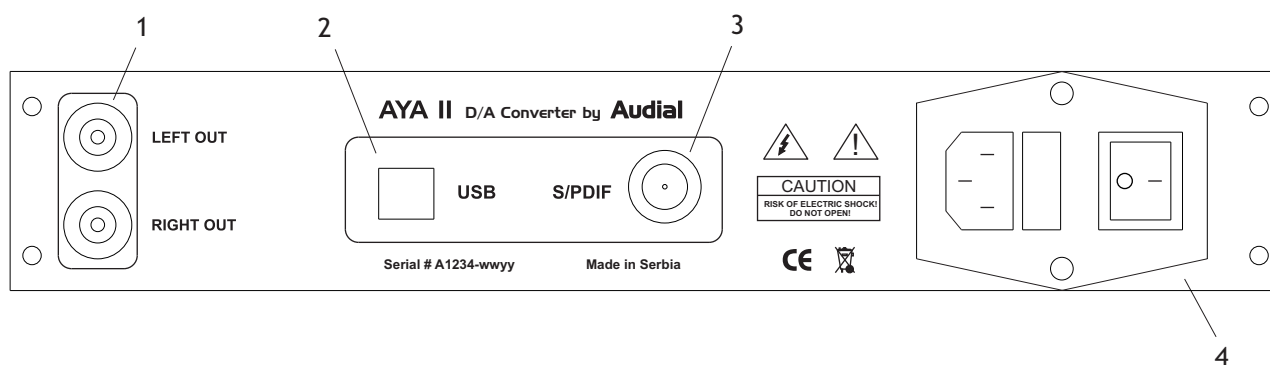
For the units sold directly by Audial invoice is also guarantee certificate. Warranty is fully transferrable from original to subsequent owner(s).

Front Panel



- 1 - Power indicator
- 2 - S/PDIF signal lock indicator
- 3 - USB BUS activity indicator
- 4 - Input switch

Rear Panel



- 1 - Output connectors (RCA)
- 2 - USB input connector (USB Series B Standard)
- 3 - S/PDIF input connector (true 75 Ohm BNC)
- 4 - Mains connector (IEC C14) with switch and fuse

Specifications

INPUTS:

S/PDIF electrical, BNC connector
USB 1.1, standard B connector

SAMPLING FREQUENCY:

S/PDIF input: $\leq 96\text{kHz}$
USB input: $\leq 48\text{kHz}$

OUTPUTS:

Unbalanced RCA, 2.1V RMS

OUTPUT IMPEDANCE:

160 Ohm

FREQUENCY RESPONSE:

Sin(x)/x equivalent:

@ $f_s=44.1\text{kHz}$: -3.2dB @ 20kHz

@ $f_s=88.2\text{kHz}$: -0.8dB @ 20kHz

TRANSIENT RESPONSE:

Clean with no overshoot or ringing
(figures 1 & 2)

ABSOLUTE PHASE:

Correct

HARMONIC DISTORTION (@ 1kHz):

0.12% @ -6dBFS, I/V dominated (fig. 3)

0.02% @ -20dBFS, I/V dominated (fig. 4)

0.72% @ -60dBFS, D/A dominated (fig. 5)

INTERMODULATION DISTORTION (CCIR):

0.25% (19kHz+20kHz, -6dBFS each)

MAINS VOLTAGE:

220-240VAC, 50-60Hz, IEC (C14) connector
110-120VAC available upon request

OUTER DIMENSIONS (W x D x H):

300 x 221 x 75 mm

WEIGHT:

3 Kg

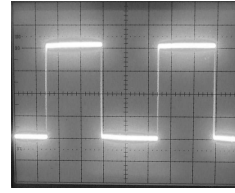


Figure 1: 1kHz square wave

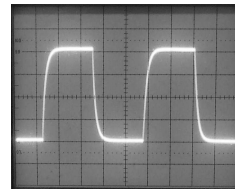


Figure 2: 20kHz square wave

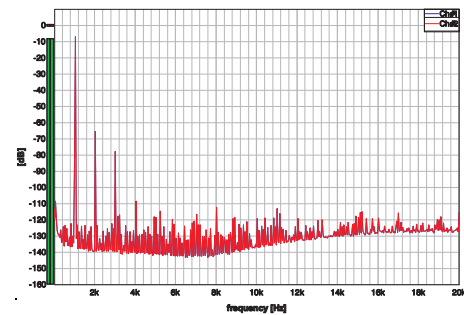


Figure 3: FFT analysis of dithered sine wave 1kHz @ -6dBFS

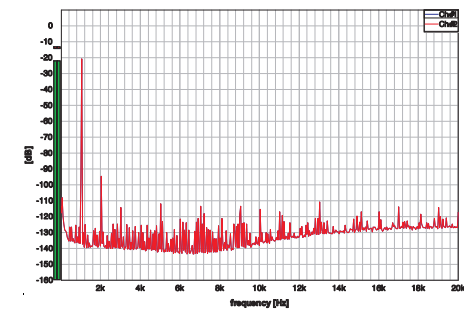


Figure 4: FFT analysis of dithered sine wave 1kHz @ -20dBFS

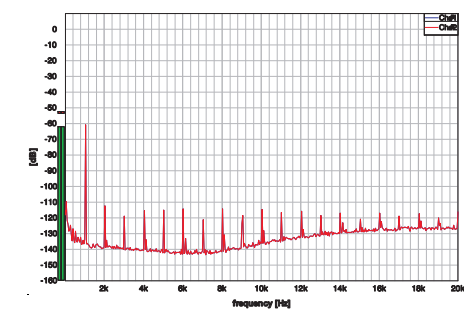


Figure 5: FFT analysis of dithered sine wave 1kHz @ -60dBFS

