



Owner's Manual

ZODIAC+

HD Mastering 192kHz D/A Converter



ZODIAC+

HD Mastering 192 kHz D/A-Wandler

Owner's Manual

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1. Safety Notes



To reduce the risk of electrical shocks, fire, and related hazards:

- Do not remove screws, cover, or cabinet. There are no user serviceable parts inside. Refer servicing to qualified service personnel.
- Do not expose this device to rain, moisture or spillover of liquid of any kind.
- Should any form of liquid or a foreign object enter the device, do not use it. Switch off the device and then unplug it from the power source. Do not operate the device again until the foreign object is removed or the liquid has completely dried and its residues fully cleaned up. If in doubt, please consult authorized repair.
- Do not handle the power cables with wet hands!
- Make sure the device is switched off when plugging/unplugging it to and from the power source.
- When unplugging from the wall outlet always pull the plug, not the power.
- Avoid placing things on the cabinet or using the device in a narrow and poorly ventilated place which could affect its operation or the operation of other closely located components.
- If anything goes wrong, turn off the device first and then unplug the power. Do not attempt to repair the device yourself: consult authorized service personnel or your dealer.
- Do not install near to any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- We do not recommend placing weights or other objects on ZODIAC+. This may scratch the chassis finish.
- Do not use harsh chemicals to clean your unit. Clean only with dry cloth.
- Connect all your devices before powering your Unit.

2. Introduction

Congratulations! You are now the proud owner of the **ZODIAC+** HD Mastering 192kHz D/A converter.

Up until now, many of the world's recording studios have been using Antelope clocks to improve the quality of the audio from their digital converters. This is because of the unique technologies and clocking know how that the Antelope team have gained over many years of development to improve audio through clocking. Technologies such as Oven Control for extreme stability and 64-bit Acoustically Focused Clocking with ultra wide bandwidth algorithms are just two of the unique reasons why Antelope clocks are the choice for people who care about audio quality, whether that be small project studios or the biggest facilities working on the cream of today's music.

So, now that everyone understands the benefits of using an Antelope clock to improve their existing digital gear..... What next?

A mouth watering D/A converter with Antelope's 64-bit Oven Clock built-in!

Zodiac+ harnesses the power of digital audio without sacrificing the warmth and fullness typically associated with analog gear. Designed to deliver bit perfect, transparent sound, Zodiac+ is suitable for the most demanding professional studios and mastering rooms, high-end audiophile applications, including: HDTV, DVD, digital cable, music servers, portable music players, digital audio workstations and desktop audio editing applications. Zodiac+ is also perfect for the home user who simply loves to listen to music at the highest quality.

Separate A and D power supplies virtually eliminate digital cross-talk and is further enhanced by keeping those circuits on separate boards. These boards utilize large internal ground planes, cancelling noise and voltage shifts.

The Custom designed USB controller chip streams data at **480Mbits**, allowing audio up to 192kHz with native drivers for both Mac and PC. Dual-stage headphone driver architecture delivers smooth sound at both high and low levels.

Enjoy your music all over again with the new Zodiac+

All the best,
The Antelope Team

3. Features

- Custom USB chip for streaming audio up to 192kHz
- Antelope Oven Clock for supreme stability
- 64-bit Acoustically Focused Clocking (AFC)
- 129dB Dynamic Range
- Ultra Linear, Dual Stage Headphone Amps with dedicated volume control
- De-jittered, re-clocked Digital Audio Outputs
- Precision Trim Pots for Balanced Analog Outs
- Accurate Level Display for Main Volume
- Mute (soft dim & full mute)
- Mono summing function
- Source select button easily toggles inputs and switches through USB Modes
- USB compatible with Windows 7/Vista/XP/2000 and Mac OS X without driver installation
- AES, Toslink and S/PDIF Digital Inputs
- Balanced and Unbalanced Analog Outputs
- Balanced and Unbalanced Analog Inputs
- Anti-thumping Speaker & Ear protection on power up & source change
- Power supply works automatically for all worldwide power requirements

4. In the box

- ZODIAC+ High Definition 192kHz D/A converter
- Printed Documentation
- DC Power Supply
- IEC type power cable
- USB cable
- Optical TOSLINK cable

5. Quick Start

It only takes a few moments to harness the benefits of the Zodiac+ sound. Follow the steps below whilst referring to page 5 overleaf.

1. Connect Zodiac+ to the DC power source via rear panel connector (13).
2. Connect your choice of digital input(s) and analog outputs on the rear panel.

NOTE: Avoid using standard analog audio cables for digital signal.

Connecting the USB to a PC:

When connecting USB With Windows, it is necessary to direct the digital audio stream from your computer through its USB port to the Zodiac+. To do so, click on your PC's START menu then select:

CONTROL PANEL > SOUNDS & AUDIO DEVICES > AUDIO and ensure that the Zodiac+ is selected.

When using Mac OS:

In your Apple Menu, go to System Preferences and choose Sound, Select the Output tab and select Zodiac+ from the list.

3. Adjust the main volume (4) and headphones (12) to minimum.
4. Turn the unit on with the power button (7).
5. Play audio from your preferred digital or analog source.
6. The unit will auto detect the signal source and show the input name on the status display.

To switch to a different input:

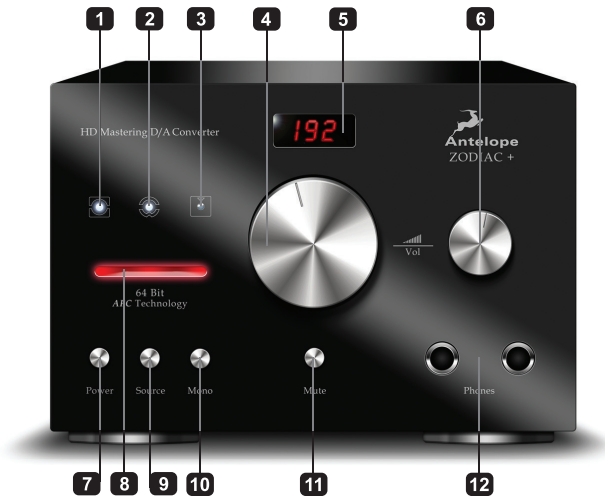
Press the source button (9) once for each input selection (the status display will show the corresponding input name when changed).

The sample rate of the input should be indicated in the status display (5). The Lock indicator (1) should light steadily and audio should be present at the Zodiac+ outputs.

7. Adjust the main volume (4) or headphone volume (6) to your preferred level.
8. If you want to control your Zodiac remotely from your computer, there is also a software control panel available for you on for MAC, PC and Linux systems!

You can download it from our downloads page on the support section of our website.

6. Front Panel Explained



1. Lock light

When lit indicates Zodiac+ is locked to an incoming digital signal via rear panel connectors (20) (21) (22) (23). The light will flash if there is no valid digital signal or if a media player is in stop or pause mode when using USB.

2. Word Clock light

Indicates the presence of incoming word clock signal at rear panel BNC connector

3. Mono light

When lit indicates the outputs are summed to mono.

4. Main Volume

Adjusts levels for analog outputs (17) (18). The level is shown on the display (5) whilst adjusting, with a range of -90db to 0db.

5. Display

Multi-function display shows Sample Rate, Main Volume Level, Input Type and USB mode. See also (4) (7) (9) (11) for related functions

6. Headphone volume

Adjusts level of headphone amplifier to headphone outputs

7. Power button

Toggles standby/operation state.

When in standby mode it is possible to change USB mode to suit different types of computer configuration.

MODES:

UF1 – USB Full Speed Mode (12Mbps) for backwards compatibility. Supports sample rates up to 96KHz.

Uh1 – USB High Speed Mode (480Mbps). USB Audio Class 1.0. Sample rates up to 192KHz (default).

Uh2 – USB High Speed Mode (480Mbps). USB Audio Class 2.0. Sample rates up to 384KHz (OS X and Linux only).

How to change mode...

1. Enter standby mode by pressing power button (7); Display (5) will go off signifying standby mode.
2. Press and hold source button (9) until display (5) appears.
3. Toggle source button (9) until desired mode appears
4. Press power button (7) to bring the unit back into operational state.

8. Power/Standby light

Indicates operational and standby modes. Dimly lit for standby and brightly lit for operational power.

9. Source button

Toggle for selecting source on all rear panel inputs. The selection is shown on the display (5). Only valid rear panel connections are given as an option. Example: If only AES and TOSLINK 1 are connected, they will be the only options available when selecting the source.

The source button is also used to select the USB mode. See Power Button (7).

10. Mono Button

Pressing the mono button activates the summed outputs to give mono on the analog and headphone outputs. The status of the mono function is indicated by the mono light (3).

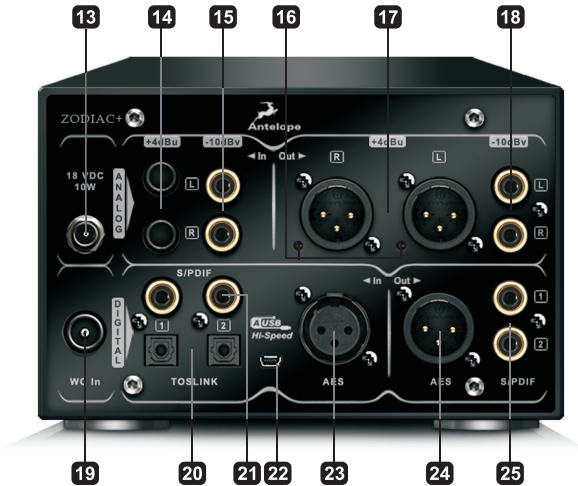
11. Mute

Dual function mute: Press once for -40db dim and press again for full mute. The display (5) also changes brightness when using the mute options.

12. Headphone Outputs

Universal ¼" Stereo Headphone jacks for connecting headphones of wide ranging impedances.

7. Rear Panel Explained



13. DC Power Connection

For use with supplied DC power supply only.

14. Balanced Analog Inputs

¼" TRS balanced analog inputs @ +4dBu.

15. Unbalanced Analog Inputs

RCA type unbalanced analog inputs @ -10dBu.

16. Analog Output Adjusters

These adjusters or trim pots enable precise matching of the balanced analog outputs to connected equipment. The default setting is +4dBu, with maximum gain at +22dBu.

17. Balanced Analog Outputs

Balanced XLR outputs for professional use ranging from +4 to +22dBu. See also (16) Analog Output Adjusters.

18. Unbalanced Analog Outputs

Analog Outputs @ -10dBu using RCA type connectors.

19. Word Clock Input

BNC connector used to accept word clock reference.

20. TOSLINK Inputs

TOSLINK/Optical connectors for use with compatible equipment. See also (9) Source Button.

21. S/PDIF Inputs

75 Ohm S/PDIF inputs for use with compatible equipment. See also (9) Source Button.

22. USB Hi-Speed

Hi Speed USB at 480Mbits. Zodiac+ uses the mini b type USB connector and operates up to 192kHz sample rate with native drivers. See also (7) for selecting USB modes.

23. AES Input

Input for compatible equipment using the 110 Ohm AES/EBU connectivity standard. See also (9) Source Button.

24. AES Output

De-jittered digital output using the 110 Ohm AES/EBU connectivity standard.

25. S/PDIF Outputs

De-jittered digital outputs using RCA connectivity. 75 Ohms.

8. Setting I/O Connections

Connect digital audio cables to the inputs of Zodiac+ from sources such as CD-ROM, DVD, Computer, etc...

Avoid using standard analog audio cables for digital signals. Even though they might look the same, they are not designed for digital audio and performance will be compromised.

Proper Digital Audio cables should be used for SPDIF and AES/EBU:

1. AES/EBU Input accepts any AES/EBU 110 ohm.
2. SPDIF inputs accept RCA connections from any 75 ohm SPDIF source.
3. TOSLINK inputs accept any standard plastic or glass fiber optical cable.

Ground Loop Hum and Noise

The design of Zodiac+ minimizes the chances of ground loop hum and noise. However, we recommend the use of short cables for all the Audio inputs in your system and all power cables of the system should be connected to a dedicated outlet box or power conditioner unit to avoid ground current noise affecting the audio signal path. It's also advisable to keep signal and power cables separate where possible.

Digital Audio Quality – factors and settings

Guidelines to improve the audio performance of your computer-based Audio system:

- Keep volume controls at 100% on all operating systems.
- Keep word-length settings at 24 bits. Even if you are playing 16-bit audio, it is recommended to keep 24-bit settings.
- Turn-off operating system sounds.
- Keep all operating system's DSP and plug-ins turned off. Applications, device drivers, sound cards, etc., have various DSP effects such as EQ, Bass boost, surround sound, etc.

For best performance disable **Any Kind** of audio processing.

Additional information regarding Operating Systems, Audio software and media players will be added to our support area at <http://www.antelopeaudio.com/en/support.html>

9. Technical Specifications

Dynamic Range:	129dB
THD +N:	0.0004%
USB:	2.0 Hi-Speed. Data stream up to 480Mbps/192kHz
Clocking System:	4th Generation Acoustically Focused Clocking 64 bit DDS Oven Controlled Crystal Oscillator
Stability:	< +/- 0.02 ppm @ 64.5 Degrees Celsius
Ageing:	< 1 ppm per year
Sample Rates:	44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
Inputs:	BNC Word Clock: 44.1 - 192kHz 1x AES/EBU XLR: 44.1 - 192kHz @ 110 Ohms 2x S/PDIF RCA: 44.1 - 192kHz @ 75 Ohms 2x RCA Analog: -10dbv Unbalanced 2x TSR Analog: +4dBu Balanced 2x Optical TOSLINK
Outputs:	2x Analog XLR. +4dBu Balanced, user adjustable to +22dBu. 1x AES/EBU De-Jittered, re-clocked Digital Output. 110 Ohms 2x S/PDIF De-Jittered, re-clocked Digital Outputs. 75 Ohms 2x Analog RCA: -10dBv Unbalanced 2x Headphones: 16dBu gain @ 120 Ohms
Power Supply:	Input: 100-240VAC. Output: 18VDC, 10W.
Operating Temperature:	0-50°C, 32-122°F
Wight:	2kg, 4.4 lb
Dimensions (Approx):	165mm (W) x 112mm (H) x 190mm (D) 6.5"(W) x 4.4"(H) x 7.5"(D)



***Correct Disposal of This Product
(Waste Electrical & Electronic Equipment)***

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.



www.AntelopeAudio.com