



# Antelope OWNER'S MANUAL

# OCXHD

## 768 KHZ HD MASTER CLOCK





# **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 the manufacturer.
- Do not handle the power cables with wet hands!
- Make sure the device is switched off when plugging/unplugging it to/from the power source.
- 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. Do not block any ventilation openings.
- 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 any heat sources such as radiators, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not use harsh chemicals to clean your unit. Clean only with specialized cleaners for electronics equipment.
- Connect all your devices before powering your unit.
- This unit is connected via its power cord to the mains safety earth. Never operate the unit without this earth connection.
- AC power supply cable should be routed so that it is not likely to be walked on or squeezed by items placed upon or against it.
- To completely turn off the device, unplug the power cable first from the outlet and then from the rear panel of the unit.
- Your unit should not experience shocks greater than the specified in the technical specifications.
- The device is designed to operate in a temperate environment, with a correct Operating Temperature of:  
0-50 °C, 32-122 °F

## 2. Introduction

**OCX HD** raises the bar yet again, delivering sample rate support of up to 768 kHz, Antelope's best-in-class 4th generation Acoustically Focused Clocking (AFC) jitter management algorithm and oven-controlled crystal oscillator. **OCX HD** Master Clock offers a great variety of clocking options – 10 configurable in pairs Word Clock outputs on BNC, four AES/EBU outputs and two more on S/PDIF. This vast assortment of connectivity make the **OCX HD** the most versatile audio master clock on the market, while proven advanced proprietary clocking technology delivers the most musical and reliable audio sync generation on the market.

Additionally, **OCX HD** offers two word clock inputs and a video sync input, which can resolve to a huge variety of SD and HD formats, as well as clock distribution with gearboxing, and pull-up and pull-down rates, as featured in the triple clock powerhouse, Trinity Master Clock. A 10 MHz input allows for syncing with Antelope's newest atomic clock – 10MX.

Antelope's newest master clock benefits from flexible firmware update functionality, as featured in all new generation Antelope products, allowing for fast and easy firmware updates on the user-friendly software control panel, available for both OS X and Windows. The desktop app provides convenient remote control to simplify project workflow. The device is also easily configurable from an elegant front panel, which will add a futuristic aesthetic to any gear rack.

**Enjoy working with the new OCX HD**

All the best,  
The Antelope Team



## 3. Features

- 4th generation Acoustically Focused Clocking (AFC) jitter management algorithm
- Sample rate support of up to 768kHz over WC
- Multipliers/dividers can be assigned via Control Panel to get up to 5 different sample rates
- 4x AES/EBU and 2x S/PDIF master clocking outputs up to 192kHz for additional connectivity
- Comprehensive audio gear-boxing
- Universal Video Input on BNC
- Atomic clock input for optimum accuracy and calibration
- 3 presets can be easily stored and recalled
- Rate lock from Control Panel to avoid settings change during session
- Ergonomic front panel control
- Software Control Panel, allowing remote control and firmware updates via USB

## 4. Activation Guide

It is essential to activate your OCX HD before using it. Once connected to your AC and USB to your computer follow the steps below:

1. Navigate to [www.antelopeaudio.com/support/downloads](http://www.antelopeaudio.com/support/downloads) and then to OCX HD.
2. Download the OCX HD Launcher.
3. Start the application (If you are on a PC install the launcher). The launcher will automatically download the software control panel.
4. You will be greeted by an activation screen. Enter your information and click done.
5. Check your email account's inbox for the email with the activation link and click on it. If the e-mail does not appear in your Inbox, please check your Spam folder.
6. Go back to the launcher and enter your information. Click Done.
7. You're good to go!

## 5. Front Panel Explained



- 1. Power Switch**  
Toggles standby / operation state. When the device is powered on an illuminated ring will glow around the power button.
- 2. Oven Clock Light**  
When lit, this indicates OCX HD is clocked by its own internal clock.
- 3. LOCK Indicator**  
When lit, this indicates OCX HD is locked to a signal that enters through the WC, Video, S/PDIF or AES/EBU inputs.
- 4. Atomic LOCK Indicator**  
When lit, this indicates OCX HD is locked to an atomic signal that enters through the 10M input on the rear panel. This overrides the Oven Clock lock light as soon as it is plugged in and the Oven Clock lock light will automatically go off.
- 5. Clock Source Selection Knob**  
This selector allows you to select the current Clock Source for the OCX HD. Oven is for using its own clock while the rest of the options are if you want the OCX HD to be clocked to an external source.

## **6. Sample Rate Indicator**

Indicates the current sample rate of the master clock.

## **7. Sample Rate Selection Knob**

This selector allow you to increase and decrease the sample rate, selecting from: 32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz, 352.8kHz, 384kHz, 705.6kHz, 768kHz. The current frequency is indicated on the display when adjusting. To confirm simply press the selector knob.

Press and hold the knob for 2 seconds to fetch the current source's sample rate and set it. This feature is only available when following external source.

## **8. European pull up / pull down (+/- 4%)**

This button toggles +/- 4% pull ups / pull downs.

## **9. USA pull up / pull down (+/- 0.1%)**

This button toggles +/- 0.1% pull ups / pull down.

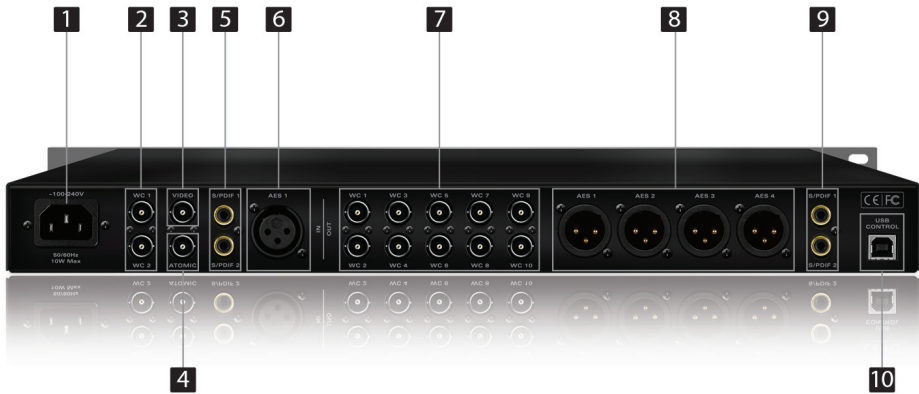
## **10. Presets**

Three Preset buttons store and recall your 'favorite' set-ups.

## **11. Calibration Mode**

Ensure atomic signal is fed to the Atomic Input, Atomic Clock is locked and the OCX HD Atomic Clock Indicator is lit. Press both Source Selection and Sample Rate Selection knobs simultaneously. Device will enter calibration mode. Sample Rate indicator will show a number which will stabilize with time. Wait for the number to become stable. This number represents the error of the OCX HD's clock related to the Atomic Clock. To compensate for this error press the Sample Rate Selection knob. Repeat the procedure as many times as necessary, so that the number becomes as close as possible to Zero and relatively stable (number may have small deviations in a few seconds). To exit the mode press the Standby button.

## 6. Rear Panel Explained



### 1. AC power connection

This IEC connection supports inputs of ~100 – 240 V. This enables the device to automatically accommodate mains voltages in any country.

### 2. WC Input 1 and 2

BNC Connector used to accept World Clock reference.

### 3. Video Input

BNC Connector used to accept Video reference. When active the OCX HD will lock to the sample rate of the incoming video signal.

### 4. 10M Atomic Clock Input

This BNC Input Connector allows the OCX HD to receive timing reference from an Atomic Clock such as the Antelope 10M and 10MX, to increase the Oscillator accuracy. If the device is in Oven mode, plugging in the atomic clock causes the “Atomic LED” light to illuminate on the device front panel and the atomic device becomes the primary timing reference.

### 5. S/PDIF Inputs

These two inputs can receive S/PDIF clocking reference up to 192 kHz.

### 6. AES/EBU Input

This input can receive AES/EBU clocking reference up to 192kHz.

### 7. WC Outputs

Ten Word Clock Outputs with BNC connector.

### 8. AES/EBU Outputs

These four outputs provide AES/EBU clock at sample rates up to 192kHz. Note that if the OCX HD is working at a higher sample rate, the Word Clock signal cannot be output via this AES/EBU connector.

### **9. S/PDIF Outputs**

These two outputs provide S/PDIF clock at the sample rates up to 192kHz. Note that if the OCX HD is working at a higher sample rate, the Word Clock signal cannot be output via this S/PDIF connector

### **10. USB Type B Connector**

Allows connection to PC and MAC for complete remote control and firmware updates through the software control panel. The control panel for PC and MAC is available as a download from the support section at [www.antelopeaudio.com](http://www.antelopeaudio.com)

## 7. Software Control Panel



### 1. Standby button

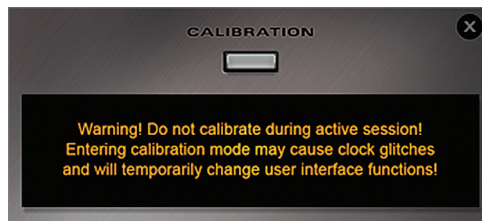
Powers the OCX HD on and off.

### 2. Device S/N

Shows which device is controlled. If you have multiple devices connected to your PC/MAC computer (or different computers wired in the same Local Area Network) you can select which one to control.

### 3. Calibration Mode

Enters the calibration mode.



Ensure atomic signal is fed to the Atomic Input, the Atomic Clock is warmed up and the OCX HD Atomic Clock Indicator is lit.

1. Click on calibration and the device will enter calibration mode

2. The indicator below will show a number which will stabilize with time. Wait for the number to become stable. This number represents the error of the OCX HD's clock related to the Atomic Clock. To compensate for this error press the "Calibrate" button.



3. Repeat the procedure as many times as necessary so that the number becomes as close as possible to Zero and relatively stable (number may have small deviations in a few seconds). To exit the mode press the X button.

**4. Panel lock indicator**

When the panel is locked the device will not accept commands from its front panel interface and/or the Control Panel thus preventing accidental setting changes during session or Live events. You can lock or unlock the Panel by clicking on the pad lock symbol.

**5. Info**

Displays various information about the device and allows to update the firmware.

**6. Oven**

When lit, this indicates OCX HD is clocked by its own internal clock.

**7. Atomic**

When lit, this indicates OCX HD is locked to an atomic signal that enters through the 10M input on the rear panel. This overrides the Oven Clock lock light as soon as it is plugged in and the Oven Clock lock light will automatically go off.

**8. Lock**

When lit, this indicates OCX HD is locked to a signal that enters through the WC, Video, S/PDIF or AES/EBU inputs.

**9. Clock Source**

Select between the available external sources to follow and Oven – stand alone operation.

**10. Sample Source**

Indicates current selected sample rate.

**11. Pull ups, pull downs controls**

Adjusts WC sample rate to sync PAL/NTSC video.

**12. Brightness control**

Adjusts device's front panel brightness from 0 to 100%.

**13. Clock Source Out**

Indicates the sample rate that is being outputted. This might change if the sample rate is affected by pull ups / downs.

#### 14. Multipliers

Those 5 dropdown menus can be used to multiply or divide the current selected sample rate on every 2 WC outputs. This way the OCX HD can output up to 5 different sample rates on every pair of 2 WC outs, e.g. if the sample rate is 96kHz dividing it by two will give you 48kHz and multiplying it by for 4 will give you 384kHz.

#### 15. Presets

Three preset buttons to store your favorite set-ups. Single click recalls the desired preset. Holding Ctrl on Windows or Command on MAC and click saves the current set-up.

## 8. Technical Specifications

**Clocking System:** 4th generation Acoustically Focused Clocking  
64-bit DDS  
Oven Controlled Crystal Oscillator

**Clock Stability:** <+/- 0.02 ppm, oven controlled at 64.5°C/148.1°F

**Clock Aging:** < 1 ppm per year

**Clock Calibration:** <+/- 0.001 ppm

**Atomic Clock Input:** 10 MHz

**Sample Rates Generated:** 32, 44.1, 48, 88.2, 96, 176.4, 192, 352.8, 384, 705.6, 768kHz

**Master Clock Outputs:** 10x Word Clock Outputs up to 768kHz  
4x AES/EBU Outputs up to 192kHz  
2x S/PDIF Outputs up to 192kHz

**Inputs:** 2x Word Clock Inputs up to 768kHz  
1x Video Input accepting wide range of SD and HD video signals  
1x Atomic Input  
2x S/PDIF Inputs up to 192kHz  
1x AES/EBU Input up to 192kHz  
1x USB Input for control

#### Maximum shock withstanding:

Non-operating, flight case mounted:  
100m/s<sup>2</sup> (~10.2 g\*), 11 msec half-sine pulse per  
IEC 60068-2-27:2008

Non-operating, in original packing:  
300m/s<sup>2</sup> (~30.6 g\*), 5 msec half-sine pulse per IEC 60068-2-27:2008

\* g – gravitational acceleration



**Power supply:** AC Universal Input ~100-240V, 10 Watts Max  
**Operating Temperature:** 0-50°C / 32-122°F  
**Weight:** 2.65 kg/ 5.84 lb

**Dimensions (unit):** Width: 482.6 mm / 19"  
Height: 44 mm / 1.75"  
Depth: 230 mm / 9.05"

**In The Box:** Isochrone OCX HD  
Warranty Card  
Owner's Manual  
1x USB Cable  
1x Power Cable

## 9. Antelope Audio Support Resources

Antelope Audio offers a range of services and support resources for your Antelope hardware, firmware and software control panels.

### FAQ

Several categories of frequently asked questions are available on the website:  
<http://www.antelopeaudio.com/en/support>

### Telephone Support

Phone line is for general inquiries and technical support: +1 734 418 8661  
Hours of Operation: 7:00 a.m. - 3:00 p.m. (EST)

### Help Desk

A ticketing system ensures a 24-hour response time:  
[www.antelopeaudio.com/en/support/help-desk](http://www.antelopeaudio.com/en/support/help-desk)

### Live Chat

Connect with a customer support agent directly via the website:  
<http://www.antelopeaudio.com/en/support>

Click on Antelope Tab on the right-hand side of the webpage  
Hours of Operation: 7:00 a.m. - 3:00 p.m. (EST)

### Support Documents and Software

A web resource with all device manuals, datasheets and software:  
<http://www.antelopeaudio.com/en/support/downloads>

### Control Panel Newsfeed

The software control panel for OCH HD incorporates a newsfeed at the bottom, which displays all new updates and relevant information:



**YouTube Page**

Tutorial videos, interviews, user cases and promos for forthcoming products:

<http://goo.gl/yfOmZf>

**Web Blog**

Regular blog posts will update you on the latest user cases with the OCH HD:

<http://www.antelopeaudio.com>









***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.





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[WWW.ANTELOPEAUDIO.COM](http://WWW.ANTELOPEAUDIO.COM)

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