



Antelope
OWNER'S MANUAL

10MX

RUBIDIUM ATOMIC 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, fire, 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.
- Both, occasional and continued exposure to high sound pressure levels can cause permanent ear damage via headphones and monitors.
- 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

Thank you for purchasing the **10MX** from Antelope Audio.

Antelope Audio's **10MX** Rubidium Atomic Clock is the premier member of the Isochrone product line. It offers the most stable clocking reference available for audio professionals and is perfectly suited for mastering, mixing, post-production, live sound and film-scoring applications. **10MX** employs the latest advancements of Antelope Audio's industry-leading Atomic and Acoustically Focused Clocking (AFC™) Technologies to maintain digital audio system stability and preserve the highest level of sonic integrity.

The Antelope Audio **10MX** multiple atomic outputs allow up to 10 devices to be clocked simultaneously over BNC Outputs of 10MHz. The unit can also be used as a master clock with 4 outputs up to 768 kHz via BNC, 2 via AES and 2 via S/PDIF. The intuitive software control panel enables flawless management, connecting via a USB port.

This complete world-class solution is conveniently housed in an elegant 1U chassis.

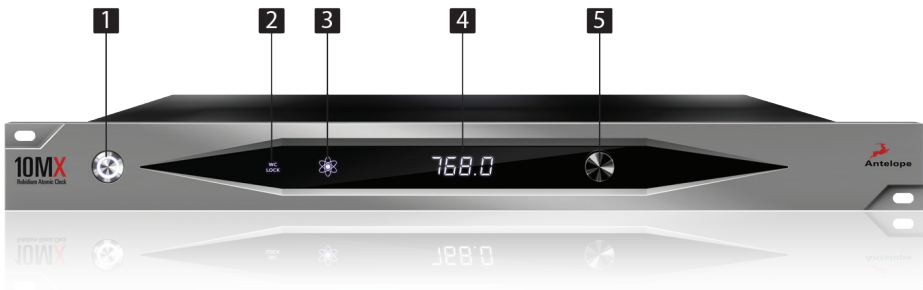
Enjoy working with the new 10MX!

All the best,
The Antelope Team

3. Features

- Rubidium core with accuracy of 0.05 ppb (parts per BILLION)
- 4th generation Acoustically Focused Clocking (AFC™), employing 64-bit DSP
- Master clocking up to 768 kHz over 4 WC
- 2 x S/PDIF and 2 x AES/EBU master clocking outputs up to 192 kHz
- Atomic clocking compatible with any device that accepts 10MHz reference
- Utmost ease of operation, just connect it and power it on
- PC/Mac connection via USB, allowing remote control and firmware upgrades
- Intuitive Software Control Panel
- Extremely sturdy mechanical construction

4. 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. WC LOCK Indicator**

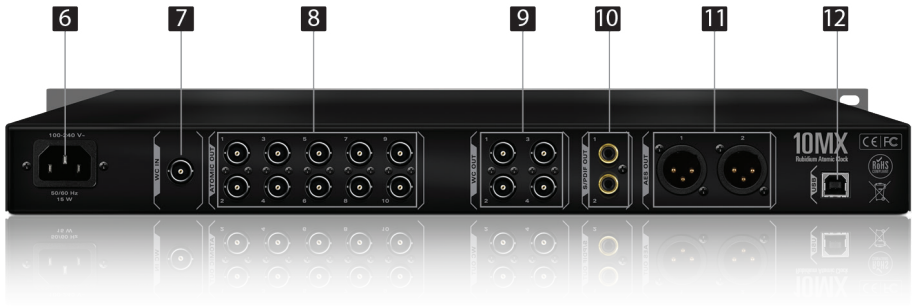
Will indicate if the 10MX is locked to an external source.
- 3. Atomic Clock Indicator**

Indicates that if the Atomic Module is engaged and Warmed up. When the device is powered this icon will pulsate during the warm-up state as the Rubidium Oscillator is heating up. When the device is fully warmed up the LED will glow steadily.
- 4. Sample Rate Indicator**

Indicated the current sample rate of the master clock. When using DA mode, the indicator blinks if no source is present.
- 5. Sample Rate Selection Knob**

Use to cycle thru the sample rates, click to select the sample rate of your choice. Press and hold to enter/exit DA mode

5. Rear Panel Explained



6. AC power connection

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

7. WC Input

BNC Connector used to accept World Clock reference.

8. Atomic Clock Outputs

BNC Outlets for the 10MHz atomic clock signal. For best results cables should not exceed 6 meters (20 feet) in length. Longer cables might work but will result in increased jitter and other clock errors.

9. WC Outputs

The sample rate on these outputs always matches the sample rate shown on the front panel frequency display.

10. S/PDIF Outputs

These two outputs provide S/PDIF clocking reference up to 192 kHz.

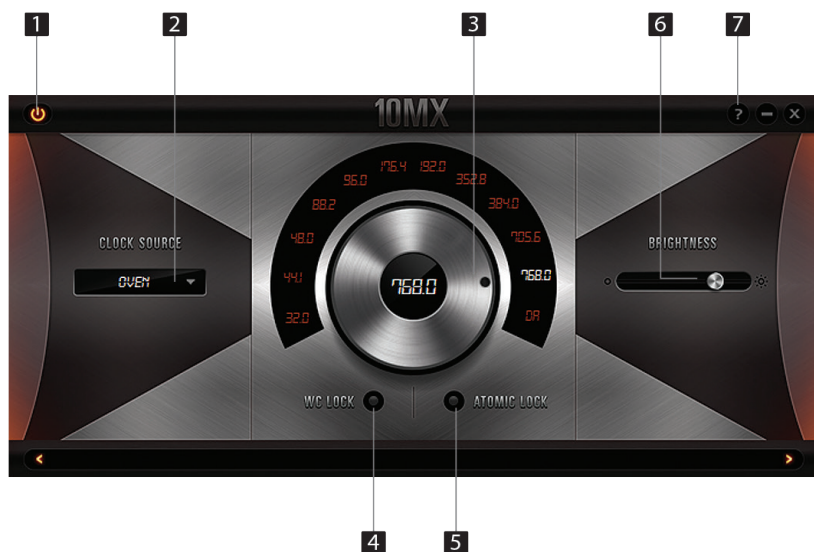
11. AES/EBU Outputs

These two outputs provide AES/EBU clocking reference up to 192kHz.

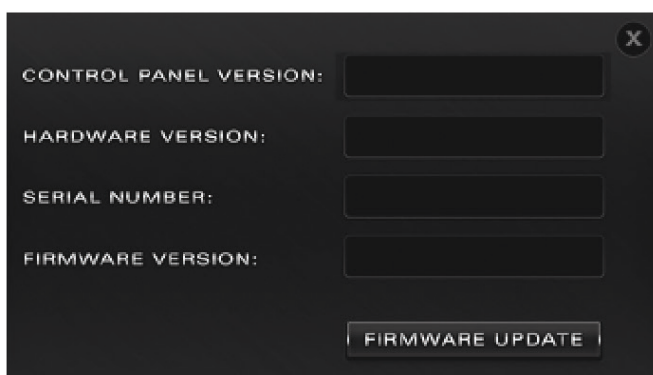
12. USB Connection

Allows connection to PC and MAC for complete remote control and firmware updates thru the software control panel. The control panel for PC and MAC is available as a download from the support section at www.antelopeaudio.com

6. Software Control Panel



1. Standby button
2. Clock Source
3. Sample Rate Selector
4. WC Lock Indicator
5. Atomic Lock Indicator
6. Brightness Adjust
7. Info



7. Additional Information

Additional information regarding operating systems, audio software and media players will be updated through the support area at www.antelopeaudio.com

8. In the box

- 10MX Rubidium Atomic Clock
- Printed Documentation
- Warranty Card
- 1 USB Cable
- 1 AC Power Cable

9. Technical Specifications

Atomic Reference Type: Rubidium Ultra-Stable Resonance-Controlled Master Oscillator

Frequency: 10MHz

Frequency Accuracy: Better than $\pm 5E-11$ @25C (± 0.05 PPB)

Aging: Daily* $\pm 2.5E-11$
Monthly* $\pm 1E-10$
Yearly $\pm 1E-9$
(*After 1 day & 1 month of operation respectively)

Short Term Stability: t=1s $\leq 3E-11$
t=10s $\leq 1.6E-11$
t=100s $\leq 8E-12$

Time drift in a 24-hr period: $< 7\mu\text{s}$ over 0°C to +60°C

Phase Noise (SSB): 1Hz ≤ -70 dBc/Hz
10Hz ≤ -87 dBc/Hz
100Hz ≤ -114 dBc/Hz
1kHz ≤ -130 dBc/Hz
10kHz ≤ -140 dBc/Hz

Warm-Up Time: 8 – 10 minutes (depends on ambient temperature)

Maximum shock withstanding	<p>Non-operating, flight case mounted: 100m/s² (~10.2 g*), 11 msec half-sine pulse per IEC 60068-2-27:2008</p> <p>Non-operating, in original packing: 300m/s² (~30.6 g*), 5 msec half-sine pulse per IEC 60068-2-27:2008</p> <p>* g – gravitational acceleration</p>
Power Supply Type:	AC
Power Supply Input:	100 – 240 V~
Power Consumption:	15 W
Atomic Clock Outputs:	10 x BNC Sinusoidal, 10MHZ, 75 Ohm, 1Vpp typical (unloaded)
Outputs:	<p>Word Clock: 4 x BNC</p> <p>AES/EBU: 2 x XLR</p> <p>S/PDIF: 2 x RCA</p>
USB:	USB 2.0 Full-Speed, Type B, only for control
Word Clock Specs	TTL Level, 75 Ohm Output Impedance
Operating Temperature:	0 – 50°C, 32-122 F
Humidity:	30 – 80% RH non-condensing
Dimensions:	<p>482.6 (W) x228 (D) x 44 (H) mm</p> <p>19 (W) x 9 (D) x 1.73 (H) inch</p>
Weight:	2.8 kg/6.17 lb

10. 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

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 10MX incorporates a newsfeed at the bottom, which displays all new updates and relevant information:

**You Tube 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 10MX:
<http://www.antelopeaudio.com>

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***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

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