Wavedream Reference

OWNER'S MANUAL

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Introduction

Congratulations on your new high-end network DAC! The Rockna Wavedream Reference pushes the limits of custom digital to analogue conversion through proper engineering, performance, design and sound quality. It elevates the story of our company and our team, as a culmination of years of experience.

This document contains an overview of the device's internal architecture, specific handling details, functional description, safety precautions and product warranty details. This document is not meant for service or repair operations, as these must be carried out only by qualified personnel.

More information regarding Rockna Audio products can be found on-line at https://www.rockna-audio.com/

Additionally, our support team is ready to assist you with any question and issue regarding our products. Refer to the contact details below:

Rockna Electronics S.R.L.
Address: Strada Plopului, nr. 5, Suceava
ZIP Code: 720145, Romania
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support@rockna-audio.com– Technical support
contact@ rockna-audio.com– General inquiries

Product Features:

At the heart of the Wavedream Reference is our custom architecture, crafted for the highest level of precision and ultimate refinement in audio reproduction. Our DAC is built upon a highly optimized and efficient AMD ZYNQ chip for general processing and 4 dedicated FPGAs, one for each phase of the discrete conversion system.

To achieve an elegant internal layout, we designed a 10-layer central core board for the digital front-end processing and the network renderer. A completely new dedicated low noise supply board was developed, as well as new conversion boards placed in a symmetrical configuration, two for each channel. Compared to the classic Wavedream, the design was optimized by shortening the clock and data signal paths and by using higher quality board-to-board connectors. Therefore, signal integrity was significantly improved. Furthermore, the toroid transformers and the display are shielded internally using a copper cage. The analog stages following the D/A conversion modules are hidden on the back of the left and right boards.

In the Wavedream Reference we developed one of the most advanced, ASRC-free digital PLL clock solutions which gives the dac the ability to perform like an analogic source, with a natural sense pf pace and rhythm.

Another key element is that digital signals physically travel as high-speed analog signals and they must be treated accordingly. Bits are bits on an abstract level but on pcb traces, connectors, cables they are a succession of high-speed rectangular analog signals which are not perfect: they have rise-time, fall time and they could be plagued by ringing, spikes, reflections, crosstalk, phase noise(jitter) etc. This is why Rockna has perfected radio-frequency techniques to mitigate these issues which have the potential to ruin the pursued analog sound.

The Wavedream Reference up-samples internally any material with a fixed rate of 16x. The dac modules will decode the digital stream with a rate of 768Khz, or 705.6Khz, respectively, according to input sample rate. We found this rate to be optimal for analog performance of the dac modules. Behind this simple multiplication factor (16x) lies significant processing power. The digital filters are made with the combined effort of many DSP hardware dedicated blocks.

The developed filters are unique. We avoided standard Nyquist rate filters as they did not provide the desired performance for the dac. After lots of mathematical simulations and careful listening tests, we have created a custom Parks-McClellan up-sampling filter. There are three variations available on the current firmware: linear, minimum and hybrid phase. They are highly optimized filters, offering stunning performance with a large number of taps (5k), and they are different in regard of impulse response. For the linear phase, the

ringing energy (Gibb's overshoot) is equally split before and after impulse. Minimum phase type shows all this energy after impulse, while our special hybrid phase filter has a combined response between linear and minimum, exhibiting very low overshoot before the impulse.

The network renderer built inside Reference is unique because it is seamlessly integrated into the dac digital front-end. There is no separate "streamer section" or board which removes the need for a dedicated external connection and unnecessary obstacles into the digital signal path. Natively integrated inside the Rockna FPGA, the renderer can truly shine, allowing perfect sonic performance when selected.

Clean user interface and simplicity in use is a part of the Reference experience. Our team put a lot of effort in designing a proper user interface. There are three options to control the device: the front-panel touchscreen display, the classic infra-red remote and the Reference control app, available for iOS and Android.

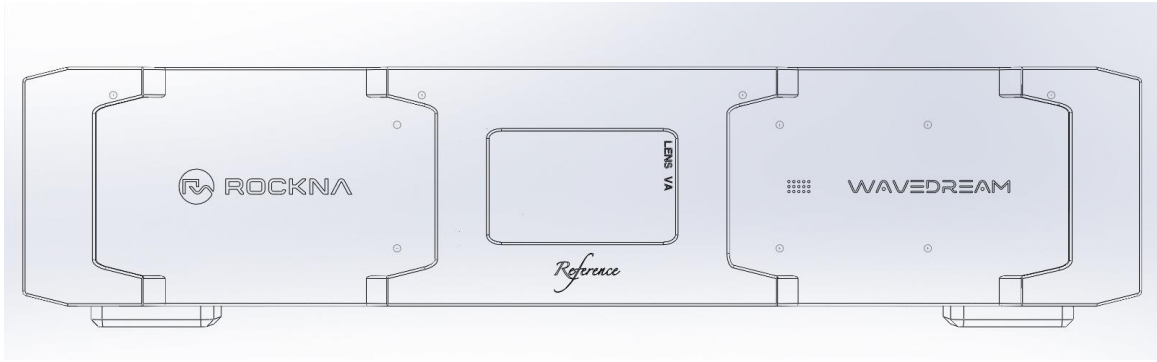
Package Contents

The package you received should contain:

- A Wavedream Reference unit (identifiable by a unique serial number engraved on the back);
- Black velvet cover
- User Manual
- Rockna Universal Remote Control
- Power cord (specific to your region)

I/O Overview

Front Panel



The front panel of the device has a simple design with no physical buttons. All interactions with the device can be done either with the IPS touchscreen, with the included Rockna remote control or through the dedicated Android and iOS apps.

Back Panel


1
4
5
6
OPT
S/PDIF
AES/EBU
ROCKNA
Wavedream Reference
OUTPUT
R
MAINS AC IN
OUTPUT
L
USB
I2S
LAN
Handcrafted
in ROMANIA
2
7
8
9
3

1. Power In: Connect the power mains with a suitable power cord with IEC C13 connector. The units will be configured for either 110 AC or 230 AC. Conversion from one supply to another is explained in the dedicated section of the manual.

2. Right Channel Outputs: The device is equipped with both balanced (XLR) and single ended (RCA) outputs for each channel.
3. Left Channel Outputs

4. Optical In: The Optical In port (also known as Toslink), offers a fibre-optic digital audio connection. Align the connector correctly to ensure a secure connection.

5. Coaxial In (S/PDIF): This port can be used for connecting digital sources with appropriate output. It provides a high-quality connection and is compatible with most digital audio devices.

6. AES / EBU In: The AES/EBU In port provides a professional-grade digital audio input using an XLR connector.

7. USB Type B Input: This port can be used as input from external sources such as PCs, laptops or other streaming devices with USB support.

8. I2S IN: This is a HDMI port used for connecting source devices that support the I2S (LVDS) protocol. Please use a high-quality HDMI cable to ensure data integrity and optimal audio performance. Please Note: the device is not compatible with standard HDMI devices such as TVs or A/V receivers that do not support the I2S standard.

9. Network: Wired Gigabit Network interface. This is the suggested network connection for playing Hi-Resolution content. Connect this interface to your router via an ethernet cable.

Product operation – starting and shutting down the device

The device is preinstalled, initialized and tested before delivery. After connecting the device to power, the Rockna logo will appear on the screen. The device is configured to turn on automatically once plugged in for the first time. If shut down manually, device will be in a low power state waiting for user input. To turn on the device, simply touch anywhere on the screen and the boot sequence should be initiated.

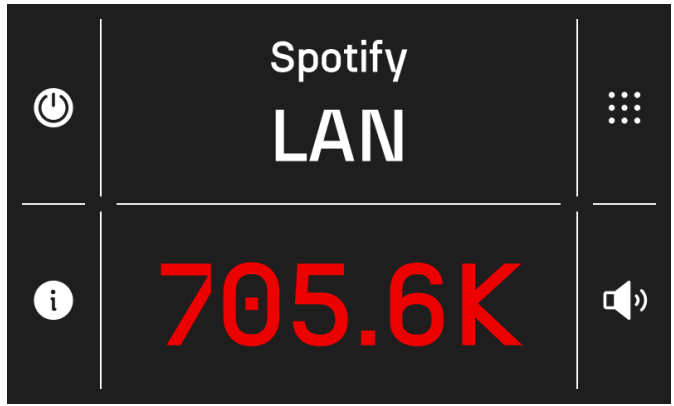
Alternatively, you can turn on the device using the remote control.

Please allow up 30-40 sec. for initialization. To have access to streaming functionality and the iOS and Android apps, we also recommend connecting the device to your network with an ethernet cable. After the start-up sequence is finished, the device should be in the main screen.

Idle Power Screen

Power On Screen

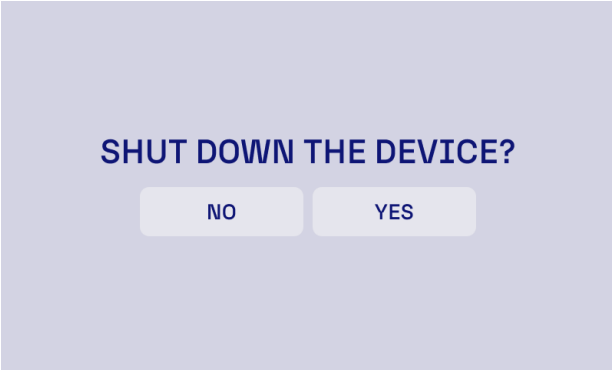
WD Reference main screen light theme (left) and dark theme (right)



The user interface has two themes: light and dark. Devices are shipped with the dark theme as default, but you can change it anytime in the settings.

After first startup, we strongly recommend checking for updates as explained in the software and firmware section.

To shut down the device via the touchscreen, please press the power button in the upper left corner of the screen. You can also shut down the device using the power button on the remote or in the native Rockna app. A confirmation window will prompt, as seen below:

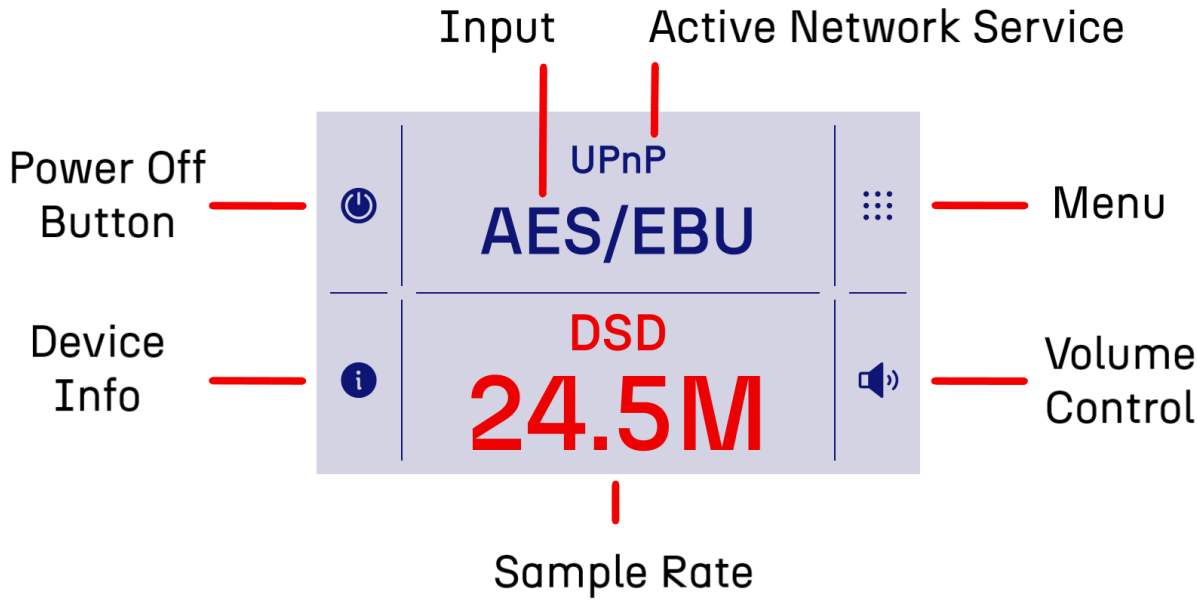


Please press YES or, in the case of the remote, press the power button a second time and wait for the shutdown sequence to finish.

We strongly recommend NOT to remove the power cable without shutting down the device and waiting for the power off procedure to finish!

While accidental forced shutdowns can happen sometimes, internal memory errors may occur. Please contact our support team if the power on / power of cycles do not complete successfully.

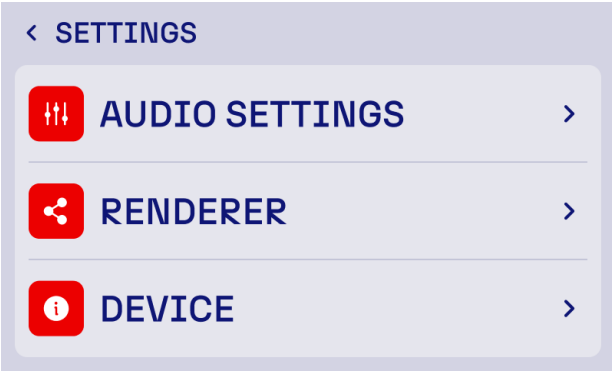
Menu navigation and device setup



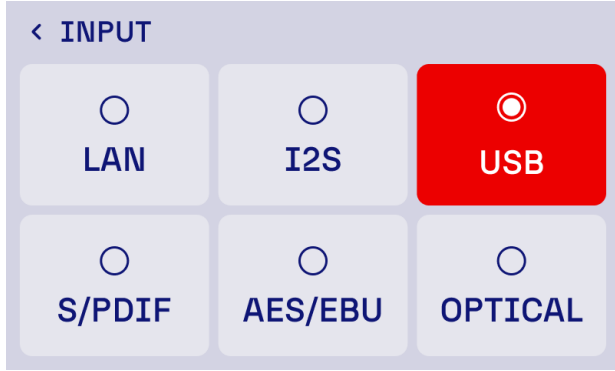
All the functions of the device and settings can be accessed through the HOME screen. An overview of the HOME menu can be found below:

Power Off: Press this button to shut down the device. A confirmation window will appear.

Setting Menu: Press this button to access the settings menu, as showcased below. The following submenus will be available – Audio Settings, Renderer and Device.



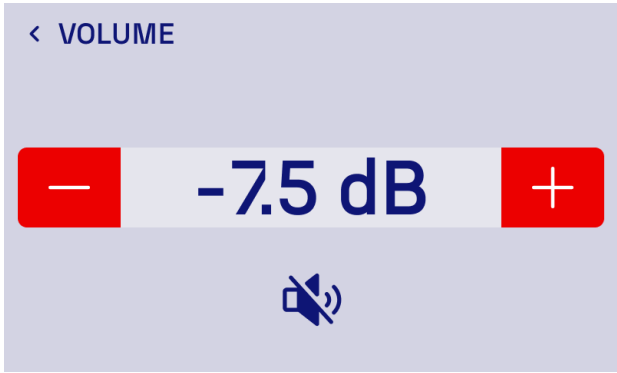
Input: Shows the current active input. Press to be redirected to the „select input" menu, as shown below. Press on the preferred input to activate.



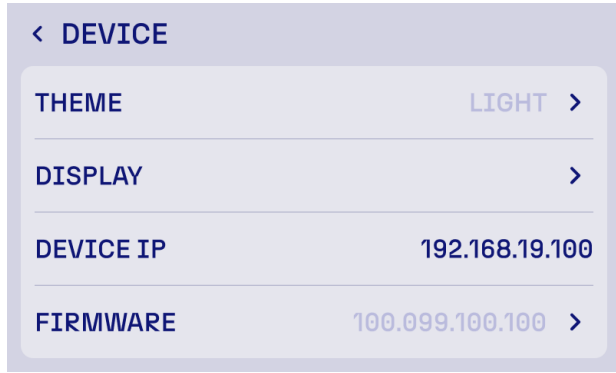
Sample rate: Displays the current format and sample rate of the audio stream.

Active Network Service: This section will display if there is a network service that is active

Volume control: The volume control on your DAC is calibrated in decibels (dB) to indicate the level of audio signal attenuation. A setting of 0 dB represents zero attenuation, meaning the audio signal is passed through at its full, unaltered volume. Negative dB values indicate the level of attenuation applied to the signal, with lower values (e.g., -10 dB, -20 dB) progressively reducing the volume.



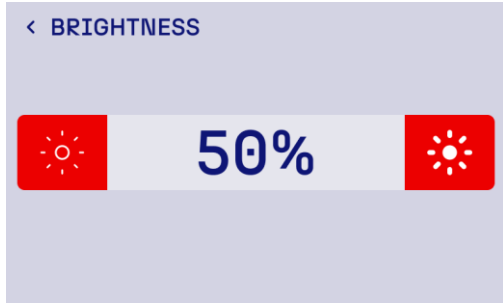
Device Info: Displays a page with device status and information regarding: current selected theme, display settings, device IP and current firmware. This section can also be accessed via the „device" option in the general settings menu.

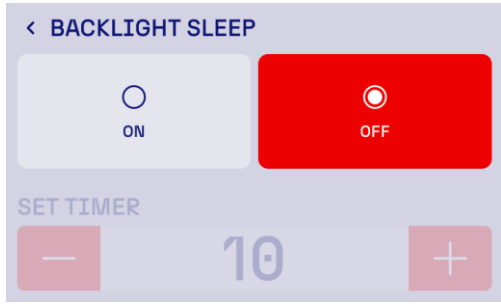


Your device's theme can be customized in the "THEME" sub-menu. Select the one that suits your preferences.

The "Display" sub-menu allows for further customization of your device. You can set the display brightness, set toggle the backlight sleep option and set the desired delay before this function activates.

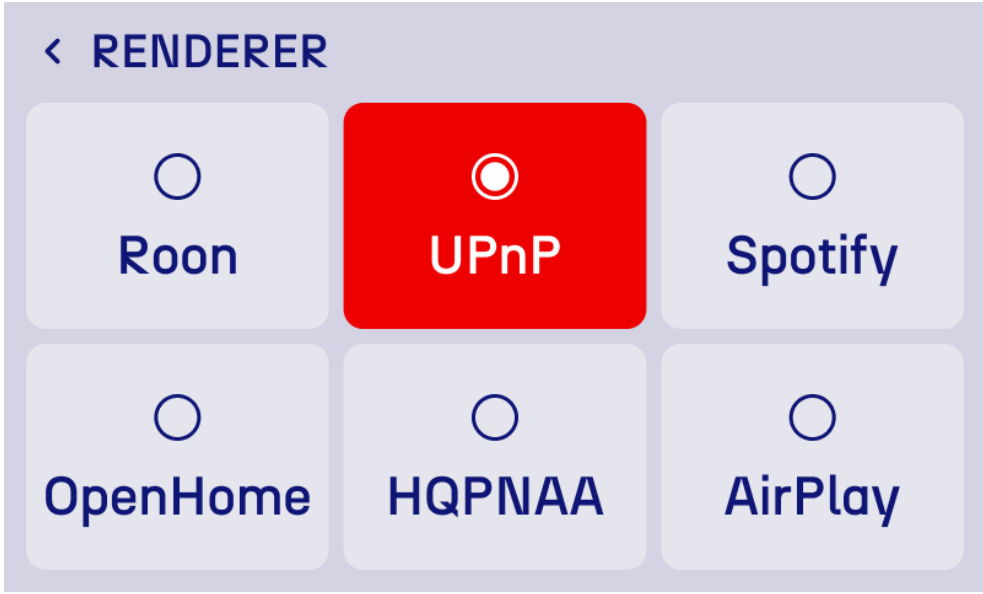
Additionally, the sub-menu allows you can turn off the display immediately.





Network Services

Your network DAC is equipped with a variety of network services to cater for most listening experiences. These services allow integration with various streaming and control protocols, with more to be added in the future. You can select your preferred service in the „Renderer" menu.



Roon Bridge turns your Wavedream into an endpoint for the Roon music management and listening solution. This service allows the device to be remotely controlled and streamed to via the Roon software. This service requires a Roon Core running on a separate device, installed on the same network.

AirPlay support enables wireless streaming from Apple devices, including iPhone, iPad, and Mac. This service is compatible with a wide range of audio applications and offers convenient playback control from your Apple device.

Airplay password: rockna

HQPlayer NAA (Network Audio Adapter) function allows your device to work as an output device for the HQPlayer software, known for its high-quality oversampling, noise shaping, and dithering capabilities. Requires HQPlayer software running on a network-connected computer.

UPnP enables seamless network-based streaming from a variety of UPnP-compatible software and devices. It is a widely supported protocol that allows for flexible streaming solutions across different platforms.

OpenHome extends the capabilities of UPnP by adding features like streaming from cloud services, saving playlists, and more precise control over playback. It is a standard used by various high-end streaming services and applications.

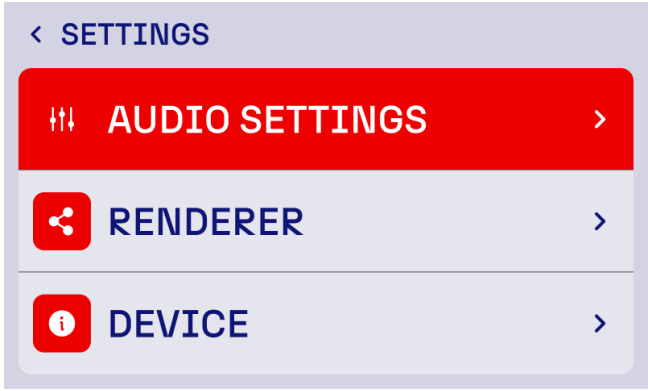
Spotify enables the Spotify Connect functionality, allowing you to use your mobile device as a remote control and tailor your listening experience via the Spotify app. When connecting to the speaker for the first time, all devices need to be on the same WiFi.

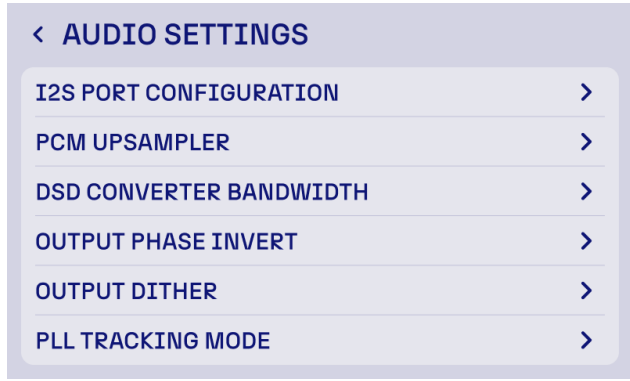
1. Open Spotify and play something.
2. Press Connect device at the bottom of the screen.
3. Pick the device you want to play on.

Note: If you pause playing for more than 10 minutes, you might need to reconnect.

Audio settings

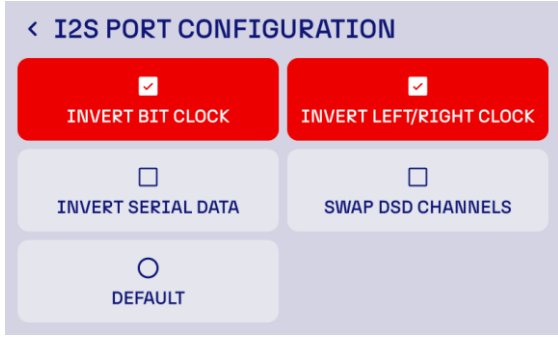
To access the audio settings page, access the settings menu and the appropriate submenu, as pictured below.





In the settings menu, the following options will be available, I2S port configuration, PCM Upsampler, DSD Converter Bandwidth, Ouput phase inverter, Output Dither and PLL Tracking Mode. Touch to access the desired settings submenus.

I2S PORT CONFIGURATION – You have the option to either let the device handle the config via the default setting, or use advanced custom settings



The default setting has the following pinout configuration:

pin 1 - PCM data+/DSD data L+;
pin 3 - PCM data-/DSD data L-;
pin 4 - PCM bclk+/DSD bclk+;
pin 6 - PCM bclk-/DSD bclk-;
pin 7 - PCM lrclk+/DSD data R+;
pin 9 - PCM lrclk-/DSD data R-;
pin 10 - PCM mclk+(not used);
pin 12 - PCM mclk-(not used);
pin 13 – not used(PCM/DSD mode is detected automatically)
pin 14 – not used(PCM/DSD mode is detected automatically)
pin 15 - SCL(not used);
pin 16 - SDA(not used);
pin 17 - GND
pin 18 - 5v for detection(output)
pin 19 – hot plug detect, active high, 5v(input)

a. The 'Invert Bit Clock' option reverses the polarity of the bit clock signal, swaps pins 4 <=> 6 in PCM mode.

When to Use: Use this setting if you encounter issues with signal synchronization or if recommended in the compatibility documentation of your connected digital audio device

b. Invert Left/Right Clock. This option inverts the left/right clock signal, swaps pins 7 <=> 9 in PCM mode. It is useful for ensuring correct channel alignment with some DACs or digital interfaces that interpret the left/right clock signal inversely.

When to Use: Select this option if you experience channel misalignment (left channel content playing on the right and vice versa) with your external DAC or digital audio interface.

c. 'Invert Serial Data' reverses the polarity of the serial data stream, swaps pins 1 <=> 3 in PCM mode. This adjustment can resolve compatibility issues with certain DACs or digital receivers that require an inverted data stream.

When to Use: Employ this setting if you face data interpretation issues, such as distorted or unclear audio output, which might indicate a serial data polarity mismatch with your connected device.

d. The 'Swap DSD Channels' option switches the left and right audio channels in Direct Stream Digital (DSD) format (swaps DSD DATA R with DSD DATA L).

When to Use: Activate this setting if you notice that the stereo imaging is reversed (i.e., right-channel audio is coming from the left speaker and vice versa) during DSD playback

Changes in port configuration might require a restart of the device to take effect. Refer to the documentation of your connected audio devices or contact our technical support for guidance.

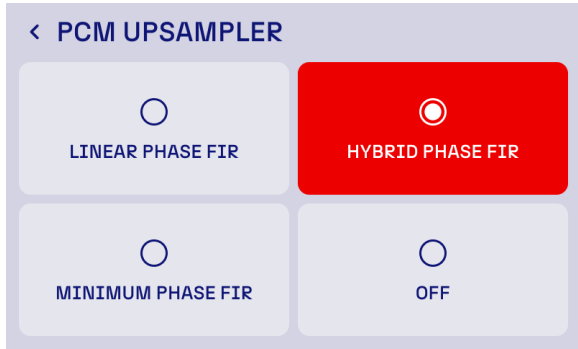
PCM UPSAMPLER – You have the option to choose one of the Rockna finite impulse response filters or disable the internal upsampler. Each setting may offer a different listening experience and can be chosen based on your personal preference and the specific characteristics of your audio setup.

OFF: Set the Wavedream in NOS mode, bypassing digital interpolation stages.

Linear Phase FIR: The Linear Phase Response has ringing evenly distributed both before and after the impulse. This preserves phase integrity of the audio signal throughout the frequency range. This setting ensures that all frequencies reach the listener's ears at the same time, resulting in a highly accurate and natural sound reproduction.

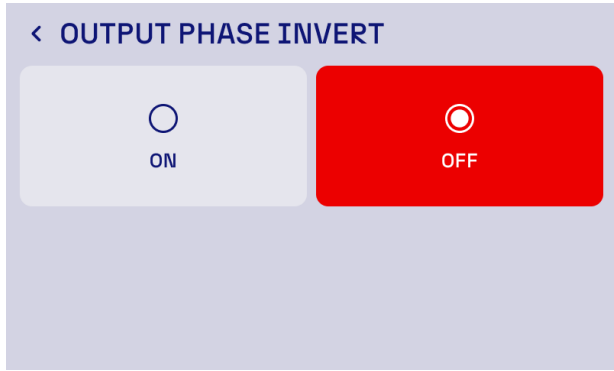
Hybrid Phase FIR: Hybrid Phase Response is a balance between linear and minimum phase characteristics. It aims to preserve timing accuracy while reducing pre-ringing, a type of distortion that can occur in linear phase filters.

Minimum Phase FIR: The Minimum Phase Response setting eliminates pre-ringing entirely. This creates a warm and engaging sound, often preferred for its musicality, at the expense of some phase accuracy.

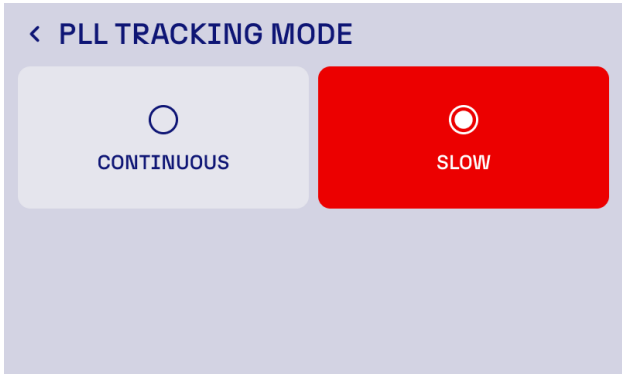


DSD CONVERTER BANDWIDTH – You have the option to optimize the way your converter handles DSD file. This setting adjusts the bandwidth of the low-pass filter used during DSD playback to manage high-frequency noise, a characteristic of the DSD format. The wide setting applies a less aggressive low-pass filter, allowing a broader range of high-frequency content to pass through. The narrow setting applies a more restrictive low-pass filter, significantly reducing high-frequency noise. It is recommended for systems that may be sensitive to ultrasonic noise or when compatibility with specific equipment is a concern.

OUTPUT PHASE INVERT – This setting allows users to invert the polarity of the audio signal at the DAC's output. This feature can be useful for ensuring phase alignment in your audio system or accommodating specific preferences for playback. When the Output Phase Invert is set to On, the polarity of the audio signal is inverted. This means that the positive portions of the waveform are flipped to negative, and vice versa. This setting may be necessary if other components in your audio system invert the signal phase, and you want to restore the correct polarity.



OUTPUT DITHER – This setting controls whether dithering is applied to the audio signal during digital-to-analog conversion. Dithering is a technique used to minimize quantization errors and reduce distortion when processing digital audio, particularly at low signal levels. We recommend using the On setting only when listening to low-resolution audio files in NOS mode.(e.g., 16-bit or lower). The DAC applies a carefully calibrated noise signal (dither) to the audio output that can mask quantization noise. For normal use, this setting should be disabled.



PLL TRACKING MODE – This allows users to adjust how the DAC's clock synchronization mechanism responds to variations in the incoming digital signal. The PLL is responsible for locking onto the source clock and ensuring precise timing for digital-to-analog conversion.

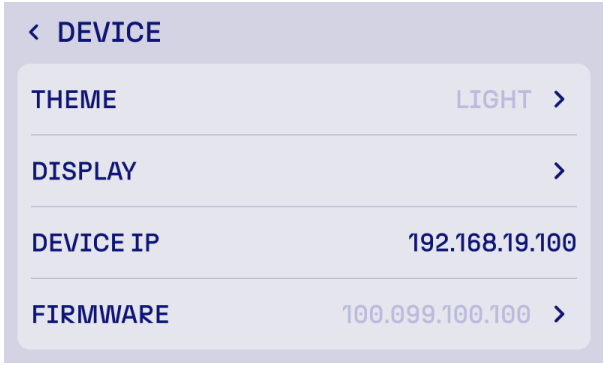
In Continuous mode, PLL tracks the incoming signal dynamically, quickly adapting to changes in the source clock. This is ideal for systems where the source clock exhibits higher jitter or frequent timing variations, such as low-cost streaming devices or computers.

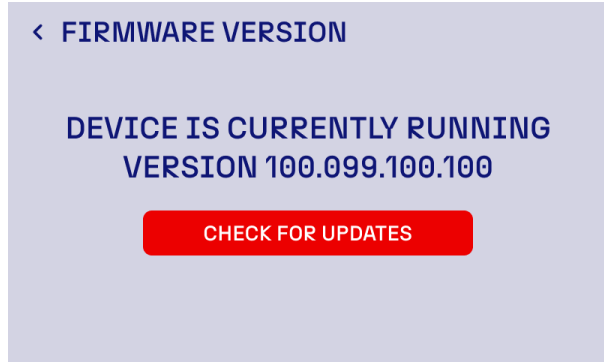
In Slow mode mode, the PLL tracks the incoming signal more gradually, prioritizing stability and minimizing jitter. This is best suited for high-quality sources with stable clock signals, such as dedicated CD transports or high-end music servers. By reducing the sensitivity to minor variations in the source clock, Slow mode can achieve improved timing accuracy.

Software and Firmware Update

Updating the Wavedream is a straightforward process. A network connection with internet access is required. From the home screen of the device press the menu button in the top-mid menu, and then proceed to the „Device" section. On this screen you will have basic information about the device, including the serial number and the firmware version. In the firmware sub-page press the dedicated button to initiate a check for available updates.

Activating the update sequence





The device will proceed to check the latest available firmware and software version on the Rockna servers. If such updates exist, a prompt will appear asking for confirmation for updates installation.

Activating the update sequence

During the installation, please do not power off the device. After update completion, a restart of the device is necessary. In some particular cases, updates might require more than one device restart in order to be successfully completed. In such cases, the user will be notified. In the case the update process is not successful, please shut down the device and try again. If the process continues to be unsuccessful, please contact our support team.

The Rockna Universal Remote Control

Your device comes equipped with the new Rockna Universal Remote control. This allows you to control your device using the infra-red port and control the main features of the interface such as: turning the device on/off, volume control, cycling through the inputs, accessing and navigating the menu.

The Remote is designed to be compatible with other future products from the Rockna Line-up, such as advanced music servers or CD transports. The switching between devices is done using the Shift + A keys.

The Wavedream Reference preset is Shift + A1.

The Remote allows you to navigate the device menu using the arrow keys. Pressing any keys will display a red selection cursor that can be moved in the menu. To activate an option or enter a sub-menu, press the ok button on the display.

The Rockna Universal Remote has backlighting for each button. The backlight is activated automatically when picked up by the user, using the integrated motion sensor.

Due to safety concerns and because the motion sensor can drain the battery during shipping, we do not include batteries in the box.

To access the battery compartment, please unscrew the two Phillips screws on the bottom of the remote using a PH1 screwdriver.

The Rockna Universal Remote Control uses two standard AAA-sized batteries.

Remote Control Application Description and Functionality

Device control can also be done via the local network using the native Rockna app for iOS and Android. For the apps to correctly identify and connect to the Wavedream Reference, the mobile device needs to be connected to the same network as the device. Please access the following links or QR codes to download the control application:

Android

iOS

All variants of the app have identical functionality and graphics, so explanations are applicable to both. When starting the application on your phone or tablet, it will enter a network discovery mode to identify any devices running on the network. Please make sure your Wavedream Reference is connected to the same network.

Through the app you can view and control all settings of the device including turning it off. The home-screen of the application will have the same information as the device Home screen, as well as a menu with the following options:

Home: Will show the following information:

- Power off button;
- Sample rate and active network service;
- Volume control;
- Mute button;

Input: Access the input select page with the same options as the device: LAN, I2S, USB; S/PDIF, AES/EBU and Optical

Renderer: Access the streamer page to select the desired network service from the available list

Settings: Access the setting page with dedicated tabs for Audio settings, and display settings

About: A page with a device information tab, a software update tab and the color theme of the device

Please note: The device will register the setting via the app immediately, but there might be a few seconds of delay before the display will also show the new settings.

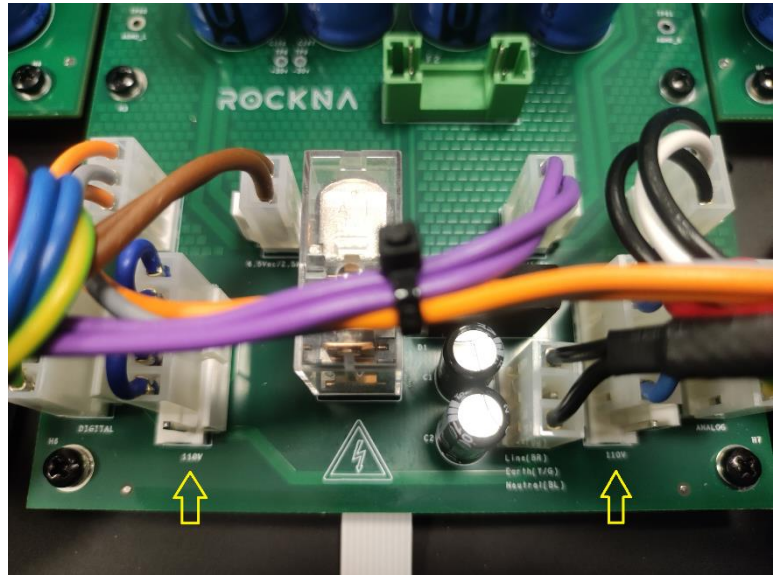
Mains Voltage Selection

Changing the Wavedream Reference mains input voltage to 220V or 110V AC or vice-versa is done using by changing the fuse in the power socket in the back of the device and change the power railings on the designated pin as depicted in the picture below. To access the railings the top cover of the device and the copper shielding of the supply section need to be removed.

Note: The fuse must be changed accordingly so use a 5x20mm fuse with the following ratings:

Slow blow, ceramic, cylindrical, 2.00A/250 V AC for 230V AC Mains;

Slow blow, ceramic, cylindrical, 4.00A/250 V AC for 110 V AC Mains.



Specifications Sheet

Advanced AMD ZynQ FPGA with custom Rockna firmware

Programmable logic:
- input processing
- re-clocking circuitry
- up-sampling with dedicated DSP blocks
- 32-bit ultrafine volume control in 0.5 dB steps

Programmable System:
- custom Linux kernel
- high performance network renderer
- control app integration

Proprietary R2R discrete dac modules x 4
Selectable Dither and DSD bandwidth
Ultralow-noise and fine-tuned power supply, extended on multiple stages
All critical nodes have local regulation
Proprietary discrete regulation for analog stages
Very large capacitor buffer

Copper shielded transformers and power section
Optimized clock manager Femtovox 2
Mirrored clock distribution
Critical paths with tight impedance control
Main board stack 10 layers pcb
Dac boards stack 6 layers pcb
Proprietary Digital-PLL topology, ASRC-free
Fully discrete output stage in class A
Ultralow noise floor
XLR and RCA outputs, very low impedance
3.5 IPS touch display 800x480
Metal remote control (infrared)
Android & iOS control apps
Firmware updates over internet
Full aluminum chassis, matt black or matt silver anodized
Power consumption about 40W

Safety Precautions

1) This device is meant for indoor use only.
2) Protect device from excessive heat, humidity and liquid filled objects, such as vases.
3) Clean only with dry cloth. Household cleaners or solvents can damage the finish of the SuperHUB. Please clean and handle the product only after disconnecting from mains power for at least five minutes.
4) Do not remove product cover while the device is plugged in the mains outlet.
5) Use earth grounded outlet if available.
6) Do not move the device while operational.
7) Lightning or static electricity can affect normal operation of the device. Make sure that it is unplugged during a thunderstorm.
8) Make sure the unit is unplugged if it is not to be used for a long period of time.
9) In case of product damage in any way, such as power cable or plug damage, spilled liquids, physical shocks, exposure to moisture, or if the product does not operate normally, service is required o
10) Keep this user manual for future reference.

Rockna Audio WARRANTY
Three (3) Years

WARRANTY COVERAGE:
Rockna Electronics warranty obligation is limited to the terms set forth below.

WHO IS COVERED:
Rockna Electronics warrants the product to the original purchaser or the person receiving the product as a gift against defects in materials and workmanship as based on the date of original purchase from an Authorized Dealer. The original sales receipt showing the product name and the purchase date from an authorized retailer is considered such proof.

WHAT IS COVERED:
The Rockna Electronics warranty covers new products if a defect arises and a valid claim is received by Rockna Electronics within the Warranty Period. At its option, Rockna Electronics will either (1)repair the product at no charge, using new or refurbished replacement parts, or (2)exchange the product with a product that is new or which has been manufactured from new, or serviceable used parts and is at least functionally equivalent or most comparable to the original product in Rockna Electronics current inventory, or (3)refund the original purchase price of the product. Rockna Electronics warrants replacement products or parts provided under this warranty against defects in materials and workmanship from the date of the replacement or repair for one (1) year or for the remaining portion of the original product's warranty, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes Rockna

Electronics property. When a refund is given, your product becomes Rockna Electronics property.

Note: Any product sold and identified as refurbished or renewed carries a one (1) year limited warranty. Replacement product can only be sent if all warranty requirements are met. Failure to follow all requirements can result in delay.

WHAT IS NOT COVERED - EXCLUSIONS AND LIMITATIONS:

This Limited Warranty applies only to the new products manufactured by or for Rockna Electronics that can be identified by the trade-mark, trade name, or logo affixed to it. This Limited Warranty does not apply to any non- Rockna Electronics hardware product or any firmware, even if packaged or sold with the product. Non- Rockna Electronics manufacturers, suppliers, or publishers may provide a separate warranty for their own products packaged with the bundled product. Rockna Electronics is not liable for any damage to or loss of any programs, data, or other information stored on any media contained within the product, or any non- Rockna Electronics product or part not covered by this warranty. Recovery or reinstallation of programs, data or other information is not covered under this Limited Warranty.

This warranty does not apply (a)to damage caused by accident, abuse, misuse, misapplication, or non-Rockna Electronics products, (b)to damage caused by service performed by anyone other than Rockna Electronics or Authorized Service Location, (c)to a product or a part that has been modified without the written permission of Rockna Electronics, or (d)if any Rockna Electronics serial number has been removed or defaced, or (e) product, accessories or consumables sold "AS IS" without warranty of any kind by including refurbished Rockna Electronics product sold "AS IS" by some retailers.

This Limited Warranty does not cover:

• Shipping charges to return defective product to Rockna Electronics.

• Labor charges for installation or setup of the product, adjustment of customer controls on the product, and installation or repair of systems outside of the product.
• Product repair and/or part replacement because of improper installation, connections to improper voltage supply, abuse, neglect, misuse, accident, unauthorized repair or other cause not within the control of Rockna Electronics.
• A product used for commercial or institutional purposes (including but not limited to rental purposes).
• Damage or claims for products not being available for use, or for lost data or lost firmware.
• Damage occurring to product during shipping.
• A product that requires modification or adaptation to enable it to operate in any country other than the country for which it was designed, manufactured, approved and/or authorized, or repair of products damaged by these modifications.

• Product lost in shipment and no signature verification receipt can be provided.
• Failure to operate as per Owner's Manual.

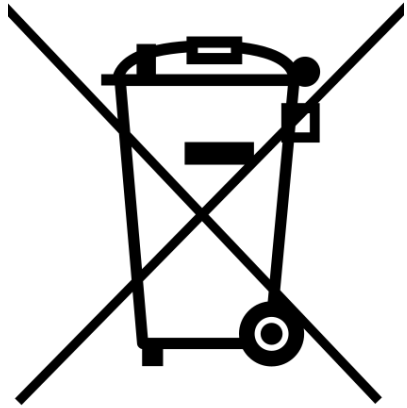
REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY FOR THE CONSUMER. Rockna Electronics SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some states do not allow the exclusions or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to

Disposal Information

For private households:

Information on Disposal for Users of WEEE This symbol on the product(s) and / or accompanying documents means that used electrical and electronic equipment (WEEE) should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product(s) to designated collection
points where it will be accepted free of charge. Alternatively, in some countries, you may be able to return your products to your local retailer upon purchase of an equivalent new product. Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.



For professional users in the European Union:

If you wish to discard electrical and electronic equipment (EEE), please contact your dealer or supplier for further information.

For disposal in countries outside of the European Union:
This symbol is only valid in the European Union (EU). If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Document Revision History

Version	Date	Description
1.00	10-12-2024	Initial release