

The LAV logo is rendered in a bold, white, sans-serif font. The letters 'L' and 'A' are connected, and the 'V' is slightly offset to the right. The background is a dark, textured surface, possibly the top of a device, with a subtle gradient and some faint lines.

LAV

HARMONY DAC 2 | Manual

V1.0



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1. Getting Started

1.1. Introduction

A warm welcome to you as a valued member of our audiophile community. At LAiV, we believe great audio is not simply about reproducing sound—it is about creating an experience that brings you closer to the music. With the Harmony DAC 2, we continue that journey, building on everything we learned from the original Harmony DAC and taking it further. Drawing on more than a decade of experience in audio engineering and product development, we have refined the Harmony platform with improvements in circuitry, digital architecture, isolation, connectivity, and user experience. The result is a new generation of Harmony DAC, carefully engineered to deliver greater refinement, clarity, and musicality while preserving the distinctive character that made the original Harmony DAC so well loved. Welcome to the next chapter of the Harmony journey.



1.2. Safety Instructions

We're thrilled to have you as part of our family, and your safety is our utmost priority. Before you dive into using your new DAC, let's go over some essential safety tips to ensure everything goes smoothly:

- 1) **Get to Know Your DAC:** Take a moment to flip through the user manual. It's packed with handy information about how to use your DAC safely and effectively.
- 2) **Power Up with Caution:** Before plugging in your DAC, please check the AC input switch under the appliance to make sure it is configured to the compatible standard. Avoid overloading sockets or using frayed cords to prevent any shocking surprises.
- 3) **Stay Dry and Grounded:** Keep your DAC away from water sources and damp areas. Remember, electricity and water don't mix well! And always use grounded outlets to avoid any shocking situations.
- 4) **Keep it Cool:** Your DAC needs space to stay cool. Make sure there's plenty of airflow around it. Avoid placing your DAC in direct sunlight or near heat sources like radiators or stoves. Extreme heat can damage delicate components and shorten the lifespan of your DAC.
- 5) **Keep it Clean, Keep it Safe:** Regular cleaning is key to keeping your DAC happy. But remember, gentle is the name of the game—no harsh chemicals or scrubbing, please!
- 6) **Hands Off the Repairs:** If your DAC starts acting up, don't go all DIY hero on it. Leave the fixes to the pros. They've got the skills and know-how to get things back in working order safely.
- 7) **Keep it Kid-Safe:** Little ones are curious creatures, so make sure to keep cords and plugs out of their reach. And always supervise their interactions with DAC to avoid any unplanned experiments!
- 8) **Power Down for Peace of Mind:** When you're done using your DAC, hit the off switch. It's a simple step that can prevent any unwanted surprises while you're away.
- 9) **Trust Your Instincts:** If something seems off—smoke, sparks, strange noises—don't ignore it! Shut off the power and reach out to us or a professional for help ASAP.
- 10) **Safety First, Always:** Remember, your safety comes above all else. Take your time, follow these tips, and enjoy using your DAC with confidence!

If you ever have any questions or concerns about using your DAC safely, don't hesitate to reach out. We're here to help you every step of the way!

1.3. Quick Start

1

Sit back, relax, and coffee.



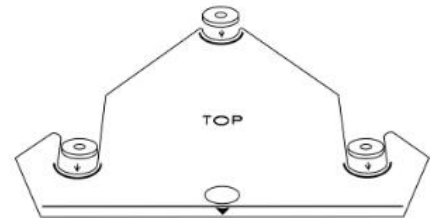
Register
Extended
Warranty



Read
Guide

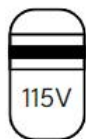
2

Place the alignment card in the desired location and insert the spike shoes into the guiding holes.

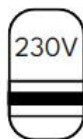


3

Confirm the AC input at the bottom of the device.



or

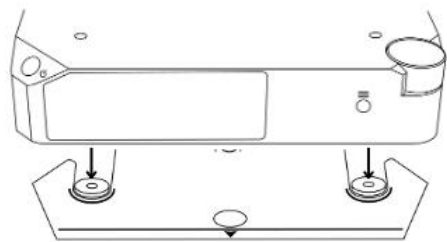


US/CA/JP
100-127VAC

EU/UK/SG
220-240VAC

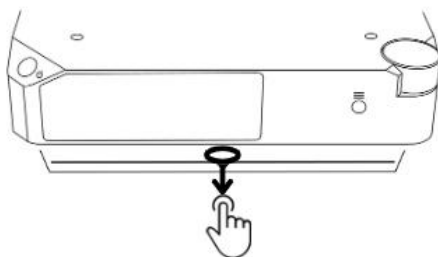
4

Align the device with the two front spike shoes and place it on them.



5

Remove the alignment card by pulling it out through the hole at the front.



6

Connect all the cables and insert the battery into the remote control.



7

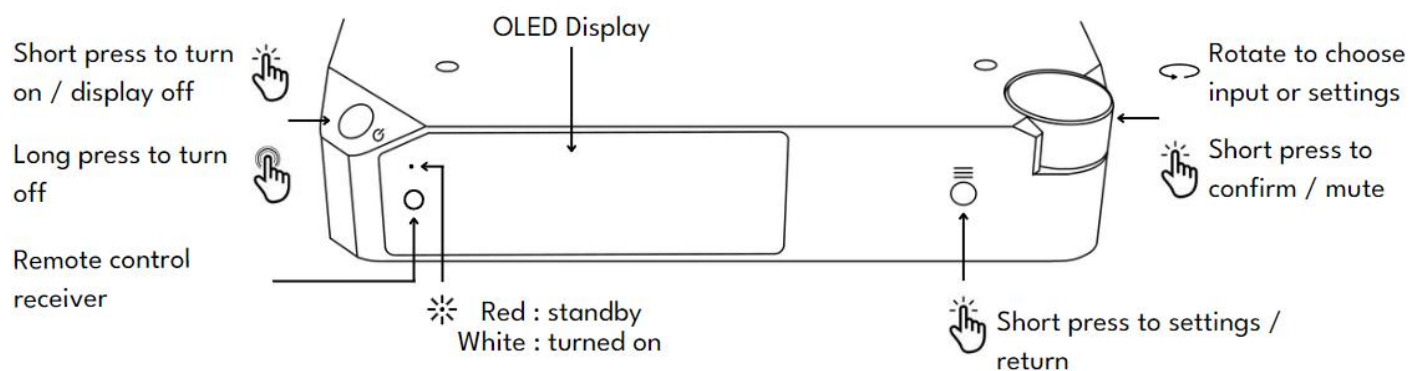
Turn on the device and ready to rock and roll!



2. Basics About The DAC

2.1. The Front Panel

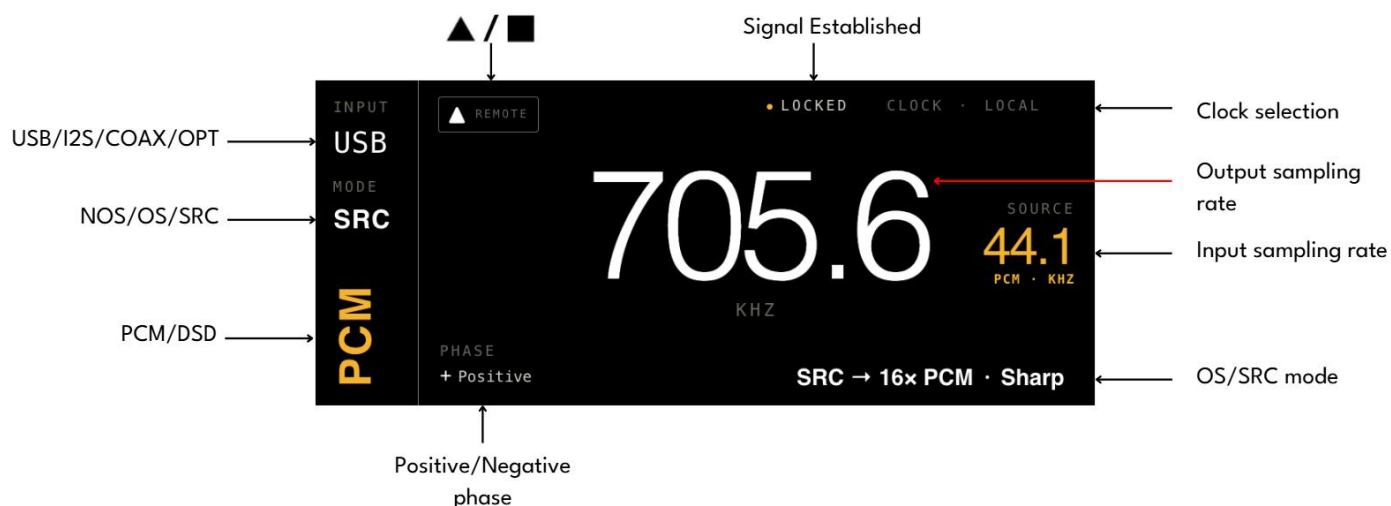
All the information and controls can be accessed using the front panel of the DAC. The controls on the front panel are similar to those of the IR remote control, providing a seamless experience for controlling the device.



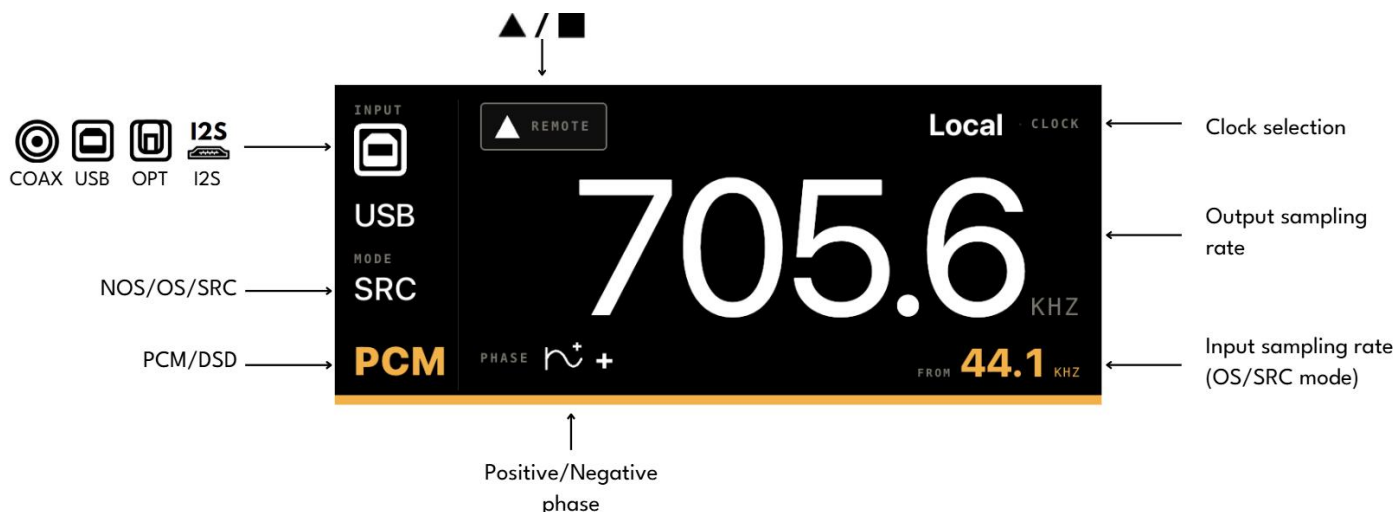
2.2. The OLED Display

Experience the user-friendly LCD display, boasting a crisp 960 x 400 resolution. Its intuitive interface offers seamless navigation and easy access to settings, providing unparalleled convenience. This DAC allows use to select your preferred UI. Two options are available The Rich UI or Simple UI. Please refer to the Display setting for more info.

Rich UI for Main Page

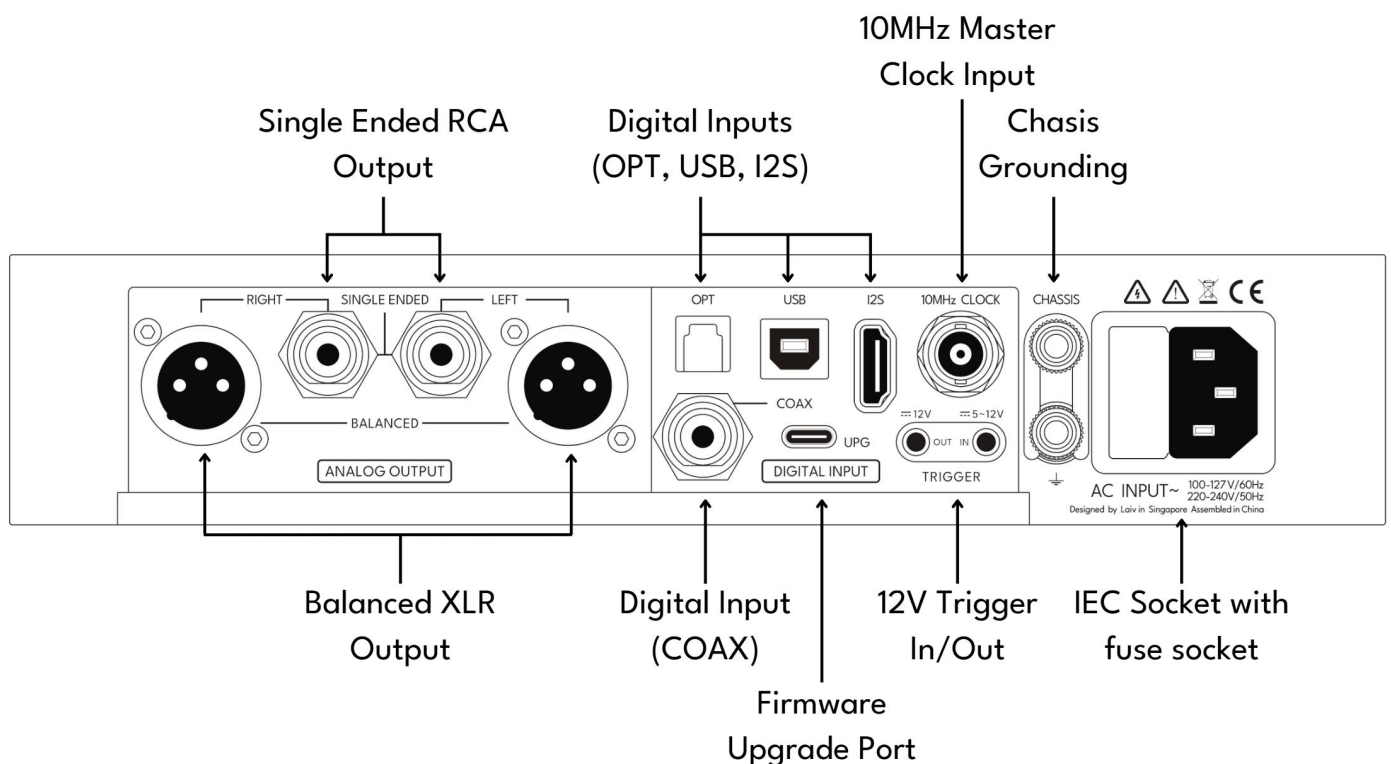


Simple UI for Main Page

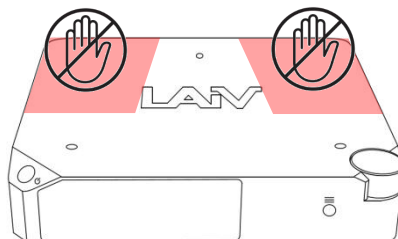


2.3. The Rear Panel

The rear panel of the DAC features three distinct sections. Positioned on the far right is the IEC inlet, providing power to the device, accompanied by a grounding connection for the chassis ensuring optimal performance. Moving towards the center, you will find the direct 10MHz master clock input for pairing with external clock for precision timing. Below the clock input are the 12V trigger input and output, which allow the DAC to be integrated with other compatible devices for convenient power control. Next, you will find the digital inputs, including USB, OPT (optical), COAX (coaxial), and I²S, providing versatile connectivity for a variety of digital audio sources. A USB Type-C port is also provided for future firmware updates. Finally, on the left side, are the analog outputs, comprising both single-ended and balanced outputs, allowing you to seamlessly connect the DAC to your amplifiers or other audio equipment for exceptional sound reproduction.



A three spikes design is used, so avoid pressing the two top areas shown below to prevent unstable placement that may caused damage.

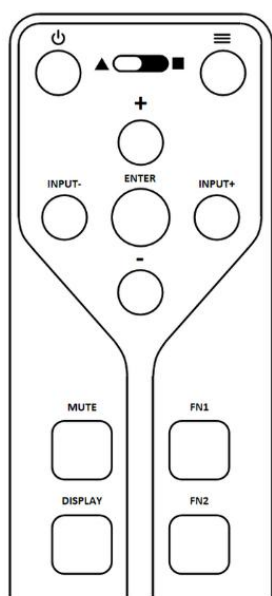


Q: Can I connect both outputs simultaneously?

A: Yes, you can connect both XLR and RCA outputs concurrently.

2.4. Remote Control

Introducing our remote control, meticulously crafted with simplicity in mind. Featuring easily accessible keys for common functions, navigating your device has never been smoother. With configurable function keys for quick access to your preferred settings, personalizing your experience is effortless. What sets our remote apart is its versatility— with just a simple switch, a single remote can seamlessly control two products in our lineup, offering unparalleled convenience and efficiency.



Power : Turn on or off

Menu : Enter or exit the settings menu

▲ / ■ : Select device shape

+ / - : Select settings

INPUT+/- : Select inputs or settings menu

ENTER : Confirm settings

MUTE : Mute on or off

DISPLAY : Display on or off

FN1/2 : Function Key 1 and 2



Q: Why is my remote control not working out of the box?

A: The battery is not included due to shipping limitations. Please ensure you insert a battery CR2032 before attempting to use it.



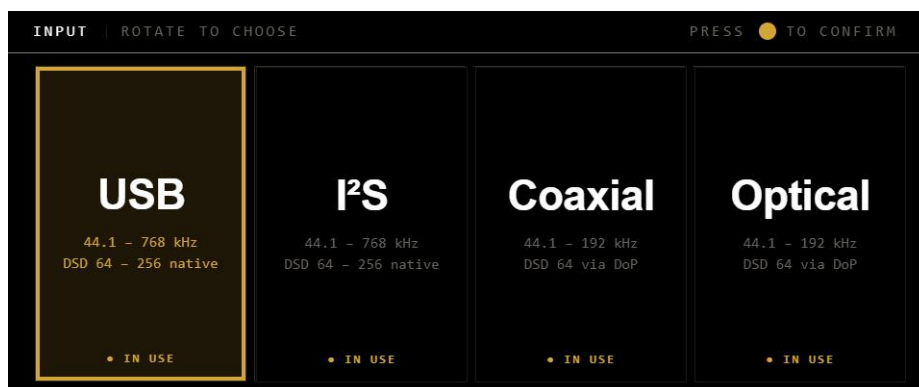
Q: Why is my remote control still not working after I inserted the battery?

A: Please double-check that the shape of the device on the remote control matches the shape of the DAC. It will not work if they don't match.

3. Settings For The DAC

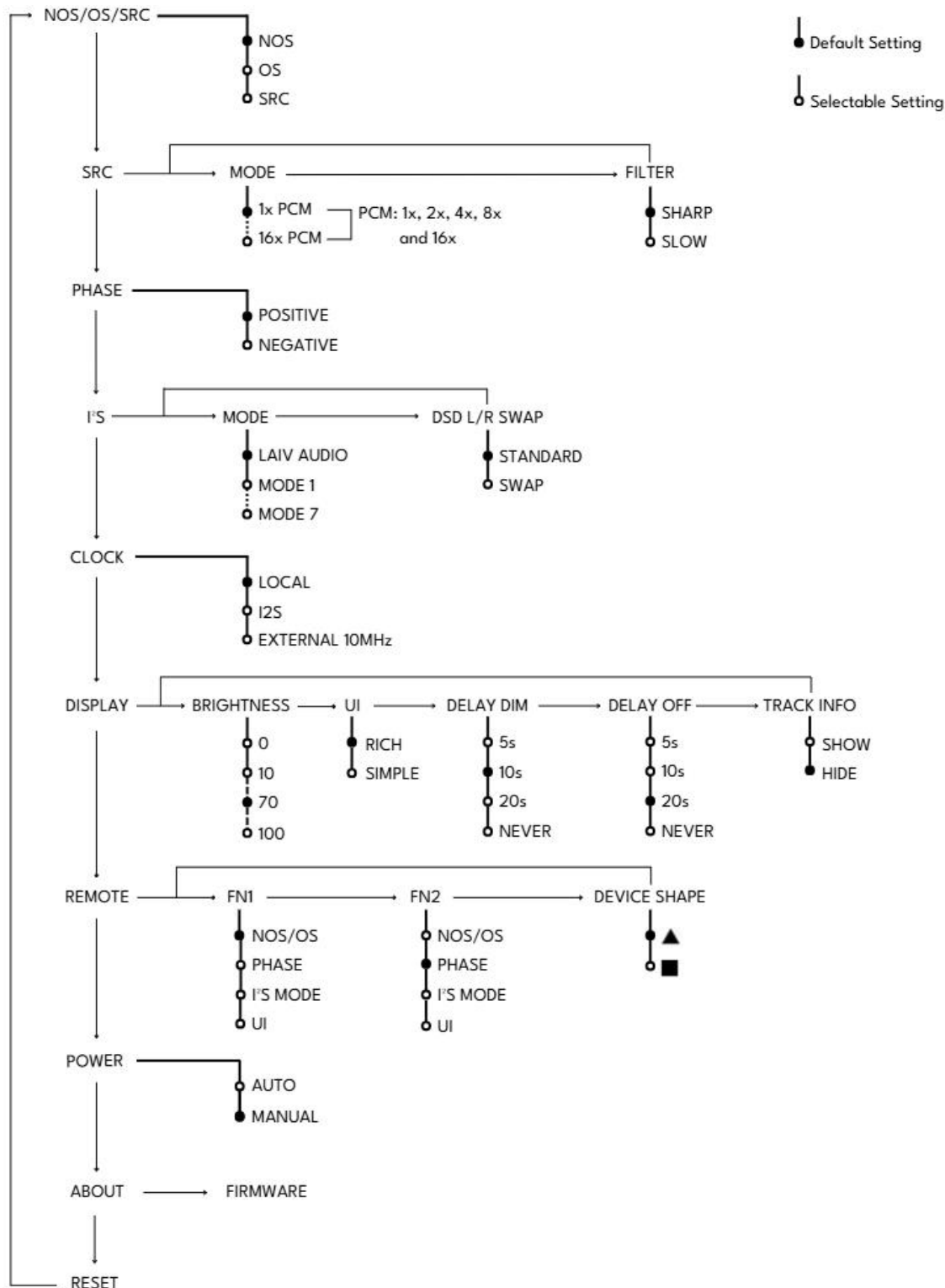
3.1. Selecting Input Sources

The DAC offer four distinct inputs, each catering to different connectivity needs. Whether it's USB, coaxial, optical, or I²S, you have the flexibility to choose the input that suits your setup best. To switch between inputs, simply turn the dial located on the right side of the DAC. The display will indicate the currently selected input; continuing to turn allows you to navigate to other options as needed. Once the desired input is displayed, pressing the dial confirms the selection and returns users to the main page for uninterrupted audio enjoyment.



3.2. Settings Menu

Our settings menu serves as the central hub for configuring all aspects of your DAC experience. Easily accessible via the menu button on the front panel or through the convenience of the remote control, this intuitive interface puts control at your fingertips. Whether adjusting audio preferences, fine-tuning connectivity options, or customizing display settings, our settings menu provides seamless navigation and effortless customization to tailor your audio experience to perfection.

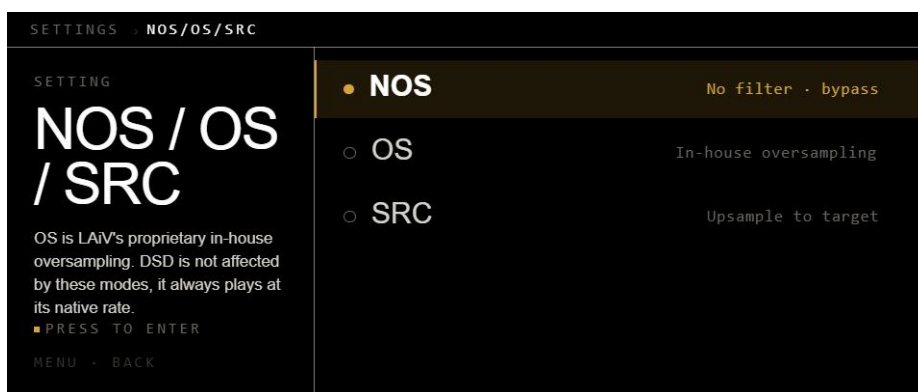


3.3. NOS/OS/SRC Settings

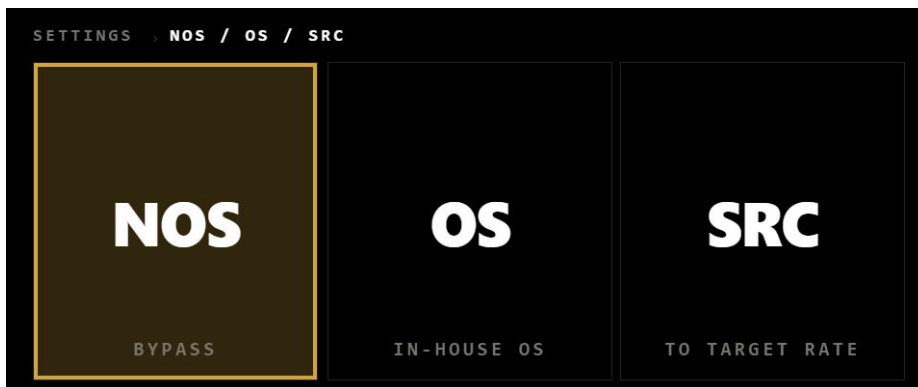
The DAC is a versatile audio solution designed to elevate your listening experience. With Harmony DAC, you not only have the flexibility to choose between Non-oversampling and oversampling modes but also the SRC.

Whether you prefer the purity of Non-oversampling, enhanced dynamics of oversampling or the specific sampling rate through the SRC, the DAC empowers you to customize your listening experience. Simply select your preferred mode and immerse yourself in the world of versatile sound.

Rich UI for NOS/OS/SRC



Simple UI for NOS/OS/SRC

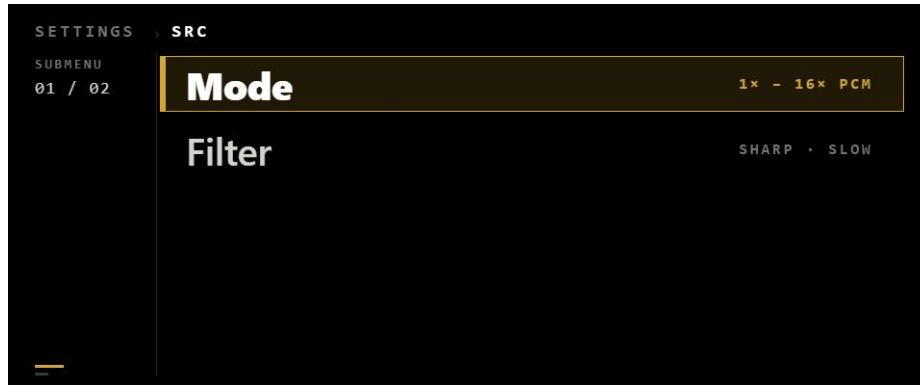


Q: I am using OS or SRC mode, but why is my DSD input is not being oversampled?

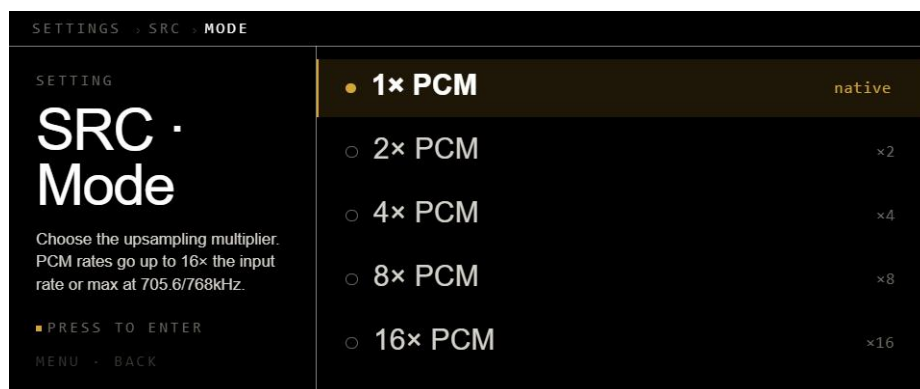
A: OS/SRC has no effect on DSD, so your DSD input is not being oversampled.

3.4. SRC Settings

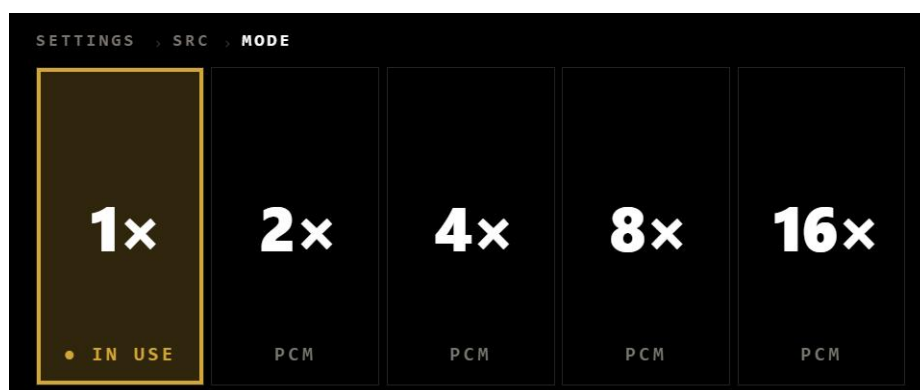
The SRC setting allows you to further customize your preferred sampling rate output, and filter by ensuring the unique listening experience for you. Whether you're seeking enhanced clarity or a warmer sound signature, DAC puts the power of choice in your hands.



Rich UI for SRC Mode

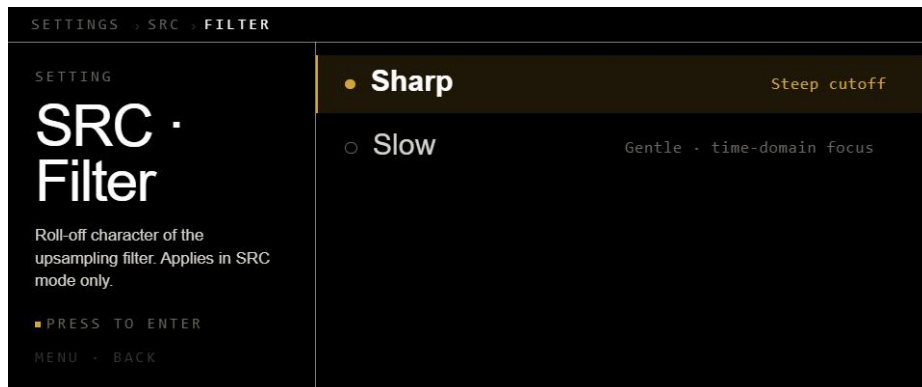


Simple UI for SRC Mode

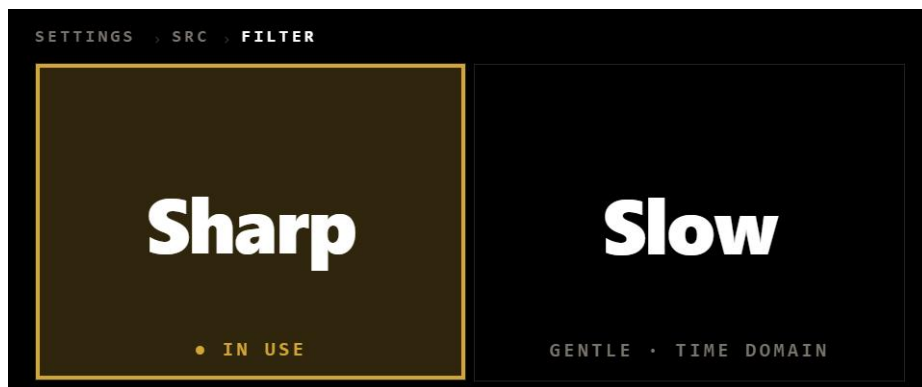


Furthermore, choose the filter that suit your listening. The digital filter which adjust how the audio signal is reconstructed from digital data. This setting is highly subjective, depending on your music style.

Rich UI for SRC Filter



Simple UI for SRC Filter



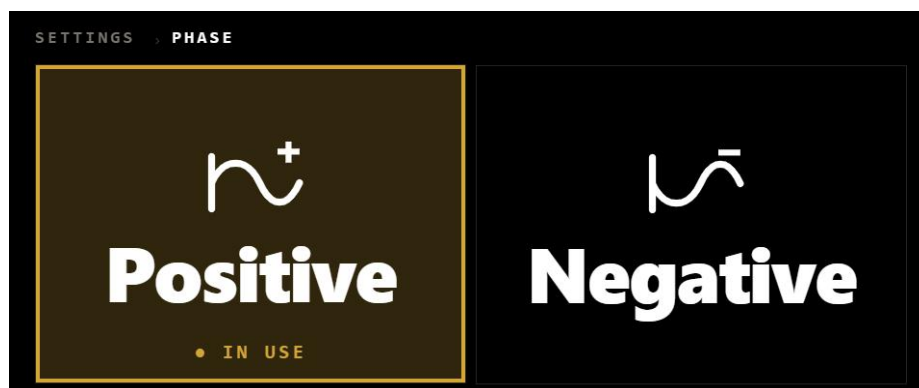
3.5. Phase Mode Settings

The phase mode selection allows you to further customize your audio output, ensuring that every aspect of your listening experience meets your unique preferences. This results in a fuller, clearer, and more cohesive sound, particularly in the bass frequencies.

Rich UI for Phase



Simple UI for Phase

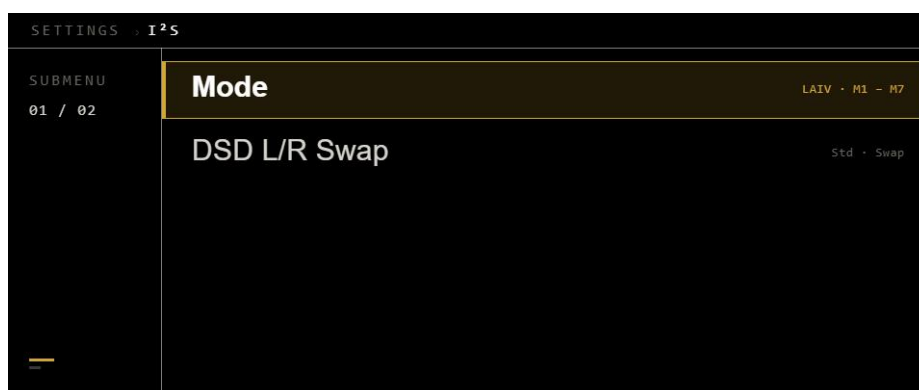


3.6. I²S Settings

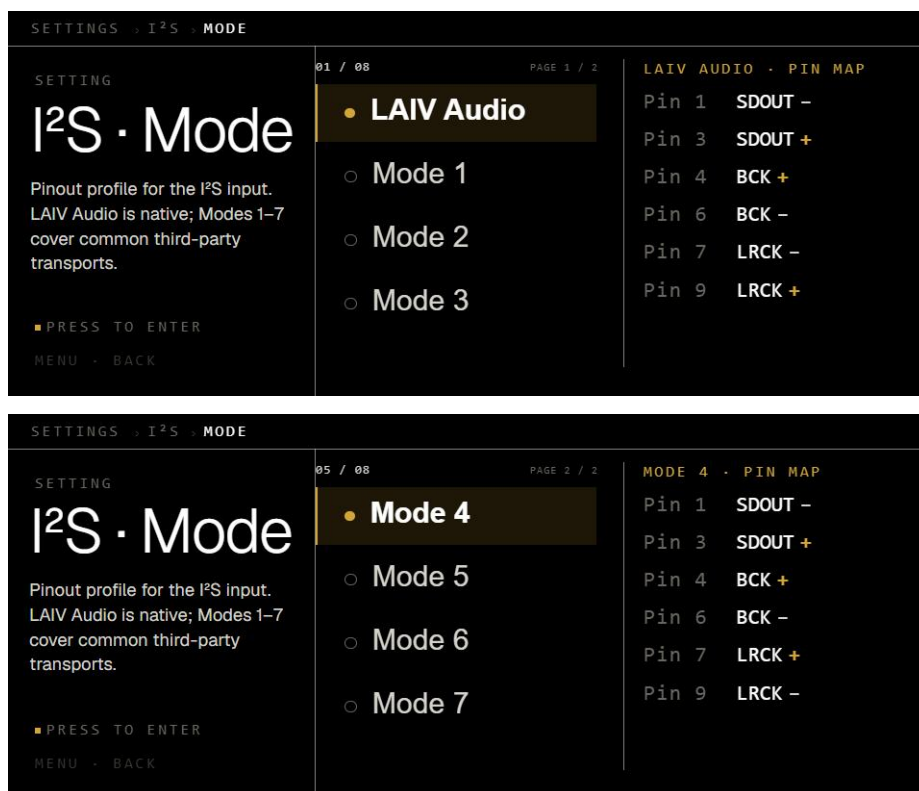
Our I²S mode featuring a total of eight distinct modes, with our signature **Laiv Audio Mode** leading the pack. Designed in-house for optimal performance, Laiv Audio Mode ensures seamless compatibility and enhanced functionality when connecting Laiv products via I²S. Thanks to intelligent auto-configuration, You can enjoy effortless setup, as your Laiv devices automatically sync to the most suitable I²S mode. This streamlined process ensures unparalleled convenience, exclusive to Laiv products, allowing you to focus on enjoying your audio experience without the hassle of manual adjustments.

	Laiv Audio	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5	Mode 6	Mode 7
Pin 1	SDOUT-	SDOUT+	SDOUT-	SDOUT+	SDOUT-	SDOUT+	SDOUT-	SDOUT+
Pin 3	SDOUT+	SDOUT-	SDOUT+	SDOUT-	SDOUT+	SDOUT-	SDOUT+	SDOUT-
Pin 4	BCK+	BCK+	BCK-	BCK-	BCK+	BCK+	BCK-	BCK-
Pin 6	BCK-	BCK-	BCK+	BCK+	BCK-	BCK-	BCK+	BCK+
Pin 7	LRCK-	LRCK-	LRCK-	LRCK-	LRCK+	LRCK+	LRCK+	LRCK+
Pin 9	LRCK+	LRCK+	LRCK+	LRCK+	LRCK-	LRCK-	LRCK-	LRCK-

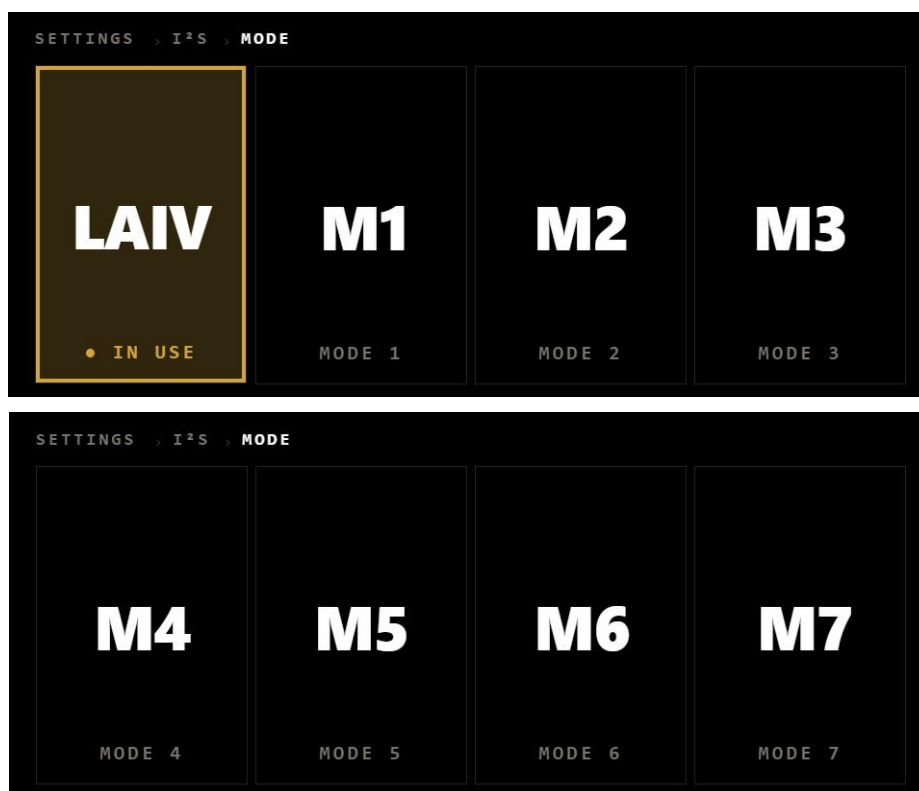
Through the I²S setting, user can choose the I²S mode and use the DSD Swap function if needed to correct the left and right channel for DSD playback.



Rich UI for I²S Mode



Simple UI for I²S Mode





Please lower the volume of your system to the lowest audible level before selecting the I²S mode to prevent damage to your loudspeakers.

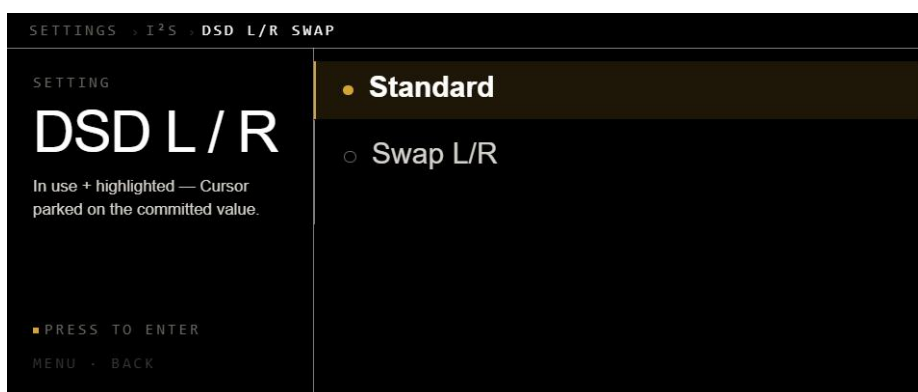


Q: I have tried all the I²S modes, but none of them are working well with my system. What can I do?

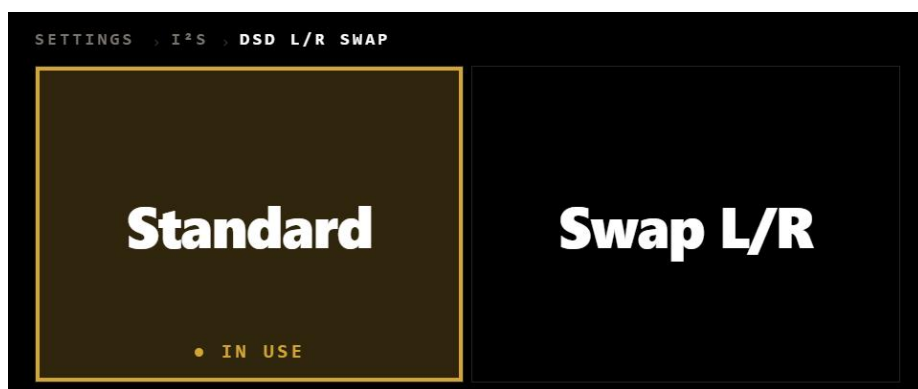
A: Unfortunately, there are no industrial standards for I²S connectivity, so it's possible that none of the modes are compatible with your system.

DSD signals over I²S are not standardized across different manufacturers. As a result, DSD channels may be unintentionally swapped due to variations in internal wiring configurations. This feature allows you to correct such discrepancies by inverting the DSD data lines, ensuring proper left/right channel alignment.

Rich UI for DSD L/R Swap



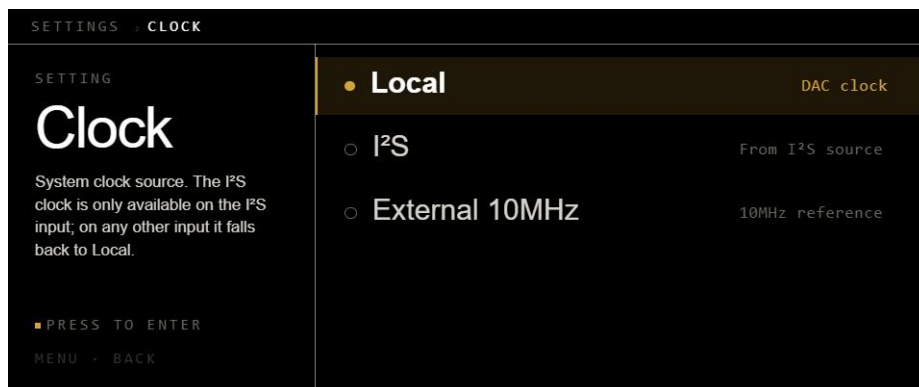
Simple UI for DSD L/R Swap



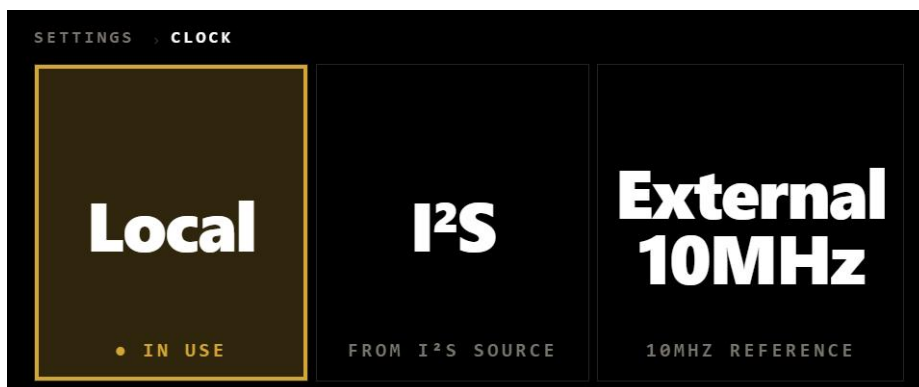
3.7. Clock Settings

The Clock setting allows you to select the clock source used by the DAC. The Local Clock is the clock built into the DAC. When an external 10 MHz clock is connected, you can choose between the Local Clock or External 10 MHz Clock. When using the I²S input, you can also select the I²S Clock as the clock source, in addition to the Local Clock and 10 MHz Clock.

Rich UI for Clock



Simple UI for Clock



Sources that are not currently detected appear dimmed with a "Not detected" hint, and the cursor skips over them. The active clock source is always shown on the Now Playing screen.



When selected 'I²S' or 'External 10MHz' for the clock setting, the DAC will automatically switch to the local clock if the I²S or external clock becomes unstable or incompatible, and switch back once it stabilizes.

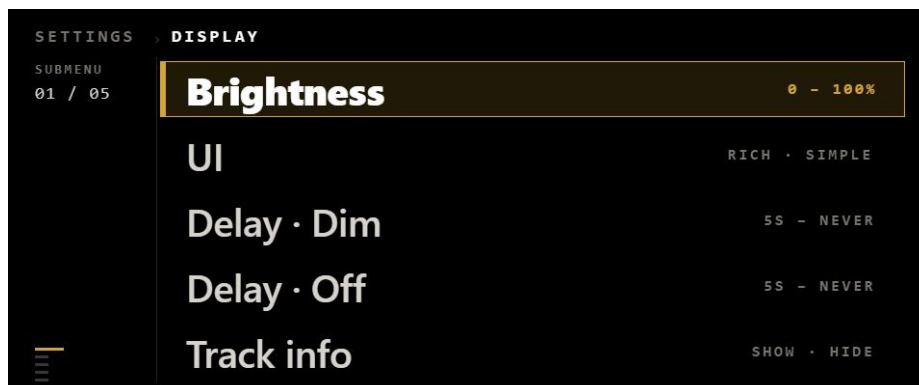


Q: Why did the 'I²S CLK' icon on the main display suddenly disappear?

A: The incoming I²S clock becomes unstable or incompatible, prompting the DAC to seamlessly revert to utilizing the local DAC clock.

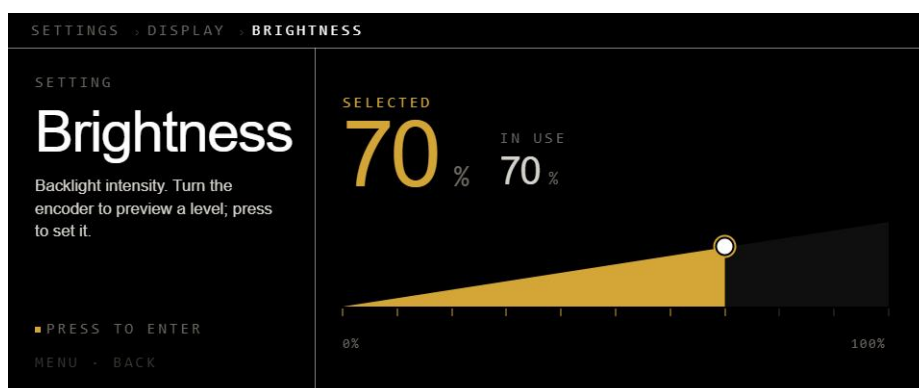
3.8. Display Settings

The display brightness, UI and delay settings feature provide you with full control over your viewing experience. With the display brightness setting, you can adjust the brightness of the display to your preference, ensuring optimal visibility in any lighting condition.

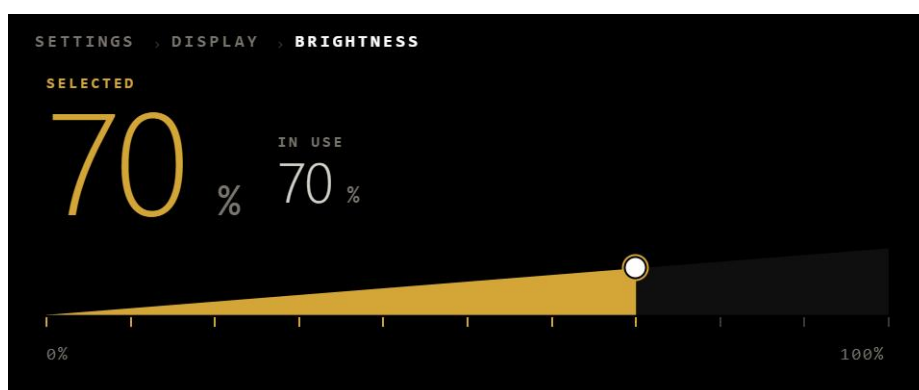


You can choose the brightness from 10% to 100% in 10% interval, allowing you to optimize visibility based on your environment. A lower brightness setting helps reduce eye strain in dimly lit spaces, while a higher setting ensures better readability in brighter conditions.

Rich UI for Brightness

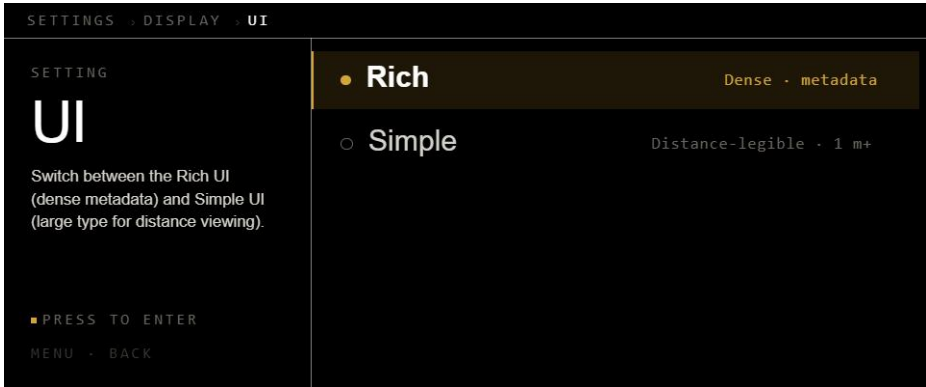


Simple UI for Brightness

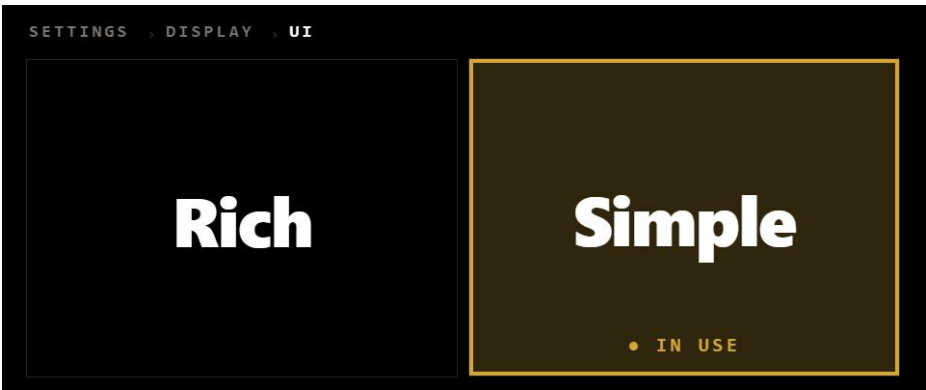


In addition, you can choose your preferred UI. Select Simple UI for a straightforward layout with larger text, or Rich UI to display additional information on the screen.

Rich UI for UI Selection

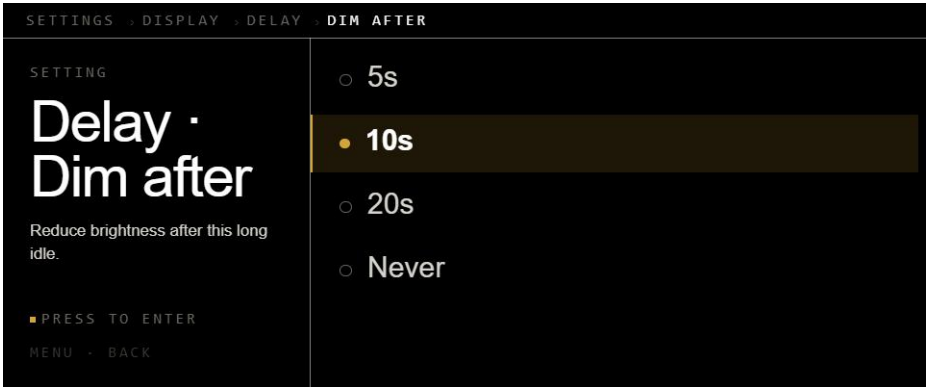


Simple UI for UI Selection

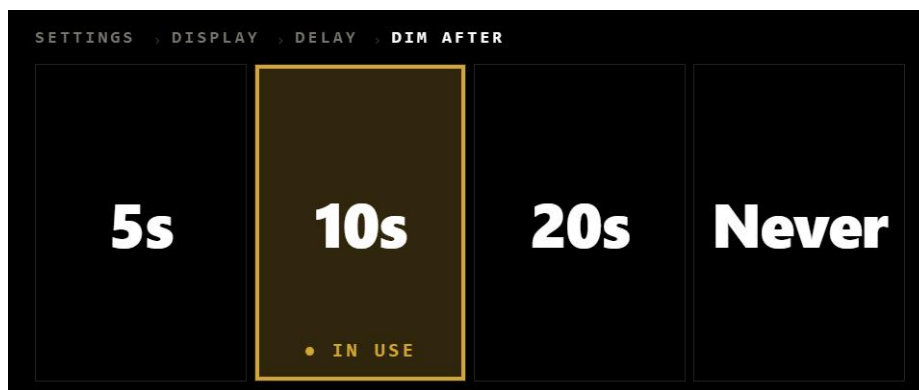


Additionally, our delay function allows the display to automatically dim and turn off after a period of inactivity, conserving energy and minimizing distractions. The delay dim function reduces the brightness to LOW after the selected time period. If you prefer the display to remain fully lit at all times, you can select ‘Never’, ensuring continuous visibility. This flexibility allows you to optimize your viewing experience based on your environment and usage preferences.

Rich UI for Display Dim After

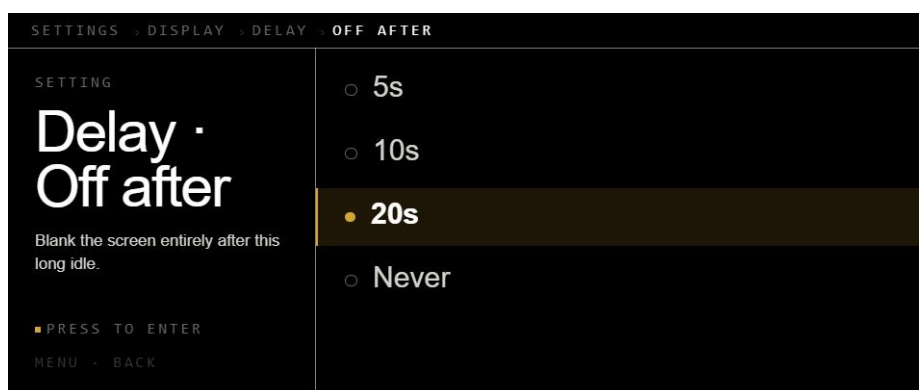


Simple UI for Display Dim After

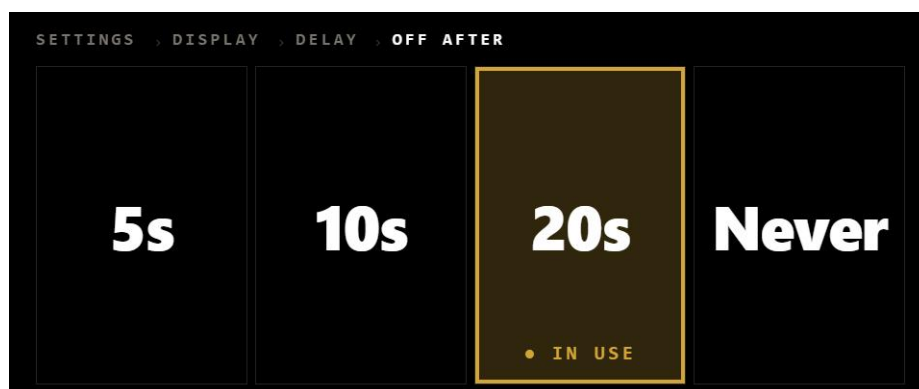


If you prefer the display to remain on at all times, you can select 'Never', ensuring continuous visibility. This customization allows you to tailor the screen behavior to your specific needs, whether for power efficiency or uninterrupted display.

Rich UI for Display Off After



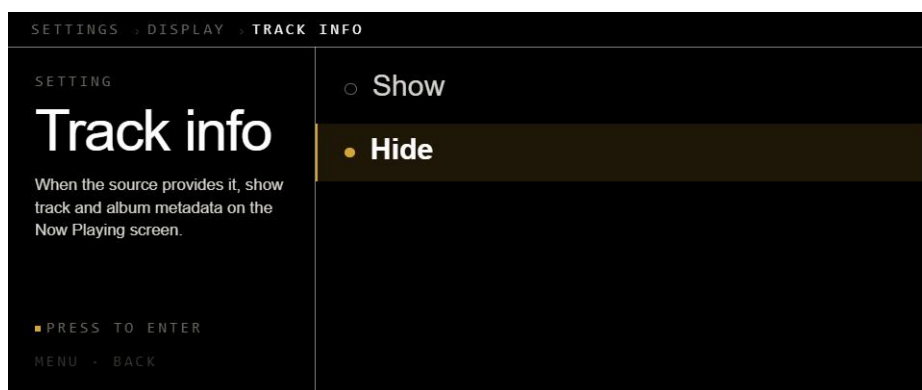
Simple UI for Display Off After



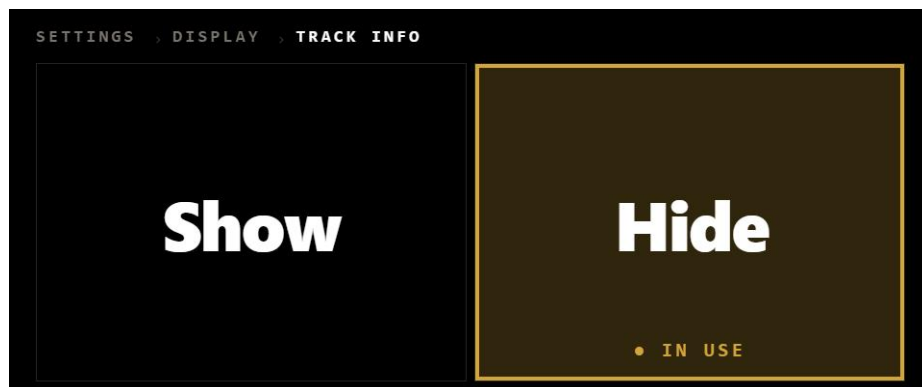
Both delay dim and delay off can be used simultaneously, with the delay off setting taking precedence over the delay dim function. With the combination of both settings, you can reduce the brightness of the display before turning off the display completely.

Experience the seamless integration of our display feature, designed to enhance your audio experience. When a compatible CD track signal is detected through the SPDIF input, our system automatically retrieves essential track information such as Track ID and Track Play Time. This ensures that you have instant access to valuable details about the music you're enjoying, without the need for manual input or additional effort. Whether you're immersed in your favorite album or exploring new tracks, our display feature provides real-time information, empowering you to fully appreciate and engage with your music collection.

Rich UI for Display Track Info

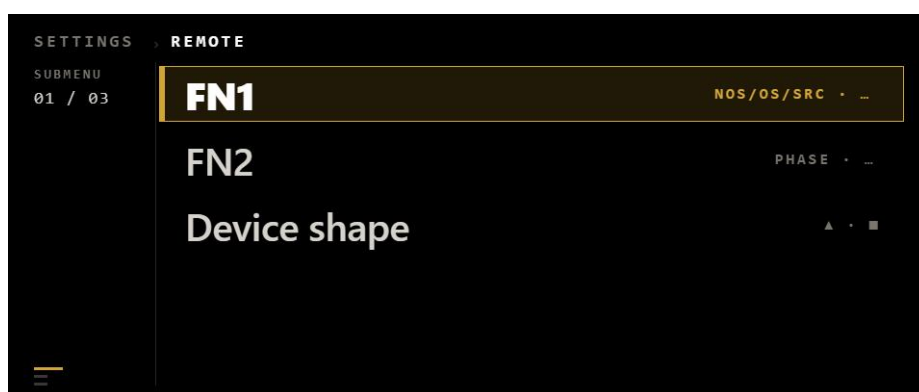


Simple UI for Display Track Info

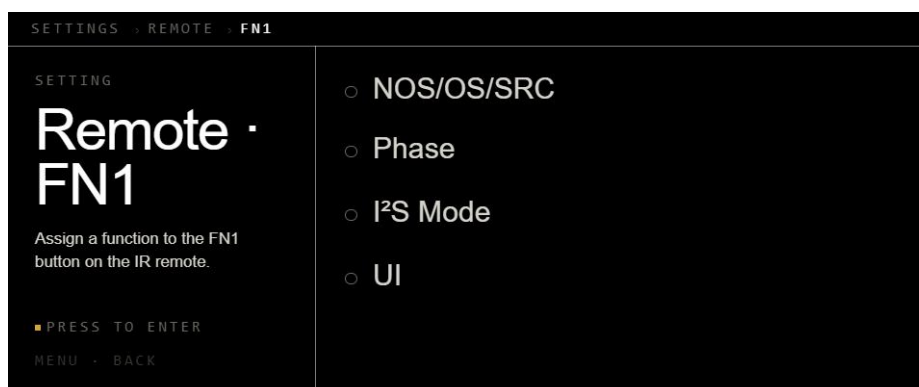


3.9. Remote Control Settings

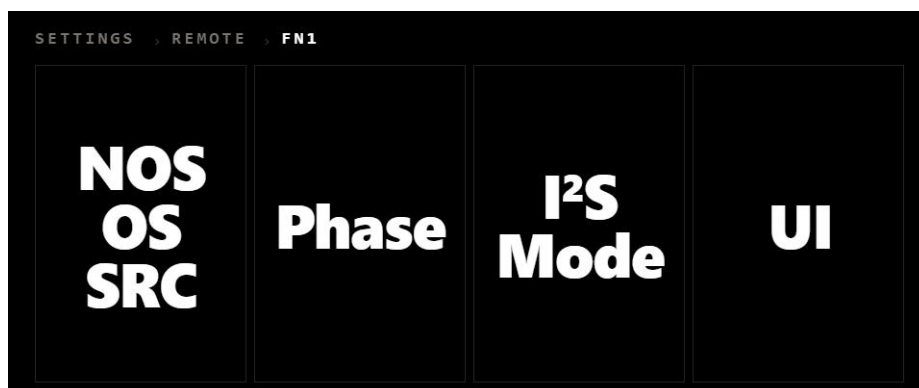
The remote control for our DAC offers convenient customization options to enhance your user experience. With two function keys, FN1 and FN2, you can assign one of four settings to each key: NOS/OS Mode, Phase Mode, I²S mode and the selection of UI, allowing for quick access without navigating through the settings menu. This streamlined approach ensures that frequently used functions are just a button press away.



Rich UI for Remote FN1 / FN2

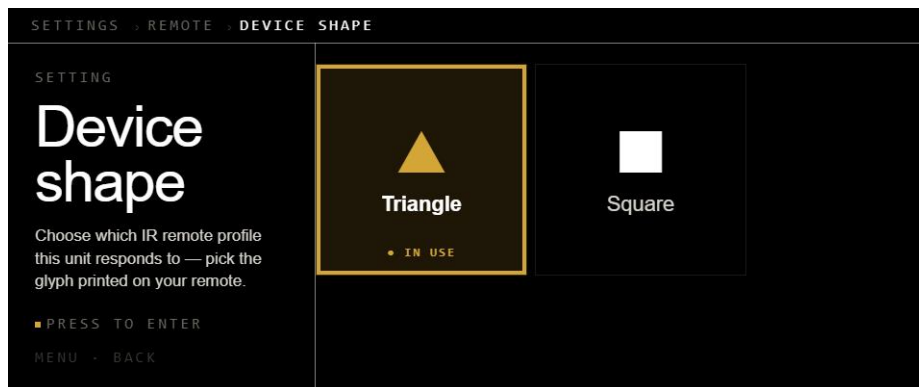


Simple UI for Remote FN1 / FN2

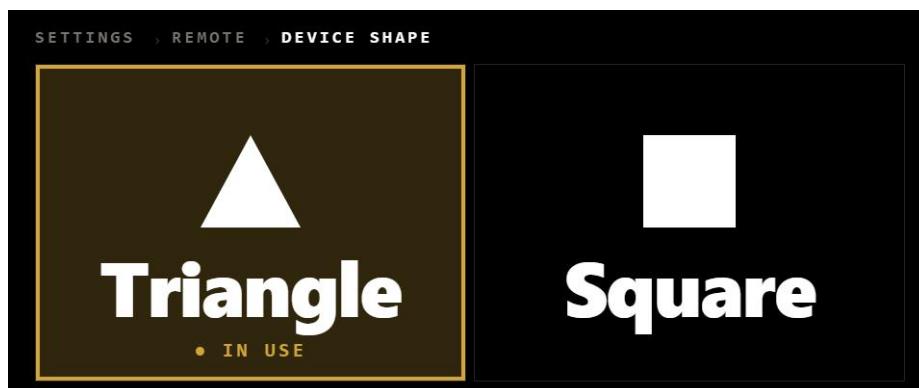


Additionally, users have the opportunity to configure one of two device shapes, triangle or square, ensuring no repeated shapes for your devices. This ensures that your remote control can correctly control the devices without confusion.

Rich UI for Device Shape



Simple UI for Device Shape



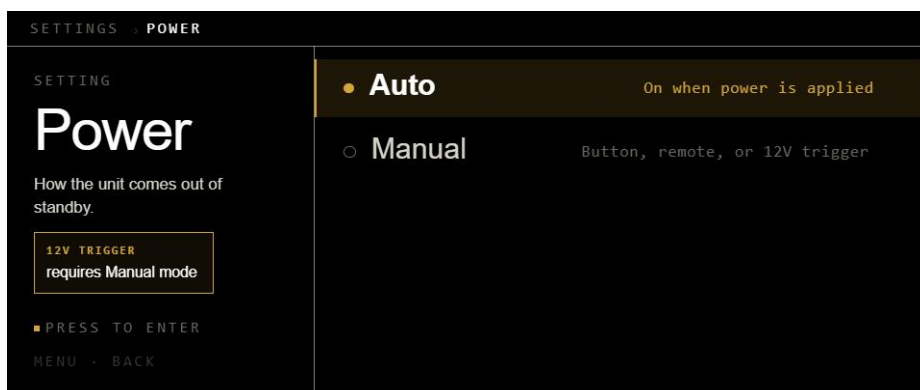
Q: I don't like the triangle. Can I use the square shape for my DAC instead?

A: Yes, you can change the shape of your DAC to square, but be sure you also change the shape on your remote control too; otherwise it will not work.

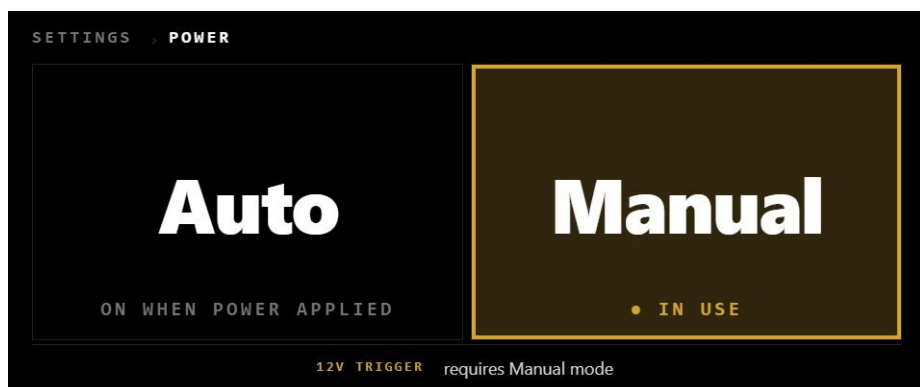
3.10. Auto Power On Settings

The auto power on feature allows you to choose how the DAC powers up. When this feature is enabled, the DAC will automatically power on as soon as it receives power from an external source. If the feature is disabled, the DAC will remain off when power is supplied, and you will need to press the power button to turn it on manually.

Rich UI for Auto Power On



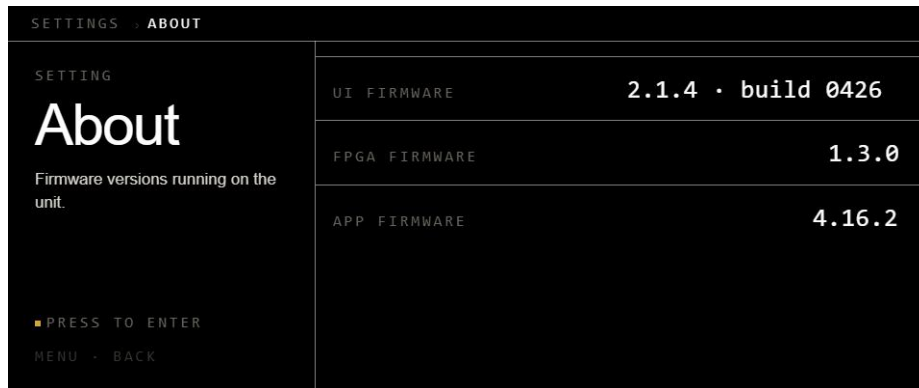
Simple UI for Auto Power On



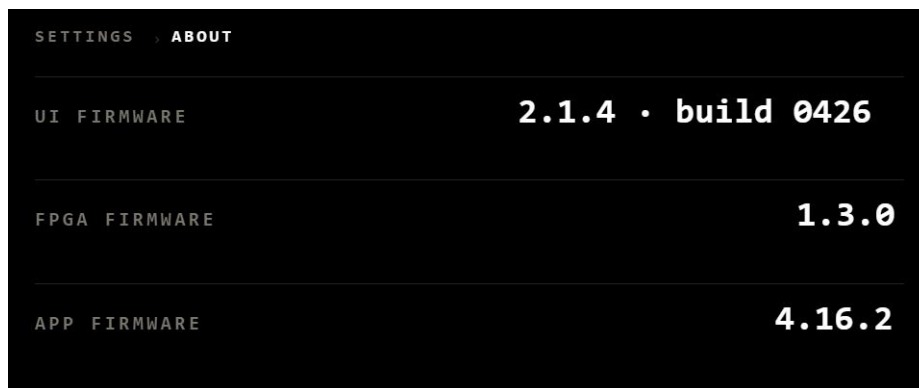
3.11. “About” In The Settings

The “About” settings provide essential information about the device, including the UI, FPGA and APP firmware version. By accessing this menu, users can quickly ascertain the current firmware version installed on their device, ensuring they are up to date with the latest enhancements and features.

Rich UI for About



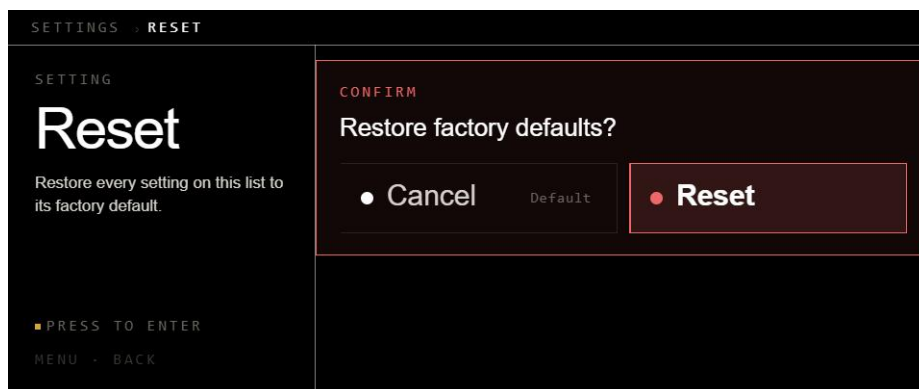
Simple UI for About



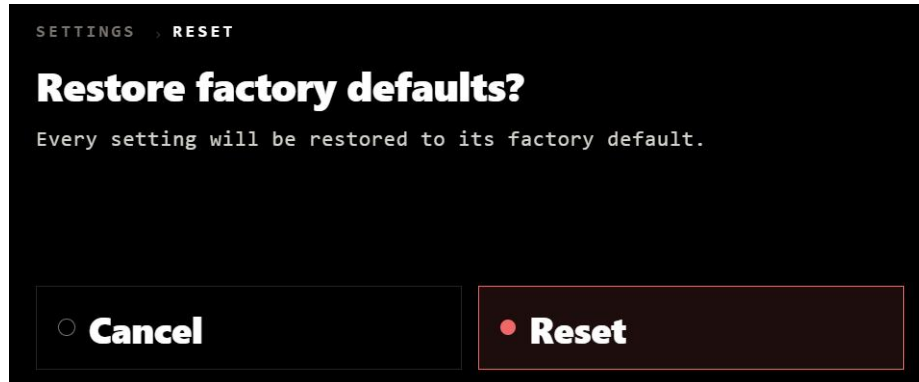
3.12. Factory Reset

The factory reset function provides users with a convenient way to restore their DAC to its original factory settings, effectively wiping any custom configurations or adjustments made since its initial setup. This feature can be particularly useful in troubleshooting scenarios or when users wish to revert to the device's default settings for any reason. By initiating a factory reset, users can ensure that their DAC returns to a standardized state, eliminating any potential issues caused by misconfigurations or unwanted changes. This streamlined process simplifies maintenance and troubleshooting, enabling users to quickly resolve any issues and restore optimal performance to their audio setup with ease.

Rich UI for Reset



Simple UI for Reset





4. Technical Specifications

Finish ¹	Black Anodized Aluminium Silver Anodized Aluminium
Size and Weight ²	Weight: 4.3kg Width: 255 mm Depth: 250 mm (Included connectors) Height: 50 mm Spike: 25 mm

Display	 960 x 400 TFT colour LCD
Chip	Intel® Altera® Cyclone® FPGA
Clock	CCHD-957 FEMTO Clock Ultra-Low Phase Noise Oscillator
Digital Inputs	1 x USB 1 x Optical 1 x Coaxial 1 x I²S
Analog Outputs	1 x XLR, maximum at 4.15Vrms, <50 Ω 1 x RCA, maximum at 2.08Vrms, <25 Ω
Supported Formats (Input dependent)	USB - PCM: 44.1kHz - 768kHz DSD: DSD64 - DSD256 Optical - PCM: 44.1kHz - 192kHz DSD: DSD64 (DoP) Coaxial - PCM: 44.1kHz - 192kHz DSD: DSD64 (DoP) I2S - PCM: 44.1kHz - 768kHz DSD: DSD64 - DSD256
Frequency Response	20Hz – 20kHz, within ± 0.25 dB ³
THD+N	0.0035% ³
Signal to Noise Ratio (SNR)	>125dB ³
Dynamic Range	>110dB ³
Crosstalk	<-120dB ³

Features	Modular design NOS / OS / SRC Mode XLR and RCA outputs concurrently External clock supported Isolated input and output Colour Display with two options of UI 12V trigger in and out
Controls	Remote control Front panel
Remote Control	Width: 45 mm Depth: 17 mm  Height: 150 mm Weight: 157g
Power	100 - 127 VAC / 220 - 240 VAC, 50/60Hz, 14.7W operating, 2.5W standby
Fuse	2A, Slow-blow, 5 x 20mm.
In the Box	Welcome card with Certificate of Authenticity Harmony DAC 2 Three spike shoes with alignment card Remote control (Battery CR2032 not included) Power cord Cleaning cloth

1. Colours vary by configuration and manufacturing process.

2. Size and weight vary by configuration and manufacturing process.

3. The specification was evaluated using an Audio Precision APx Analyzer under PCM192kHz, SPDIF input, and balanced XLR output conditions.

5. Warranty and Contact Information

5.1. Warranty Terms

Warranty Period: 24 months from the date of purchase.

What's Covered: Defects in materials and workmanship.

What We'll Do: Repair your product if it has any defects during the warranty period.

How to Get Service:

- Register the warranty of your product within 3 months of the date of purchase at <https://www.laiv.audio/warranty-registration>
- To obtain warranty service, the customer must contact the Company's customer service department at info@laiv.audio.
- Proof of purchase, such as the original purchase receipt and warranty card, may be required.
- The customer may be responsible for shipping the defective Product to the Company's designated service center.

What's Not Covered:

- Import duties or taxes whenever applicable.
- Damage resulting from misuse, abuse, or unauthorized modifications or repairs.
- Normal wear and tear.
- Consumable parts, such as batteries, unless otherwise stated

Limitation of Liability: Our responsibility limited to repairing or replacing the parts.

Refer to the QR or <https://www.laiv.audio/terms-and-conditions#warranty> for the complete warranty terms.



5.2. Contact Information

For any inquiries or support related to this product, please don't hesitate to contact our Customer Support Team:

Email : support@laiv.audio

Website : <https://www.laiv.audio/contact>

We're here to assist you with any questions or concerns you may have regarding the product.