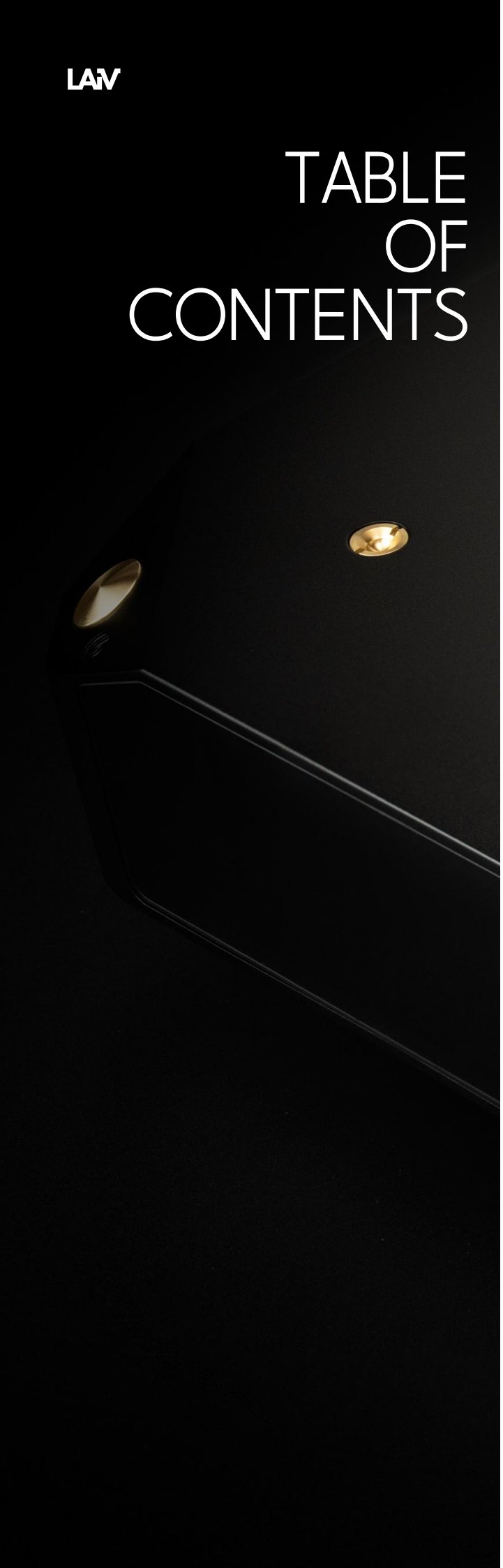
HARMONY DAC | Manual

V1.2

TABLE OF CONTENTS



1. Getting Started 4
   1.1. Introduction 4
   1.2. Safety Instructions 5
   1.3. Quick Start 6
2. Basics About The DAC 7
   2.1. The Front Panel 7
   2.2. The OLED Display 8
   2.3. The Rear Panel 9
   2.4. Remote Control 10
3. Settings For The DAC 11
   3.1. Selecting Input Sources 11
   3.2. Settings Menu 12
   3.3. NOS/OS and Phase Mode 13
   3.4. Remote Control 15
   3.5. Display Brightness and Delay Setting 16
   3.6. I²S Mode 17
   3.7. "About" In The Settings 18
   3.8. Factory Reset 18
4. Special Features 19
   4.1. CD Track Info Over SPDIF 19
   4.2. I²S Clock 20
5. Technical Specifications 21
6. Warranty and Contact Information 24
   6.1. Warranty Terms 24
   6.2. Contact Information 25

1. Getting Started

1.1. Introduction

A warm welcome to you as a cherished member of our audiophile community, where we are dedicated to designing dreams, yours specifically. It is an honor to have you embark on a journey of premium sound quality with our products. Introducing our state-of-the-art DAC, meticulously engineered with a focus on user experience and convenience. Drawing from over a decade of industry experience in engineering and audio, we've seamlessly integrated the best of both worlds to design a DAC that sets new standards in performance and usability.

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!

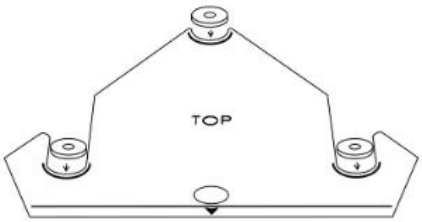
1.3. Quick Start

1 Sit back, relax, and coffee.

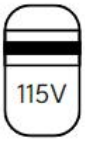
Register
Extended
Warranty

Read
Guide

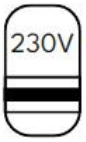
2 Place the alignment card in the desired location and insert the spike shoes into the guiding holes.



3 Confirm the AC input at the bottom of the device.



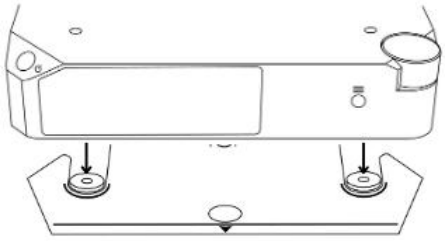
or



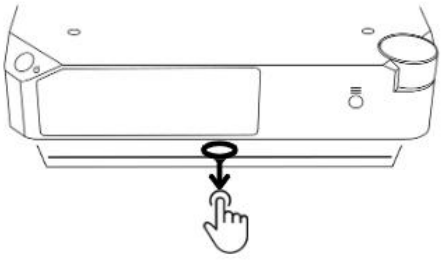
US/CA/JP
100-127VAC

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.



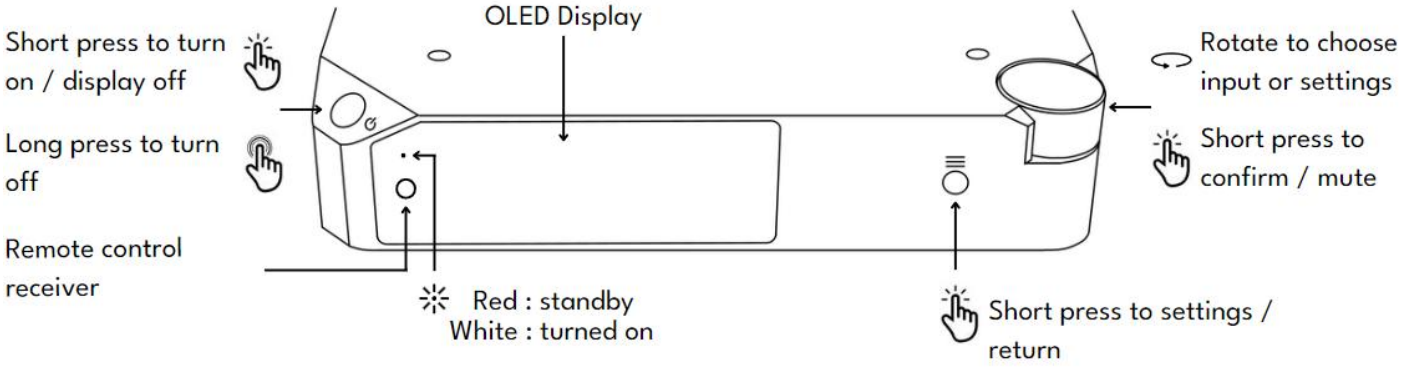
6 Connect all the cables and insert the battery into the remote control.

7 Turn on the device and ready to rock and roll!

2. Basics About The DAC

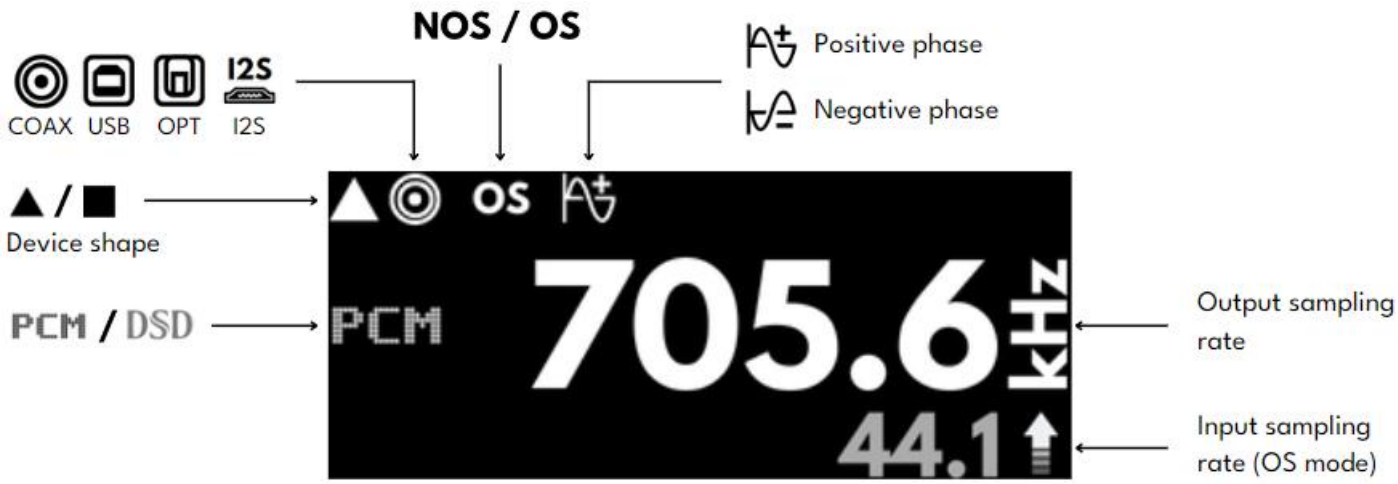
2.1. The Front Panel

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

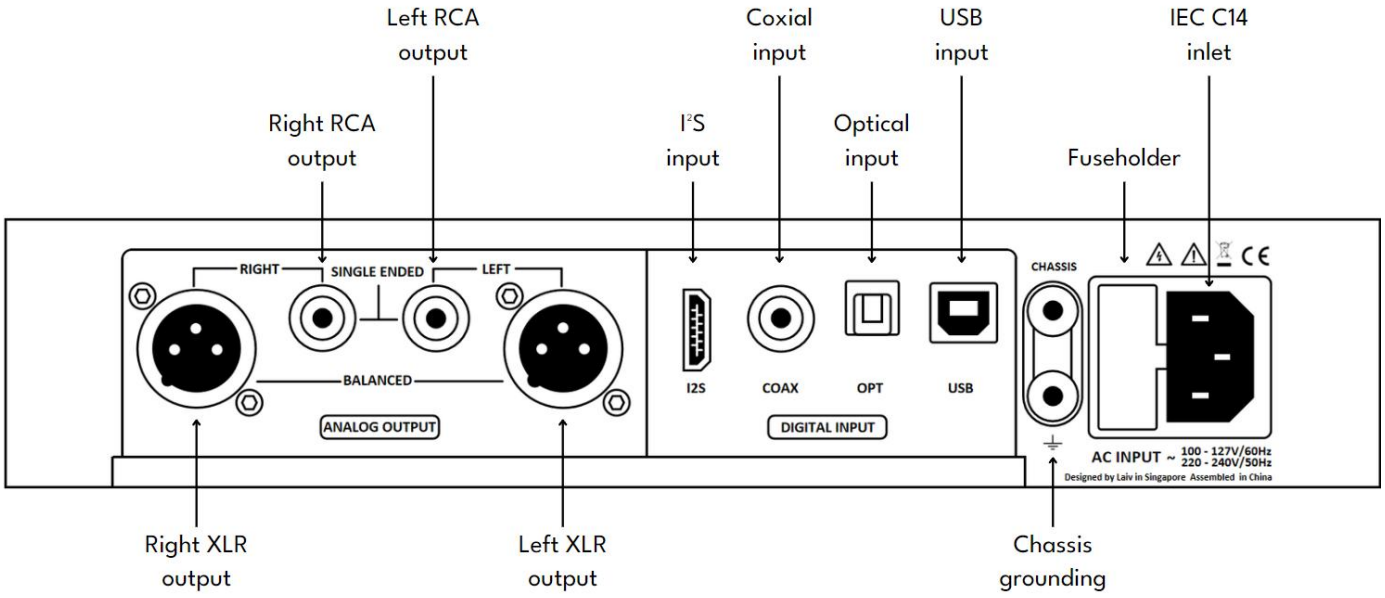
Experience the user-friendly OLED display, boasting a crisp 320 x 132 resolution. Its intuitive interface offers seamless navigation and easy access to settings, providing unparalleled convenience.



Using HIGH brightness and disabling the "delay dim" and "delay off" functions will cause static images to remain on the OLED screen for extended periods, accelerating screen burn-in. To preserve display longevity, we recommend enabling these settings.

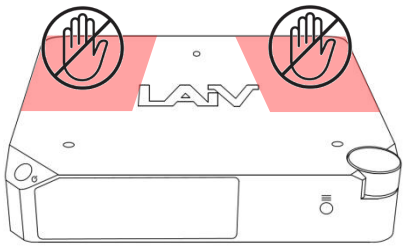
2.3. The Rear Panel

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 array of digital inputs, including USB, OPT (optical), COAX (coaxial), and I²S, offering versatile connectivity options to suit various audio sources. 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.



Please do not connect both RCA outputs and XLR outputs to the amplifiers simultaneously, as this may create an imbalance in signals between the two outputs.

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

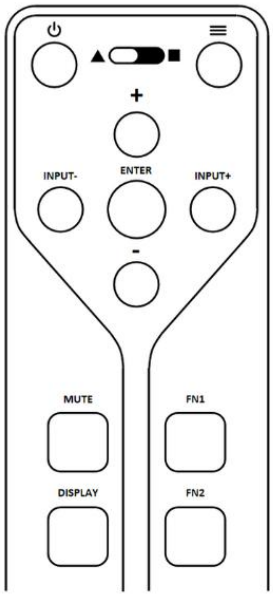


Q: Can I connect multiple inputs simultaneously?

A: Yes, you can connect up to four inputs, with one input allowed for each digital input type.

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.



: Turn on or off

: 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

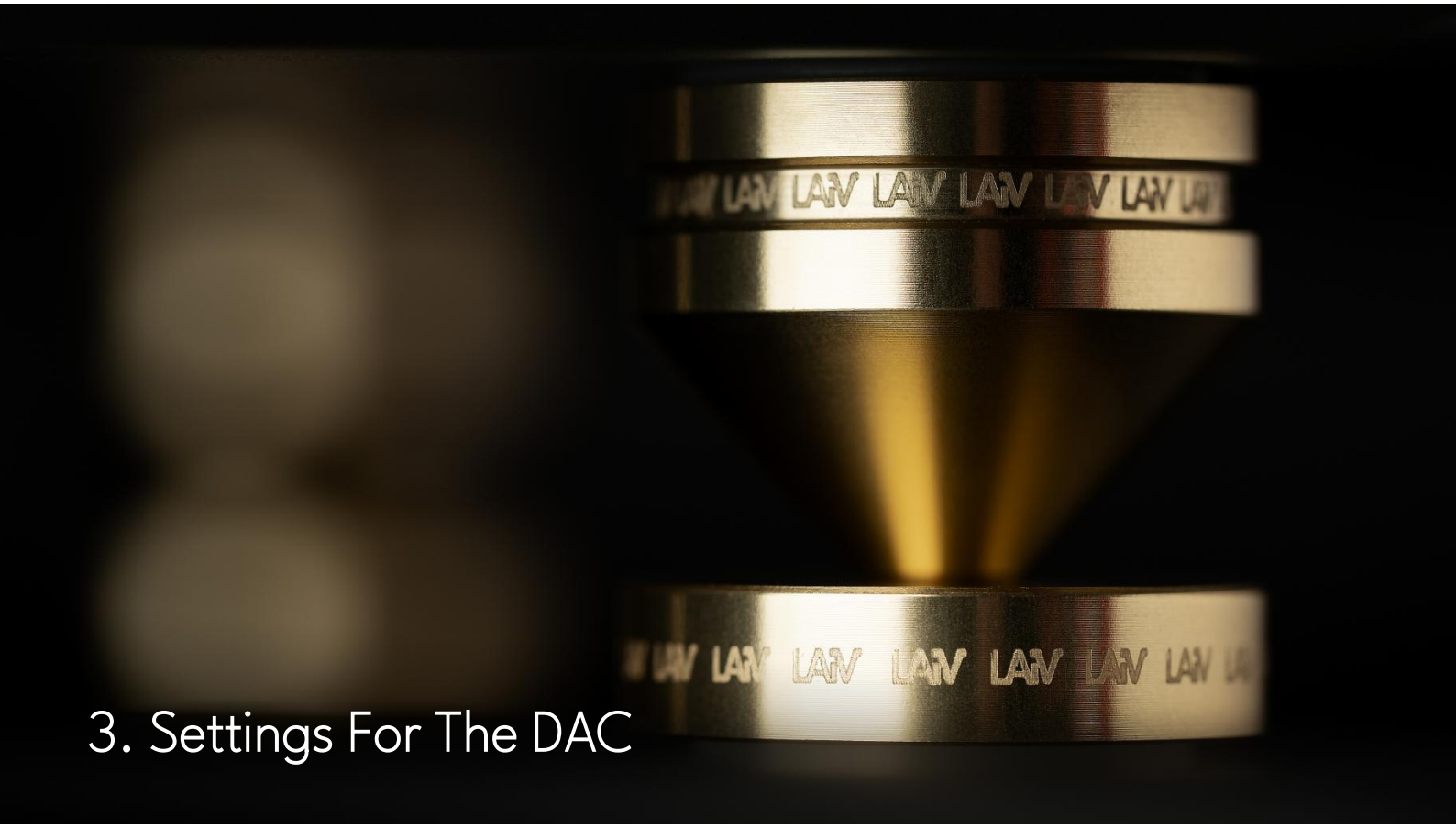
FN1/2 : Function Key 1 and 2

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?

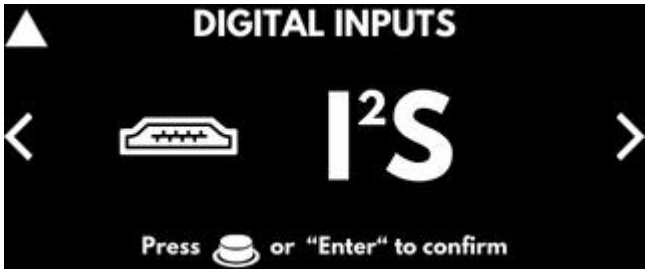
A: Please double-check that the shape of the device on the remote control matches the shape of the DAC. It will not work if they don't match.



3. Settings For The DAC

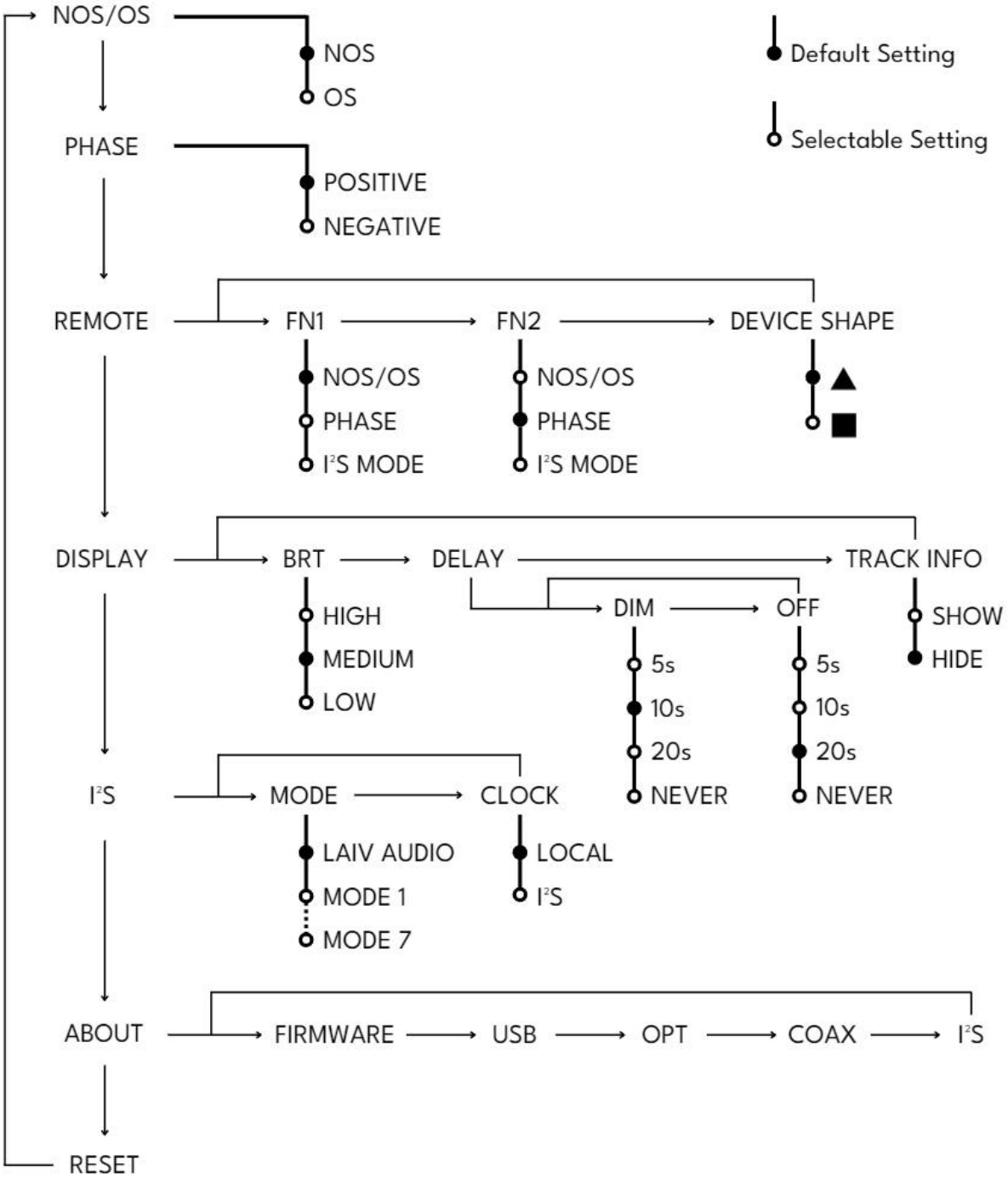
3.1. Selecting Input Sources

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

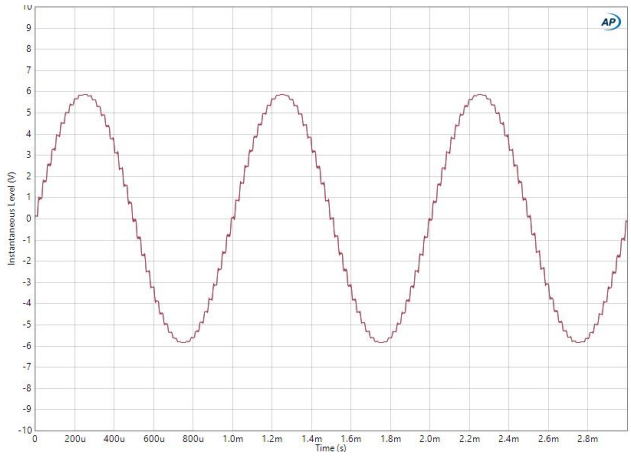
Our settings menu serves as the central hub for configuring all aspects of your DAC experience. Easily accessible via the menu button on the front panel or through the convenience of the remote control, this intuitive interface puts control at your fingertips. Whether adjusting audio preferences, fine-tuning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



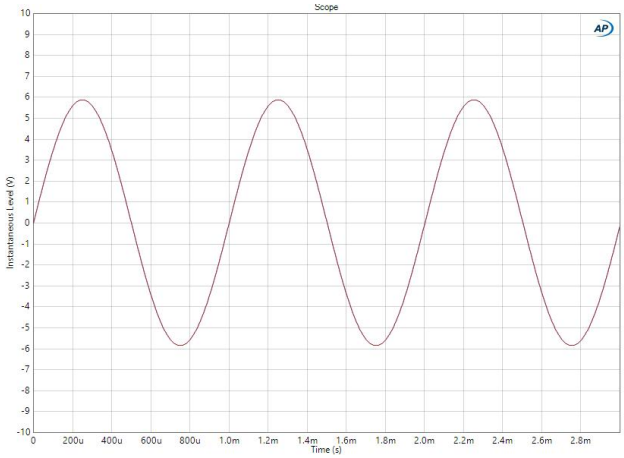
3.3. NOS/OS and Phase Mode

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 freedom to select the phase mode, whether positive or negative.

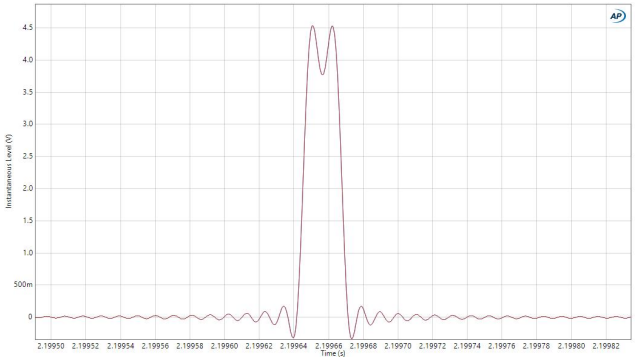
Whether you prefer the purity of Non-oversampling or the enhanced dynamics of oversampling, Harmony DAC empowers you to customize your listening experience. Simply select your preferred mode and immerse yourself in the world of versatile sound.



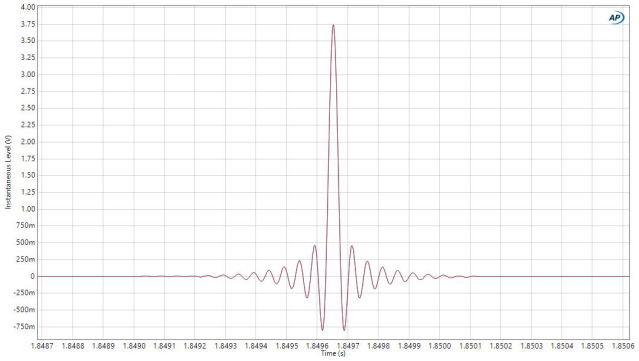
NOS Response [1]



OS Response [1]



NOS Impulse Response



OS Impulse Response

1. Fs: Sine wave 1kHz, Sampling Rate 44.1kHz

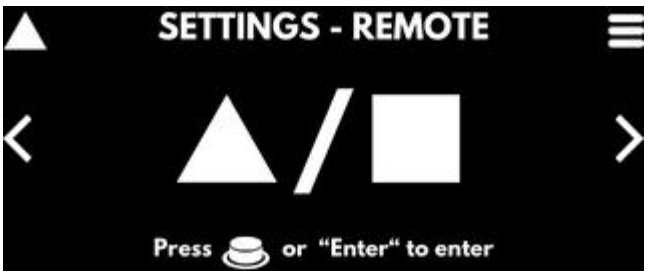
The phase mode selection allows you to further customize your audio output, ensuring that every aspect of your listening experience meets your unique preferences. Whether you're seeking enhanced clarity or a warmer sound signature, Harmony DAC puts the power of choice in your hands.

Q: I am using OS mode, but why is my DSD input is not being oversampled?
A: NOS/OS has no effect on DSD, so your DSD input is not being oversampled.

3.4. Remote Control

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 three settings to each key: NOS/OS Mode, Phase Mode, and the I2S mode, allowing for quick access without navigating through the settings menu. This streamlined approach ensures that frequently used functions are just a button press away, saving you time and effort.

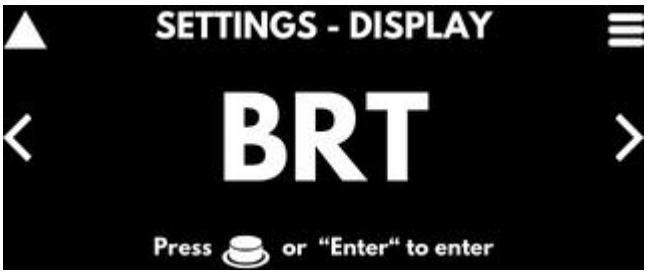
Additionally, users have the opportunity to configure one of two device shapes, triangle or square, ensuring no repeated shapes for your devices. This ensures that your remote control can correctly control the desired device without confusion.



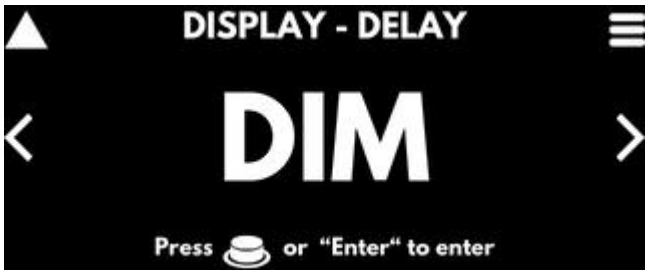
Q: I don't like the triangle. Can I use the square shape for my DAC instead?
A: Yes, you can change the shape of your DAC to square, but be sure you also change the shape on your remote control too; otherwise it will not work.

3.5. Display Brightness and Delay Setting

The display brightness 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.



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.



QUICK TIPS

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.

3.6. I²S Mode

Introducing our innovative 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-

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

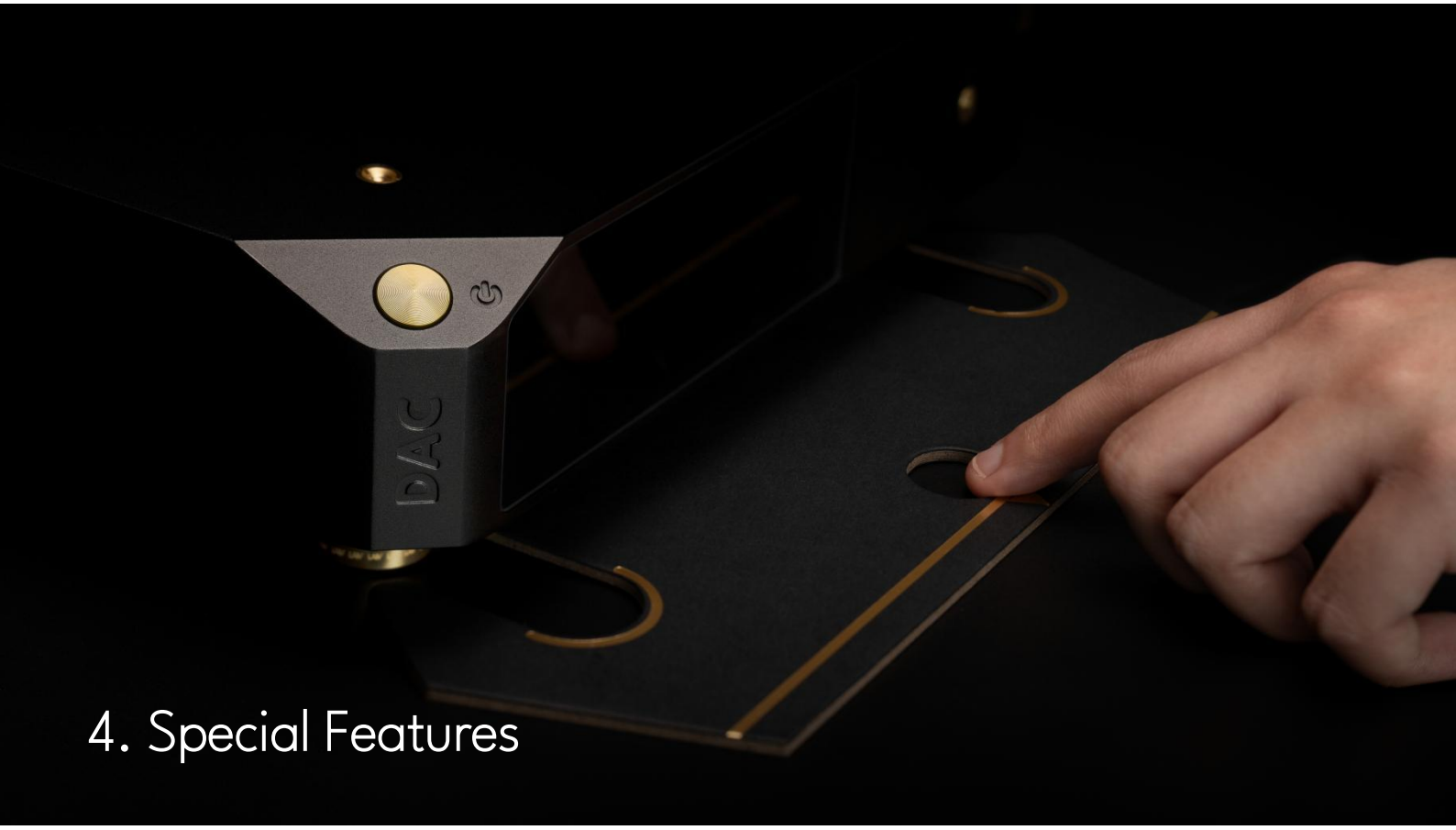
Q: I have tried all the I²S modes, but none of them are working well with my system. What can I do?
A: Unfortunately, there are no industrial standards for I²S connectivity, so it's possible that none of the modes are compatible with your system.

3.7. “About” In The Settings

The "About" settings provide essential information about the device, including the firmware version and supported sampling rates for each digital input. 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. Additionally, users can view the supported sampling rates for each digital input, enabling them to optimize their audio setup based on the capabilities of their connected devices. This transparency empowers users with valuable insights into the technical specifications of their DAC, facilitating informed decisions and maximizing their audio experience.

3.8. 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.



4. Special Features

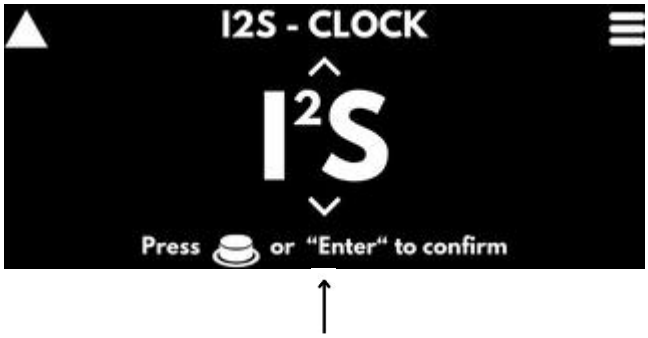
4.1. CD Track Info Over SPDIF

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.

If the CD track details are not appearing during your CD playback, it indicates that no compatible CD track signal is coming from the SPDIF. If incorrect track information is being displayed, it may be due to a source issue. We recommend configuring the display settings to hide the track info in such cases.

4.2. I²S Clock

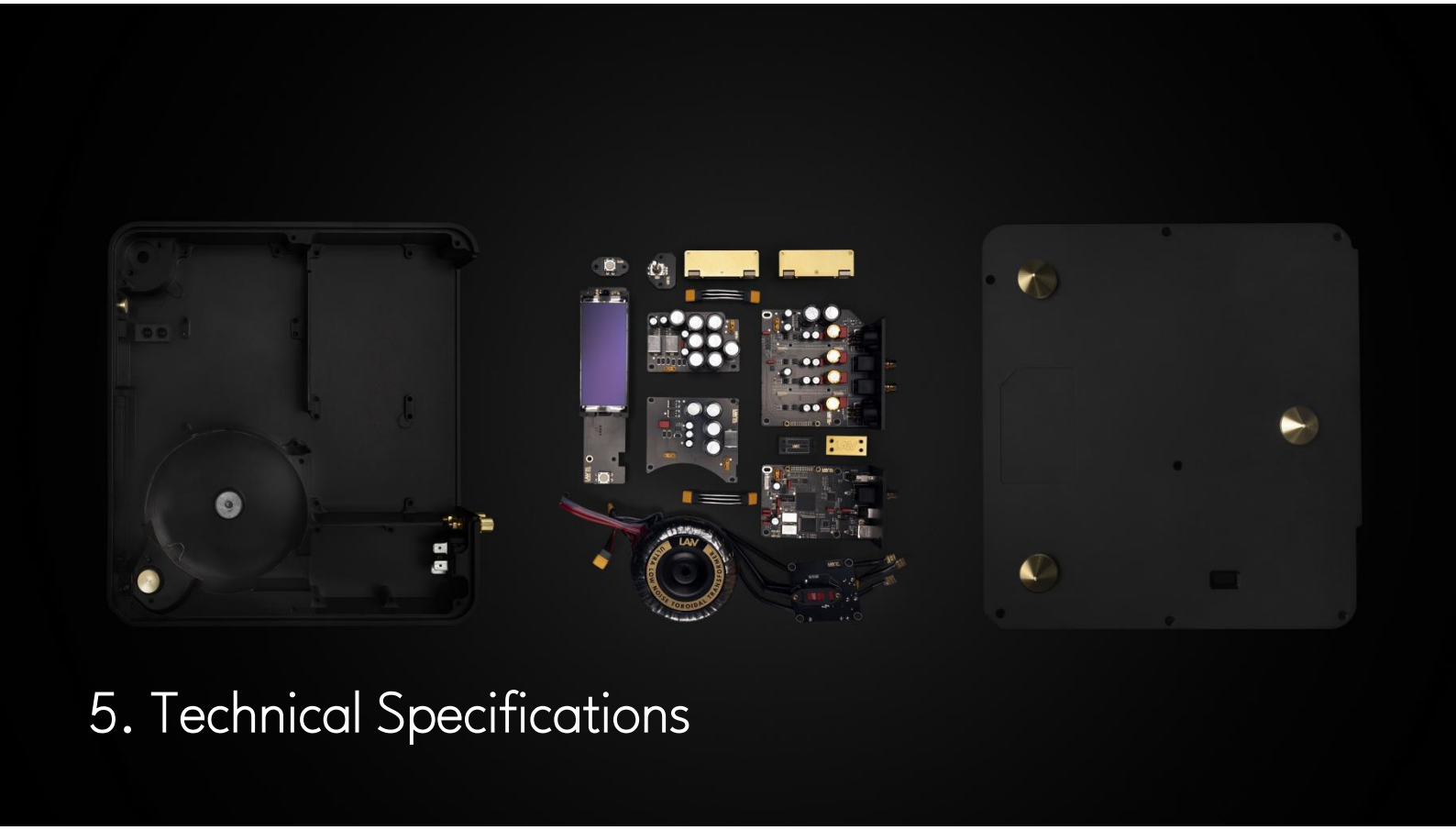
Introducing our I²S clock capability, offering you with remarkable flexibility in your I²S setup. This feature enables you to select between the local DAC clock or the I²S clock when utilizing the I²S input. The DAC meticulously verifies the compatibility of the I²S clock, only permitting you to opt for the I²S clock if it meets compatibility standards.



If you select the I²S clock as your preferred clock, in instances where the I²S clock becomes unstable or incompatible, the DAC seamlessly reverts to utilizing the local clock. When the I²S clock stabilizes and becomes compatible again, the DAC seamlessly reverts back to utilizing the I²S clock. Moreover, when users switch to other digital inputs, the DAC seamlessly transitions back to using the local clock. This intelligent system ensures optimal performance and reliability throughout various audio configurations.

You can easily identify whether the DAC is using the I²S clock on the main display by checking for the 'I2S CLK' icon show below.

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.



5. Technical Specifications

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

Display	 3.83-inch (diagonal) white monochrome OLED 320x132-pixel resolution at 16-bit grayscale
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, approx. 1200 Ω 1 x RCA, maximum at 2.07Vrms, approx. 600 Ω
Supported Formats (Input dependent)	USB - PCM: 44.1kHz - 768kHz | DSD: DSD64 - DSD256 Optical - PCM: 44.1kHz - 192kHz | DSD: Not Supported Coaxial - PCM: 44.1kHz - 192kHz | DSD: Not Supported I2S - PCM: 44.1kHz - 768kHz | DSD: DSD64 - DSD256
Frequency Response	20Hz – 20kHz, within ± 0.25 dB [3]
THD+N	0.0035% [3]
Crosstalk	Better than 110 dB, 20Hz – 20kHz [3]
Signal to Noise Ratio (SNR)	Better than 123dB, A-Wt. [3]
Dynamic Range	Better than 110dB, A-Wt. [3]

Features	Modular design NOS / OS Mode Positive / negative phase Function key for quick settings Display brightness, delay dim, and delay off 8 x I2S Mode with Laiv product auto-configured I2S clock supported CD track info over SPDIF
Controls	Remote control Front panel
Remote Control	 Weight: 157g
Power	100 - 127 VAC /220 - 240 VAC, 50/60Hz, ≤ 10W.
Fuse	2A, Slow-blow, 5 x 20mm.
In the Box	Welcome card with Certificate of Authenticity Harmony DAC Three spike shoes with alignment card Remote control (Battery CR2032 not included) Power cord [4] 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.
4. We will try our best to provide the power cord with the plug that is suitable for you.

6. Warranty and Contact Information

6.1. 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.

6.2. 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.