DENAFRIPS

VENUS 15th · User Manual

Committed to providing high-quality HiFi audio solutions,
delivering an exceptional auditory feast to customers worldwide

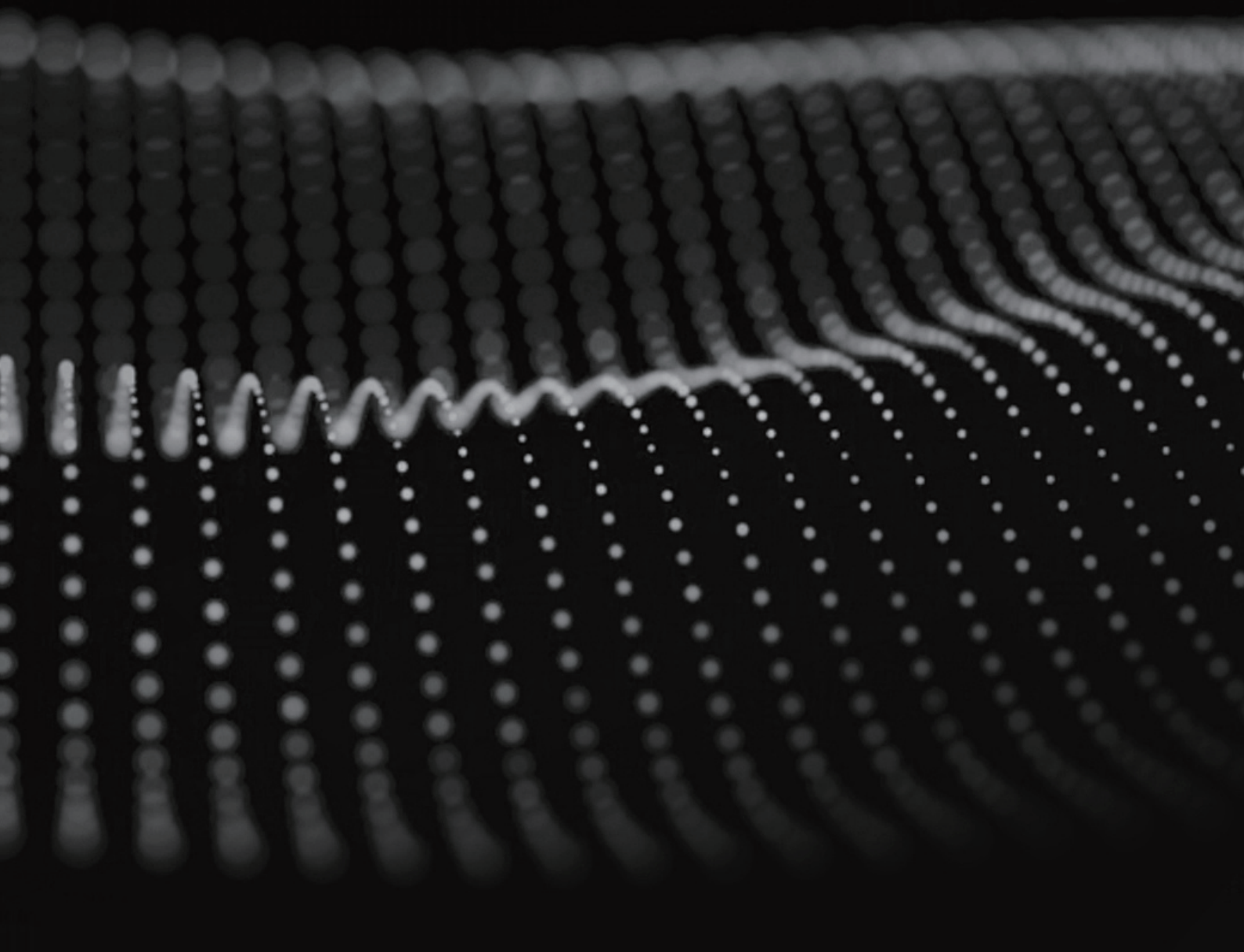


Table of Contents

Important Safety Instructions

WARNING

Danger of electric shock inside.
Do not open the cover.

- To reduce the risk of electric shock, do not disassemble the outer casing (or back cover).
- If repairs are needed, please have them performed by qualified service personnel.
- To avoid the risk of fire and electric shock, do not expose this unit to rain or moisture.

❶ Read Safety Instructions — Carefully read all safety and operation warnings in the manual before using the device.

❷ Follow Instructions — Follow the operation and use instructions in the manual. Do not violate the operating guidelines.

❸ Keep Away from Water and Moisture — Do not place the device near water, such as a bathtub, sink, pool, or washing machine; do not use it in high-temperature or humid environments such as a damp basement.

❹ Cleaning — Do not use liquid or aerosol cleaners. Clean with a dry cloth. Unplug the power cord before cleaning

❺ Power Supply — Use the specified power supply. Arrange cords properly to prevent damage from wear, pulling, or stepping. Pay special attention to plugs, sockets, and the connections.

❻ Ventilation— The casing of this product includes ventilation holes for proper airflow. To ensure reliable performance and prevent overheating, do not cover or block these openings.Do not use the product on soft surfaces such as beds, sofas, or carpets, as they may obstruct ventilation. Avoid covering the ventilation holes with objects such as newspapers, tablecloths, curtains, or other materials. Do not place the device near curtains or other objects that might block the ventilation holes.If the device is installed in an enclosed space, such as a bookshelf or rack, ensure sufficient ventilation. Keep a clearance of 10 cm (4") on all sides, including the top, back, and sides of the device. If the device is supported by a stand or top cover,leave at least 10 cm (4") of space behind the rear panel or wall to allow proper airflow and heat dissipation.

❼ Heat — Keep the device away from heat sources such as radiators, stoves, or other heat-generating devices, including amplifiers.

❽ Prevention of Foreign Objects or Liquids— Be careful to prevent small objects or liquids from entering the unit through openings, as contact with internal electrical components may cause fire or electric shock. This product should not be exposed to rain or moisture and should not have containers of liquid, such as flower vases, placed on top of it.

❾ Lightning —To protect the equipment during a lightning storm, unplug the power cord. This can effectively prevent damage from lightning strikes.

❿ Protection—If the product will not be used for an extended period, unplug the power cord. Proper grounding can prevent damage to the unit.

⓫ Repair—Users should not attempt to open the casing of the equipment to avoid electric shock.If repair services are required, please send the unit to an authorized service center under the following circumstances:
a) Foreign objects or liquids have entered the unit.
b) The equipment has been exposed to rain.
c) The device operates abnormally.
d) The device has been dropped or physically damaged.

⓬ Disconnecting the Unit—The power plug, appliance coupler, and power switch serve as disconnecting devices. These disconnecting devices should remain easily accessible for quick operation.

⓭ This product is only safe for use at altitudes below 2000 meters.

⓮ This product is only safe for use in non-tropical climates.

⓯ Class I equipment should be connected to a grounded power outlet with a protective earth connection, as indicated on the warning label of the power outlet.

Product Overview

VENUS15th: The Ultimate Digital Audio Decoding Experience

1. Digital/Analog Isolation Design

VENUS15th adopts a thorough digital and analog isolation design to ensure complete independence between digital signal processing and analog output. By using physical isolation technology, the digital processing board is completely separated from the R2R ladder network array, effectively reducing noise and providing higher signal-to-noise ratio and purer sound quality. The two boards are independently connected via high-precision OCXO modules to ensure every detail is perfectly reproduced.

2. High-Precision Oven-Controlled Crystal Oscillator (OCXO)

VENUS15th is equipped with dual OCXOs operating at 45.1584 MHz and 49.152 MHz. These highly accurate oscillators are housed in metal casings and placed at the core of the DAC, specifically designed for high-end audio applications. The temperature-controlled design of the OCXO minimizes frequency drift and jitter error, ensuring high-fidelity transmission of digital audio signals. Combined with a new power supply design, the stable current supply provides low-noise ROXC operating voltage, delivering silky-smooth performance.

3. Adaptive FIFO Buffer

To eliminate clock jitter, VENUS15th adopts an advanced adaptive FIFO buffer. This technology allows the received audio data to be stored in memory, ensuring stability and accuracy during data transmission. With the DAC's built-in phase-locked loop and the ultra-precise OCXO clock control module, jitter is virtually negligible, significantly improving audio detail reproduction.

4. Proprietary USB Audio Decoding Solution

VENUS15th features a proprietary USB audio decoding solution driven by an STM32F446 microcontroller, fully compatible with traditional digital audio player chips. The digital signal is decoded through an onboard FPGA, aiming to enhance signal accuracy and stability. The specially optimized USB interface design reduces cross-interference from digital input interfaces, ensuring the best sound reproduction effect.

5. High-Resolution Audio Support

VENUS15th supports PCM data streams up to 24-bit/1536kHz and native decoding capability up to DSD1024. Whether handling high-resolution PCM signals or DSD format, VENUS15th delivers an ultimate sound quality experience. The included Windows platform driver (THESYCON USB driver) ensures compatibility with various devices.

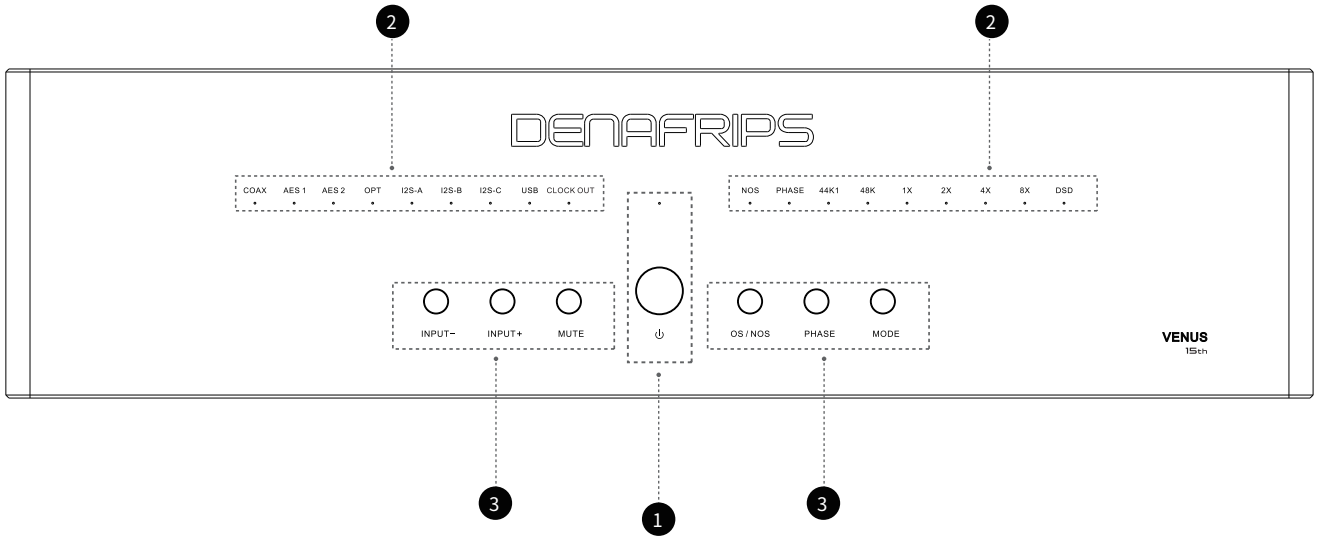
6. Professional Design and Optimization

VENUS15th is developed based on the successful TERMINATOR series by DENAFRIPS. Through continuous innovation and optimization, it aims to provide an ultimate audiophile-grade digital-to-analog conversion experience. Designed for audiophiles seeking top-tier s ound quality, it represents the pinnacle of high-end digital audio.

7. Package Contents

If you purchase a certified product, the package will only include the device itself. Cables and remote control are not included.

Functional Panel Introduction



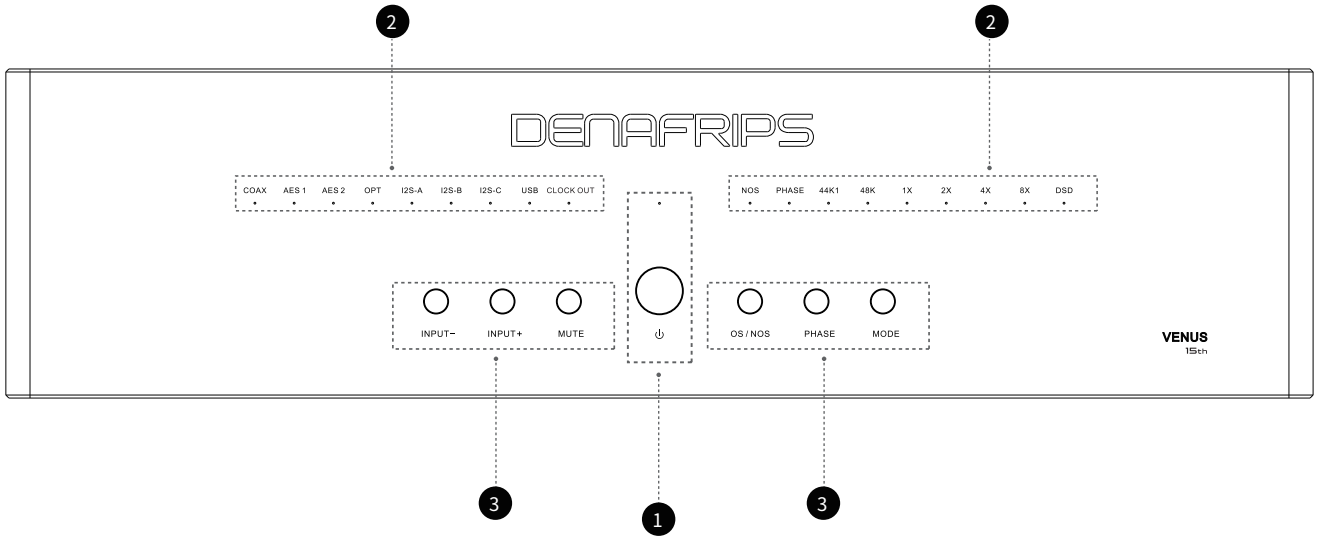
1.Power Button and LED Indicator

①. Power LED Indicator, Used to indicate the power status of the device.
When the power is connected, the standby indicator lights up, indicating that the device is in standby mode.Press the standby button, the standby indicator will turn off, and the DAC will start working.
②. Power Button
Press the power button to turn the DAC on or off.

2. The LEDs on the DAC panel are used to indicate the current input source, sampling rate, multiplication factor, audio format, and other specific statuses.

①. Input Source Indicators: COAX, AES 1, AES 2, OPT, I2S-A, I2S-B, USBThese LEDs indicate different input sources. When a particular input source is selected and active, the corresponding LED will light up.
②. Sampling Rate Indicators：44K1 (44.1 kHz sampling rate); 48K (48 kHz sampling rate)
These LEDs indicate the sampling rate of the audio signal currently being processed.
③. Multiplication Factor Indicators：1X (original sampling rate); 2X (2 times the sampling rate);
4X (4 times the sampling rate); 8X (8 times the sampling rate)
These LEDs indicate the multiplication factor of the current audio signal (if the sampling rate is multiplied).
④. Audio Format Indicators：Lit when in DSD mode, off when in PCM mode.
⑤. Other Status Indicators：CLOCK OUT (Clock Output); NOS (Non-Oversampling); PHASE (Phase)
CLOCK OUT Light Off: Internal clock On: External clock is active, indicating that the DAC is outputting a clock signal. This clock signal can be used to synchronize other audio devices, ensuring that all devices use the same clock source, which reduces jitter and other timing issues, enhancing overall audio system performance.
OS/NOS Indicator: When the light is on, it indicates NOS mode; when off, it indicates OS mode.
In OS mode, the DAC processes the incoming digital audio signal and increases the sampling rate. Oversampling increases the number of data points through interpolation algorithms, thereby improving audio quality.
In NOS mode, the DAC directly processes the incoming digital audio signal without any sampling rate processing. This mode preserves the original characteristics of the audio signal.
PHASE Indicator: When the light is on, it indicates in-phase; when off, it indicates out-of-phase.

Functional Panel Introduction



3. Button Descriptions

① IN- Button

In Home Mode: Press to select the previous audio source.

In Menu Mode: Press to enter CLOCK OUT clock output switching mode.

In Function Settings: Press to switch the corresponding clock.

② IN+ Button

In Home Mode: Press to select the next audio source.

In Menu Mode: Press to enter the single/dual AES setting mode.

In Function Settings: Press to switch between single and dual AES modes.

③ MUTE Button

In Home Mode: Press to toggle between mute and playback; when muted, the device enters Menu Mode.

In Menu Mode: Press to exit mute mode.

In Function Settings: No function.

④ OS/NOS Button

In Home Mode: Press to toggle between OS (Oversampling) and NOS (Non-Oversampling) modes.

In Menu Mode: Press to enter DSD channel (left/right) function settings.

In Function Settings: Press to switch between L/R and R/L.

⑤ PHASE Button

In Home Mode: Press to toggle between in-phase and out-of-phase modes.

In Menu Mode: Press to enter the I^2S pin configuration settings (I^2S source must be selected first).

In Function Settings: Press to switch I^2S pin configurations.

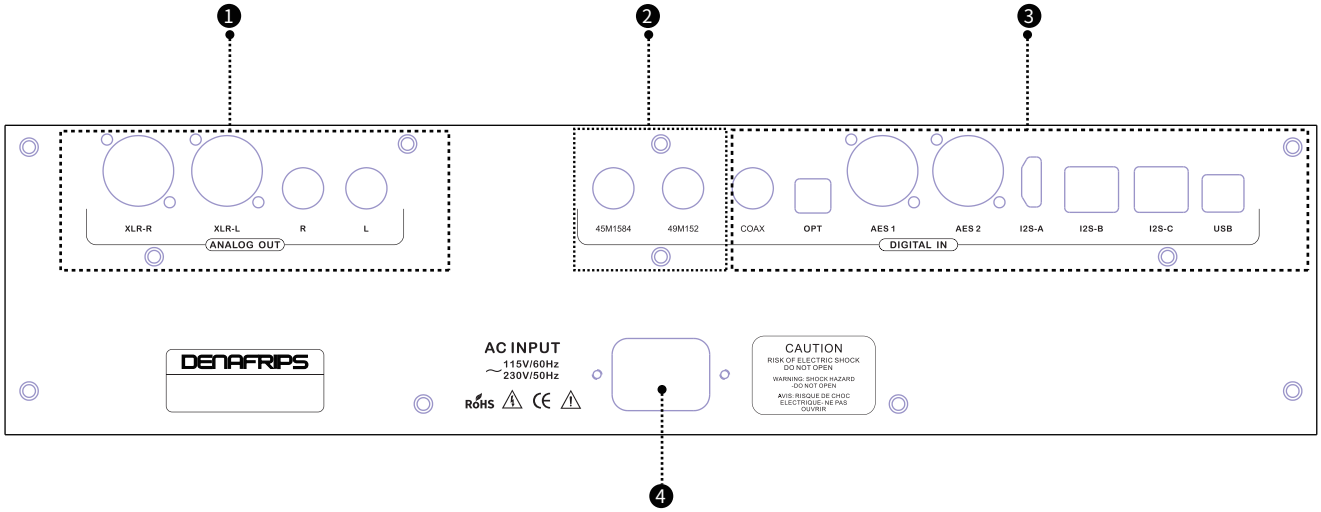
⑥ MODE Button

In Home Mode: No function.

In Menu Mode: Press to enter the filter function settings.

In Function Settings: Press to switch between fast roll-off and slow roll-off.

Rear Panel Interface Introduction



1. Audio Signal Output

XLR-R: Represents the right-channel analog XLR output, connected to the right-channel input of an audio system or amplifier.
XLR-L: Represents the left-channel analog XLR output, connected to the left-channel input of an audio system or amplifier.
RCA-R: Represents the right-channel analog RCA output, usually marked in red. Connected to the right-channel input of an audio system or amplifier.
RCA-L: Represents the left-channel analog RCA output, usually marked in white or black. Connected to the left-channel input of an audio system or amplifier.
Balanced output can be achieved using XLR (pin 1 = ground, pin 2 = positive, pin 3 = negative), or single-ended output can be achieved using RCA.
Note: The RCA output is paralleled with the positive end of the XLR output. To avoid affecting the listening experience, it is not r ecommended to use RCA and XLR outputs simultaneously.

2. Clock Output Interface

45M1584 and 49M152: Clock output interfaces for synchronizing and transmitting high-precision clock signals. Clock signal synchronization is essential for reducing jitter and improving audio quality. Synchronizing the clock signals between different devices ensures consistent transmission and processing of digital audio signals, reducing signal distortion.

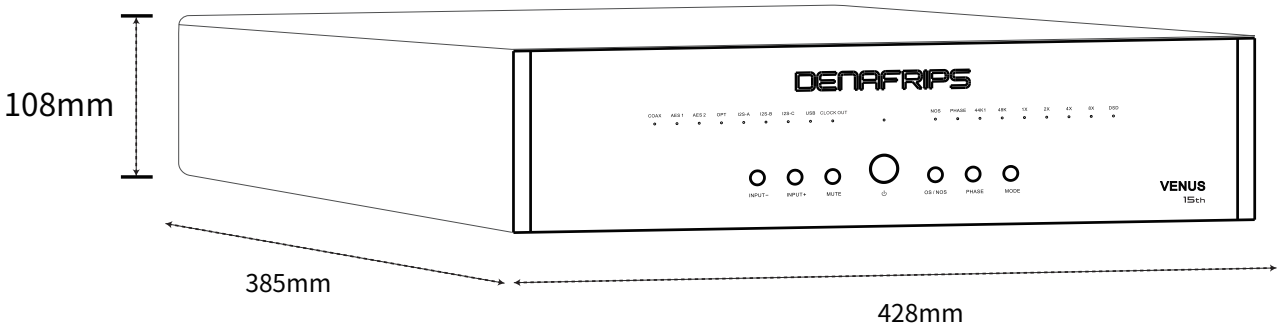
3. Digital Audio Input Interfaces

There are eight input interfaces: COAX, OPT, AES 1, AES 2, I^2S-A, I^2S-B, I^2S-C, and USB
COAX: (Coaxial) A digital interface known for stable transmission, suitable for short-distance connections, offering high audio quality.
OPT: (Optical) A digital interface resistant to electromagnetic interference, suitable for long-distance connections, providing clear audio transmission.
AES: A balanced digital input interface with an input impedance of 110 ohms. It can be set to single-mode or dual-mode input (see the function settings guide for details).
I^2S: (HDMI standard cable) input interface, The wiring sequence may vary among different manufacturers. This device offers eight wiring sequence optionsto match different manufacturers. Please refer to the functional setup instructions for detailed configuration.
Note: Do not plug or unplug this cable while the device is powered on to avoid static damage to the product.
USB: (Universal Serial Bus) An interface that provides convenient digital audio transmission, allowing high-fidelity audio data transfer. It is suitable for connecting to PCs, Macs, and various digital audio devices.

4. Power Input Interface

This unit uses a three-core power cable. Users should ensure that the power supply is properly grounded. Correct use of the power input interface ensures that the DAC device receives stable and reliable power support.

Technical Specifications



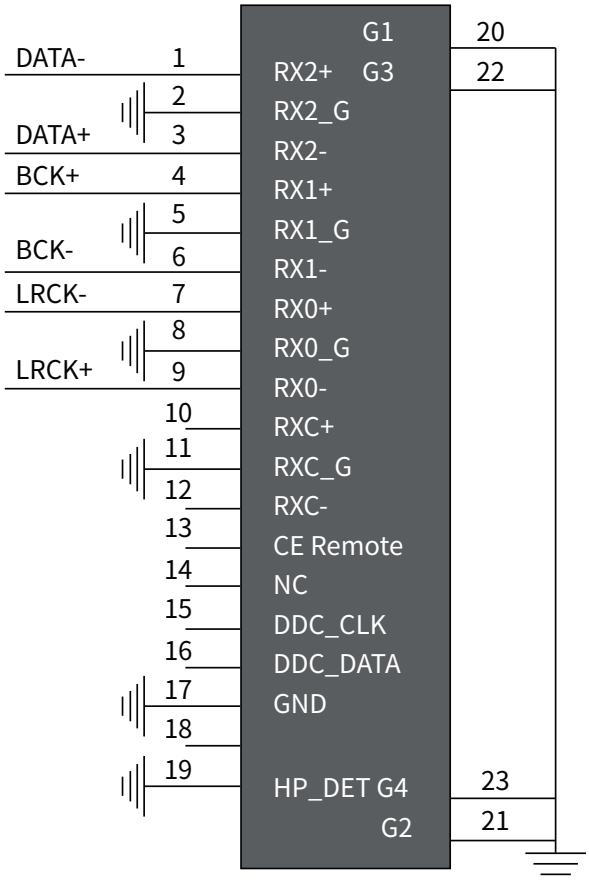
Description	Parameters
R-2R DAC	Proprietary R2R + DSD Architecture
	True balanced 26BIT R2R + 6BIT DSD (32-level FIR filter)
	Matched precision thin-film 0.005% R-2R network array
DSD	Coaxial/AES/Opt input DSD64 / 2.8224MHz (DoP)
	DSD1024 / 45.1584MHz *Only for USB and I^2S input
PCM	All inputs support 24-bit / 44.1, 48, 88.2, 96, 176.4, 192 kHz
	1536kHz *on USB and I^2S inputs
Digital Inputs	RCA Coaxial
	TOSLink x 1
	AES/EBU x 2 (Supports dual AES/EBU L/R channel input)
	USB2.0 Type B
Analog Outputs	2.2Vrms at RCA, 625Ω
	4.4Vrms at XLR, 1250Ω

Description	Parameters
AC Power Requirement	115V AC 60Hz; 230V AC 50Hz
Power Consumption	⩽20W
Frequency Response	20–80kHz (+1/-3dB)
THD+N	0.0015% (A-weighted)
Signal-to-Noise Ratio	129dB
Dynamic Range	>132 dB
Crosstalk	-120dB
Dimensions	428 x 385 x 108 mm
Weight	17.6kg
Color	Silver/Black
Warranty	12 months

Mode	LED		
	1X	2X	4X
	DATA	BCK	LRCK
1	○	○	○
2	●	○	○
3	○	●	○
4	●	●	○
5	○	○	●
6	●	○	●
7	○	●	●
8	●	●	●

I2S PINOUT						
PIN	DATA		BCK		LRCK	
Mode	1	3	4	6	7	9
1	DATA-	DATA+	BCK+	BCK-	LRCK-	LRCK+
2	DATA+	DATA-	BCK+	BCK-	LRCK-	LRCK+
3	DATA-	DATA+	BCK-	BCK+	LRCK-	LRCK+
4	DATA+	DATA-	BCK-	BCK+	LRCK-	LRCK+
5	DATA-	DATA+	BCK+	BCK-	LRCK+	LRCK-
6	DATA+	DATA-	BCK+	BCK-	LRCK+	LRCK-
7	DATA-	DATA+	BCK-	BCK+	LRCK+	LRCK-
8	DATA+	DATA-	BCK-	BCK+	LRCK+	LRCK-

I2S Pin Configuration(The factory default setting is Mode "1", with all lights off. "○" = Light off, "●" = Light on)



HDMI I2S Input Diagram

Configuration Guide

I²S Pin Configuration

1.Select I²S input

2.Press the sound button once to enter configuration mode

3.Adjust the corresponding switch, where 1X 2X 4X will toggle fixed mode on/off, representing binary 000-111

4.Wait for 10 seconds

5.DAC returns to operation mode

Recommended I²S Source Matching (DDC/Transport/Streamer)

1.Connect I²S cable

2.Set the volume (lowest)

3.Play a well-known track (first PCM, then DSD)

4.Apply the DAC' s I²S settings to 000-111

5.Ensure that one mode matches the source for PCM and DSD playback

It' s recommended to conduct an Audio Tone Test (sound frequency test) to

confirm that the L/R channels are in phase and correctly aligned.

I²S DSD Channel Swap Configuration

1.Select I²S input

2.Press the sound button once to enter configuration mode

3.Toggle the NOS button

COAX light represents L/R

AES1 light represents R/L

4.Wait for 10 seconds

5.DAC returns to operation mode

Filter Function Settings

1.Press the MUTE button to enter menu mode, then press the MODE button to enter filter function settings

(Press MUTE + MODE buttons) → 8x Light on.

2.In filter function settings, press the MODE button to switch between fast roll-off and slow roll-off

(Press the MODE button to switch)

1x Light off：Fast roll-off

1x Light on：Slow roll-off

Configuration Guide

USB Upgrade Function Settings

1.In standby mode, select USB input, then press the standby button to enter
standby (press the standby button first) → standby light ON
2.After entering standby, press the MODE button (press the MODE button once
again to enter upgrade state) → standby light ON

Dual AES Function Settings

1.Press the MUTE button to enter menu mode, then press INPUT + button to enter
Dual AES function setting (Press MUTE + INPUT + button) → USB light ON + CLOCKOUT light ON
2.In the dual AES function setting, press INPUT+ again (press INPUT+ button to switch)
AES2 light ON = Dual AES
OPT light ON = Single AES

Clock Output Function Settings

1.Press the MUTE button to enter menu mode, then press INPUT- button to enter
clock output function setting

LED Indicators

No clock output = No lights ON; Clock output active = CLOCKOUT light and corresponding clock light ON
CLOCK OUT light ON + COAX light ON = Output and input signal sampling rates are equal word clock.
CLOCK OUT light ON + AES1 light ON = Digital Clock Output
CLOCK OUT light ON + AES2 light ON = Half of the main clock output
CLOCK OUT light ON + OPT light ON = Main clock output

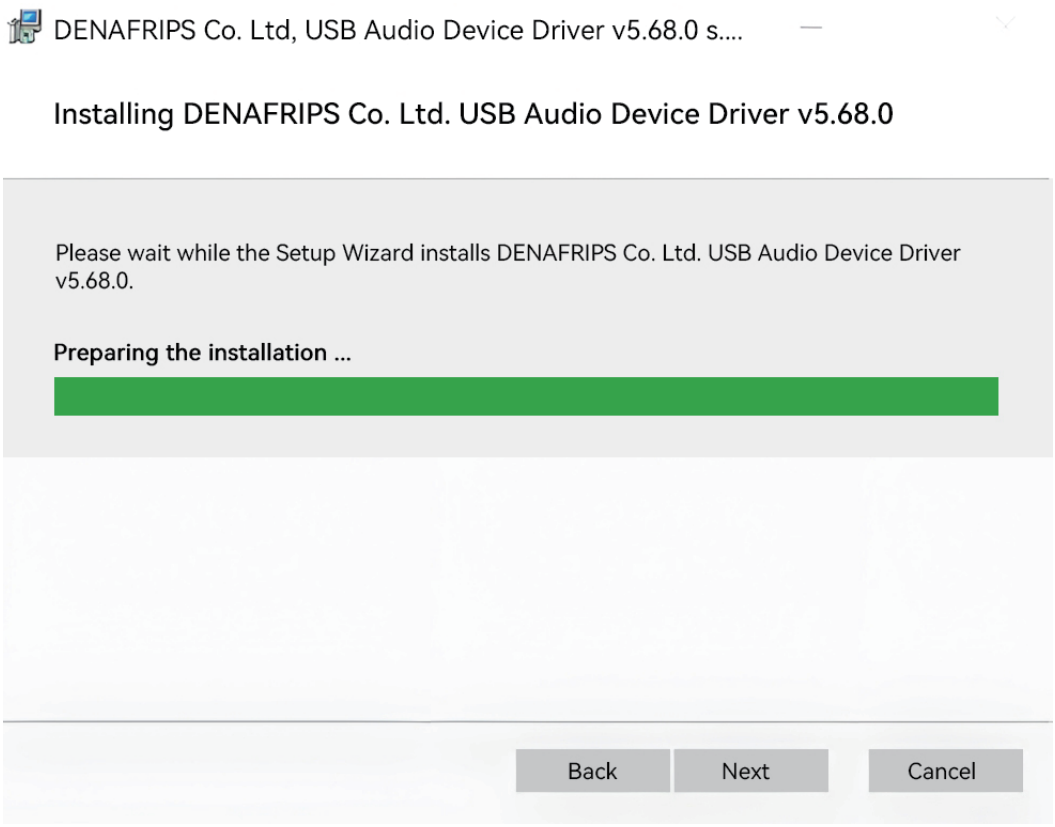
Driver Installation

USB Driver Installation – Windows Operating System(Only compatible with Windows 10 and above)
A USB driver is required for installation. This USB driver is licensed by THESYCON and is designed to provide the highest quality audio playback for computer audio systems.

Note: Mac and Linux operating systems do not require a USB driver.

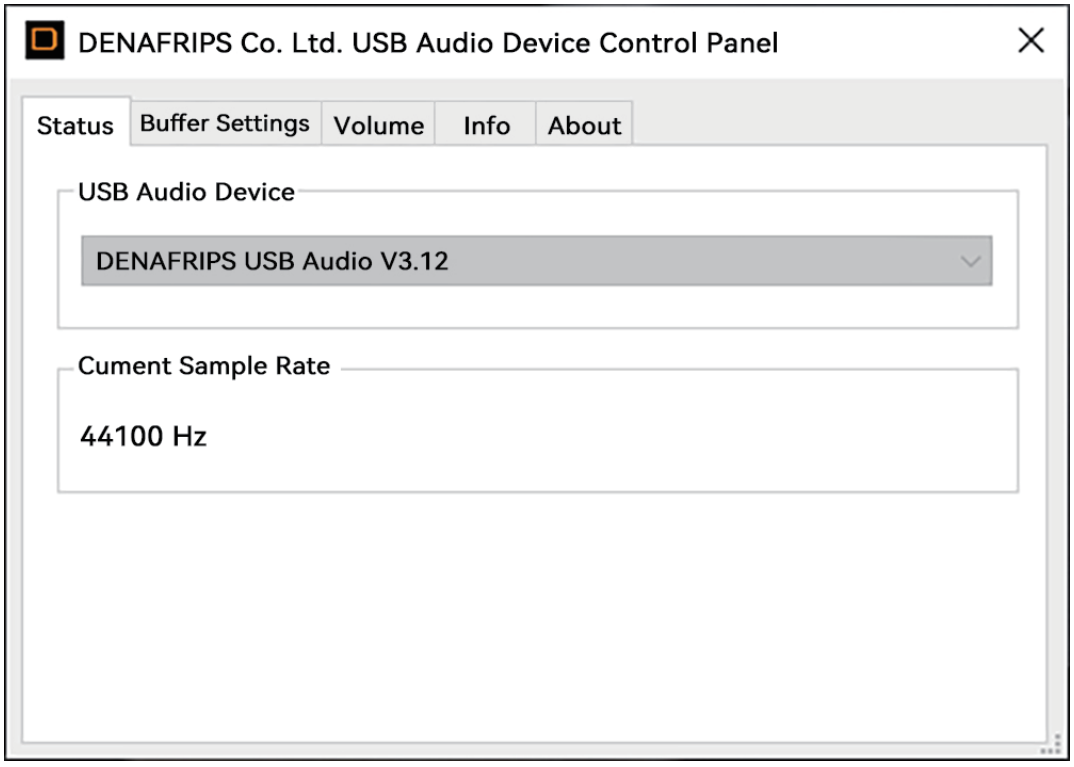
Installation Guide:
1. Do not connect the USB cable from the computer to the DAC. Please disconnect it before installing the USB driver.
2.Download the driver from the support page: https://www.denafrips.com/download-thesycon.

3. Double-click the driver file on your computer to install.

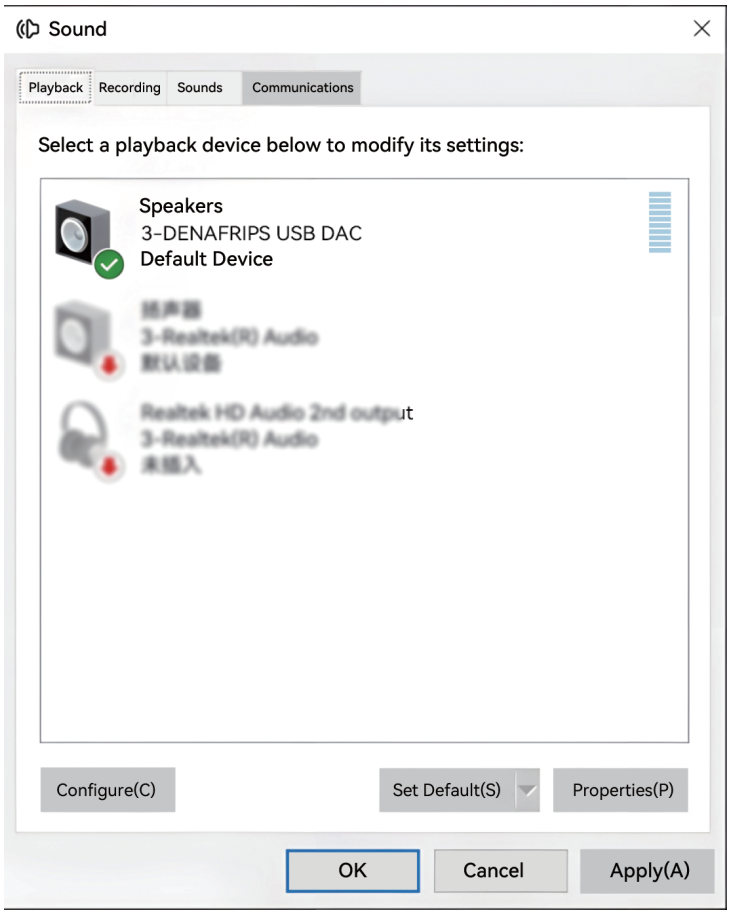


4. Follow the on-screen instructions to complete the installation.

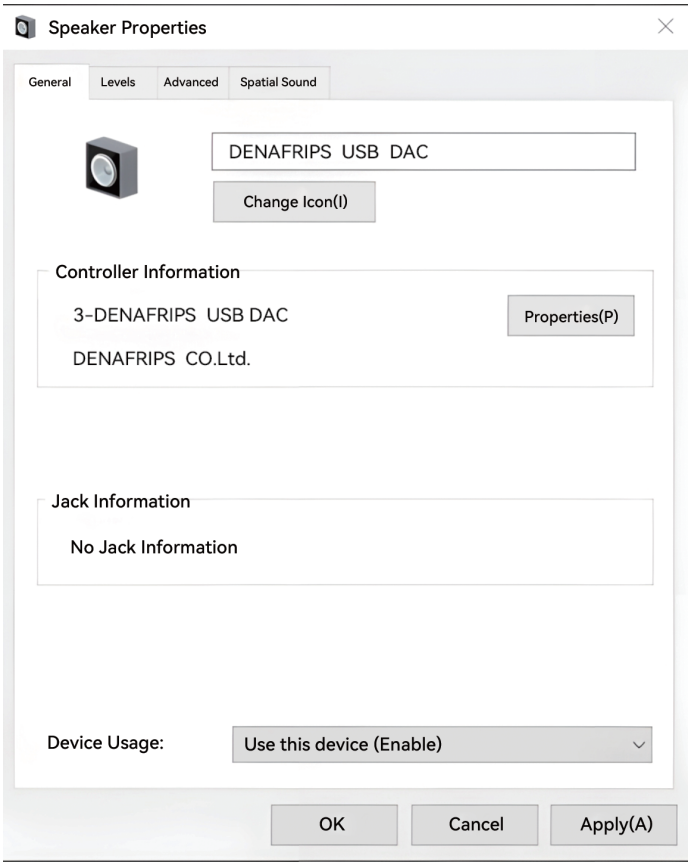
5. Restart your computer and connect the USB cable to the DAC.
Find the driver icon at the bottom right corner of your computer screen.



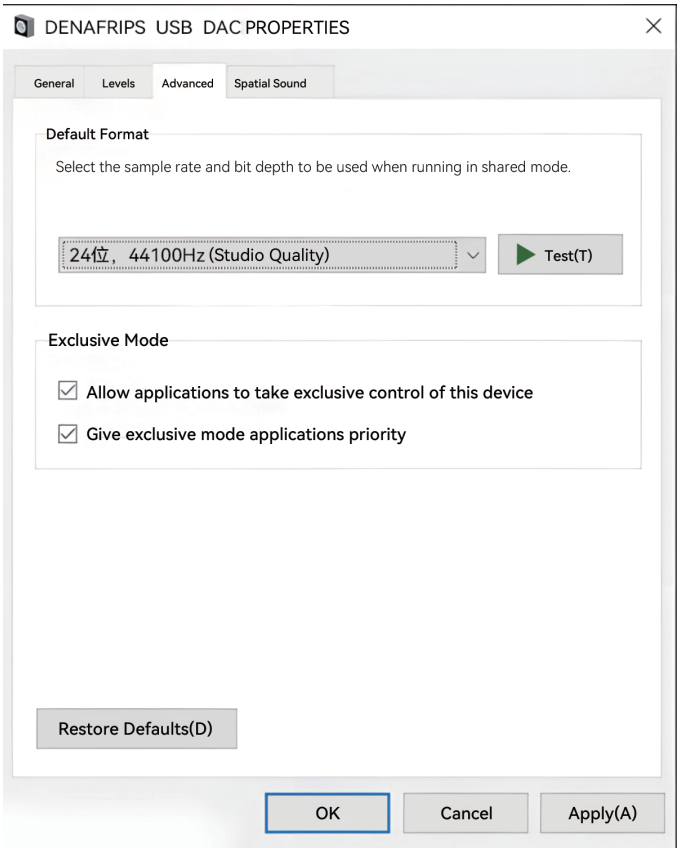
6. Click on the driver icon and select USB Input.



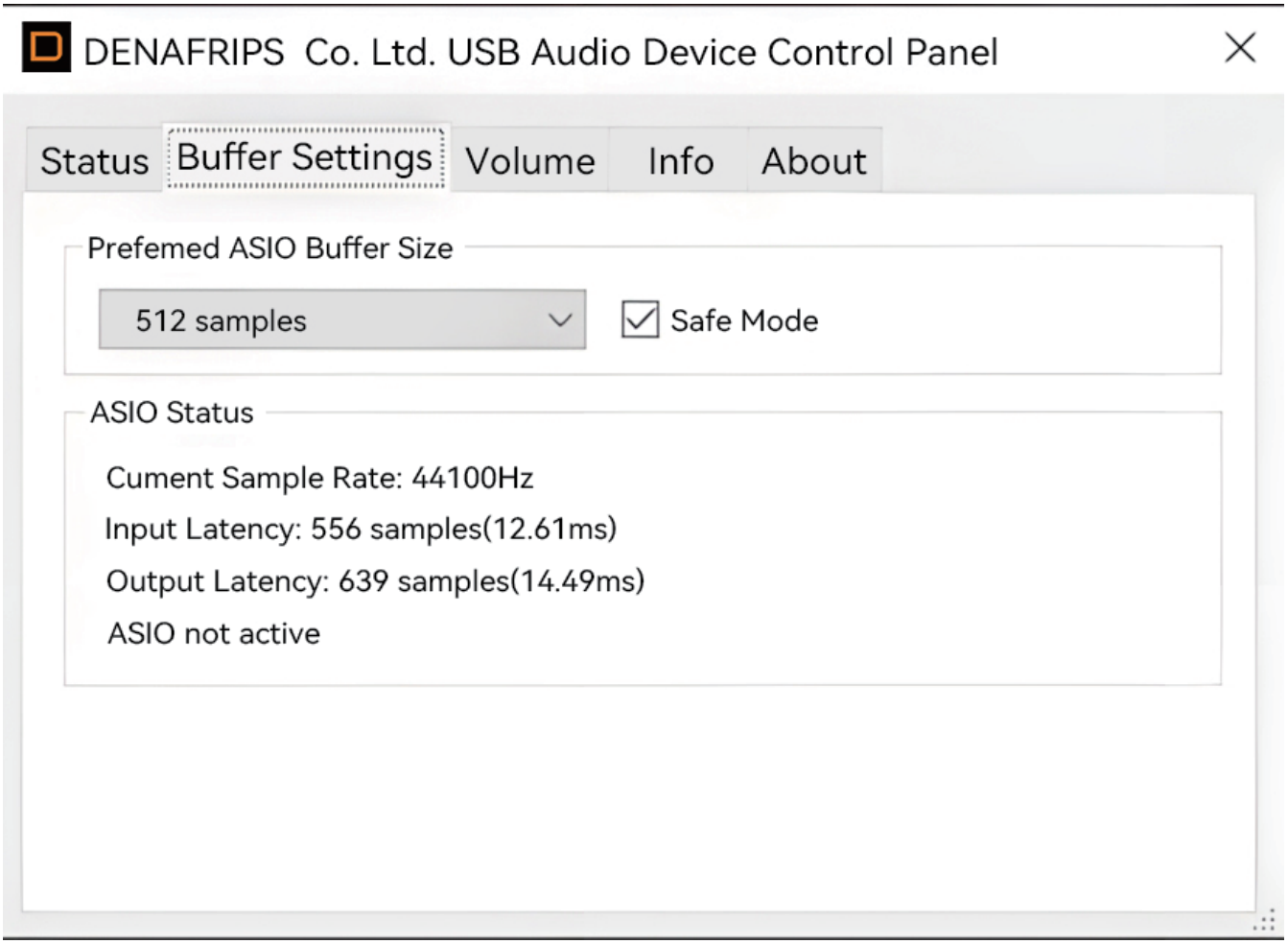
7. Set DENAFRIPS USB DAC as the default sound card for the Windows operating system.



8. DENAFRIPS USB DAC Properties Description



9. Direct Sound Default Format



10. ASIO Buffer Size

1. Roon	2. JRiver
3. Foobar2000	4. Sonicstudio Amarra

11. Recommended Playback Software

Common Troubleshooting Methods

Issue	Solution
A. No Sound Output	1. Check all connection cables and ensure the input source is correctly connected to the DAC. 2. Check volume settings, ensure the source is not muted and the volume is at a medium level. 3. Replace data cables or signal cables to confirm there are no faults. 4. Check the DAC's input selection and settings to ensure the correct input source is selected.
B. Noise or Distortion	1. Use high-quality power cables and power adapters to ensure a stable power supply. 2. Check all connection cables and ports to ensure they are functioning properly. 3. Avoid placing the DAC near sources of electromagnetic interference, such as power cables or wireless devices.
C. Sound Quality Loss	1. Ensure the sampling rate and format of the input signal match the DAC’ s supported format. 2. Adjust the DAC’ s filter settings and decoding settings to select an appropriate sound mode. 3. Check all signal cables and connectors to ensure the connections are secure and undamaged.
D. Device Won't Power On	1. Check whether the power cable and power adapter are properly connected and ensure the power outlet has power. 2. Try restarting the DAC or unplugging and reconnecting the power cord. 3. If the issue persists, contact customer support for a detailed solution.
E. Input Signal Not Recognized	1. Ensure the format and sampling rate of the input signal match the DAC’ s supported format. 2. Check the input port and connection cables to confirm there are no faults or poor connections.
F. DAC Cannot Recognize USB Device	1. Ensure the latest USB driver for the DAC is installed. 2. Check the USB connection cable and port to ensure the connection is secure and undamaged. 3. Try using a different USB cable or a different USB port.

After-Sales Service

1. Thank you very much for choosing DENAFRIPS products. This product comes with a one-year free warranty. Duringthe warranty period, if the product malfunctions due to non-human factors, we will provide free repair or replacement services.

Within Warranty Period: Within one year from the date of purchase, under normal use and non-human damage, if there are any product quality or functional issues.	DENAFRIPS provides free repair or replacement of parts and covers the round-trip shipping costs.
Within the Warranty Period: Within one year from the date of purchase, if any product quality or functional issues occur due to human-caused damage.	The specific charges will be determined based on the actual fault and the cost of replacing parts. Please contact our after-sales service center for a detailed repair quote. The customer is responsible for the round-trip shipping costs.
After the Warranty Period: Paid repair service will be available after the warranty period expires. We will continue to provide repair services for a fee.	Specific charges will be determined based on the actual fault condition and the cost of replacement parts. Please contact our after-sales service center for a detailed repair quote. The customer is responsible for the round-trip shipping costs.

2. The product will not be eligible for free warranty service under any of the following conditions:
   a. The product has exceeded the specified warranty period from the date of purchase.
   b. The product does not match the model, barcode, or purchase date listed on the warranty card.
   c. Unauthorized modification or repair of circuits or components by anyone other than DENAFRIPS technicians.
   d. Damage caused by human factors (such as dropping, impact, water exposure, fire, etc.).
   e. Damage caused by irresistible natural forces (such as earthquakes, floods, lightning strikes, etc.).
   f. Damage caused by exceeding the allowed operating environment.
   g. Damage caused by improper use or storage (including but not limited to: circuit or component burnout due to excessive voltage; damage to the casing or internal components due to impact; damage caused by excessive dust; product oxidation or corrosion, etc.).

3. This warranty policy applies only to customers who purchase products from the official website. For products purchased from distributors, the warranty terms will be governed by the warranty policy established by the seller.

DENAFRIPS

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