

1. INTRODUCTION

Thank you for choosing DENAFRIPS products! The Ares DAC is a 20Bit/384KHz discrete resistor ladder Digital To Analog Converter, also known as R-2R DAC.

The Ares is built to reproduce digital music in this modern era. The use of advanced hardware design, powerful digital processing technology, combined with the recording technology, digital music playback technology experience, to achieve the perfect music playback goals and accurate music expression.

The architecture uses the most primitive R-2R DAC technology, it is probably the most suitable architecture to reproduce music (arguably). Despite the test results of various measurements and parameters of the conventional R-2R DAC are usually not as good as the mainstream integrated DAC chip, but the sound of R-2R DAC, is often filled with emotion, comfort, high fidelity, transparency, and additive musicality that most of the common mainstream integrated DAC chip cannot match (arguably).

To achieve a decent sounding R-2R DAC, the use of ultra-precise resistors is necessary. The cost of high precision resistors is expensive, each resistor must be stringently measured and matched by machine with human intervention to cross-check. These results in a very high cost in the manufacturing process, hence, R-2R DAC is also a symbol of high-end DAC.

The Ares employs true balance R-2R DAC design. Each channel is decoded by 4 sets of R-2R network. This design has very small linear error, high decoding speed, low digital noise, not only to ensure that the audio signal is low distortion, but also to ensure a very low background music noise; allow listener to enjoy the true music with dark background.

2. DESIGN HIGHLIGHT

2.1 XMOS USB MODULE

The Ares is equipped with high bandwidth XMOS USB Module, with DENAFRIPS redesigned and optimized circuitry, allow the Ares to be used as high-end DAC with computers / streamers. It supports 32bit/384kHz PCM data stream, and DSD64, DSD128, DSD256 decoding via asynchronous USB input.

NOTE: The USB Module is designed to switch on only when USB Input is selected. This is specially designed to reduce inputs interference for best sound reproduction.

2.2 LOW JITTER AKM AK4118 DIGITAL AUDIO RECEIVER

It is known that the jitter contributes greatly to the sound quality. The use of a low-jitter digital audio receiver chip is indeed necessary. The AKM AK4118 is currently the lowest clock jitter digital receiver audio chip available in the market. The Coaxial, Toslink input support to 24bit/192kHz digital audio format.

2.3 SAMPLING

Depending on the sampling rate of the input signal, the Ares automatically converts it to the most suitable sampling rate of the R-2R DAC for decoding. Although the R-2R DAC can decode almost all the sampling rate of the audio signals, but in fact, the actual R-2R architecture and circuitry design, decided the best sampling rate to sound best that it shall decode. The use of up-sampling processing converts all digital audio input signal to the predefined sampling rate, so to ensure all kind of audio format can be decoded with the best sound performance.

2.4 PROPRIETARY R-2R AND DSD DECODING ARCHITECTURE

The Ares is equipped with 20Bit R-2R DAC to decode PCM data stream and 32 steps FIR analog filters hardware decoder to decode DSD data stream. These designs guaranteed the PCM format can be perfectly decoded, at the same time, the DSD format can be perfectly decoded as well. It is rare in the currently market that a R-2R DAC can hardware decode both PCM and DSD formats.

2.5 SIMPLIFIED ANALOG FILTER

The simplest analog filter makes the audio signal path shorter, avoided the traditional filter phase shift, lowered the distortion, and achieved higher signal to noise ratio.

The Ares absorbed the mainstream DAC's technology available in the market, more importantly, adopted DENAFRIP proprietary technology to made this DAC stand on its own feet to be the star on its own.

3. INSTALLATION AND SETUP

The Ares is easy to use. Nonetheless, DENAFRIPS advice to read this section to fully understand the functions and features available.



Figure 1. Ares Front Panel

Description:

(1) Standby Button

Press the button once to switch on the DAC, vice versa, press once to switch the DAC into standby mode.

(2) Standby LED

The Standby LED shall be on when the DAC is in Standby Mode. The LED shall be dimmed when the DAC is in Operating Mode.

(3) Input Selection: USB

Press the button to select USB as current input source. The respective LED shall be on.

(4) Input Selection: COAXIAL 1

Press the button to select COAXIAL 1 as current input source. The respective LED shall be on.

(5) Input Selection: COAXIAL 2

Press the button to select COAXIAL 2 as current input source. The respective LED shall be on.

(6) Input Selection: OPTICAL 1

Press the button to select OPTICAL 1 as current input source. The respective LED shall be on.

(7) Input Selection: OPTICAL 2

Press the button to select OPTICAL 2 as current input source. The respective LED shall be on.

(8) Phase Button

Press the button to toggle Phase Output. Phase LED On: Positive Phase, Phase LED Off: Negative Phase

(9) Mute Button

Press the button to enable/disable Mute. When mute, the Mute LED will be blinking 1s in interval.

(10) Digital Audio Signal Input Sampling Rate

The following table illustrate the Input Sampling Rate LED status:

Base Sampling Rate	Multiplier	Input Format
44.1 kHz	1X	44.1 kHz
	2X	88.2 kHz
	4X	176.5 kHz
	8X	352.8 kHz
48 kHz	1X	48 kHz
	2X	96 kHz
	4X	192 kHz
	8X	384 kHz
DSD	1X	DSD 64
	2X	DSD 128
	4X	DSD 256
	8X	N/A

Table 1. Sampling Rate

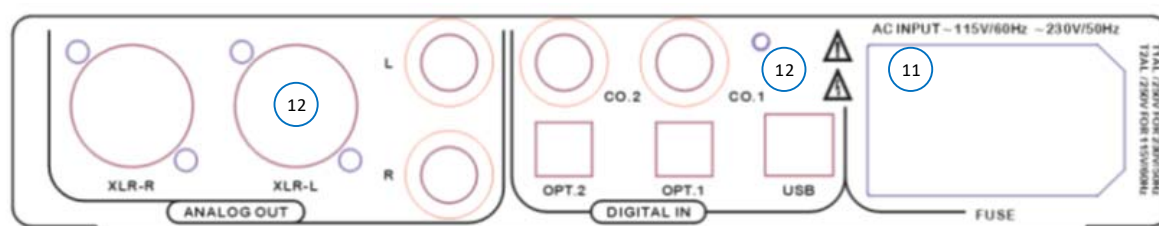


Figure 2. Ares Rear Panel

Description:**(11)** AC Power Supply

CAUTION! Select the correct AC Power Supply voltage prior supplying the power to the Ares. The voltage selector switch is located underneath the Ares chassis.

(12) Digital Audio Signal Input

There are 5 inputs, namely, USB, COAX 1, COAX 2, OPT1 and OPT2.

(13) Analog Audio Signal Output

Balanced output via XLR (pin2 hot), singled ended output via RCA. The Ares is a true balanced DAC, we recommend using balanced output whenever possible.

4. SPECIFICATION

Description	Parameters
AC Power	115/230V, 50/60Hz
Power Consumption	< 30W
Frequency Response	0-70K Hz(-3dB)
THD+N	≤0.002%(1KHz A-weighted)
Output (RCA)	2.2(+/-10%) V RMS(1KHz)
Output (XLR)	4.4(+/-10%) V RMS(1KHz)
Supported Format (DSD)	2.8224MHz(DSD1X) All Input 5.6448MHz(DSD2X), 11.288MHz(DSD4X) USB Only
Supported Format (PCM)	24bit/44.1, 48, 88.2, 96, 176.4, 192, 358.2(USB), 384(USB) kHz
S/N Ratio	115dB(RCA), 114dB(XLR)
Dynamic Range	>119dB(RCA), >120dB(XLR)
Stereo Crosstalk	≤-124dB(RCA), ≤-130dB(XLR)
Dimension	215 *230 *45 mm
Weight	3.5kg

5. WARRANTY & SUPPORTS

DENAFRIPS Ares comes with **36** months of warranty from the date of purchase / delivery (whichever later). Customers shall bear the two-way shipping cost for RMA. VINSHINEAUDIO shall be the single point of contact for RMA matters.

In event of tampering found on the unit, the warranty shall be voided.

Visit our website at www.vinshineaudio.com for more updates

Enjoy The Music!