Absolute Intact Sound Vibrant Digital to Analog Converter

RD160



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RD160, Absolute Intact Sound Vibrant Digital to Analog Converter

RD160 is a DAC that has undergone meticulous tuning processes in collaboration with AKM and MUSES to achieve peak performance. Designed with separate DAC modules for each channel and utilizing 2-chip solution, it completely isolates the digital signal processing and analog conversion stages, ensuring transparent and precise reproduction of the original sound information contained in Hi-Res music files without any alteration. Additionally, three independently customized reference linear power supply units for the digital input and analog output stages effectively block noise originating from the power source. With exceptional balance, extremely low distortion, and noise floor, RD160 promises to deliver a vibrant, lifelike sound.







Design





Exterior

• Hidden Screen,

adding the Enjoyment of Manipulation to Visual Satisfaction

² Design

- ROSE CIM[™] (Completely Isolated Moduled) Architecture
 - DAC module with complete separation of digital and analog
 - Balanced-designed DAC modules and analog output stage
- Three independently customized reference linear power supply units
- ROSE NRA[™] (Noise Reduction Analog) Filter
 - Flat frequency response even down to very low frequency bands
- High-Precision OCXO clock

³ Feature

- Upsampling & Filter
- Fiber Optic USB
- External Master Clock Input

Hidden Screen, Adding the Enjoyment of Manipulation to Visual Satisfaction

Designed with simplicity and sophistication to convey coherence with HiFi ROSE network devices, RD160 features a Hidden Screen on its front panel. When powered on, the circuit-like design flow chart, sound waves, and volume curve displayed on the screen intuitively present various information at a glance. Additionally, immediate responses to button and know operations without any delay, offers a sensation of controlling an analog device. Thus, the RD160 not only enhances the pleasure of listening but also adds the visual satisfaction plus enjoyment of manipulation.



Specially Processed Aluminum Case, Minimizing even the Slightest Vibrations

The RD160 utilizes a specially processed aluminum case, machined from high-purity aluminum as a single piece with minimized assembly joints, to minimizes vibrations that could adversely affect sound quality. Additionally, the side panels with heat sink design efficiently dissipate heat, ensuring stable operation even during prolonged use.





Technology

ROSE CIM[™] Architecture

DAC Module with Complete Separation of Digital and Analog

The ROSE CIM[™] architecture aims to maximize sound quality through complete isolation and modularization. The DAC module of the RD160 is a 2-chip solution, where the AK4191 handles digital filtering and initial delta-sigma conversion stages, while the AK4499EX performs digital-to-analog conversion. By structurally separating the digital and analog circuits, the RD160 achieves perfect noise blocking during mutual processing stages, extremely high signal-to-noise ratio, and the highest level of analog characteristics.



Balanced-Designed DAC Modules and Analog Output Stage

Furthermore, by allocating DAC modules for each channel and employing a balanced symmetrical design for the analog output circuit, RD160 effectively blocks noise that can be coupled between channels. This design enables RD160 to boast exceptional dynamic range and to accurately represent the most intricate details of the original sound with clear stereo imaging.



Three Independently Customized Reference Linear Power Supply Units

HiFi ROSE's proprietary reference linear power supply units are designed using ULTRA LOW NOISE power chipsets to minimize noise. Each power supply unit is custom-designed for the digital input stage and the left and right analog output stages, providing independent power supply to each. As a result, RD-160 not only minimizes crosstalk and mutual interference between channels but also prevents digital noise from entering the analog domain, ensuring excellent clarity and superior dynamics.



High-Quality J-FET Input Dual OP-Amp

In the RD-160, high-purity Oxygen-Free Copper lead frames are used to apply high-quality J-FET input dual OP-AMPs with excellent responsiveness, dynamic range, and low distortion. Developed in collaboration with MUSES from the initial stages to extract the best performance, the OP-AMP in the RD-160 are meticulously tuned to deliver a vibrant, lifelike sound.



ROSE NRA™ Filter

The analog stage, equipped with the ROSE NRA[™] filter, implements flat frequency characteristics even in very low frequency bands. Thanks to this, the RD-160 boasts an extensive, consistent frequency response across the entire spectrum without roll-offs, allowing it to faithfully reproduce the original sound information contained in Hi-Res music files from deep and resonant bass to the ambient details in the high-frequency range.



Lavish Internal Wiring

High-purity Oxygen-Free Copper cables have been strategically used in places such as power and audio input/output sections, which have a decisive impact on sound quality. Particularly, in the analog unbalanced output stage, high-purity single-crystal Ohno Continuos Casting cables with excellent conductivity, ensuring signal transmission without distortion, has been applied.



High-Precision OCXO

The high-precision OCXO employed in the RD160 enhances the precision of digital inputs, providing more accurate clock signals. OCXO is the most accurate and stable clock available, unaffected by temperature changes. Conventional crystals may introduce jitter to audio signals due to changes in temperature, resulting in fluctuations in oscillation. The OCXO clock, by maintaining a constant temperature, suppresses jitter and produces a stable and precise clock signal.





os Feature

Upsampling & Filter

The RD160 offers various options. For upsampling, it provides four options: NOS, PCM, DSD, and ALL. PCM supports up to 32bit/768kHz, and DSD supports up to DSD512. Additionally, the digital filter offers six different types of impulse responses, allowing users to select according to their preferences. These two features can be easily configured using the button located on the left side of the front panel, and the changes are instantly reflected on the Hidden Screen without any delay.



Fiber Optic USB

The SFP USB, featuring optical converting functionality, completely blocks digital noise from the source device. When connected to RS130, which supports SFP USB ports, you can receive pure data without any noise interference, ensuring the cleanest transmission possible.



External Master Clock Input

Audio sources require a master clock input that outputs synchronized audio data with the master clock. By applying this method, jitter from optical, coaxial, and AES/EBU connections from the audio source to the DAC can be eliminated, supporting perfect synchronization between devices tailored to the operating environment.



Remote Control

A remote control is provided, allowing convenient control of the various functions of the RD160 even from a distance.





Appearance

Appearance





Black

Silver



os Specification

Specification

Design	Size	430(W) × 327(D) × 87(H) mm
	Weight	10kg
	Body	Solid Aluminum, Rust-proof Steel
	Display	2 $ imes$ Polycarbonate AMOLED hidden screen (MIPI-DSI)
	Color	Silver, Black
Power	Input Voltage	AC100-120V, 220-240V, 50/60Hz
H/W	CPU	Quad-core ARM Cortex-A7MP
	RAM	1GB DDR3 (1866Mhz Data Rate)
	Flash	8GB eMMc
	Oscillator	OCXO (Oven Controlled Crystal Oscillators)
Feature		Sharp Roll-off, Slow Roll-off,
	PCM Filter	Short Delay Sharp Roll-off (default), Short Delay Slow Roll-off,
		Super Slow Roll-off, Low Dispersion Short Delay
	PCM/DSD Upsampling	PCM 44.1kHz to 705kHz, PCM 48.0kHz to 768kHz, DSD64 to DSD512
Connectivity	Digital Input	1 $ imes$ USB SFP Module (32bit / 768kHz, Native DSD512)
		1 $ imes$ USB Type-B 2.0 (32bit / 768kHz, Native DSD512)
		1 $ imes$ HDMI I2S (32bit / 768kHz, Native DSD512)
		1 $ imes$ OPTICAL RX (24bit / 192kHz, DoP64)
		1 $ imes$ COAXIAL RCA (32bit / 384kHz, DoP128)
		1 $ imes$ COAX BNC (32bit / 384kHz, DoP128)
		1 × AES/EBU XLR (32bit / 384kHz, DoP128)
	Analog Output	2 $ imes$ Balanced XLR, 2 X Unbalanced RCA
	External Clock (10MHz)	1 $ imes$ 75ohm BNC, 1 X 50ohm SMA
Remote Control	IR	38kHz IR Receiver
Measurement	Sensitivity	9Vrms @ 1kHz 0dBF (TBC)
	Frequency Response	10Hz ~ 70kHz @ +1/-3dB (TBC)
	SNR	132dB A-wt (TBC)
	THD	0.0002% / 113dB (TBC)
	Dynamic Range	129dB (TBC)



Connectivity

Connectivity



< RS130 / Transport >

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