UD-505 USB DAC Preamplifier, Black

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Colour

PRODUCT DETAILS

Overview
The UD-505 is a flagship dual monaural USB DAC with an integrated fully-balanced headphone amplifier, that fuses high-end audio design concepts and TEAC's decades of audio design experience, in an A4-sized footprint. Like its predecessor models, the UD-501 and UD-503, it employs a dual monaural circuit design to process audio signals with even greater purity, with the latest VERITA AK4497 DAC chip used on each of the two channels. This improves the S/c (signal to noise) ratio by processing each channel individually in monaural mode, as well as delivering DSD512 (22.5MHz) native and 768kHz/32-bit PCM playback capabilities. The analogue section, which is one of the keys to sound quality, includes four TEAC-HCLD buffer amp circuits process different drive modes, – fully-balanced drive for balanced output, and parallel drive mode for unbalance output, – to achieve enhanced acoustic expressive. The headphone section is remarkable. A totally new 4.4mm headphone jack, called Pentaconn, is employed, allowing balanced and active ground connections within a single jack, while conventional 1/4" phone jacks are also provided. In addition to a wide range of digital and analogue inputs, a Bluetooth® receiver supporting LDAC™ and Qualcomm® aptX HD™ allows you to enjoy high-quality wireless audio streaming from your smartphone on this flagship USB DAC. The UD-505 is a compact and high-spec USB DAC and headphone amplifier that supports today's high sampling rate Hi-Res formats.

High-performance VERITA AK4497 DACs supporting DSD512 and PCM32/768
The UD-505 employs the latest VERITA AK4497 (developed by Asahi Kasei Microdevices) on each of the left and right channels. It is a highly-regarded high-end audio DAC, and supports DSD512 (22.5MHz) and 768kHz/32-bit PCM formats, achieving industry-leading ultra low distortion levels. OSRD (Over-sampling Ratio Doubler) technology, meanwhile, significantly reduces out-of-band noise. As a result, the UD-505 has the refinement necessary to make the most of Hi-Res formats, successfully processing information that lies outside the audible range.

Dual monaural circuit design and fully-balanced design
A dual monaural circuit configuration is used throughout, from the power supply (including power transformers), to the D/A converters in the digital section and the Analog output stage. From the high-performance VERITA AK4497 D/A converters to the massive toroidal-core power transformers, each element is configured for single channel processing. This prevents mutual interference effects while reproducing a rich acoustic expressiveness.

In addition, the Analog audio signals of both the left and right channels are processed in full balanced mode soon after the D/A converters all the way to the output terminal, contributing to an improved S/N ratio and extended dynamic range. This allows the fantastic sense of air that Hi-Res formats possess to be processed and conveyed without any losses.

High-quality wireless audio streaming via Bluetooth®
In addition to conventional SBC and AAC codecs, the UD-505 also supports LDAC™ (24/96 Hi-Res audio transmission), and Qualcomm® aptX™ HD, a codec that uses 24/48 format transmission. These allow you to playback playlists on your smartphone and tablet wirelessly.

Dual on-board clocks for 44.1k and 48kHz, and external clock input
Instead of referencing to an unstable and noisy PC clock during USB audio playback, a more accurate and on-board clock is generated by a high-precision, low phase-noise, audio-grade crystal oscillator for USB asynchronous transfer mode. The UD-505 accommodates two on-board clocks exclusively for 44.1kHz and 48kHz sampling frequencies and applies the appropriate one to incoming digital signals - those that are multiples of 44.1k or 48k - to reproduce identical sound to the original by eliminating jitter effects on the audio signal.
In addition, an external 10MHz clock input is also provided, to synchronise with an even higher-precision master clock generator, such as the TEAC CG-10M, for yet further upgraded audio playback with excellent sound quality.

Up-conversion up to 384kHz/32-bit PCM and 24.5MHz DSD
Employing RDOT-NEO (Refined Digital Output Technology NEO), a fluency algorithm that renders digital audio signals smoothly, the UD-505 up-converts PCM digital signals up to 384kHz/32-bit PCM and 24.5MHz DSD. With the up-conversion function activated, you will hear an improvement in quality, even with music that you are familiar with.

"Bulk Pet" USB transfer technology for enhanced audio quality
When transferring large volumes of digital data for Hi-Res audio sources through USB cables using conventional isochronous transfer mode, large variations can occur in the processing loads of the sending computer and the receiving USB DAC. This can cause sound to drop out and other problems to occur. However, with our new USB transmission technology - dubbed "Bulk Pet" - a fixed amount of data is transmitted constantly, levelling out the processing burden on both devices and contributing to stable data transmission. Changing the processing burden on the computer directly affects audio quality so users can select the setting they prefer (from four transmission modes).

More digital filters than previous model
On the UD-505, there are two types of DSD filters and another five types of PCM digital filters, allowing you to apply the filter that best matches the file format or type of music you're listening to. The filter can be changed at the touch of a button on the remote control, allowing you to enjoy the different sonic nuances of each filter.

PCM digital filters

- Sharp Roll Off: FIR filter with a steep roll-off that sharply cuts signals outside the audio band
- Slow Roll Off: FIR filter with a slow roll-off that gently cuts signals outside the audio band
- Short Delay Sharp: Short delay filter with a steep roll-off that sharply cuts signals outside the audio band
- Short Delay Slow: Short delay filter with a slow roll-off that gently cuts signals outside the audio band
- Low Dispersion: Short delay filter with low dispersion that cuts signals outside the audio band

DSD digital filter

- Narrow: Cut-off frequency of 39kHz (at 2.8M), 78kHz (at 5.6M), 156kHz (at 11.2M) or 312kHz (at

22.5M)

- Wide: Cut-off frequency of 76kHz (at 2.8M), 152kHz (at 5.6M), 304kHz (at 11.2M) or 608kHz (at 22.5M)

Isolated digital and Analog sections
In order to suppress interference between the digital and Analog sections, the UD-505 employs an independent power supply and ground circuit, so eliminating cross-interference in the signal path where digital and Analog sections connect. A digital isolator is employed at the input section to eliminate noise originating from any connected digital sources, including noise that is generated from the computer via USB, power line and the ground path. This isolation circuit also makes a significant improvement in the signal-to-noise ratio as well as the final sound quality.

Dual high-capacity toroidal-core power transformers
The dual monaural theme continues. Two over-sized high-capacity toroidal-core power transformers are employed in the UD-505, supplying stable, individual current sources for each of the left and right channels. This means neither channel will be affected by changes in the power consumption of the other during digital processing.

Unique TEAC-HCLD output buffer amp circuits
At the heart of Analog section are TEAC-HCLD (High Current Line Driver) buffer amp circuits, designed to enhance current supply. Each channel employs two identical buffer amps that process differential drive for balanced output, and parallel drive for unbalanced output. By increasing the current supply to the buffer amp section, the Analog audio signal is passed to the next step without any loss of dynamism.

TEAC-QVCS high-precision volume control with four circuits
The UD-505 is also a superb pre-amplifier, thanks to its combination of outstanding analogue processing performance, a wide range of Analog/digital inputs, and fixed/variable level XLR (balanced) and RCA (unbalanced) outputs. These allow you to build a fully-fledged hi-fi system around the UD-505 with a stereo amplifier/pair of monaural power amplifiers and floorstanding speakers, or a simplified system based on a pair of active speakers
The TEAC-QVCS (Quad Volume Control System) is a precise volume control design incorporated in the pre-amp section. This circuit employs four sets of variable gain-amps controlling volume for left, right, positive and negative (L+, L-, R+, R-). Each variable gain-amp is located on a simplified signal path which helps eliminate interference noise by creating a shorter signal path.
In addition, the TEAC-QVCS provides precise volume control in 0.5dB steps in "dB" display mode, or 100 steps in "step" display mode.

Discrete circuit design with balanced drive
The UD-505's headphone amplifier circuit provides balanced-drive by using the TEAC-HCLD circuit, - comprised of four output transistors for each left and right channel - for headphone output. Furthermore, by driving these transistors in parallel when a single-ended headphone is connected, the UD-505 delivers stronger driving power than most ordinary single-ended headphone amps provide. When listening to conventional headphones, it also operates in Class-A (by expanding the Class-A range of operation), despite using a Class-A/B amplifier. With challenging 600 high-impedance headphones for example, the UD-505 allows you to bring out the potential of these type of headphones.

Active-ground drive offers a new headphone drive mode
The active-ground is a new driving mode that employs the principles of balanced connection. It forcefully drives the ground, by lowering the ground level to 0V, providing an ideal ground condition (rather than just connecting to the conventional ground) This means it also suppresses hum noise from the power supply and enhances the purity of silent pauses by lowering the noise floor. Subtle detail, such as the breathing of artists and the textures of sounds, will feel even more convincing.

Pentaconn, a totally new single-plug connector for balanced headphone drive
In addition to the dual conventional 1/4" TRS jacks for balanced connection, the UD-505 employs a newly designed single headphone jack for balanced drive. The Pentaconn jack is a new 4.4mm 5-pole jack that has been developed by NIPPON DICS Co., Ltd, and complies the RC-8141C JEITA Standard, providing a single-jack solution for balanced headphones. More Pentaconn jack-equipped headphones

and cables are expected in the near future.

Full-metal body for functionality and beauty
Just as with the successful Reference 503 series, the UD-505 employs aluminum-alloy panels - including iconic side guard-bars - and a robust metal chassis with a compact A4-size footprint that completely matches with the 500 series and the new CG-10M master clock generator. The full metal construction isn't just beautiful, it's also functional. It's highly effective at isolating the internal circuits from electromagnetic noise.

Symmetrically laid out XLR and RCA output jacks
The UD-505 is equipped with both balanced and unbalanced Analog audio outputs. A pair of XLR connectors and another pair of RCA connectors - each gold-plated - are symmetrically laid out, hinting at the dual monaural arrangement inside, and allowing a wide range of possible audio configurations. A wide-spaced pitch layout for the RCA outputs accommodates professional grade plugs with large-diameter shells. The UD-505 has a total of 5 digital inputs: USB audio, coaxial, optical on the rear panel, and a combination jack on the front panel (for coaxial and optical, supporting PCM 24/192 and DSD64 in DoP format).
A pair of RCA Analog audio input connectors allow the UD-505 to function as a pre-amplifier equipped with a high quality and precision volume control (TEAC-QVCS).

Three-position, patent-registered "Pin-Point" feet for perfect stability
The UD-505 employs TEAC's patented "Pin-Point" feet. These ingeniously comprises two separated metal sections in a in an integrated housing. One is has a spiked top and is attached to the bottom of the chassis, the other is a basin-shaped base that hangs down from the spiked section with a flange-shaped cup to simply installation.
Three "Pin-Point" foot are used for support, two at the front and one at the rear, for excellent stability, even on an uneven floor.
As a result, the three "Pin-Point" feet help improve the accuracy of clock oscillation by minimising vibrations and resonance. This, in turn, reduces mid and low frequency muddiness, improves the soundstage and enhances fine sound detail.

Main Functions

- Hi-Res adio playback supprting DSD512 (22-6MHz) and PCM 768kHz/32-bit PCM
- Dual monaural circuit design with a high-end AKM VERITA AK4497 DAC on each channel
- 5 types of PCM digital filters and 2 types of DSD digital filters
- Up-conversion up to 24.5MHz DSD and 384kHz/32-bit PCM
- Dual on-board clocks for 44.1kHz and 48kHz frequencies, and 10MHz external clock input
- Bluetooth-™ receiver supporting LDAC™ and Qualcomm™ aptX™ HD
- TEAC-HCLD output buffer circuit and TEAC-QVCS volume control for high quality sound
- 4.4mm 5-polar Pentaconn jack and dual 1/4" TRS jacks for balanced and active-ground drives
- TEAC's patent registered pin-point feed in three positions for the perfect installation
- "Bulk Pet" USB transfer technology, with four transfer modes to vary sound character
- Free TEAC HR Audio Player for DSD512 and PCM32/768 playback.

For more specifications, see the datasheet in the downloads tab.

Included accessories

- Power cord
- RCA Mini plug adapter cable
- Remote control
- 2 AAA batteries for remote control
- 3 Feet pads
- Owner's Manual

Specs

Product Attributes

EAN:	4907034221769
Manufacturer number:	UD-505-B
Product weight:	5.5 kilograms
Pieces per master carton:	1 Piece