

USB DAC / Preamp / Headphone Amp

UD-507



Completely redesigned 500 Series DAC/Preamp/Headphone amplifier with high-end 700 Series design concept in a compact A4-size package.

■ Main Features

Highly Musical Discrete DAC Designed and Developed In-House

The UD-507 is equipped with our proprietary "TRDD5" discrete DAC, designed with musicality as the top priority. Following in the footsteps of TEAC's acclaimed 701 series, the new "TRDD5" discrete DAC offers a clear soundstage and accurate imaging, providing listeners with a truly immersive musical experience.



Fully Balanced Dual Monaural Headphone Amplifier

The UD-507 is a headphone amplifier featuring the TEAC-HCLD2 high current line driver, which is characterized by its high current supply capability. Compared to the previous model, the maximum output power has been greatly improved by strengthening the power supply, resulting in a generous driving power of 1,200mW + 1,200mW (balanced output at 100 ohm load), which is comparable to a dedicated headphone amplifier without DAC. The power amplifier gain can be switched between 3 positions (Low/Mid/High) to fine-tune the output to best match the sensitivity and impedance of the headphones.

High-Quality Preamplifier with Multiple Analog/Digital Inputs

The UD-507 incorporates the TEAC-QVCS high precision analog volume attenuator and the powerful TEAC-HCLD2 high current line buffer circuit. With five digital inputs and two analog inputs (unbalanced and balanced), a wide variety of devices can be connected.

■ Other Key Features

- Full-stage dual monaural/balanced circuit configuration for excellent channel separation
- 22.5MHz DSD and 384kHz/32bit PCM playback as USB DAC
- Preamplifier with 5 digital inputs (USB Type-B (rear), USB Type-C (front), Coaxial, Optical, Bluetooth) and 2 analog inputs (RCA, XLR)
- In addition to 6.3mm stereo standard jacks, the XLR 4-pin and Pentaconn jacks are switchable between balanced drive/active ground drive.
- Full MQA decoder, supporting all digital inputs except Bluetooth®
- "RDOT-NEO" up-conversion function (2xFs/4xFs/8xFs)
- Bluetooth receiver supporting high quality audio codecs including LDAC and aptX™ HD

Brand	TEAC	TEAC
Model Name	UD-507-S	UD-507-B
Color	Silver	Black
EAN Code	4907034 225248	4907034 225231
UPC Code	043774 036189	043774 036172
Release Date	05/22/2024	5/22/2024
Estimated Delivery Date	Late June 2024	Late June 2024
Product Dimensions / Weight	290 x 85 x 249(WxHxD/mm)/4.9kg 11.4 x 3.3 x 9.8 (WxHxD/inch)/10.8lbs	290 x 85 x 249(WxHxD/mm)/4.9kg 11.4 x 3.3 x 9.8 (WxHxD/inch)/10.8lbs
Package Diminions / GW	444 x 193 x 345 (WxHxD/mm)/ 6.5kg 17.4 x 7.6 x 13.6(WxHxD/inch)/14.3lbs	444 x 193 x 345 (WxHxD/mm)/ 6.5kg 17.4 x 7.6 x 13.6(WxHxD/inch)/14.3lbs



Proprietary “TEAC Reference Discrete DAC: TRDD5”

All digital signals input to the UD-507 are processed at 64bit/512Fs by the delta-sigma modulator in the FPGA, which incorporates a proprietary algorithm, and converted to analog signals by 16 elements per channel (one element is a pair of logic circuits and a low-pass filter with high-precision resistors). The DSD signal is processed directly, while the PCM signal is converted to a 1-bit signal by a delta-sigma modulator before being output as a high-quality analog signal. 22.5 MHz DSD and 384 kHz/32-bit PCM playback is possible. Two operating methods can be selected according to your preference: the multilevel (multi-bit) delta-sigma method or the 1-bit delta-sigma method.



In Addition to 44.1kHz and 48kHz Internal Clocks, 10MHz External Clock Input Is Supported

For USB audio playback, the UD-507 supports the USB Asynchronous Transfer Method, which controls PCM and DSD data transfer by synchronizing to the clock generated by the UD-507's internal high-precision crystal oscillator, instead of synchronizing to the unstable and noisy PC clock. The internal clock is equipped with two types of dedicated clocks, 44.1kHz and 48kHz series, each of which applies an audio-grade high-precision crystal oscillator with low phase noise to input signals at integer multiples, greatly minimizing the effect of jitter on sound quality and faithfully reproducing the original sound. The UD-507 also supports a 10MHz external clock input that can be synchronized to an external master clock signal. Synchronization with a high-precision external clock enables an upgrade to even higher quality music reproduction.

Dual Monaural Construction

The D/A converter section is independent of the left and right channels, and a luxurious dual monaural circuit is used throughout the analog output stage. The dual monaural configuration, with two monaural circuits for each channel, prevents interference between L/R signals and reproduces music with a spacious and three-dimensional soundstage.

Fully Balanced Signal Transfer

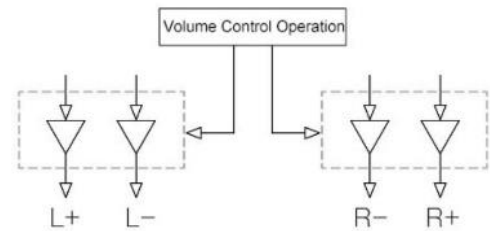
Fully balanced transmission of the L/R analog output signals from the D/A conversion stage to the final output stage greatly improves signal-to-noise ratio and expands the dynamic range, enabling pure reproduction of the spatial information contained in high-resolution sound sources.

Two Large Toroidal Core Transformers / Non-feedback Power Supply Circuit

The UD-507 is equipped with one toroidal transformer each for the analog (including the analog section of the DAC) and digital processing boards. By separating the analog and digital power supply sections, mutual interference is avoided and the purity of the analog signal is improved. In addition, a no-feedback circuit is used for the analog power supply circuit to provide more musical reproduction capability.

Preamplifier with Analog Volume Control - 5 Digital Inputs and 2 Line Inputs (RCA/XLR)

A total of five digital inputs are provided, including two USB Type-B (rear), two Type-C (front), one each of coaxial and optical digital, and Bluetooth. In addition, two analog inputs (RCA/XLR) are supported, allowing it to play a central role in a system as a high-quality preamplifier. The TEAC-QVCS (Quad Volume Control System), which uses a variable gain controller with four independent circuits for left, right, positive, and negative (L+, L-, R+, R-), is placed on the audio signal path to minimize the signal path and prevent audio signal degradation due to signal line routing. The TEAC-QVCS also provides fine volume control in 0.5 dB increments, allowing you to set the volume level that best suits your audio system and headphones.



TEAC-QVCS

Improved TEAC-HCLD2 Enhanced-Current Output Buffer Circuits

The UD-507 is implemented with TEAC-HCLD2 output buffer circuits, which are enhanced versions of our TEAC-HCLD (TEAC High Current Line Driver) circuits. These increase the current transfer capabilities that are important in analog output circuits. Each channel has a positive and negative dual circuit structure with high current transfer diamond buffer amplifiers used as line drivers. The drive is differential for balanced output and parallel for unbalanced output. By increasing the current handling capability, it is possible to transmit the dynamics of audio signals without loss.

Headphone Amplifier with XLR 4-Pin and Pentaconn Jack with Switchable Balanced/Active Ground

The UD-507 is equipped with a dedicated headphone amplifier that uses four diamond buffer circuits, one positive and one negative circuit on each channel, to allow the connection of balanced headphones. The amplifier can bring out the potential of various types of headphones, including high-impedance headphones of 600 ohms. The active ground method uses the principle of a balanced circuit configuration to electrically drive the cold side to 0V by means of an amplifier circuit. Since the ground potential is always fixed at 0V, this method is not only more ideal than the usual method of grounding the cold side, but also has the effect of suppressing the effects of hum from the power supply, and the lower noise floor makes the system quieter, allowing the listener to feel the artist's breath and sound textures more closely.

MQA Full Decoder That Supports All Digital Inputs

MQA (Master Quality Authenticated) is a high-quality audio codec that enables playback at the same quality level as studio masters. The UD-507 has an MQA decoder that controls D/A-converted waveforms with a precision as fine as 5 ms in order to achieve analog waveforms that are true to the original recordings. Playback sound that seems like the original to the human ear can be achieved by greatly reducing the “sound blurring” that occurs easily when sounds start suddenly and at other times when sound pressure differences are extreme.



Since a full decoder is included, in addition to file and network playback, MQA data from all digital inputs except for Bluetooth can also be decoded. Playback of MQA CDs is possible by connecting the digital output of a CD player to the UD-507.

Up-Sampling Function

The up-sampling function uses RDOT-NEO (Refined Digital Output Technology NEO) to smoothly augment PCM digital audio signals and upconvert their sampling frequencies 2, 4 or 8 times (384kHz maximum). RDOT, which applies an analogous interpolation method using fluency logic, is a technology that was developed to enable reproduction and playback of frequencies higher than 20 kHz that are lost by 44.1kHz/48kHz digital signals. Based on the information read, analogous data is generated between the waveform samples, which also results in data above 20 kHz.

Bluetooth Receiver Supporting LDAC, Aptx™ HD High-Quality Audio Communication and Multipoint Connection

The UD-507 supports LDAC™ and LHDC codecs, which are capable of transmitting high-resolution audio data (96kHz/24bit), as well as Qualcomm® aptX™ HD, which is capable of transmitting at 48kHz/24bit. The UD-507 also supports versatile codecs such as AAC, Qualcomm® aptX™ and SBC, enabling casual enjoyment of high-quality wireless playback from smartphones and DAPs (digital audio players). It also supports multi-point connectivity, allowing two devices to be wirelessly connected at the same time and seamlessly switch between them for listening.



Bulk Pet USB Transfer Technology Enables Stable Data Transmission

When transmitting large amounts of digital data by USB cable from high-resolution audio sources, large inconsistencies arise in the processing loads of both the sending computer and the receiving USB DAC, and audio dropouts and other problems can occur. Using the Bulk Pet USB transfer technology, however, the same amount of data is transmitted at a steady rate, leveling the processing loads of both sides and realizing stable data transmission. Since changes in computer load conditions can also affect audio quality, you can select from four preset transmission modes to choose the preferred audio quality.



Meticulous Vibration Control

The transformer, which is prone to vibration, is suspended from the base plate in a floating structure. The structure is designed to minimize the number of screws used to secure the board to prevent vibration from being transmitted to the board. A new mechanism, TEAC's original Stressless Foot v2, which has a gap between the bottom plate and the foot, has been adopted to thoroughly control vibrations that affect sound quality. A new 2.8mm thick top plate has been adopted to further improve vibration control.

Teac HR Audio Player, Which Supports 22.5mhz DSD Playback with Both Windows and Mac, Provided for Free

This free dedicated software can be used to easily play 22.5Mhz DSD and 384kHz/32-bit PCM, which represent the next generation of high-resolution audio sources, from Windows and Macintosh computers. By simply starting the software and selecting the UD-701N connected by a USB cable, digital audio data can be transmitted reliably with optimal conditions.

Since this software is designed for use with this model, there is no need to worry about the troubles that often occur with USB audio settings, including "no sound being output even when the USB DAC is recognized" and "sound being down-converted when it is output."



■ Specifications

Analog audio outputs

Connectors	XLR x 1 pair (L/R)	RCA x 1 pair (L/R)
Output impedance	XLR : 40 Ω	RCA : 20 Ω
Maximum output voltage* (1 kHz/full-scale, into 10 k Ω)	RCA/XLR 0dB XLR +6dB	2.0 Vrms 4.0 Vrms
Frequency response*	5Hz ~ 70kHz (+1dB/ - 6dB)	
S/N ratio*	105dB or more (A-Weight, 1kHz)	
Distortion*	0.01% or less (1kHz, LPF: 20 - 20kHz)	

*Measurement conditions

Input signal: 192kHz 24-bit PCM
Measurement output: RCA
DAC: MULTI BIT

Headphone outputs

Connectors	standard 6.3mm (1/4") stereo jack × 1 XLR 4pin connector × 1 4.4mm 5-pole stereo jack × 1
Maximum effective output	Unbalanced/Active GND 900 mW + 900 mW (into 32 Ω) Balanced 1200 mW + 1200 mW (into 100 Ω)
Applicable load impedance	16 ~ 600 Ω

Analog audio inputs

Connectors.	XLR x 1 pair (L/R) RCA x 1 pair (L/R)
Input impedance	XLR : 50k Ω RCA : 25k Ω
Maximum input level	XLR : 5Vrms RCA : 2.5Vrms

Digital audio inputs

USB	USB Type-B port	1 (USB 2.0)
	USB Type-C port	1 (USB 2.0)
	Input signal formats	
	Linear PCM	44.1/48/88.2/96/176.4/ 192/352.8/384kHz 16 bit、24 bit、32 bit
	DSD	2.8/5.6/11.2/22.5MHz

COAXIAL digital	2
Input level	0.5Vp-p
Input impedance	75 Ω
Input signal formats	
Linear PCM	32/44.1/48/88.2/96/176.4/192kHz 16 bit、 24 bit
DSD	2.8MHz (supported using 176.4kHz/24bit DoP transmission)
OPTICAL digital	2
Input level	- 24.0 ~ - 14.5dBm peak
Input signal formats	
Linear PCM	32/44.1/48/88.2/96/176.4/192kHz 16 bit、 24 bit
DSD	2.8MHz (supported using 176.4kHz/24bit DoP transmission)

Bluetooth function

Bluetooth version	4.2
Output class	Class 2 (transmission distance without obstructions** : 10m)

** The transmission distance is approximate. The transmission distance could vary depending on the surrounding environment and electromagnetic waves.

Supported profiles	A2DP, AVRCP
Supported A2DP codec	LDAC, LHDC, Qualcomm®aptX™ HD audio, Qualcomm®aptX™ audio, AAC, SBC
Supported A2DP content protection	SCMS-T
Maximum number of stored pairings	8
Maximum number of multipoint connections	2

Clock sync input

Connectors	BNC
Input frequency	10MHz
Input impedance	50 Ω
Input level	rectangle wave: equivalent to TTL levels sine wave: 0.5 to 1.0 Vrms

External control

Trigger output (12V TRIGGER OUT)	1 (3.5mm mono mini jack)
Output level	12V
Maximum current supply	100mA

General

Power supply

Model for Europe. AC 220–230 V, 50/60 Hz
Model for U.S.A./Canada. AC 120 V, 60 Hz

Power consumption

18W

Standby power

0.4W (in standby mode)

External dimensions

290 x 85 x 249 mm

(W × H × D, including protrusions)

(11 1/2" × 3 3/8" × 9 7/8")

Weight

4.9 kg (10 7/8 lb)

Operating temperature range

+ 5°C~+ 35°C

Operating humidity range

5%~ 85% (no condensation)

Storage temperature range

– 20°C~+ 55°C

Included accessories

Power cord × 1

Remote control (RC-1341) × 1

Batteries for remote control (AAA) × 2

Foot pads × 3

Owner's manual (this document, including warranty) × 1

■ **Rear View**



■ **Remote Controller**

