

# Supplemental to New Product Information (SNPI) TEAC

## UD-301 Dual Monaural Digital-to-Analog Converter



**A new standard in high-resolution audio, delivering high performance audio from a desktop component**

### ■ Main Feature

- A compact (215mm width) digital-to-analog converter (DAC) with USB input
- Compatible with 2.8MHz/5.6MHz DSD native playback and 32bit/192kHz high-resolution sound sources
- Asynchronous transmission mode capability and 192kHz up-conversion option
- Dual monaural design eliminates interference between the left and right channels. Built around twin BurrBrown PCM1795 DAC chips
- Toroidal core power transformer
- XLR balanced output
- The USB DAC can be directly connected to a power amplifier or active speaker and the output level (XLR, RCA) can be set to fixed, adjustable or off.
- By setting the XLR or RCA output level to "Off," unnecessary circuits (other than those of the headphone amplifier) are isolated, enabling the sound quality of the headphone amplifier to be further enhanced.
- Full metal housing provides both excellent vibration control and a classy look, in a compact size allowing convenient desktop positioning



Brand	TEAC
Series	Reference 301
Model	UD-301-B
Announcement Date	2/5/2014
Estimated Delivery Date	April 2014
UPC Code	043774030729
EAN Code	4907034218721
Overall Dimensions / NW W x H x D	215 x 61 x 238 / 2.0 (mm/kg) 8.5 x 2.4 x 9.4 / 4.4 (inch/lbs)
Package Dimensions / GW W x H x D	391 x 150 x 396 / 2.8 (mm/kg) 15.4 x 5.9 x 15.6 / 6.2 (inch/lbs)
Qty. per Master Carton	n/a

Brand	TEAC
Series	Reference 301
Model	UD-301-S
Announcement Date	2/5/2014
Estimated Delivery Date	April 2014
UPC Code	043774030699
EAN Code	4907034218738
Overall Dimensions / NW W x H x D	215 x 61 x 238 / 2.0 (mm/kg) 8.5 x 2.4 x 9.4 / 4.4 (inch/lbs)
Package Dimensions / GW W x H x D	391 x 150 x 396 / 2.8 (mm/kg) 15.4 x 5.9 x 15.6 / 6.2 (inch/lbs)
Qty. per Master Carton	n/a

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## ■ Dual monaural design, compatible with high-resolution DSD

- Capable of 5.6MHz DSD native playback

The USB input facility allows DSD native playback which converts 5.6MHz DSD files directly into analog signals without needing first to convert it to PCM. It supports both the ASIO2.1 and DoP (DSD over PCM) conversion methods. Using the AI-301DA in conjunction with the TEAC HR Audio Player\* high-resolution playback computer software application, anyone can easily explore the world of high-rez digital audio, including 5.6MHz DSD or 32bit/192 kHz PCM files, without having to grapple with complex settings etc.



\* TEAC HR Audio Player can be downloaded for free from the TEAC website.

- Asynchronous mode-capable USB input

When receiving digital audio signals from a computer via USB cable, the unit can operate in asynchronous mode, controlling the timing of the input signal using the UD-301's internal clock (which is identical to the one used in the UD-501). With asynchronous transmission over USB, signal compromising jitter is effectively eliminated, allowing digital audio signals to be transmitted in a pure, unadulterated state.

- Up to 192kHz up-conversion option.

When handling digital signals of 96kHz and less, users have the option to upconvert to double or quadruple the original signal sampling frequency. Even when playing back a 44.1kHz sound source (equivalent to CD sound quality) a smoother analog audio signal can be obtained in order to convert to a higher resolution digital signal. Naturally, this up-conversion facility can be switched in or out, according to the user's preference.

- Dual monaural design eliminates interference between the left and right channels

In order to process the audio signal from a high-resolution sound source in a purer state, we adopt a dual monaural circuit design whereby each of the left and right channels comprises its own single monaural circuit. This avoids mutual interference between the left and right channels and enables pure stereo playback.

- High-performance BurrBrown PCM1795 digital-analog converter

The two internal BurrBrown 1795 digital-to-analog converter units each work on a single channel (left or right) for true dual monaural operation. They are capable of 32-bit processing and so have the capacity to process 5.6MHz DSD data in large quantities, making them indispensable for faithful and accurate playback of high-resolution sound sources.



- MUSE operational amplifier enables highest quality analog signal processing

We use these in the analog circuit, they are a vital element in determining the final sound quality. They transform the electrical current output of the D/A converter into a voltage signal. We opted for a dual monaural configuration for the operational amplifiers, employing two MUSES8920 operational amplifier units, one on each of the left and right channels. These devices are made by New Japan Radio and are designed especially for hi-fi audio.



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- **Even the headphone amplifiers used in the CCLC circuits are of dual monaural design**

The 100mW + 100mW output (at 32 ohms load) headphone amplifier uses CCLC (Coupling Capacitor Less Circuit) technology. In conventional headphone output circuits, a capacitor is used for output-stage coupling, and so the sound is unavoidably colored. When the capacitor is combined with a high-pass filter this often results in phase lags, or low frequency level degradation. With CCLC the negative impact of capacitors on sound quality is eliminated, providing full low-frequency sound and a responsive headphone listening environment with great spatiality.

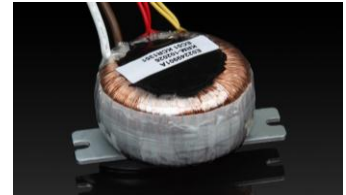


- **Doubles as a no-compromise, high-performance headphone amp**

In addition to the dual monaural headphone circuits, there are options to switch off the XLR and RCA outputs on the rear panel. By cutting the power supply and isolating those circuits that are unrelated to the headphone output, the performance of the UD-301's headphone output can be maximized. This feature also makes the headphone amp very easy to use as the volume control for the headphones is completely separate from the output mode (Fixed, Adjustable or Off) on the rear panel.

- **Toroidal core power transformer provides stable power flow**

A high-efficiency toroidal core power transformer with low magnetic flux leakage is used to guarantee the stable operation of the twin left and right D/A converters that are so essential to the UD-301's high-speed signal processing. This transformer provides a stable power supply even in situations where a sudden surge of power is required, such as when starting up at very high volume.



- **Well-engineered aluminum enclosure, compact proportions**

Following on from our development of the 501 series concept (small high-performance audio components that can be fitted on a desktop) we decided, at the outset, that the 301 series would be an even more compact design. Now, the casework has been shrunk to just 215mm wide, allowing greater freedom in positioning the amplifier. External highlights include aluminum panels and a motor-driven volume knob with the tactile feel you'd expect from controls found in high end full-size hi-fi components. At the same time, the solid enclosure underpinned by the metal chassis, is impressively inert, minimizing the effects of vibration on the unit's sound quality.

- **XLR balanced output**

The UD-301 is equipped with an XLR balanced output that can be connected not only to other domestic hi-fi components but also to professional audio equipment. As a highly versatile, high-performance D-A converter, the UD-301 offers a high degree of interoperability with devices ranging from those used by discerning consumers all the way up to those used in the professional domain.

- **Connectable to a power amp in pre-amp mode**

The XLR balanced output and RCA unbalanced outputs on the rear panel can both be set at Fixed, Adjustable or Off. Using the Adjustable setting, the UD-301 can be connected to a power amplifier to create a system with a separate pre amp and power amp or, alternatively, can be directly connected to an active speaker.

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## ■ Special Features

- 2.8MHz/5.6MHz DSD native playback (via USB input)
- 24bit/192kHz PCM file playback
- Asynchronous mode capability
- 192kHz up-conversion option (with On/Off selection)
- 2 x BurrBrown PCM1795 digital-to-analog converters
- Dual monaural design
- 2 x MUSES8920 operational amplifier units
- Dual monaural CCLC headphone output circuit
- Toroidal core power transformer
- Full metal housing
- 1 x USB input (USB B type)
- 1 x coaxial digital input
- 1 x optical digital input
- 1 x XLR balanced output (Fixed/Adjustable/Off)
- 1 x RCA balanced output (Fixed/Adjustable/Off)
- Headphone output (standard stereo jack)
- Three-pin IEC AC power socket
- Auto Power Save function

## ■ Specifications

### Format

USB input	
DSD	2.8/5.6MHz
PCM	16/24/32bit, 32/44.1/48/88.2/96/176.4/192kHz
Coaxial digital input	
PCM	16/24bit, 32/44.1/48/88.2/96/176.4/192kHz
Optical digital input	
PCM	16/24bit, 32/44.1/48/88.2/96kHz

### Digital/Analog Converter (DAC) Section

D/A converter	BurrBrown PCM1795 x 2
Up-conversion	192kHz (user defeatable)

### Audio Input & Output Capacity

USB input	USB B-type, USB2.0, asynchronous mode
Recommended application	TEAC HR Audio Player (Windows, Macintosh)
Coaxial digital input	RCA
Input level	0.5Vp-p
Input impedance	75 ohms
Optical digital input	TOS-link
Input level	-24.0 to -14.5dBm peak
XLR balanced output	XLR 3-32
Maximum output level	+14dBu (1kHz, full-scale, 10k ohms with load, 0dB when set)
Output impedance	200 ohms
RCA unbalanced output	RCA
Maximum output level	2.0Vrms (1kHz, full-scale, 10k ohms when loaded)
Output impedance	100 ohms
Headphone output	6.35mm (1/4") stereo standard jack
Maximum output	100mW + +100mW (32 ohms with load, distortion rate 0.1%)
Compatibility impedance	16 to 600 ohms

### Audio Performance

Frequency response	5Hz to 55kHz (-3dB, in the case of 192kHz sampling frequency)
Signal-noise ratio	105dB
Distortion ratio	0.0015% (1kHz, in the case of 192kHz sampling frequency)

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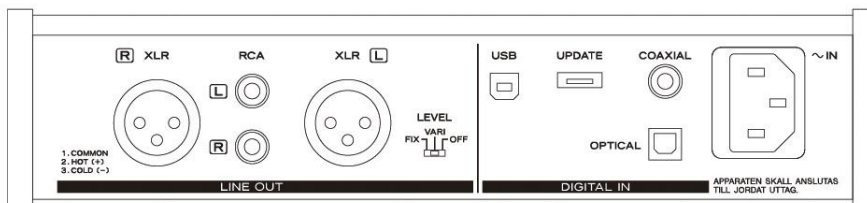
## Driver-Compatible Operating Systems

Windows	Windows 8.1 (32bit version, 64bit version), Windows 8 (32bit version, 64bit version), Windows 7 (32bit version, 64bit version), Windows Vista (32bit version, 64bit version), Windows XP (32 bit version)
Macintosh	Mavericks (OS X 10.9), Mountain Lion (OS X 10.8), Lion (OS X 10.7), Snow Leopard (Mac OS X 10.6.4 and onwards)

## General

Electric power supply	AC 100V, 50/60Hz
Power consumption	10 W
Maximum external dimensions	215 W x 61 H x 238 D mm, 8.5" W x 2.4" H x 9.4" D
Weight	2.0 kg / 4.4 lbs.
Included accessories	Power cord, Instruction Guide (including Warranty)

## ■ Rear Panel



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