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stello

DA100 *Signature* 96/24 USB

*High-End Digital-to-Analog Converter
 With USB input*



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Introduction

Thank you for buying the Stello DA100 Signature 96/24 USB.
Unpretentious in appearance, the DA100 Signature 96/24 USB digital-to-analog converter packs stunning performance in a compact form.

Like its sibling DA100, the Signature 96/24 USB version is a high-end audiophile DAC, featuring high-resolution 192kHz/24Bits upsampling. Many of the features of our legendary DA220 DAC have been incorporated in the smaller platform of the DA100 Signature 96/24 USB.

In addition to coaxial, Toslink and AES / EBU inputs, the DA100 Signature has a USB (Universal Serial Bus) standard port capable of 96kHz/24bits data from PC applications. You'll experience computer audio like never before.

Unlike the DA100, the Signature 96/24 USB features support for I2S digital transmission via a mini-DIN connector. I2S sends separate signals on individual conductors for master clock, word clock, bit clock, and audio data.

The DA100 Signature 96/24USB's fully-balanced analog outputs are on Neutrik connectors.

Try the DA100 Signature 96/24 USB with any of your digital sources – computer, CD, DVD, cable or satellite TV receiver. You'll be amazed how digital sound can be transformed into something musically seductive and emotionally satisfying.

The DA 100 Signature 96/24 USB is made especially for those who understand the importance of music in our daily lives!

Sit back, relax and enjoy the music!

April Music, Inc.

Unpacking

- In the box you will find the following :

- * DA100 Signature 96/24 USB
- * Power cord
- * PC USB cable connector
- * Owner's manual

DA100 Signature 96/24 USB Overview

An elegant High-End D/A Converter

Simple to use and elegant in appearance, April Music's DA100 Signature 96/24 USB is a reference-quality high-end digital-to-analog converter incorporating state-of-the-art technology.

Tuned for pure reproduction of music, it's not merely a DAC but a true high-end solution for serious audiophiles.

The DA100 Signature 96/24 USB is equipped with high-performance circuitry usually found in much more expensive equipment, including its special digital input receiver, true 192kHz/24bits upsampling circuit, jitter-free timing circuit, and 6th-order digital filter.

Its DAC chipset and fully discrete class A analog output stage are features found in DACs priced four or five times higher than the DA100. Premium features include 1% tolerance metal film resistors, WIMA polypropylene capacitors, Cardas RCA connectors, and Neutrik balanced connectors.

Promising long-term, problem-free performance that will prove musically satisfying to even the most demanding listeners, the DA100 Signature 96/24 USB is ruggedly but beautifully built, like all April Music products.

Five Digital Inputs, including USB and I²S

The DA100 Signature 96/24 USB has five digital inputs : one coaxial, one AES / EBU, one optical (Toslink), for use with disc players, cable TV receivers, gaming consoles and the like; one USB connector for use with personal computers, and one I²S for use with similarly-equipped disc transports.

For a startling upgrade to typical computer sound, simply connect your desktop or notebook computer to the DA100 Signature 96/24 USB using the supplied USB cable. You will be amazed by the dramatic improvement. Even highly compressed 128k MP3 files are raised to a level approximating original WAV files, thanks to special circuitry designed only for the DA100 Signature 96/24 USB.

The DA100 Signature 96/24 USB is useful for more than music, upgrading the sound of DVDs, television programs, and movie files in your computer. All digital sources are tremendously improved with the April Music DA100 Signature 96/24 USB. Sound effects in video games take on a new realism, too, with wide soundstage, detailed micro-dynamics, and huge impact. Such effects were previously possible only with the most costly DACs on the market.

The signature 96/24 USB also supports I²S, widely believed to be the most accurate and most revealing interface for digital audio. With separate conductors carrying signals for master clock, word clock, bit clock, and audio data, I²S will truly "lift the veil" from many recordings. High- quality CD transport with I²S output (such as the Stello CDT100) and the DA100 Signature DAC make an unbeatable source combination.

A versatile reference-quality DAC for a wide variety of applications, the DA100 Signature 96/24 USB is the most cost-effective upgrade you can make to your audio system.

Warranty

April Music, Inc. supports 2 years of warranty for the DA100 Signature 96/24 USB under normal use from the date of delivery.

This warranty extends only to the original purchaser and does not apply to parts that have been subjected to misuse, or abnormal operations. DA100 Signature 96/24 USB owners who have purchased their units second hand can inherit the remaining warranty period by contacting April Music, Inc. via e-mail or a letter to activate the remaining warranty.

In the event of failure during the warranty period, April Music, Inc. will repair the DA100 Signature 96/24 USB at no charge as long as provided unit is in normal use.

If the unit is damaged by the abnormal use (incorrect voltage connection, spilling coffee over the top etc.) and if you or your dealer cannot fix the problems, the unit should be returned to the factory. In this case, the estimated repair fee (including shipping & handling) will be submitted to you before shipping the unit for repair. A return authorization is required when sending the units for repair. Returned units must be shipped to April Music, Inc. prepaid and with original packaging (preferred)

There are no user serviceable parts inside except changing the line voltage. Beware that the DA100 Signature 96/24 USB runs very hot inside because the analog output stages are class-A operated discrete circuits. Care should be taken.

If you or any unauthorized person have tried to change or modify the circuits without any prior consent from April Music, Inc. all warranty will be voided even though the units are still within the warranty period.

***Unauthorized person should not try to modify April Music products!**

SPECIFICATIONS

Digital inputs	1 AES / EBU, 1 COAXIAL, 1 TOSLINK, 1 USB, 1 I ² S
Digital filter	Proprietary 6th-order digital filter
Analog output	1 pair RCA unbalanced stereo, Output voltage 2.4 Vrms@ 1 kHz 1 pair Neutrik balanced stereo Polarity : (Pin2 : +, Pin3 : -, Pin1 : Ground), Output voltage : 4.8 Vrms (2.4 Vrms@ each leg, 1 kHz)
Dynamic range	110 dB typical
Signal to Noise ratio	120 dB typical
Distortion	0.003 % 1kHz
Frequency range	20 ~ 45 kHz
Sampling frequency	ASRC : Bypass, 96 kHz, 192 kHz Digital input receiver : up to 96 kHz
Power consumption	Standby : 18 Watts Operating : 22 Watts
Power requirement	100~117 VAC / 220~240 VAC selectable 50 / 60 Hz
Dimension	212 mm (W) x 55 mm (H) x 290 mm (D)
Weight	3.5 kg (4.5 kg, 11 Lbs packaged)

Premium Quality Components

The components used in the DA100 Signature 96/24 USB are true high-end audiophile grade.

Premium chipsets include the digital receiver, 192 kHz/24 bits upsampling chip and the digital-to-analog converter, with 120 dB dynamic range.

Superior quality audio playback is further guaranteed by the use of premium quality passive components throughout, including WIMA polypropylene capacitors and 1% tolerance resistors. Enhanced longevity is made possible by specially-selected gold-plated RCA connectors and low-noise switches.

All internal parts exceed industrial standards. Look carefully inside the DA100 Signature 96/24 USB and you will easily discover why this unit sounds so amazing.

Oversized Power Supply

A generous power supply is the heart of every great-sounding audio component.

The DA100 Signature 96/24 USB's power supply is specially designed, with a 25 VA custom-made Toroidal power transformer providing an ample supply of energy for digital and analog circuitry in the DA100 Signature 96/24 USB.

The voltage regulation circuit has very low output impedance (20 mΩ@10 KHz).

Extremely stable voltages combined with instantaneous current delivery mean ultra-low residual noise in the Signature's output.

This translates to silent sonic backgrounds and lifelike musical details.

You can easily change supply voltage by selecting the proper one with the slide switch, located on upper left-hand corner on the main pcb. From 100~120 V to 220~240 V / 50~60 Hz, you can use DA100 Signature 96/24 USB anywhere in the world.

Analog Output Stage

Fully Class A push-pull throughout, the analog output stage of the DA100 Signature 96/24 USB is a current-based amplifier design, for virtual immunity to electrical noise induced by adjacent circuitry. This results in extremely high signal-to-noise and dynamic range specifications, among the best in the world. Voltage conversion takes place in the final stages of the circuit for maximum sonic transparency.

How to operate

- 1) Make sure that the level of your preamplifier or integrated amplifier is set to a low volume level.
 - 2) Turn the 'Power' Switch up on the rear panel. Then push the 'Standby' button on the front panel (Red LED will light).
 - 3) Select your input by rotating the INPUT knob (AES / EBU, COAX, OPT, USB, I²S).
 - 4) Check if the 'LOCK' signal is on. If the 'LOCK' LED is not on even though you set the knob for your selection, please check the wiring again for proper connection.
 - 5) Set the 'UPSAMPLE'
- Press UPSAMPLE push-button switch for 192/24 upsampling with green LED, or 96/24 upsampling with red LED or 'BYPASS' mode with LED off. You can change this setting during playback without harming the DA100 Signature 96/24 USB. The UPSAMPLE mode will advance from BYPASS to 96, 192, and back to BYPASS whenever the UPSAMPLE pushbutton is pushed momentarily. The default UPSAMPLE setting is 192.

USB output from your PC or Notebook

- 1) Connect your PC to the DA100 Signature 96/24 USB with the bundled USB cable.



- 2) Your PC will automatically detect the DA100 Signature 96/24 USB, flashing the notice 'USB DEVICE CONNECTED' to indicate the connection.
- 3) Play audio or video files with your favorite player (Windows Media Player, etc.)
- 4) If your PC or Notebook fails to detect USB as your main audio output, you should set the default 'Sound & Audio Device' as 'USB Audio' in your PC's control panel. Select 'Start' → 'Control Panel' → 'Sound & Audio Devices' → 'Audio', then select 'USB Audio DAC.'

If you do not want to use DA100 Signature 96/24 USB as your default output device, you may change your setting again by selecting the supplied sound card output with the same procedure.

Rear Panel



DIGITAL INPUTS : 5 input ports are ready (AES / EBU, COAX, OPT, USB, I²S). Please make sure that you have proper cables for each input.

COAX : Theoretically, all digital inputs have the same music quality. But, we believe what we hear, and in the real world of hi-fidelity, COAX is typically better than other connections. We recommend using a dedicated CD Transport to enjoy super quality playback from your audio equipment.

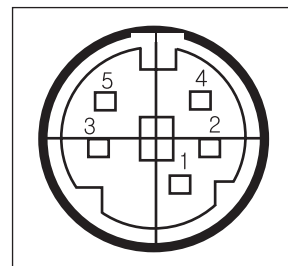
AES / EBU : AES / EBU digital format interface is mainly used in high-end environments. It is the preferred balanced form of S/PDIF digital transmission.

I²S : This mini-DIN jack should connect to the I²S output on a similarly equipped CD player or dedicated disc transport. I²S offers the advantage of separate conductors and separate signals for bit clock, word clock, and audio data.

When I²S input is selected and DA100 Signature's 96/24 USB receiver receives I²S signal from the digital source device (such as CDT100 CD transport's transmitter), the signal is locked and begins its operation.

Following is the pin assignment for DA100 Signature 96/24 USB.

[I²S Input - Pin Assignment]



PIN 1 : word clock
PIN 2 : bit clock
PIN 3 : audio data
PIN 4 : master clock
PIN 5 : not connected
Shield : circuit ground

Front Panel



STANDBY : A push-button front panel standby switch is used for normal and standby operation. An illuminated red LED above it indicates the DA100 Signature 96/24 USB is operating.

The actual power switch is on the rear panel and should remain on continuously.

UPSAMPLE : AES / EBU, S/PDIF (Coax), Optical (Toslink) and USB Input modes:

You can select either 192kHz/24Bits upsampling (green LED), 96kHz/24Bits upsampling (red LED) or Bypass (no LED). 'BYPASS' means the digital output is exactly same as the digital input (up to 96kHz/24Bits). Which mode is better? You will be the judge.

Musicality and nuance vary depending on the recording status of the sources.

Generally, we recommend 192kHz upsampling for most playback.

LOCK : Green color LED indicates that an input digital signal has been detected by DA100 Signature 96/24 USB.

INPUT : Select any input you want to hear from any of the five digital inputs :

1 AES / EBU, 1 S/PDIF Coaxial, 1 Optical, 1 USB (Universal Serial Bus), and I²S.

Features & Specifications

FEATURES

Digital input interface

- Strong protection against external interferences.
- Minimizes transmission errors.

Upsampling & D/A Converter

- Asynchronous Sampling Rate Conversion using a proprietary and specially designed clock circuitry for extremely low jitter.

- ASRC characteristics
- Upsampling up to 192kHz

D/A converter upsampling characteristics

- D/A Converter characteristics
- Signal to Noise ratio : 120 dB
- Dynamic range : 120 dB

Preprocessing filter

- Custom designed sixth-order filter circuitry for minimal noise and isolation.

Analog output stage

- Class A Push-Pull output stage with fully discrete components.
- Balanced outputs on Neutrik connectors.
- Unbalanced outputs on Cardas gold RCA connectors.

Front display and control

- Standby power momentary push-button switch with LED indicator.
- Upsampling and Bypass push-button switch with LED indicator.
- Digital input 'LOCK' LED indicator.
- 5-position digital input selection rotary switch.

Power supply

- Custom-made Toroidal transformer.

Note :

I²S interface cable should be as short in length as possible with its master clock, word clock, bit clock, and audio data in individually shielded cable for the best performance. DA100 Signature 96/24 USB takes the I²S signals in TTL level.

OPT :

Standard Optical input, known industrially as "Toslink", from Toshiba. Most DVD players, cable / HDTV receivers, game machines, and PC or notebook sound cards are equipped with either COAX or Toslink outputs for connection to an external DAC.

With some devices, you'll need to use the "SETUP" menu to set the output mode of the device to export digital signal through this port.

The DA100 Signature 96/24 USB accepts PCM signals only.

Setting "Digital Out" mode as "PCM"

- From the DVD player's setup menu, go to Audio Setup → Digital Out → PCM.
- Many DVD or universal players today support digital output with '96kHz.' If your player has this option, set its output to '96 kHz.' This ensures the highest resolution from the source, because the DA100 Signature 96/24 USB accepts up to 96kHz/24Bits . You will be stunned with the reproduced sound!

USB : Any USB (Universal Serial Bus) output can be connected to this port.

- **DA100 Signature 96/24 USB does not support ASIO driver.**

DA100 Signature 96/24 USB is designed for pure playback mode only.

ANALOG OUTPUTS :

There are left and right analog outputs on the back of the DA100 Signature. Connect these outputs to your preamplifier or integrated amplifier, making sure the "left" and "right" connections are correct. The DA100 Signature 96/24 USB features unbalanced, single-ended outputs on gold Cardas RCA connectors, and balanced outputs on Neutrik connectors. Balanced operation is best for long cable runs, because it neutralizes common-mode noise and noise from ground loops.

Connection & Operation**How to connect**