



# **Model S USB**

USB D/A Converter

## **User Manual**

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Rev.D, December 2011

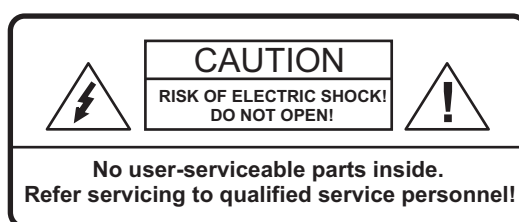
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## IMPORTANT PRECAUTIONS

1. Do not expose this device to rain or moisture, excessive heat or mechanical force.
2. Use this device exclusively with specified mains voltages.
3. Unplug the device from the wall outlet during a lighting storm.

To prevent the risk of electric shock, do not remove the cover!  
This device contains no user serviceable parts inside.  
Refer servicing to qualified servicing personnel only.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

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Thanks for choosing the Model S USB D/A converter. We hope its sound quality will satisfy you for years to come.

This user manual comprises introducing information on use and performance of the Model S USB. For further information please refer to the Audial web site, [www.audialonline.com/html/model-s-usb/](http://www.audialonline.com/html/model-s-usb/), or send your questions to [info@audialonline.com](mailto:info@audialonline.com).

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## Getting started

Other than D/A converter itself, a packing box should comprise:

1. Mains cable
2. USB cable
3. Windows driver installation disc
4. Printed copy of this manual

## Connections

No special knowledge is required to connect the Model S USB into the system.

Mains connector is standard IEC C14 (cable is supplied, as stated above), and is located at the back panel.

USB input is standard USB B connector for peripheral USB devices, and is also located at the back panel. It should be connected to the host computer, operating under Windows (XP/Vista/7) or Mac OS X (10.6.3 or higher).

## Analog outputs

The Model S USB has two sets of analog outputs, which can be unbalanced RCA and balanced XLR.

XLR outputs are always transformers coupled. XLR Pin 1 is connected to the chassis ground.

RCA outputs can be either transformers or capacitors coupled.

On special request, RCA outputs can be also directly coupled. Under normal circumstances directly coupled output will expose relatively small, and in most cases acceptable DC offset (up to several tens of mV). However, due to a digital data protocol used in the Model S, intermittent occurrence of excessive DC offset is not excluded. Hence, it is important to

understand that a directly coupled output is not recommended unless the downstream device input is ensured by AC coupling.

Please note that when simultaneously using both RCA and XLR output, both of them being transformer coupled, the ground of the downstream device connected to the RCA output will also ground the negative pole of the XLR output.

## Windows driver installation

The Model S USB is USB audio class 2.0 compliant device. USB audio class 2.0 is not supported by any Windows OS (yet), so the Model S USB requires its own driver installed to the host PC that operates under Windows. The Model S USB comes with the driver for Windows XP (SP 3), and both 32- and 64-bit Windows Vista (SP 2) and Windows 7.

Windows driver installation takes relatively simple procedure. Once it is started, a wizard will guide you through the process, at one point asking you to connect the DAC to PC. (There is no need to connect the DAC before this moment.) Once the wizard finishes, the DAC is ready for use.

You may still have to set this DAC as a default audio device (Control Panel -> Sounds and Audio Devices -> Audio).

Particular audio players may require additional procedure, to make the most of audio playback, as described at [www.audialonline.com/html/articles/kmixer/](http://www.audialonline.com/html/articles/kmixer/). Please also note that this Windows driver includes also ASIO support, so you don't need to install any third party ASIO driver, but simply to select "Audial ASIO", to ensure bit perfect output.

## Mac OS X

Mac OS X 10.6.3 (or higher) supports USB class 2.0 definitions for audio devices, so the Model S USB works with native OS X driver.

Though it is officially not supported, the Model S USB in practice works with Mac OS X 10.5.8 too.

When using a Mac, you will have to set this DAC as default audio device. This is to be done under System Preferences -> Hardware -> Sound -> Output.

In addition, to make sure that the computer is set so it doesn't resample but outputs the file native sampling frequency, please always select the file native frequency under Finder -> Places -> Applications -> Utilities -> Audio MIDI Setup.app -> Audio Devices. Also, inside the iTunes menu, under Preferences -> General -> Playback, make sure that Sound Enhancer and Sound Check are not checked, as both will process the files on their own.

## LED indicators

At front panel, there are three green LEDs indicating:

1. DAC power, which lights when the unit is powered on
2. USB power, which lights any time the host PC provides the power to the USB line; this indicator is not associated to the DAC power, and it can light also when DAC is powered off
3. proper audio playback; this indicator is also not associated to the DAC power, and it can light when DAC is powered off.

## Ground loop precaution

The Model S USB is using a safety earth, by conventional 3-lead / 3-pin earthed mains cable / connectors.

The Model S USB input stage is digitally isolated from the rest of the unit, and hence the ground loop can not occur with respect to the host PC.

If transformer coupled output is used, it is important to provide connection to safety earth not only to the DAC, but also to the ground of the rest of the audio system. It is required not only for safety reasons, but also to ensure minimal common mode voltage at two transformers' side.

However, if capacitors or directly coupled output is used, and there is one or more other devices in the system that also use a safety earth, a ground loop may occur. A ground loop makes the current between two devices earth connections flow through the interconnect cable ground conductor, sometimes producing audible buzz and hum. Should your system suffer from such an issue, you can contact us for further information.

## Everyday use

The Model S USB doesn't require special care in everyday use. It achieves claimed specifications (distortion, frequency response etc.) right from the start, though it normally needs a couple of weeks of burning in to perform its best in subjective sonic terms.

Please also note that the Model S USB uses a classic TTL logic D/A converter chip (TDA1541A), as well as the output circuits operating notably inside class A. Hence leaving the Model S USB constantly powered on is not recommended. It is not really needed either, as after initial weeks of burning in it is generally enough to leave the unit powered on for half an hour before critical listening.

The cables shipped with the DAC are industry standard ones, and their purpose is to make a DAC instantly operable. Use of a higher quality, preferably solid core cables, is highly recommended.

## Warranty

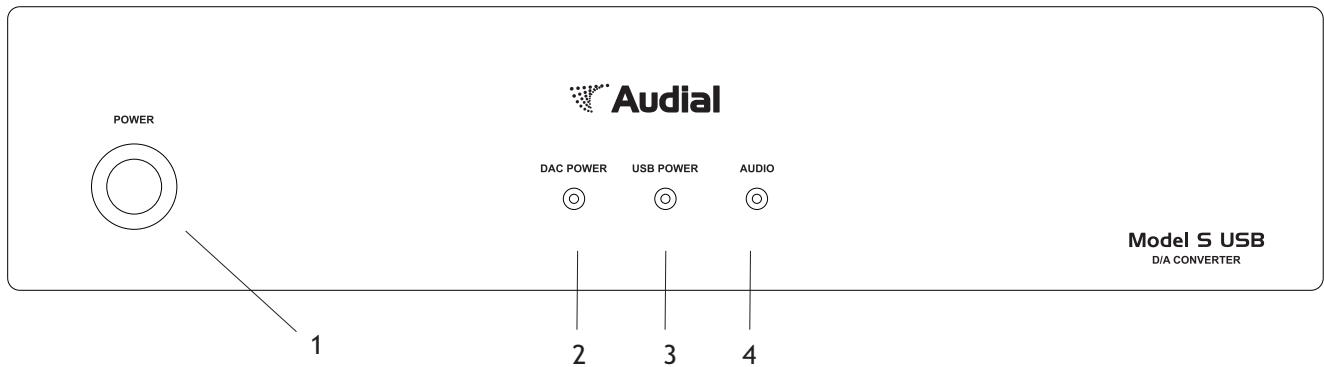
Audial claims proper working of this product for two years. Audial is obliged to correct any malfunction within this period, at no charge, either by competent repair service, or by swapping the sold unit with the new one.

For the units sold directly by Audial, invoice is also guarantee certificate. Audial however maintains own data base of directly sold units, so original buyers usually won't really need it. Warranty is also fully transferrable from original to subsequent owner(s), however in this case we will probably ask for the invoice.



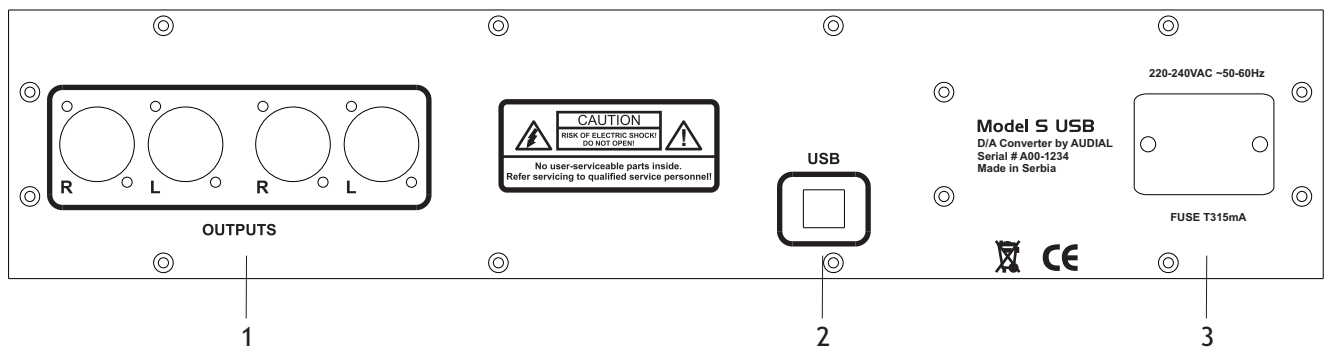


## Front Panel



- 1 - DAC power switch
- 2 - DAC power indicator
- 3 - USB power indicator
- 4 - Audio playback indicator

## Rear Panel



- 1 - Two sets of output connectors (XLR and/or RCA)
- 2 - USB (B) connector
- 3 - Mains connector (IEC C14) with fuse

# Specifications\*

## INPUT:

USB 2.0

Supports 2.0 Class Definitions for Audio Devices

Asynchronous operation

## SAMPLING FREQUENCY:

Up to 192kHz

## OUTPUTS:

Unbalanced (RCA) - transformer or capacitively coupled,  
and balanced (XLR) - transformer coupled;

2.1V RMS both

## OUTPUT IMPEDANCE:

Transformer coupled:  $\leq 90$  Ohm

Directly coupled:  $\leq 4$  Ohm

## FREQUENCY RESPONSE:

Sin(x)/x equivalent:

@ fS=44.1kHz: -3.2dB @ 20kHz

@ fS=88.2kHz: -0.8dB @ 20kHz

@ fS=192kHz: -0.2dB @ 20kHz

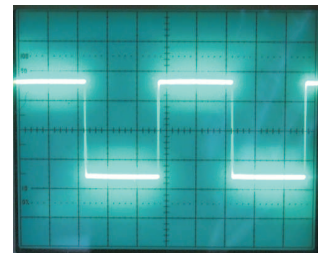
## TRANSIENT RESPONSE:

Clean with no overshoot or ringing



## ABSOLUTE PHASE:

Correct



1kHz square wave

## HARMONIC DISTORTION (@ 1kHz):\*\*

0.002% @ -6dBFS (I/V dominated)

0.01% @ -20dBFS (D/A dominated)

0.8% @ -60dBFS (D/A dominated)

## INTERMODULATION DISTORTION (CCIR):\*\*

0.009%

## MAINS VOLTAGE:

220-240VAC / 50-60Hz

110-120VAC / 50-60Hz is also available

## OUTER DIMENSIONS (W x D x H):

431.5 x 260 x 107 mm

## WEIGHT:

Approx. 10 Kg

\* - Specifications are subject to change without notice.

\*\* - Each sample of the Model S is supplied with its own lab report



