Audial

S4

USER MANUAL

Revision 0, October 2018

This manual comprises introducing information on use and performance of this device. For more information please refer to the Audial web site, or send your questions to info@audialonline.com.

IMPORTANT!

1. This manual is a guide only.

2. Do not expose this device to rain or moisture, excessive heat or mechanical force.

3. Use this device exclusively with specified voltages.

4. Unplug the device from the wall outlet during a lighting storm.

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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.

THIS DEVICE

Audial S4 is a reference quality, TDA1541A based non-oversampling D/A converter, with USB and S/PDIF inputs.

The S4 USB input stage operates as asynchronous (master) USB device, so it also generates the clock signal for D/A conversion.

Two low jitter clocks are included, one that works with 44.1/88.2/176.4/352.8 kHz, and the other that works with 48/96/192/384 kHz audio sampling frequencies. This way the unit achieves clean clocking scheme, and all the audio clock signals in the system are generated only by frequency dividing, and not by using PLL synthesizers.

The units with 11.2896/12.288 MHz master clocks can accept up to 192 kHz, and units with 22.5792/24.576 MHZ master clocks can accept up to 384 kHz audio sampling rates.

The USB stage also provides galvanic decoupling between the USB and D/A stage, thus also separating PC from audio circuits.

The S/PDIF stage operates up to 96 kHz, and provides real 75 Ohm BNC, transformer coupled input, with differential input termination. The ground of S/PDIF line can be left floating, or capacitively coupled to the DAC ground, by use of the switch at the back plate.

EVERYDAY USE

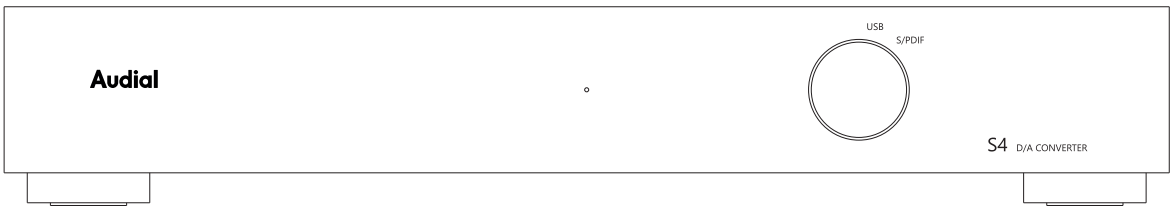
The S4 mains connector and switch are located on the back plate, while the USB / SPDIF input selector is located on front plate, along with the LED indicator, which lights green for USB, and orange for S/PDIF input.

S4 DAC is easy to use device, and it requires no special maintenance or care. It achieves claimed technical performance (distortion, frequency response etc.) right from the start, however it needs a couple of weeks of burning in to perform its best in subjective sonic terms.

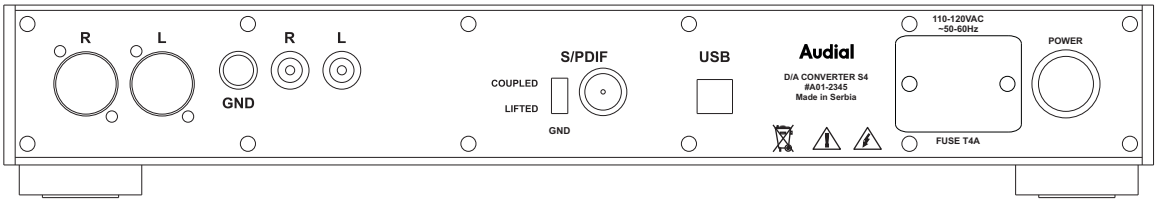
Please note that the D/A converter chip used in this device (TDA1541A) is a classic TTL chip architecture, which dissipates somewhat more power than it is usual for devices of this kind these days. Hence it is it is not recommended to leave the S4 permanently powered up. Normally, once the S4 passes its initial burning in, it is generally enough to have it powered up for about half an hour before critical listening.

Mains cable shipped with S4 is the industry standard grade. It is however generally recommended to use high quality, preferably solid core cables, everywhere in the audio system, and this suggestion applies to the mains cable too.

An RCA to BNC adapter is shipped too, for customers convenience, but it is highly recommend to use real 75 Ohm BNC plugs. Regardless of what you might be told from time to time, the RCA can not meet this requirement.



S4 front plate



S4 back plate

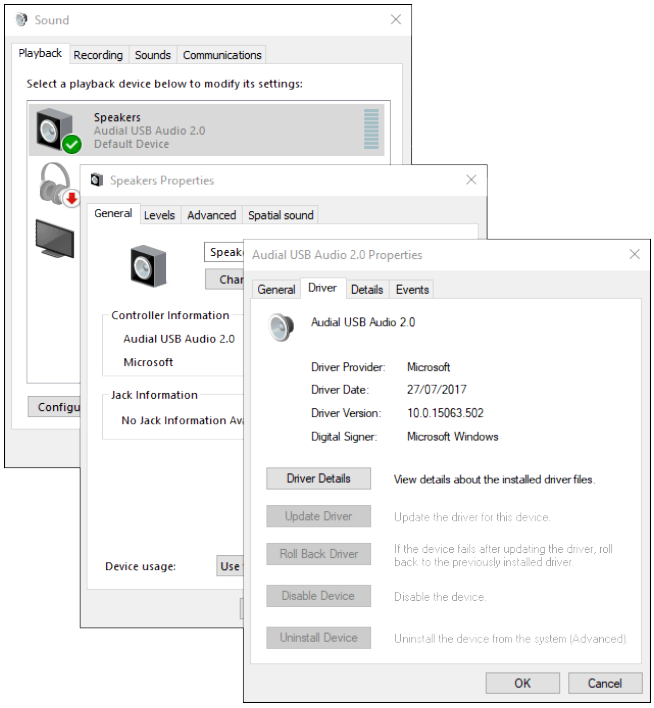
From left to right: XLR and RCA output connectors, with GND terminal in between,
S/PDIF input connector with ground switch,
USB input connector, mains connector, mains switch.

USB AUDIO CLASS 2.0

Audial S4 USB stage employs USB Audio Class 2.0 definitions.

Mac OS X and Linux are natively USB Audio Class 2.0 compliant for several years now, and this device hence does not require special driver when used with Mac OS X or Linux.

Since September 2017, Windows 10 (1703) also supports USB Audio Class 2.0 definitions, so the S4 will act as a plug and play device with recent Windows 10 versions. Once it is connected to PC running Windows 10, a small window will pop up in the bottom right corner of the screen, reporting about the initial connection routine. Once this process is finished, the DAC can be found as playback audio device, available in the system.

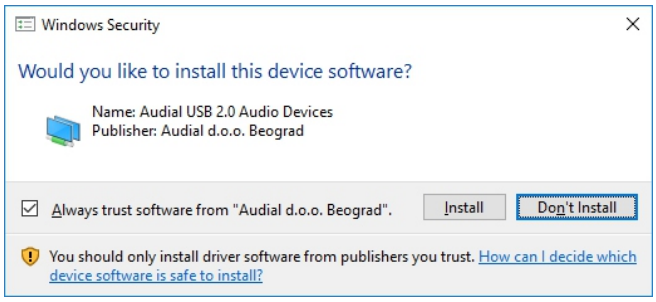


DEDICATED WINDOWS DRIVER

In addition, Audial provides dedicated Windows driver for this device, which is still necessary with earlier Windows versions. This driver also provides additional functionality such as ASIO interface, buffer length control, or firmware update, and it can be generally preferred soundwise

Audial S4 users can download this driver at Audial web site, https://www.audialonline.com/s4. Driver version 1.26 can be installed to Windows XP, Vista, 7, 8, 8.1 and 10. Later driver version 2.10 however improves on compatibility with later PC systems, and can be installed to Windows 7, 8, 8.1 and 10. All driver versions are compatible with both 32 and 64-bit Windows.

To install the driver, please unzip provided file, and run setup.exe. Installation window will pop up, and at one stage you will be asked to connect the device. Also, during this process, and according to your Windows security settings, you might be asked a couple of times to allow the installation, and please do so. These windows will look like this.



Once the installation is complete, you can configure your settings by using the control panel, available in Windows Start Menu -> Audial.

OUTPUTS

Audial S4 DAC has two sets of the outputs, which can be either RCA and XLR, or two RCA. RCA outputs can be capacitors or transformers coupled RCA, while XLR is always transformers coupled.

Please note that the capacitive coupling, which implies the grounds of two devices tied together, and transformer coupling, which keeps two grounds separate, require different approaches to the system earth grounding. Typically, transformers need the grounds connected to the earth at both its sides, whereas more than one earth in the system that uses capacitive coupling may cause ground loops, and increase the noise.

At its back plate, S4 also includes the connection to its chassis/earth ground. This connector can help proper system grounding and/or earthing, or it can be used to connect the shield of the interconnect cable (similarly to XLR pin 1).

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 by the new one.

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

SPECIFICATIONS

INPUTS:
- USB 2.0, supports 2.0 Class Definitions for Audio Devices, asynchronous operation;
Fs max 192 kHz or 384 kHz, depending on master clock frequencies
- S/PDIF, 75 Ohm BNC; Fs max 96 kHz

OUTPUTS:
Unbalanced RCA, transformers or capacitors coupled;
Balanced XLR, transformers coupled;
2.1 V RMS both

OUTPUT IMPEDANCE:
Capacitors coupled outputs: 3.5 Ohm @ 20 kHz, 10 Ohm @ 1 kHz (23.5 uF)
Transformers coupled outputs: 30 Ohm, 20Hz-20kHz

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

HARMONIC DISTORTION (@ 1kHz):
0.003% @ -6dBFS (I/V dominated)
0.9% @ -60dBFS(D/A dominated)

INTERMODULATION DISTORTION (CCIR):
0.006%

MAINS VOLTAGE:
220-240VAC/50-60Hz or 110-120VAC/50-60Hz

DIMENSIONS (W x D x H):
428 x 275 x 76 mm, including feet, but excluding knob and connectors

WEIGHT:
Approx. 7Kg

For performance graphs, please visit https://www.audialonline.com/s4.