NuForce

DAC-80
Digital to Analog Converter

User's Manual
ALDACBZ

Optoma

FCC Notice - Declaration of Conformity Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Only peripherals complying with the FCC class B limits may be attached to this equipment.

Changes or modifications made to this equipment, not expressly approved by us or parties authorized by us could void the user's authority to operate the equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
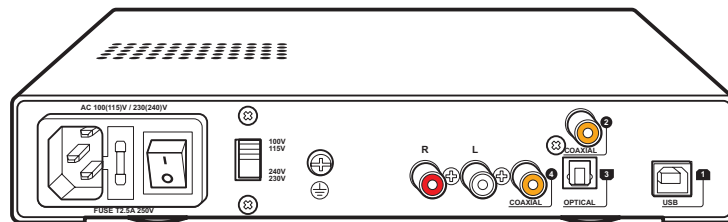
QUICK START GUIDE

Product Overview

Front Panel
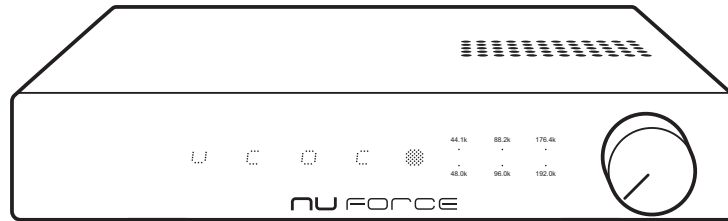
Back Panel

Make sure that the AC Voltage selector switch at the rear of the unit is switched to the appropriate voltage for your country. All DAC-80s are shipped with the switch set to 230VAC in order to prevent accidental damage.

Turn ON the AC power switch at the rear of the unit. The DAC-80 will now be in standby mode.

The logic On/Off is enabled by pushing the knob or using the remote. The DAC-80 consumes less than 1W in standby and approximately 10W when ON.

When turned ON from the standby state, the DAC-80 requires six seconds to stabilize. During that period, the LED will blink and the output will be muted.

Connections

Connect the appropriate digital source to any of the available digital inputs by using a high quality corresponding cable type (USB, coaxial or Toslink).

The analog RCA output should be connected to your preamp using high quality interconnect cables. Please note: It is not recommended to directly drive a power amplifier from the RCA outputs.

Inputs

The DAC-80 provides for connecting up to four digital sources. They are selected in the following order:

- Input #1 - USB
- Input #2 - SP/DIF coaxial/RCA
- Input #3 – SP/DIF optical/Toslink
- Input #4 – SP/DIF coaxial/RCA

To select the desired input, simply press the Input buttons labeled 1 – 4. Once pressed, the selector button will illuminate. Please note: the last-selected input is memorized when DAC-80 is turned off and will become the active Input when the unit is turned back ON.

Volume Control

The volume knob is a one-turn control. Pressing in on the knob turns the DAC-80 ON and OFF (OFF = standby). The volume at turn-on will be determined by the knob position.

LED Indicators

A stable and fully illuminated LED indicates the sample rate.

- Blue = multiples of 48kHz
- White = multiples of 44.1kHz

A blinking LED indicates that the output is muted.

When the six LEDs light sequentially in a clockwise pattern, the digital signal is not standard PCM format. Rather, while the DAC-80 has locked onto the signal, it may be a DTS signal (such as from a Blu-ray player) or some format using a non-standard sample rate (such as 38.8kHz).

No LED indicates that the unit is OFF or in standby mode.

Using the Remote Control

The DAC-80 comes with a simple remote control with the following buttons:

- On
- Off
- Input – cycles through Input 1 to 4
- Volume +
- Volume -
- Mute

When using the Remote Control to change the volume, please note: the knob on the front panel is not motorized and therefore will not turn. However, moving the front panel knob will immediately change the volume to that knob position.

3

SPECIFICATIONS

Digital	
(4) Digital inputs	USB, Toslink, RCA x 2, transformer or optical isolated, AC coupled.
Maximum bit depth	24-bit
Maximum sample rate	192kHz
USB	Asynchronous up to 192kHz/24-bit
Sample rate indicator	YES
Volume control	32-bit digital attenuator
Analog	
THD+N	0.005%, 0dB, 1kHz
SNR	96dB, 1kHz, A-weighted
Frequency Response	20-25kHz +/- 0.25dB
Outputs	RC
Output voltage 0dB, 1kHz	RCA 4.0Vrms
Output Impedance	RCA, 100-Ohm
Remote Control Functions	Volume, Input Select, Mute, Stand-by
AC voltage	100V/110V/220V/230V
Power consumption	12-Watts
Dimensions (wide x deep x tall)	8.5" x 9" x 2"
Weight	1.2kg

USB 192kHz/24-bit SETUP & OPERATION

The following guidelines and drivers are for enabling the DAC-80 for use with PC or Mac computers in Asynchronous USB Mode. In most cases, this is the preferred operation for the best possible performance.
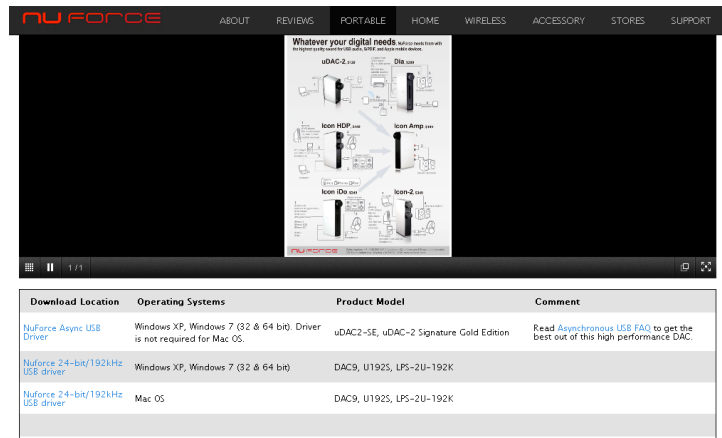
Note:

- *The instructions below are required for Windows OS systems. You will find Mac OS setup instructions following this section.*

Windows OS Installation

Download Driver

First, you will need to download the required driver from the following location:

http://nuforce.optoma.com/download

Install Driver & Software

After downloading the driver, run the Installation program. After the installation, an icon linking to the **NuForce Stereo Audio Control Panel** program will appear on your desktop. For now, move on to the Connect Hardware step. Detailed information regarding software adjustment will follow.

Connect Hardware

Once the software has been installed, connect a quality USB cable from the computer's USB port to the input of the DAC-80. After the cable is connected, a window will pop up at the lower-right side of the display that reads:

NuForce Async USB Audio 192K HS installed

Select Playback

Right click on speaker icon at the bottom right and select **Playback Devices**.

Choose **NuForce DAC-80** and close window.

Adjust Software (Windows 7 Setup)

Direct Sound (DS) is the default Windows audio mode. It operates with the Windows Mixer enabled. This means that other sound prompts, such as email notifications, etc., will be mixed into the music output. A single sample rate must therefore be used as the common denominator.

For music playback in Windows 7, **WASAPI** mode (**W**indows **A**udio **S**ession **API**) is the best-sounding mode. (See WASAPI section).

Direct Sound Mode

Because the USB input is asynchronous, the DAC-80 will operate at a fixed sample rate. Regardless of whether the music is recorded at 48k or 192k, whatever actual DS format (bit depth & sample rate) is selected, that format will be the operating format. Selection is made via the **Audio Control Panel** (CPL) section of the **NuForce Stereo Audio Control Panel**. For the best sound quality in Direct Sound mode, you will need to manually select the Audio Format so that it matches the music file format. (See screenshots below).
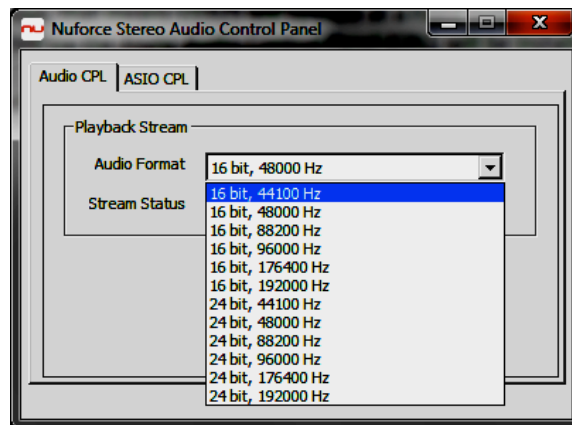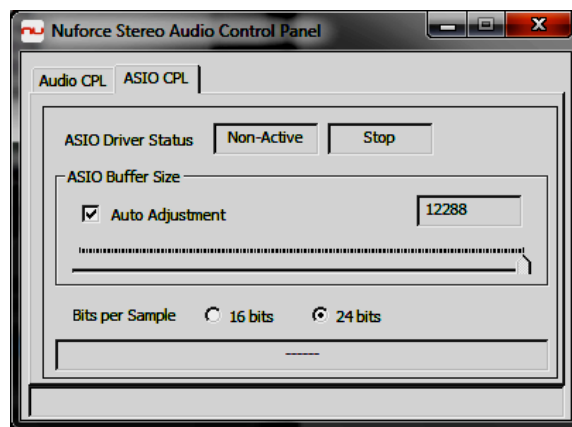

In Direct Sound mode the Stream Status is **ALWAYS** equal to the selected Audio Format:
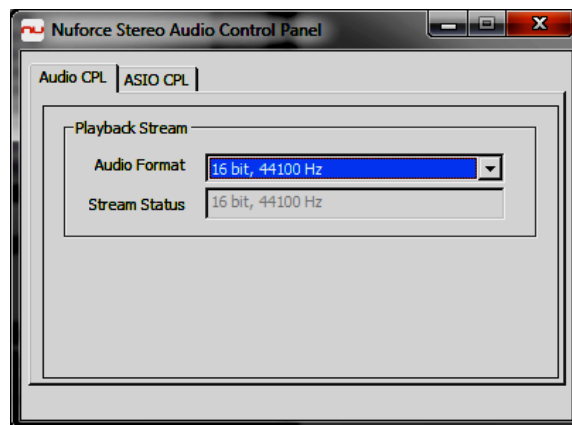
When music is being played, the Audio Format cannot be changed on the fly. The music must be stopped before you can make the next change Note the message: **Stop Player...**
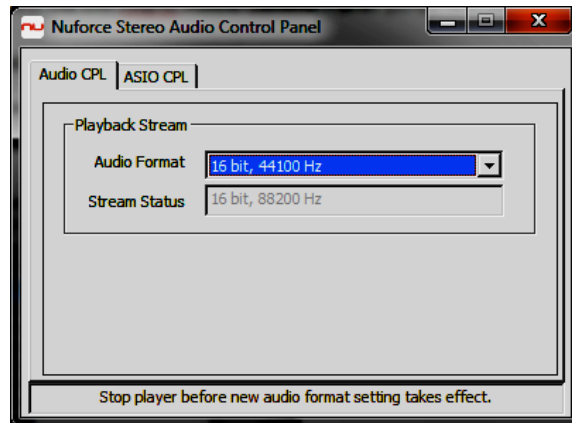

The ASIO tab should be set to 24-bit and Auto Adjust:

WASAPI Mode

Some media players require a special WASAPI plug-in to enable support for WASAPI. Once installed and activated, WASAPI can be selected as the default audio driver.

Below is a screenshot of **Foobar2000** in Windows 7 (after WASAPI plug-in has been installed) showing different supported device driver options. As you can see, both Direct Sound (DS) and WASAPI options are listed.
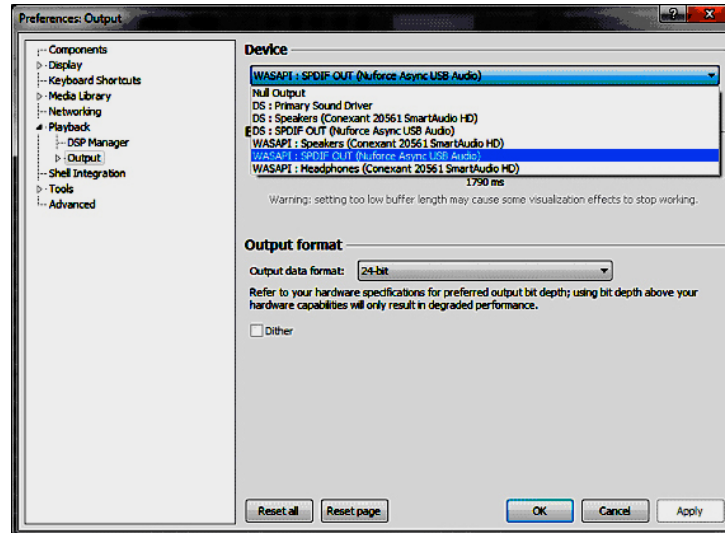
Once the WASAPI mode is selected, the native sample rate will be employed. No adjustment in Audio CPL is required. Look at the **Stream Status**. You will note in the screenshot below that the actual sample rate used does not equal the selected sample rate. This is a result of WASAPI's ability to provide automatic playback of the music file in its native format apart from those of other Sound Effects settings.
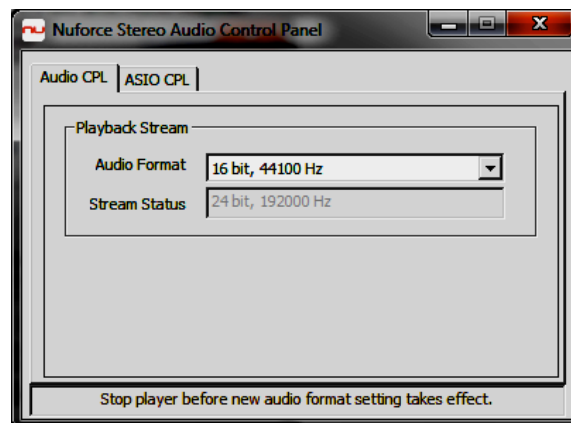
Mac OS Installation

Download Driver

First, you will need to download the required driver from the following location:

http://nuforce.optoma.com/download

Install Driver & Software

After downloading the driver, the Installation program begins. Click **Continue** > **Install** > **Install Software** > Continue installation as each screen appears. In the last window, click **Restart** to reboot your computer in order to complete the installation process.
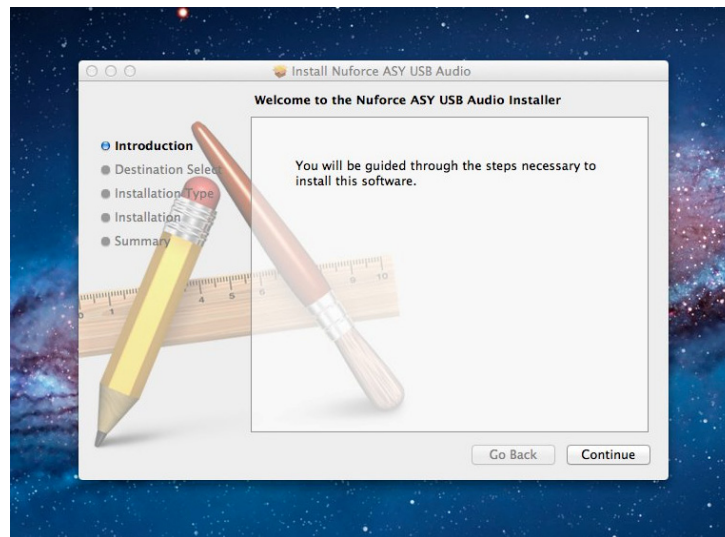

Connect Hardware

Once the software has been installed, connect a quality USB cable from the computer's USB port to the input of the DAC-80. A white LED (= multiples of **44.1k**) – will indicate that the DAC-80 recognizes the connection.

Adjust USB-192 Software

Installation of the USB-192 software on Apple Mac systems is straightforward and simple:

1. On the **Desktop**, select **Launchpad**.

2. Under **Launchpad**, select **Utilities**.

3. Under **Utilities**, select **Audio/Midi Setup**.

4. Under **Audio/Midi Setup**, select **NuForce DAC-80** as the default audio device.

5. In the **Format** drop-down menu, select the desired sample rate and bit resolution.

6. The color (Blue or White) of the LED on the DAC-80 will indicate the selected sample rate.

7. Begin using the DAC-80 by playing music files via your media software.
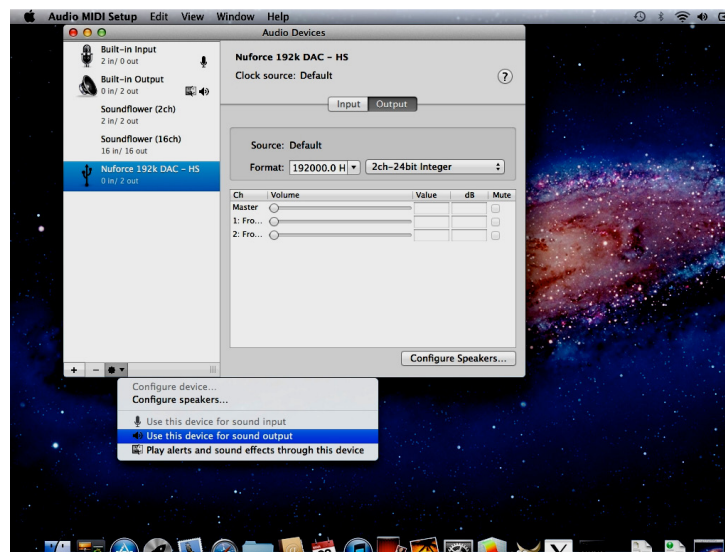
USB-192 Software Specifications

Applicable NuForce models	DAC-9, DAC-80, LPS-192K, U192S
Supported Operating Systems	Windows XP, Windows 7 (32-bit and 64-bit), Mac OSX
Digital Input	USB-B
Supported Sample Rates	44.1, 48, 88.2, 96, 176.4 and 192 kHz
USB	Asynchronous up to 192kHz/24-bit
Bit Resolution	16 or 24 bit