

U-DI08

8-CHANNEL HIGH-RESOLUTION USB INTERFACE
WITH AES/EBU OR S/PDIF DIGITAL I/O

User Manual





Revision history

Revision	Description	Date
0.1	First draft	23 Oct 2017
0.2	Second draft	27 Oct 2017
0.3	SRC clarifications	09 Nov 2017
1.0	Updated for S/PDIF option	28 August 2018
1.1	Updated support links	6 July 2020



TABLE OF CONTENTS

Important Information	4
1 Product Overview	6
2 Hardware Connectivity	7
2.1 Digital input and output.....	7
2.1.1 AES/EBU version	7
2.1.2 S/PDIF version.....	8
2.2 DC Power	9
2.3 USB	9
3 Installation and Configuration – Windows	10
3.1 Before you start.....	10
3.2 Installation	10
3.2.1 Download the latest driver	10
3.2.2 Connect your U-DIO8	10
3.2.3 Setup the driver package.....	11
3.3 Configuration	11
3.3.1 Driver info.....	11
3.3.2 Buffer settings.....	12
3.3.3 Firmware upgrade.....	12
3.3.4 Device configuration	13
3.3.5 Output channel volume control (playback)	13
3.3.6 Clock source.....	14
3.3.7 Stream formats	14
4 Installation and Configuration – Mac OS X	15
4.1 Installation	15
4.2 Configuration	15
5 Additional Information	18
5.1 Specifications	18
5.2 Firmware Upgrade.....	18
5.3 Obtaining support	18



IMPORTANT INFORMATION

Please read the following information before use. In case of any questions, please contact miniDSP via the support portal at support.minidsp.com.

SYSTEM REQUIREMENTS

To configure your *U-DIO8* audio processor, you will require a Windows or Apple Mac computer with the following minimum specification:

Windows

- Intel Pentium III or later, AMD Athlon XP or later
- 2 Gigabytes (GB) of RAM or higher
- Keyboard and mouse or compatible pointing device
- Microsoft® Windows® Vista® SP1/Win7/Win8/Win10
- One free USB 2.0 port

Mac OS X

- Intel-based Mac with 1 GHz or higher processor clock speed
- 2 Gigabytes (GB) of RAM or higher
- Keyboard and mouse or compatible pointing device
- OS X 10.8 or higher, macOS 10.12 or higher
- One free USB 2.0 port

DISCLAIMER/WARNING

miniDSP cannot be held responsible for any damage that may result from the improper use or incorrect configuration of this product. Please read this manual carefully to ensure that you fully understand how to operate and use this product, as incorrect use or use beyond the parameters and ways recommended in this manual have the potential to cause damage to your audio system.

Please also note that many of the questions we receive at the technical support department are already answered in this User Manual and in the online [application notes](#) on the miniDSP.com website. So please take the time to carefully read this user manual and the online technical documentation. And if an issue arises with your unit, please read through the [Troubleshooting](#) section first. Thank you for your understanding!

WARRANTY TERMS

miniDSP Ltd warrants this product to be free from defects in materials and workmanship for a period of one year from the invoice date. Our warranty does not cover failure of the product due to incorrect connection or installation, improper or undocumented use, unauthorized servicing, modification or alteration of the unit in any way, or any usage outside of that recommended in this manual. If in doubt, contact miniDSP prior to use.



FCC CLASS B STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Warning: 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. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause 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.

Notice: Shielded interface cable must be used in order to comply with emission limits.

Notice: Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE MARK STATEMENT

The U-DIO8 has passed the test performed according to European Standard EN 55022 Class B.

A NOTE ON THIS MANUAL

This User Manual is designed for reading in both print and on the computer. If printing the manual, please print double-sided. The embedded page size is 8 ½" x 11". Printing on A4 paper will result in a slightly reduced size.

For reading on the computer, we have included hyperlinked cross-references throughout the manual. In addition, a table of contents is embedded in the PDF file. Displaying this table of contents will make navigation easier.

1 PRODUCT OVERVIEW

Thank you for purchasing a miniDSP *U-DIO8* digital audio interface. The U-DIO8 supports 8 channels of audio recording and 8 channels of playback at sample rates up to 192 kHz. Inputs and outputs are digital via AES/EBU or S/PDIF, provided on a DB-25 connector with breakout cable. Sample rate converters on the digital inputs will be matched to the selected recording sample rate on your PC/MAC.

The U-DIO8 is an ideal solution for:

- High-resolution multi-channel audio
- Computer-based (HTPC) home theater
- Surround-sound mixing and mastering
- Computer-based active loudspeaker systems

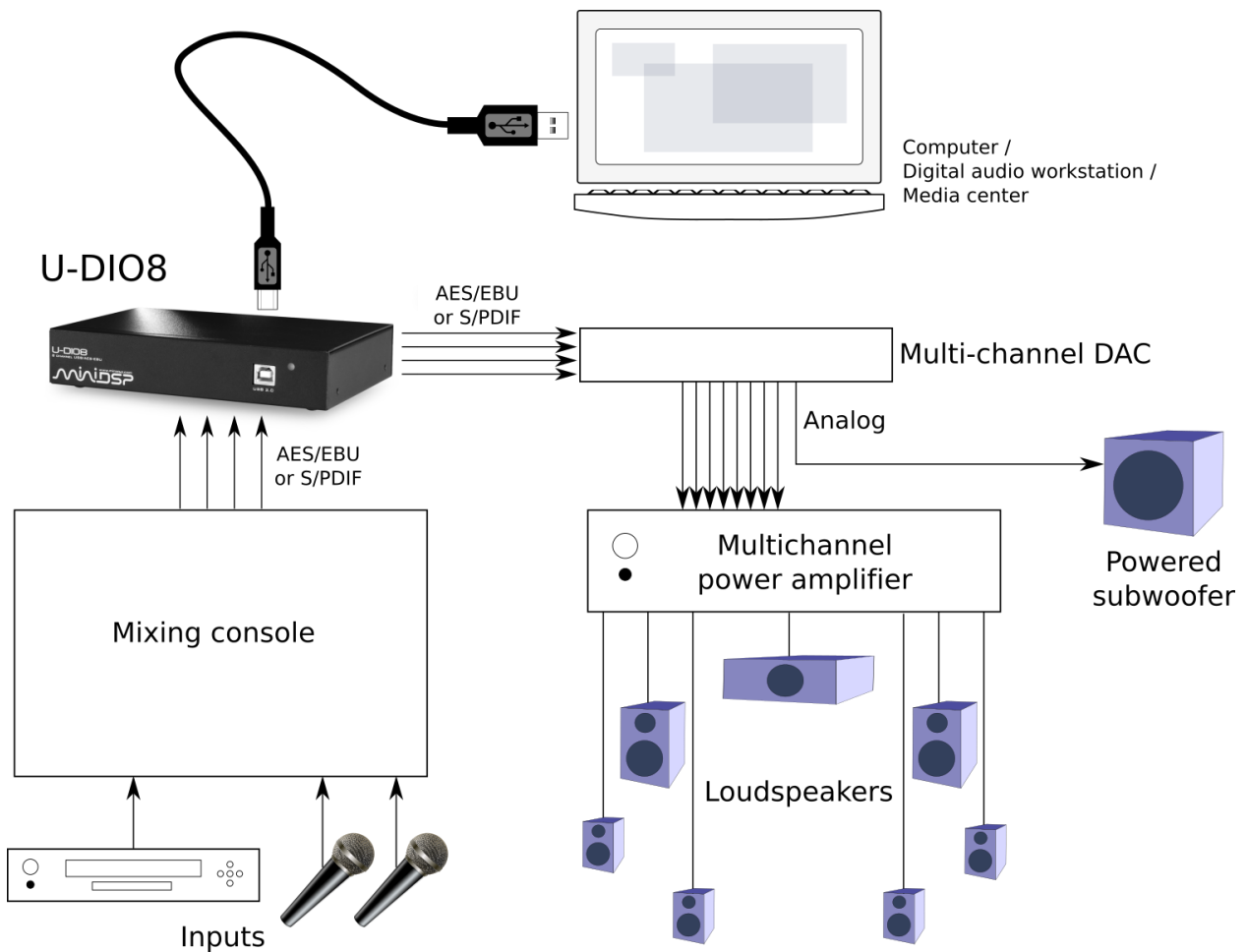


Figure 1. Typical application

2 HARDWARE CONNECTIVITY

2.1 DIGITAL INPUT AND OUTPUT

Up to eight digital channels can be connected via the supplied DB-25 breakout cable. The DDRC-88D can be ordered with digital I/O in either AES/EBU or S/PDIF format. Note that the internal circuitry is different in either case, so use only the interface type marked on the rear panel above the DB-25 connector.

Input sample rate

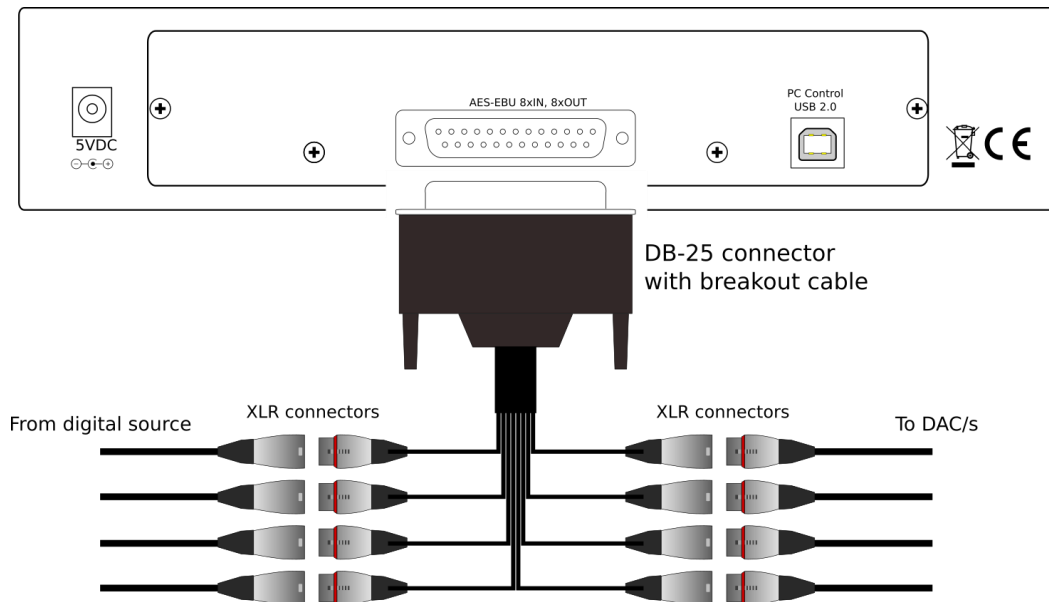
All inputs have a stereo asynchronous sample rate conversion (ASRC) and accept sample rates from 32 to 216 kHz. The sample rate converter will adapt the input sample rate to the selected recording sample rate of your recording software (e.g. ProTools/Cubase). Each pair of channels can have a different sample rate. (e.g. Digital Input 1&2 @ 192k is converted to 96k recording project).

Output sample rate

All outputs run at the sample rate selected in the playback software/OS. Only one sample rate can be selected for all 8 output channels. The output sample rate ranges from 44.1~192kHz.


2.1.1 AES/EBU version

Four AES/EBU digital inputs and four AES/EBU digital outputs are present on the DB-25 connector using the TASCAM pinout.



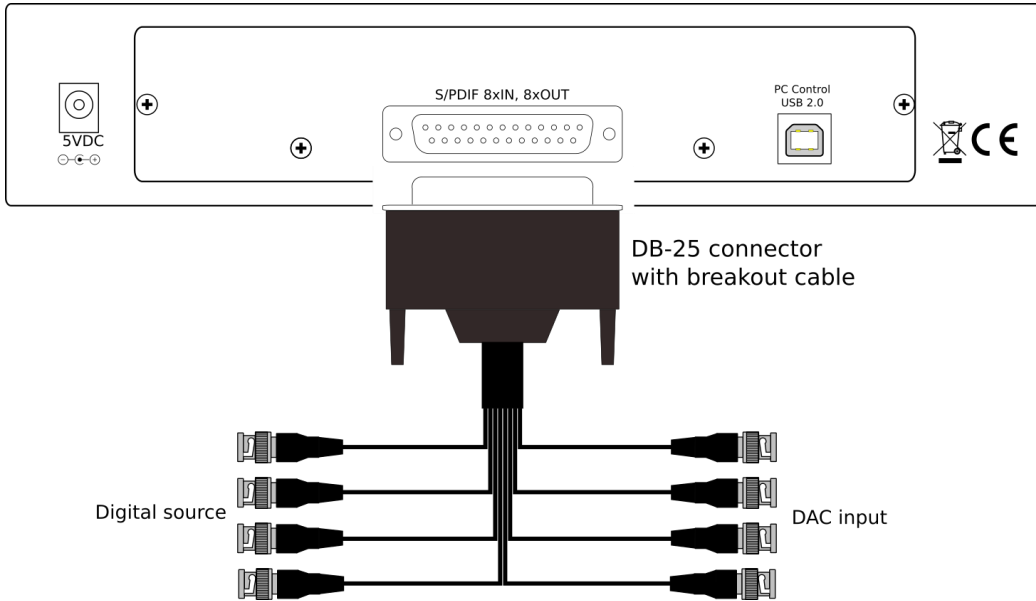
The supplied breakout cable has the following channel assignment:

Channels	Color
In 1&2	Purple
In 3&4	Blue
In 5&6	Green
In 7&8	Orange
Out 1&2	Yellow
Out 3&4	Red
Out 5&6	Grey
Out 7&8	Brown




2.1.2 S/PDIF version

For the S/PDIF version, digital inputs and outputs are both terminated with male BNC connectors. Where possible, connect these directly to the source equipment or DAC(s). BNC female-female couplers and additional cables can be used to extend the breakout cable if necessary.



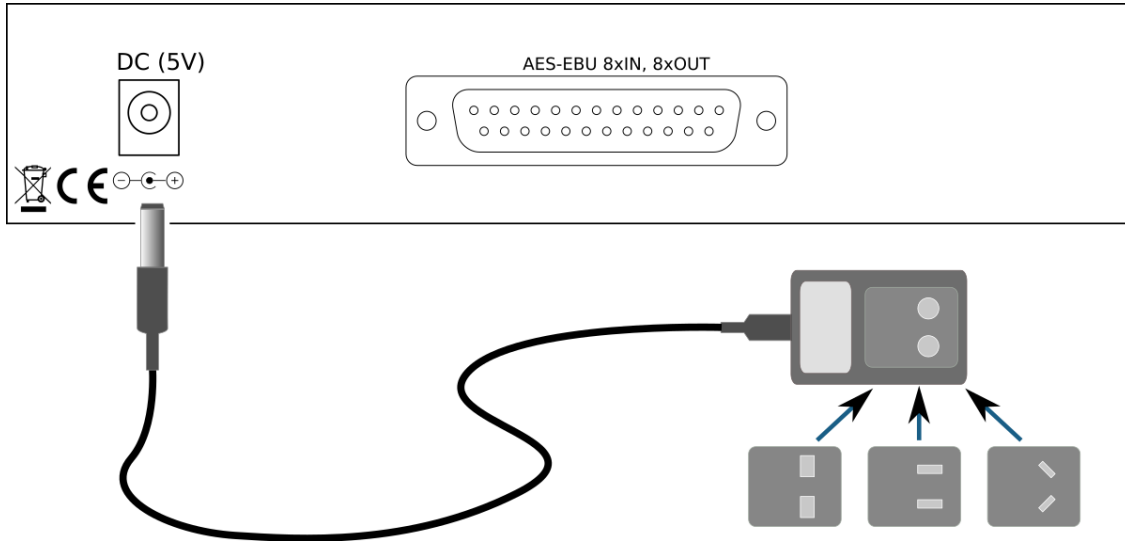
The supplied breakout cable has the following channel assignment:

Channels	Color
In 1&2	Purple
In 3&4	Blue
In 5&6	Green
In 7&8	Orange
Out 1&2	Yellow
Out 3&4	Red
Out 5&6	Grey
Out 7&8	Brown



2.2 DC POWER

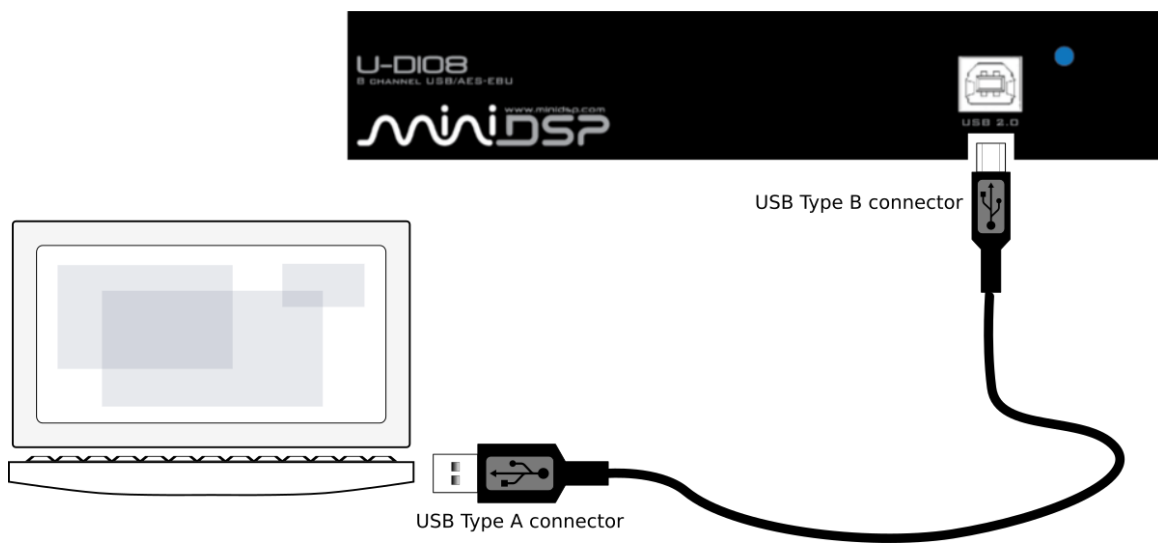
The supplied 5 VDC power supply includes a set of interchangeable power pins. Fit the correct pins for your country. Connect the DC plug to the 5 VDC power socket.



Apply power to the *U-DIO8* only after all input and output connections have been made. The *U-DIO8* uses little power and can be left powered on all the time.

2.3 USB

To play audio through the *U-DIO8*, connect the USB port of the *U-DIO8* to a USB 2.0 port on your computer using the supplied cable. The *U-DIO8* should also be connected for initial driver installation under Windows.



3 INSTALLATION AND CONFIGURATION – WINDOWS

Please read and follow all steps in this section carefully.

3.1 BEFORE YOU START

64-bit editions of Microsoft Windows 8 and later require by default that software drivers be digitally signed. In order to complete the installation steps below on these versions of Windows, you will need to change the default behavior. Rather than describe all the steps here, we refer you to websites that explain the steps in detail:

- <http://www.howtogeek.com/167723/how-to-disable-driver-signature-verification-on-64-bit-windows-8.1-so-that-you-can-install-unsigned-drivers/>
- <http://www.top-password.com/blog/how-to-disable-driver-signature-enforcement-in-windows-10-8-7/>

3.2 INSTALLATION

The U-DIO8 is a USB Audio Class 2.0 device. For use with Microsoft Windows, driver installation is required.

3.2.1 Download the latest driver

When you receive notification that your order has shipped, your installation software download will be available at the *User Downloads* section of the miniDSP website:

<http://www.minidsp.com/userdownloads>

(If you are unable to access this section of the website, please login first.)

Download the installation zip file under the **USB Streamer Driver** heading and unzip the folder on your PC.

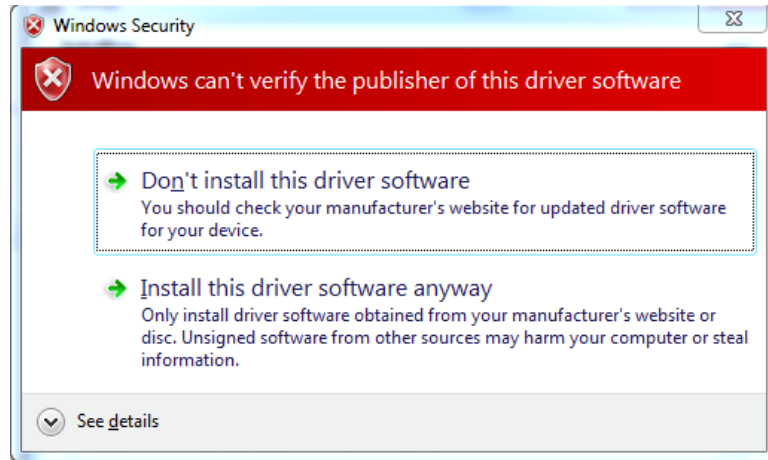
3.2.2 Connect your U-DIO8

In order to automatically detect the U-DIO8 during driver installation, connect the U-DIO8 to your PC and power it on before going to the following step.

3.2.3 Setup the driver package

Click on the **setup.exe** application in the unzipped installation folder to start the installation process. The installer will first check for the presence of the U-DIO8, then continue with installing the driver.

Installation will take several minutes. Accept the defaults for screens such as install location. If you receive a warning that Windows cannot verify the publisher, click **Install this driver software anyway**.

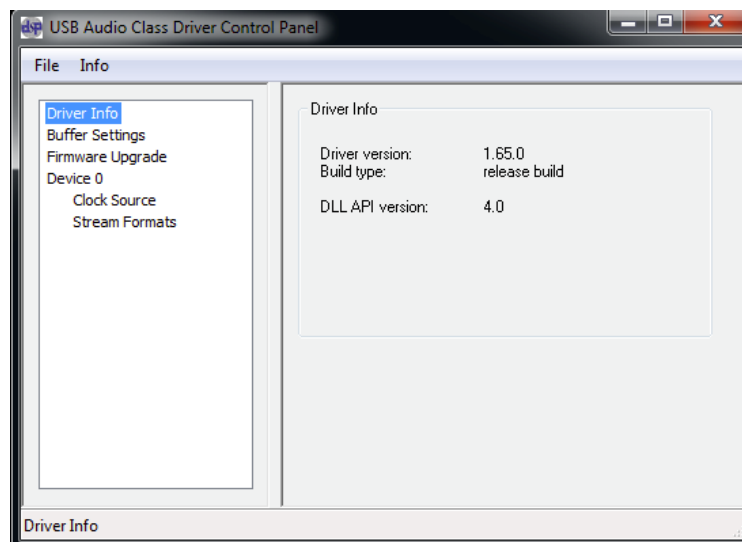


3.3 CONFIGURATION

To configure the U-DIO8, open the **USBStreamer Control Panel** (from Start Menu -> miniDSP Ltd -> USBStreamer). It has several panes, described below.

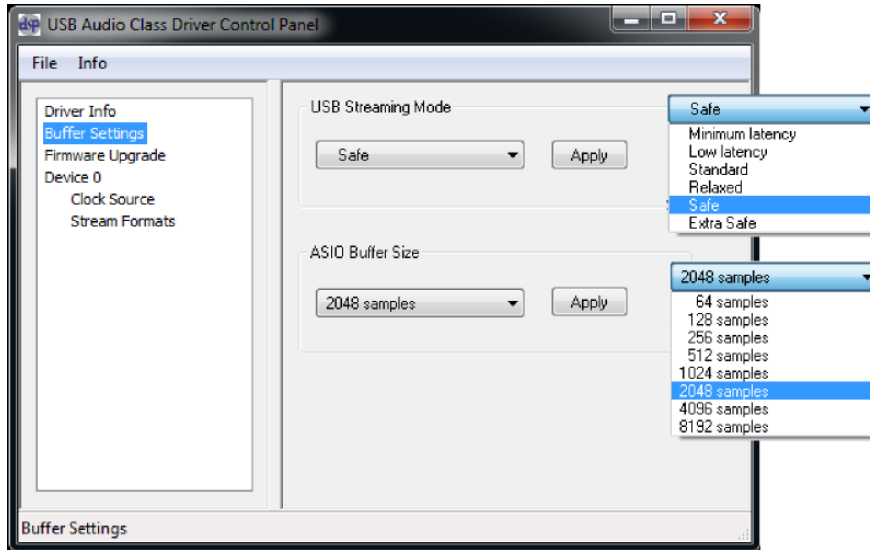
3.3.1 Driver info

This panel provides general information and the driver version.



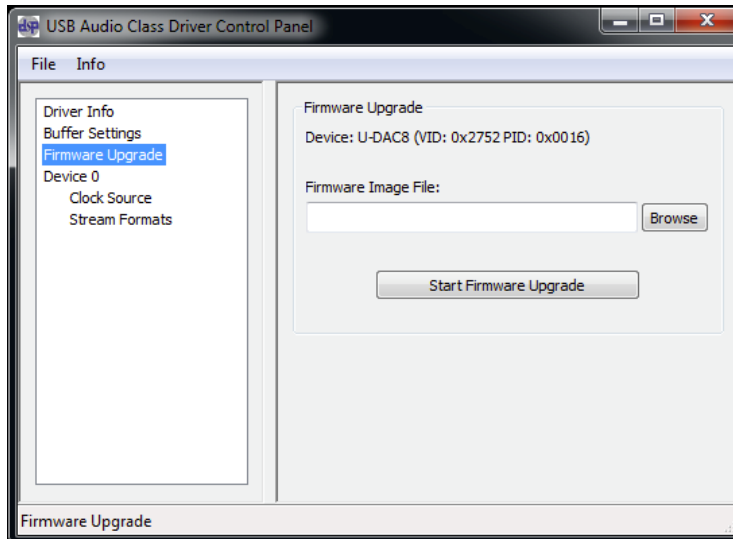
3.3.2 Buffer settings

The buffer settings are for those looking to optimize the buffering and latency settings of the interface. Note that changing these settings may result in unstable operation since such changes are dependent on the resources of the PC. For example, the lowest latency settings require high amounts of CPU and memory, and may not work on some machines. If you do not require lowest latency, we recommend that you do not depart from the default safe settings.



3.3.3 Firmware upgrade

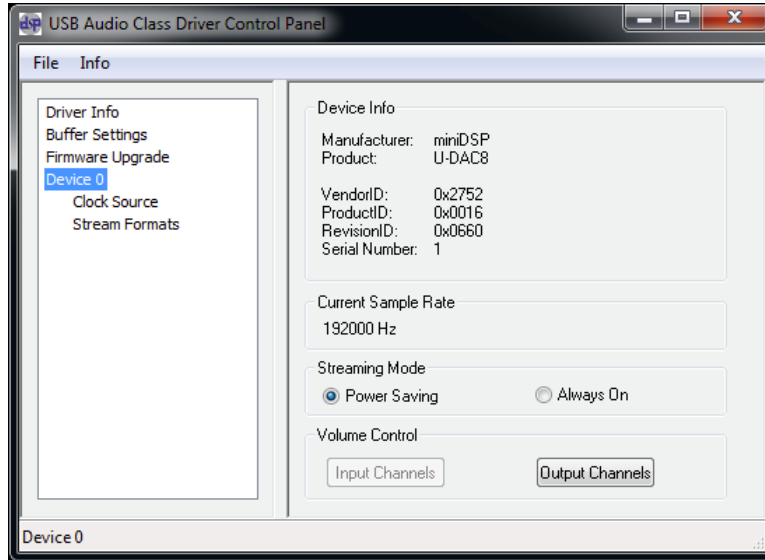
This screen is used to update the U-DIO8 when a firmware update becomes available. The updated firmware will be made available in the **User Downloads** section of the miniDSP.com website. After downloading, click on **Browse**, select the downloaded firmware file, then click on **Start Firmware Upgrade**.



DO NOT DISCONNECT THE USB CABLE OR POWER FROM THE *U-DIO8* WHILE FIRMWARE UPDATE IS IN PROGRESS. DOING SO MAY “BRICK” YOUR *U-DIO8*.

3.3.4 Device configuration

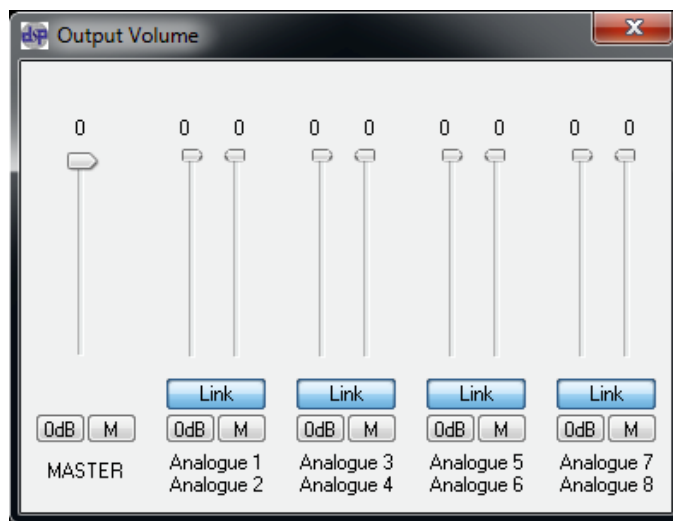
This panel is the configuration panel for the device currently connected to the PC. Note that while multiple U-DIO8s can be connected to a single PC, they should not use the same USB Controller in order to avoid any chance of overloading the bandwidth of the controller.



The current sample rate shown reflects the sample rate of the file being played by the Windows player. This setting cannot be changed in the Control panel, but simply reflects the current sample rate of the U-DIO8.

3.3.5 Output channel volume control (playback)

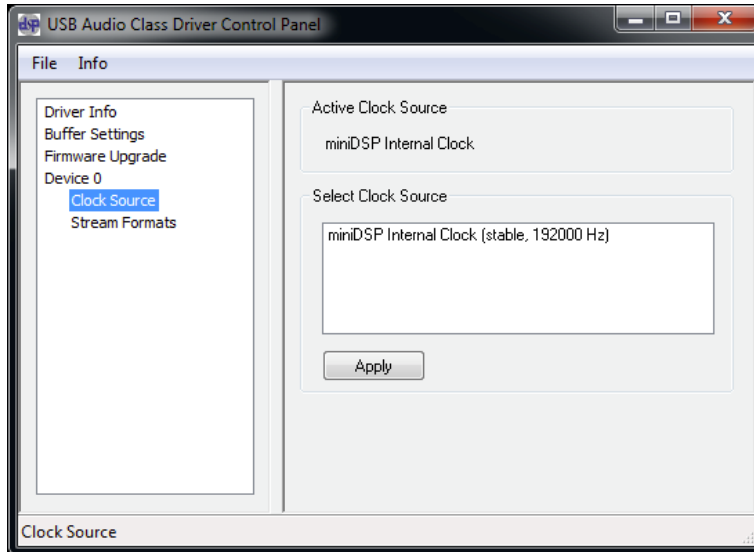
This panel contains a master volume control for all eight output channels, and individual level controls for each channel. If the **Link** button is pressed, the volume controls for both channel of a pair (e.g. **Digital 1 & 2**) are controlled together.



- To reset the master volume control or a pair of channels to 0 dB (no attenuation), click the **0dB** button.
- To mute all channels, click the M button above **MASTER**.
- To mute a pair of channels, click the **M** button above the names of the channel pair.

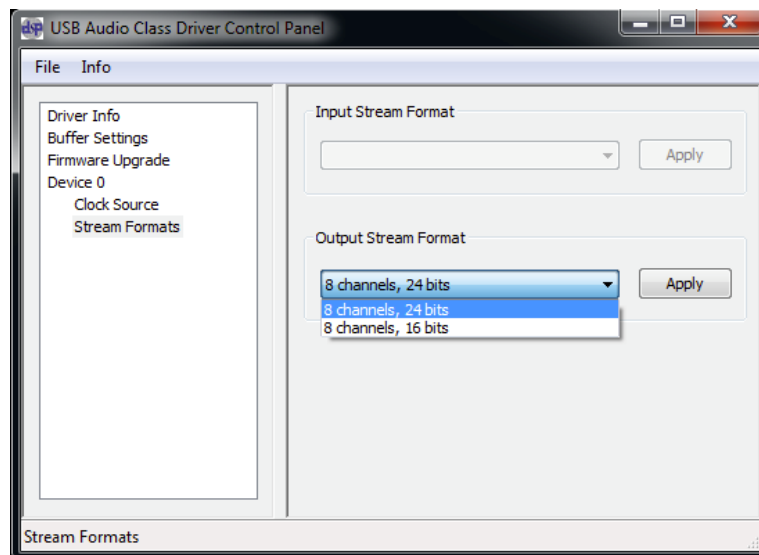
3.3.6 Clock source

This pane displays the clock source. The U-DIO8 does not allow the clock source to be changed.



3.3.7 Stream formats

This pane allows 24-bit or 16-bit data to be selected. The output is always set for eight output channels.



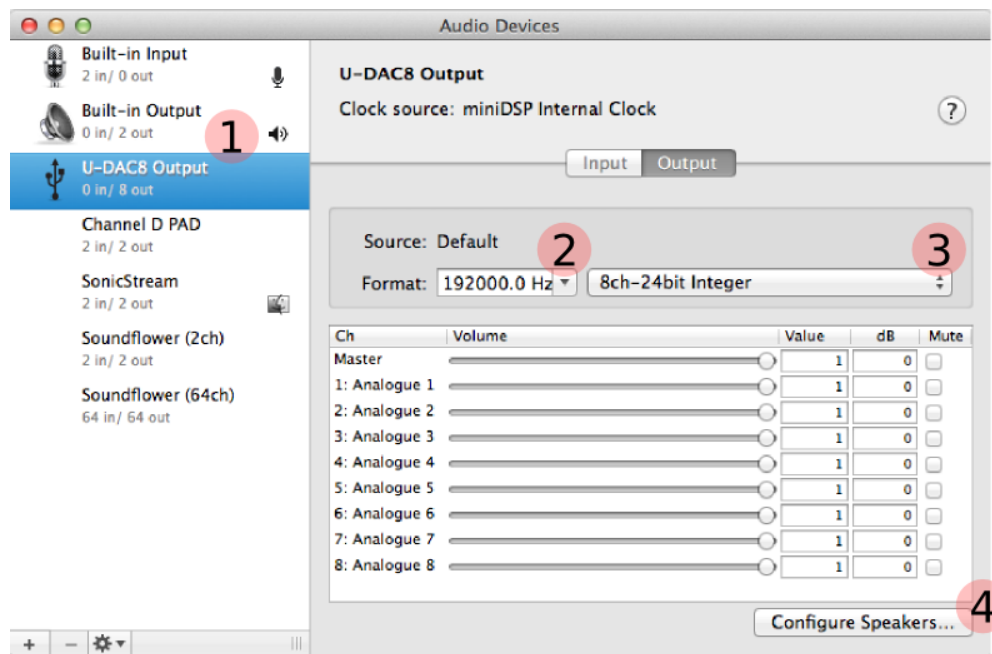
4 INSTALLATION AND CONFIGURATION – MAC OS X

4.1 INSTALLATION

Mac OS X has native support for USB Audio class 2.0 devices, so no driver installation is required. The U-DIO8 will automatically be detected by Mac OS X as a compliant multichannel USB audio interface.

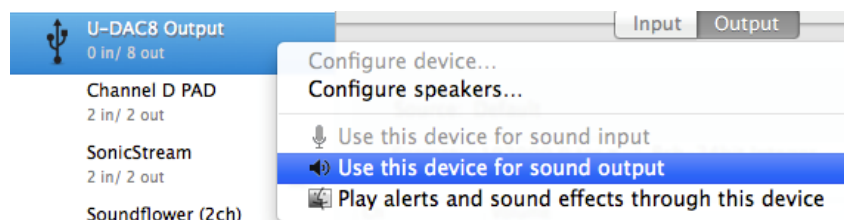
4.2 CONFIGURATION

Open the program **Audio MIDI Setup** (in **Applications->Utilities**). The U-DIO8 will appear automatically in the list on the left hand side.

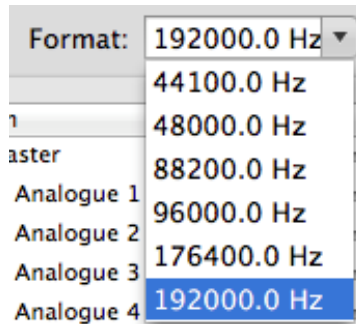


Refer to the numbers on the above screenshot:

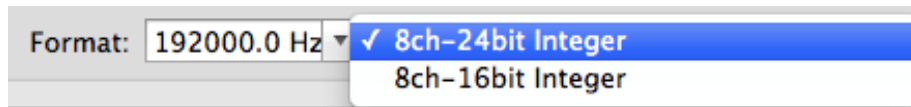
1. Click on **U-DIO8 Output** to select the U-DIO8 for settings changes. To set the U-DIO8 to be the default audio output device, right-click and select “Use this device for sound output”.



2. Select the output sample rate. Note however that many audio players will automatically change this setting according to the media being played. The sample rate can be set to all common rates from 44.1 to 192 kHz.

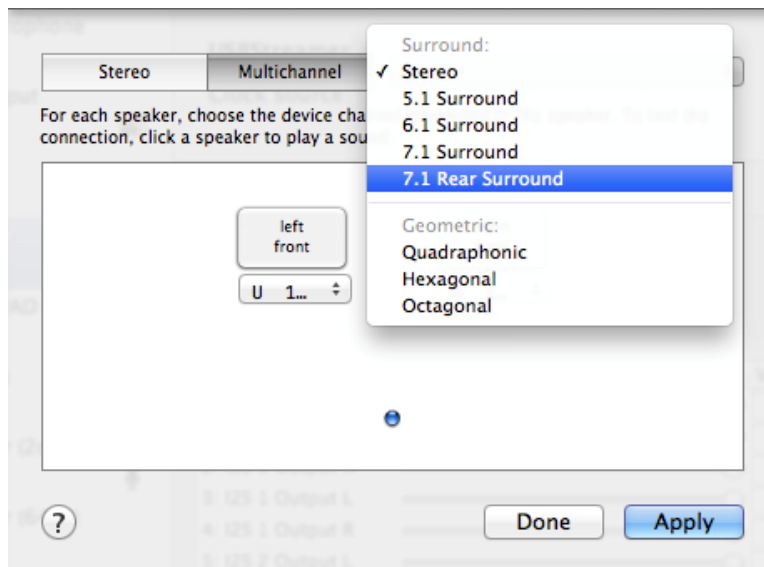


3. Select 24-bit or 16-bit data. The default 24-bit is usually fine.



4. To set up the U-DIO8 for multichannel audio, click on **Configure Speakers...** .

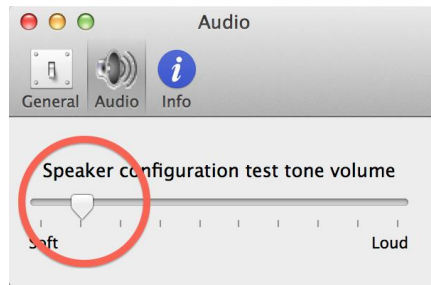
On the popup pane that appears after clicking on **Configure Speakers...**, click on **Multichannel** and then pop down the selector to choose one of the multichannel formats:



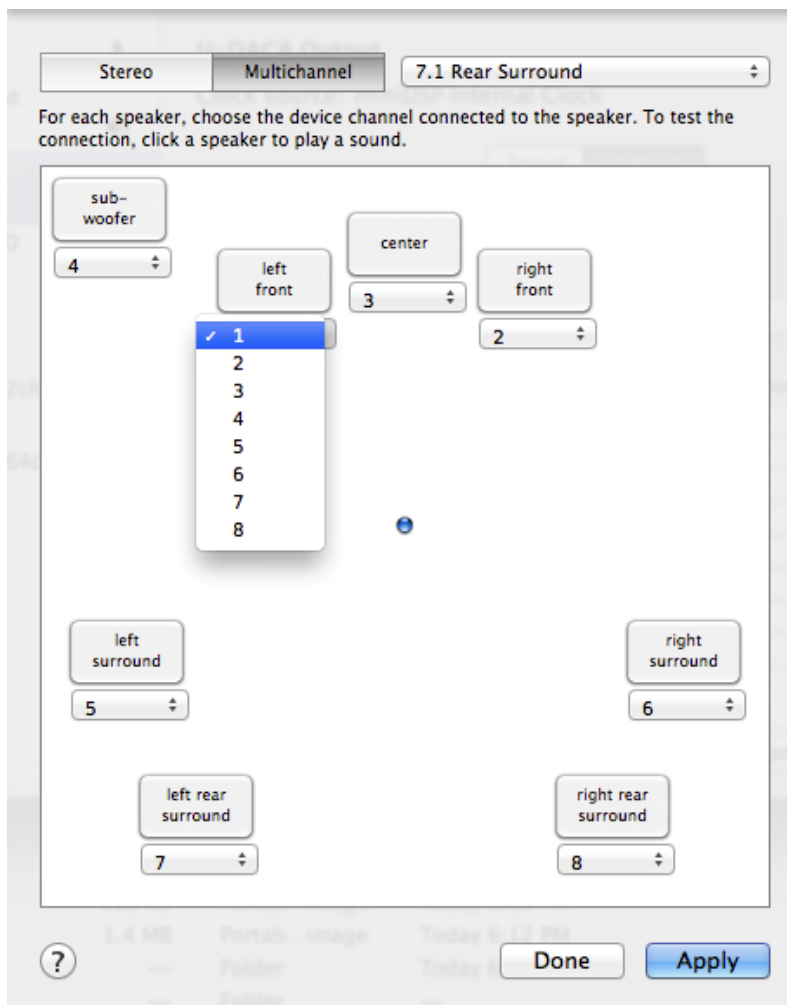
The display will change to show the selected multichannel speaker layout.



Before proceeding, set the test signal volume in Audio MIDI Preferences->Audio to be very low. Otherwise, you may generate a very loud test signal in the next step and even damage a loudspeaker.



On the multichannel layout diagram, confirm that the speaker channels are as expected. Click on the name of each speaker to generate the test signal. (Increase the volume on the Preferences pane if necessary at this time.) The dropdown channel selectors underneath each speaker can be used to select the output channel number for that speaker if necessary (see screenshot below).



When finished, click **Apply** and then **Done**.

5 ADDITIONAL INFORMATION

5.1 SPECIFICATIONS

USB Streaming engine	XMOS 16 core / USB 2.0 full speed - USB Audio class 2.0 compliant
Capabilities	8 channel PCM Input (recording) and Output (playback) over USB
Drivers	Driverless interface for Mac OS X v10.6.4 and up Thesycon Windows driver provided for WDM/ASIO support Linux compliant when used with Alsa 2.0 driver
Digital inputs	4 x AES/EBU (8 channels) on DB-25 connector (Tascam pinout) OR 4 x S/PDIF (8 channels) on DB-25 connector. Asynchronous sample rate conversion to match incoming sample rates (32 to 216 kHz) to the recording sample rate selected on your PC/MAC.
Digital outputs	4 x AES/EBU (8 channels) on DB-25 connector (Tascam pinout) OR 4 x S/PDIF (8 channels) on DB-25 connector. Sample rate defined by the playback rate (44.1~192kHz)
Audio resolution	Input/output resolution: 24-bit integer Sample rate: 44.1 to 192 kHz 128dB Dynamic Range, -125dB THD+N
Power supply	5 VDC external supply, 500 mA requirement, 2.1 mm center-positive Universal supply provided with plugs for EU/UK/US/AU
Dimensions (H x W x D)	31 x 161 x 108 mm
Weight	500 g

5.2 FIRMWARE UPGRADE

If a firmware upgrade has been provided to enhance features or functionality, use the **USBStreamer Control Panel** to update the U-DIO8. Firmware upgrade can currently be performed only on Windows. See [Firmware Upgrade](#) on page 12.

5.3 OBTAINING SUPPORT

1. Check the forums on minidsp.com to see if this issue has already been raised and a solution or solutions provided.
2. Contact miniDSP via the support portal at support.minidsp.com with:
 - a. The product information including OS version and version of driver installed (for Windows).
 - b. A clear explanation of the symptoms you are seeing.
 - c. A description of the troubleshooting steps you performed and the results obtained.