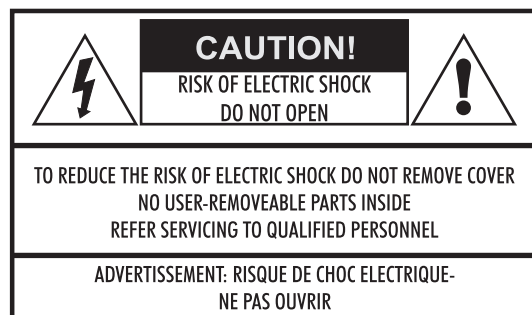


# 8200CD

## User Instructions

audiolab

# 1: Statutory & Safety Information



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

## IMPORTANT SAFETY INFORMATION

Read these instructions.

Keep these instructions. In the event that you pass the product to a third party this instruction manual should be provided along with the product.

Heed all warnings.

Follow all instructions.

Do not use this apparatus near water.

Clean only with dry cloth.

Do not block any ventilation openings.

Install in accordance with the manufacturer's instructions.

Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Use only attachments /accessories specified by the manufacturer.

**Warning:** The battery (battery or batteries or battery pack) shall not be exposed to excessive heat such as sunshine, fire or the like.



Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

Unplug this apparatus during lightning storms or when unused for long periods of time.

Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

**Warning:** To reduce the risk of fire or electrical shock, do not expose this product to rain or moisture. The product must not be exposed to dripping and splashing and no object filled with liquids such as a vase of flowers should be placed on the product.

No naked flame sources - such as candles - should be placed on the product.

**Caution:** Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this device.

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

- Re-orientate or re-locate the receiving antenna.
- Increase the separation between the equipment and the 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.

This label tells you that the unit contains a Laser component. Opening the unit will expose the user to radiation from the laser beam.

**CLASS 1  
LASER PRODUCT**

**Warning:** The means of disconnecting this apparatus from the mains supply is the mains plug. AT all times this must be unobstructed, freely accessible, and capable of being removed in an emergency.

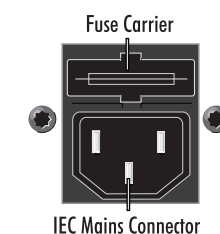
### Mains supply and safety

Class I construction. These products must be connected to earth.

**Power Cord:** An AC power cord is normally supplied with a mains plug suitable for your area. If you have any doubts, consult your dealer about obtaining a suitable power cord.

**Mains Supply:** The mains voltage of Audiolab units is shown on the rear panel. If this does not match the voltage in your area, consult your dealer. The mains supply fuse is on the rear panel. If it has broken, check for any obvious cause before replacing the fuse with one of the correct rating and type. The fuses for all areas are type T (time lag) AL20mm.

The fuse values are: 220V- 230V: T1 AL 250V  
100V, 115V: T1 .6AL 250V



The fuse is located in a slide-in carrier which also contains a spare fuse. The carrier can only be pulled out after the IEC power cord is unplugged. When the carrier is opened the first fuse is the spare. Remove and safely dispose of the blown fuse before replacing it.

### Important notice to UK users

The appliance cord is terminated with a UK approved mains plug fitted with a 3A fuse. If the fuse needs to be replaced, an ASTA or BSI approved BS1362 fuse rated at 3A must be used. If you need to change the mains plug, remove the fuse and dispose of this plug safely immediately after cutting it from the cord.

### Connecting a Mains Plug

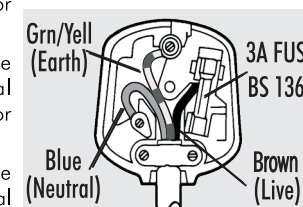
The wires in the mains lead are coloured in accordance with the code: Blue: NEUTRAL Brown: LIVE Green/Yellow: Earth. As these colours may not correspond to the coloured markings identifying the terminals in your plug, proceed as follows:

The Blue wire must be connected to the terminal marked with the letter N or coloured BLUE or BLACK.

The BROWN wire must be connected to the terminal marked with the letter L or coloured BROWN or RED.

The Green/Yellow wire must be connected to the terminal marked with the symbol E or coloured GREEN or GREEN/YELLOW or marked with the Earth Symbol (⏏).

⏏ Protective earthing terminal. The apparatus should be connected to a mains socket outlet with a protective earthing connection.





## 2: Getting Started

### Introduction: 8200CD

The Audiolab 8200CD is a fully-featured CD Player and DAC of advanced specification and impeccable performance. Please read this manual carefully before installing and operating the player so that you can enjoy to the full the outstanding qualities of this unit.

#### Player Features:

##### Inputs:

- CD disc playback.
- Two external SPDIF stereo LPCM coaxial digital inputs
- Two external SPDIF stereo LPCM optical digital inputs
- USB 2.0 port for replaying stereo from a compatible host.

##### Outputs:

- Coaxial and optical SPDIF digital outputs to connect an external DAC or digital amplifier when replaying CDs.
- Balanced stereo analog output via XLR connectors for connecting an audio amplifier with balanced inputs.
- Unbalanced stereo analog output via RCA connectors for connecting an audio amplifier with standard inputs.

##### Operating Features:

- Automatic detection and decoding of digital input sources.
- Selectable digital filter settings.
- The display can be switched on/off as required.
- Fixed or variable analogue output.
- Infra Red I/O to enable system control with one handset command when connected to suitably enabled units.

### The USB Input

The USB input enables computers and other compatible devices with USB connectivity to be connected directly to the player. This topic is one of the most exciting topics in current audiophile circles and has ushered a new appreciation of the capabilities of computer audio.

Although most audio files stored on computers are compressed and of very average quality, the advent of affordable large capacity hard drives enables audiophiles to rip CDs at full resolution and play them via computers with results that are comparable to the same CDs played through the finest CD players.

The DAC and the USB featured in the 8200CD is among the finest in the world irrespective of price.

### Unpacking

Unpack the product fully. The carton should contain:

- The Audiolab 8200CD
- One IEC power cord suitable for your area
- One Remote Handset with two AAA batteries
- This instruction manual.

If any item is missing or damaged report this to your dealer as soon as possible.

Retain the packing for future safe transport of your product. If you dispose of the packing, do so with regard to any recycling regulations in your area.

### Placement

Place the unit on a sturdy shelf or table.

The unit is designed to run warm during normal operation.

Do not place anything on top of the unit. If you are using an equipment rack ensure the unit has sufficient space to allow adequate ventilation and is on its own shelf.

Before you connect the 8200CD to the mains, ensure your mains voltage corresponds to the rating plate on the rear of the product. If in doubt, consult your dealer. If you move to an area which has a different mains voltage seek advice from an Audiolab appointed dealer or a competent service technician.

Make sure you locate the unit so that the front panel is in view as otherwise the infrared-remote handset will not work.

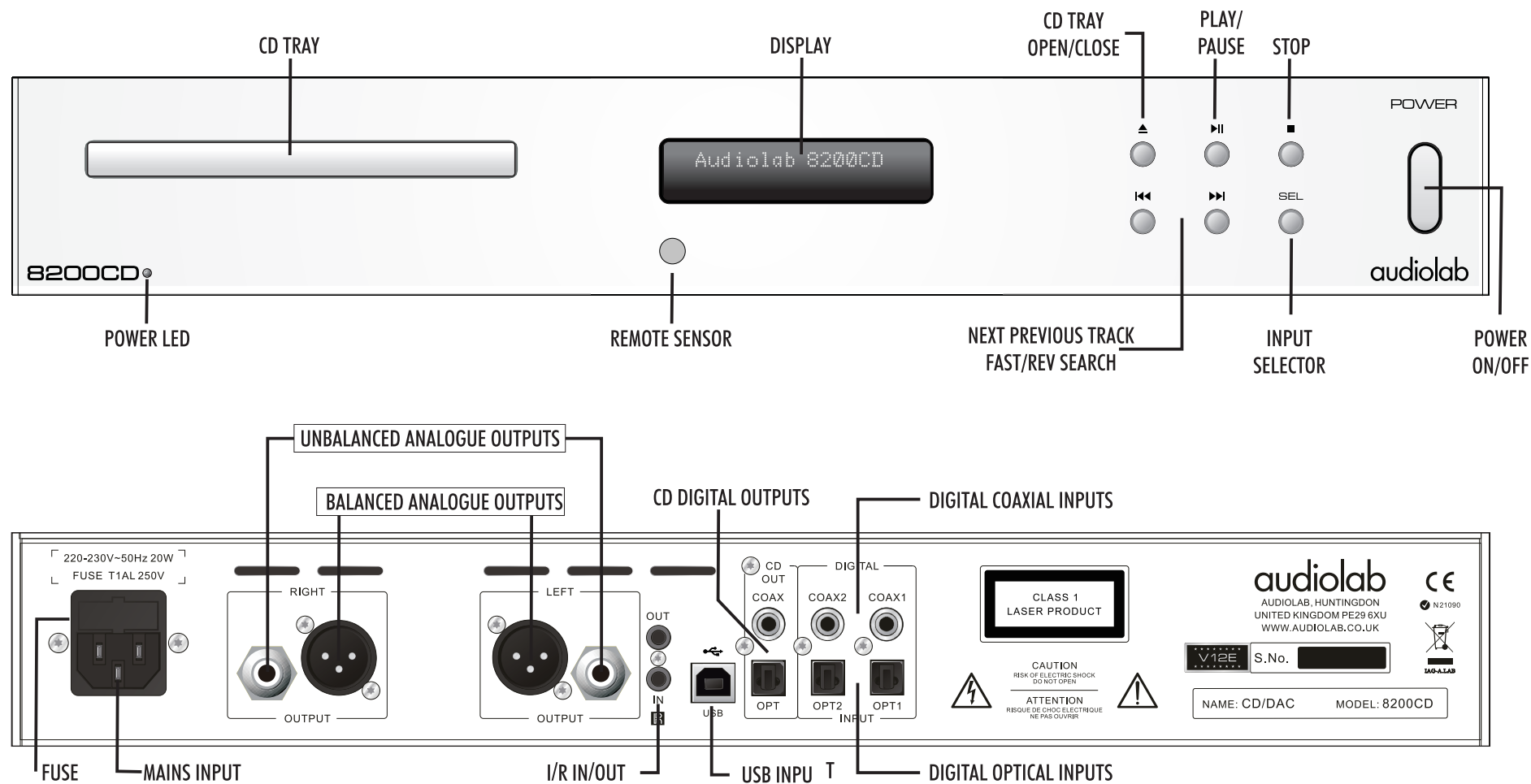
### Before Starting

Your 8200CD's performance is determined by the care you take in setting your system up: this includes all connected sources, amplification and loudspeakers.

Please read all the notes regarding playback from computer sources and set up the associated computer audio source with care.



### 3: Controls and Connectors

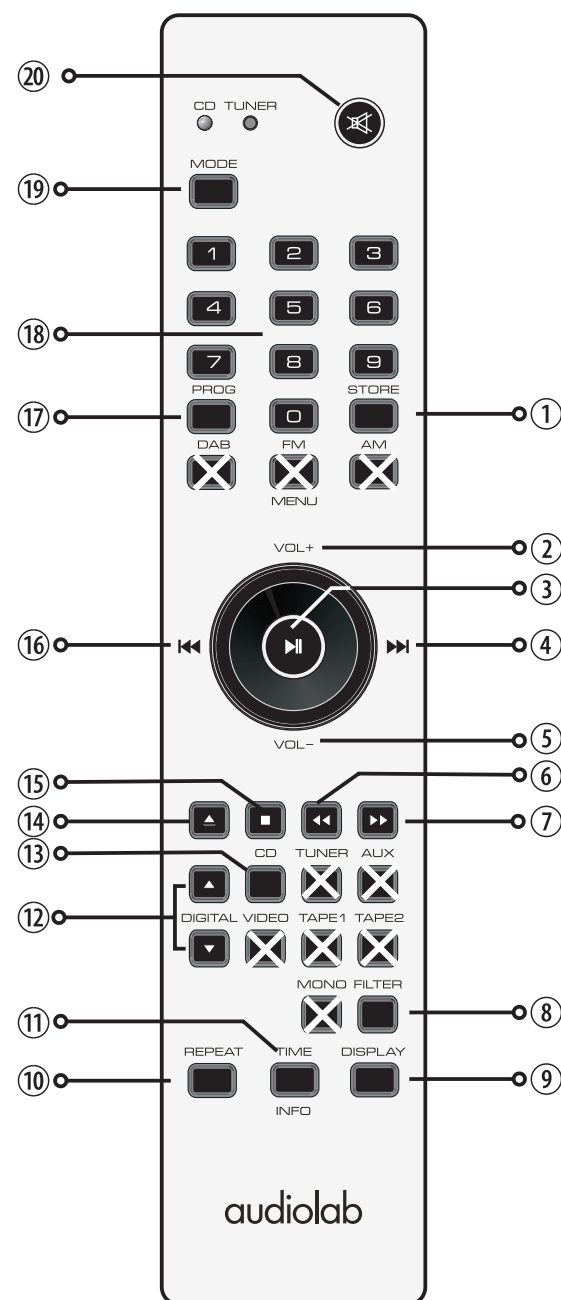






## 4: Remote Handset

**NOTE:** The handset buttons shown crossed out are for use with other Audiolab units and are not operational when used with the 8200CD.



- |    |                    |  |
|----|--------------------|--|
| 1  | <b>STORE</b>       | Store a Program in memory  |
| 2  | <b>VOL+</b>        | Increase Volume (requires enabling See P15 )   |
| 3  | <b>▶  </b>         | Press to start and pause CD/USB playback   |
| 4  | <b>▶▶</b>          | Move to the next track   |
| 5  | <b>VOL-</b>        | Decrease Volume (requires enabling See P15 )   |
| 6  | <b>◀◀</b>          | Press and hold to Fast Reverse   |
| 7  | <b>▶▶</b>          | Press and hold to Fast Forward   |
| 8  | <b>FILTER</b>      | Select a digital filter  |
| 9  | <b>DISPLAY</b>     | Press to toggle the display off/on<br>Press and hold to select display brightness levels                                 |
| 10 | <b>REPEAT</b>      | Set a disc repeat mode.  |
| 11 | <b>TIME/INFO</b>   | Press to toggle Track/Disc Time Remaining and Elapsed<br>Press and hold to toggle CD text display.                       |
| 12 | <b>DIGITAL</b>     | Press to cycle Digital Inputs  |
| 13 | <b>CD</b>          | Press to select CD playback  |
| 14 | <b>▲</b>           | Press to open/close the disc drawer  |
| 15 | <b>■</b>           | Stop CD/USB play   |
| 16 | <b>◀◀</b>          | Press once to replay the current track<br>Press again to move to the previous track                                      |
| 17 | <b>PROG</b>        | Press to program tracks of your choice   |
| 18 | <b>NUMBER KEYS</b> | Press to go directly to a track by number  |
| 19 | <b>MODE</b>        | Press to toggle the handset between Tuner and CD operation. The CD/Tuner lights flash to show the selected handset mode. |
| 20 | <b>MUTE</b>        | Press to mute the volume (requires enabling See P15 )  |

### Fitting Batteries

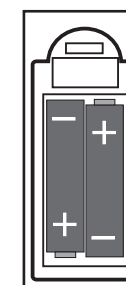
Open the cover. Unwrap the supplied AAA batteries and place them in the battery compartment with the polarity as shown. Replace the cover.

Always use AAA batteries and always replace them in sets. Never mix old and new batteries. Very weak batteries can leak and damage the handset. Replace them in good time.

Do NOT short circuit batteries or throw them into water, the general rubbish or a fire. Dispose of used batteries with regard to recycling regulations in your area.

1: Open the battery compartment cover

2: Insert 2AAA batteries



3: Replace the cover

### Handset Operation

The handset operates several Audiolab components.

Before using the handset always press the MODE button and check that the CD light illuminates. This puts the handset into CD operating mode.

Point the handset at the remote receiver and press the relevant key. The handset should be within 15 metres of the player and there must be a clear line of sight between the two units.

## 5: Connections



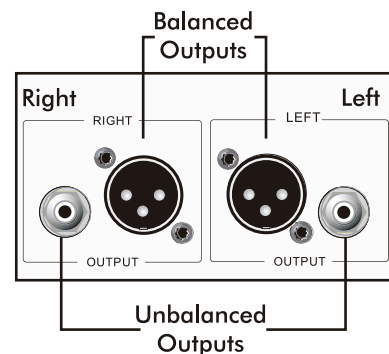
**Make sure all system components are disconnected from the mains before making or changing system connections.**

### ANALOGUE OUTPUTS

**Balanced Output:** Balanced connections provide greater headroom and improved S/N ratio. If your amplifier has a balanced input always use the balanced connection. You need one XLR balanced cable per channel. The socket connects to the player and the plug normally connects to the amplifier.

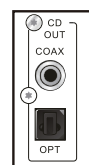
**Unbalanced Output:** Connect a high quality stereo screened RCA phono lead from the unbalanced outputs of the 8200CD to a suitable input of the amplifier.

The balanced and unbalanced outputs should not be used together.



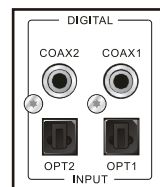
### DIGITAL SPDIF CD OUTPUTS

Coaxial and Optical outputs are provided for connecting the 8200CD to an external D/A converter (DAC) or digital recorder. Connect an optical or a digital cable from the appropriate output to the input of your DAC, etc. These connections only operate only when you are playing a CD. Both connections may be used together if required.



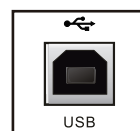
### DIGITAL (SPDIF) INPUTS

Four digital inputs (two Coaxial and two Optical) are provided for connecting the 8200CD to an external SPDIF source. The inputs accept digital signals up to 24bit /96kHz so are connectable to a wide range of digital media including DAT players, Satellite and DVB-T receivers etc. Connect a video or a digital cable from the SPDIF output of the source component to the appropriate input of the 8200CD. If you are connecting a DVD player or other multichannel source, set the SPDIF output to PCM Stereo (not RAW) with the Subwoofer OFF.



### USB PORT

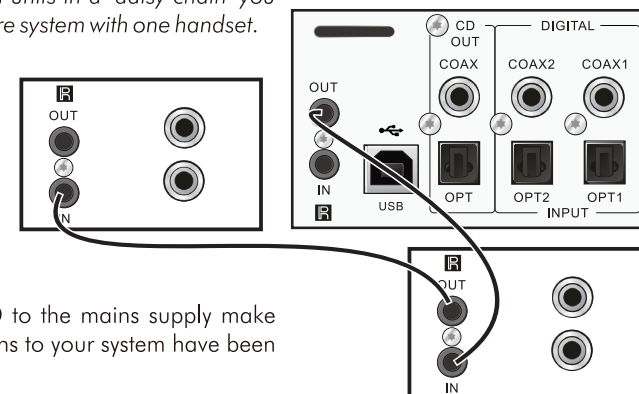
Use a certified USB2.0 cable. Connect the cable to the 8200CD and then to the computer or other USB digital source.



### I/R CONNECTIONS

An external 3.5mm remote control bus is included to facilitate connection to suitably equipped 8200 series components and to multi-room controllers etc.

By connecting suitably equipped units in a 'daisy chain' you can establish control over an entire system with one handset.



### MAINS INPUT

Before connecting the 8200CD to the mains supply make sure that all the other connections to your system have been properly and securely made.

Make sure the ON/OFF switch on the 8200CD is switched off (released position).

Switch the mains supply off at the wall socket and then, using the cable supplied, connect the socket on the back of your 8200CD to an AC supply outlet.

The player is now ready for operation.

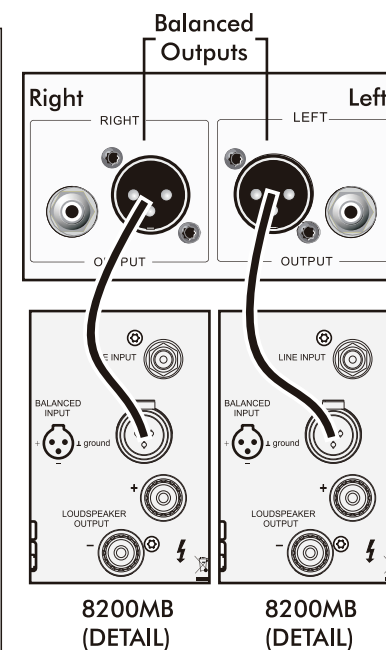
### CONNECTING THE 8200CD TO A POWER AMPLIFIER

You can use the 8200CD as a stand-alone pre-amplifier by connecting the analogue outputs directly to the inputs of a power amplifier.

There is no requirement for the power amplifier to have a gain control as the level is controlled via the 8200CD handset.

Please follow these instructions and those on P15 to set up the 8200CD for stand-alone operation.

- Make sure there is no CD in the 8200 disc tray.
- Switch the power amplifier and the 8200CD off (released position).
- Connect the appropriate analogue outputs of the 8200 CD to the power amplifier signal inputs.
- Follow the procedure on Page 16 to set the Output Level as "Adjustable".
- Press the ■ button on the front panel to return to normal operation.
- Now switch on the power amplifier.
- Control volume and mute functions via the handset.



## 6a: Operation - 1

### Switching On and Off

- Connect power to the 8200CD and all units in the system.
- Switch the mains power on.
- Switch on all source units including the 8200CD
- Now switch on the pre-amplifier.
- Finally, switch on the power amplifier/s.

**When switching the system off:** always switch off the power amplifiers **before** switching off the pre-amplifier and the 8200CD.

**Whenever the 8200CD is switched on:**

The Power LED illuminates, the display shows the Model no.  
After 15 seconds the player defaults to the last used input.

### Playing a CD

If not already selected, press the CD button on the handset or cycle the Selector on the front panel to select the CD input.

### Loading a Disc

Press Open/Close to open the drawer.  
Load a disc into the drawer.

Close the drawer.

The disc information will be displayed

After reading the track information the disc will stop.

### Playing a disc:

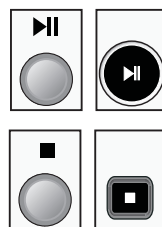
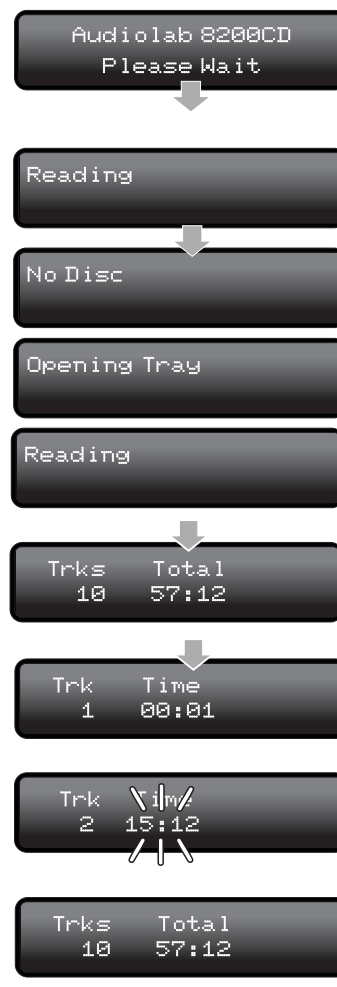
Press the Play/Pause key to play a disc.

### When a disc is playing:

Press Play/Pause to pause the disc.

Press again to resume play.

Press STOP to stop the disc.



### Next Track : Previous Track

Press to move to the next track

Press once to replay the current track.

Press / repeatedly to move through the tracks forward or back one track at a time.

**'Next Track':** If you exceed the number of tracks on the disc, the player will 'wrap round' and play from Track 1.

**'Previous Track':** If you go past Track 1, the player will 'wrap round' and reverse search from the final track on the disc.

### Direct selection of tracks from the handset

Select the wanted track directly from the keypad:  
The disc will play forward from the chosen track.

If you choose a single digit track (e.g. 1) in a disc which contains more than 10 tracks, the player will pause briefly, waiting for you to enter a second digit. If none is entered, play will commence from the entered single-digit track. If the choice is invalid the display reverts to the previous state.

**Note:** You can preselect a track before you load a disc. When the disc is loaded the player will play from the selected track.

### The Time/Info Display

#### 1: During Disc Playback (CD input selected):

Repeatedly press the TIME/INFO key on the handset to cycle through the display as shown.

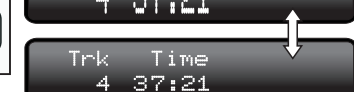
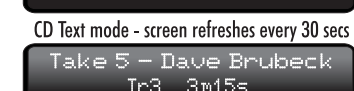
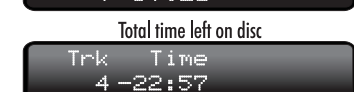
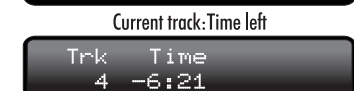
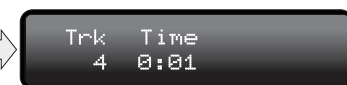
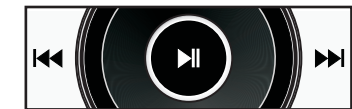
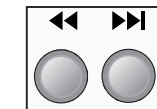
When playing a disc the player remembers the last time display mode set.

In CD Text mode the display shows Album Title and Artist when the disc is stopped and Track Title and Artist while playing. *This feature must be enabled and requires disc support (see P15).*

**If you switch to another input:** The player continues to play (though you cannot hear it). If you now go back to the CD input the display reverts to the last used state. CD playback will automatically stop after 20 minutes if you don't return to the CD input.

#### 2: Increasing the Character Height (any input selected)

Press and hold the TIME/INFO key. The upper line of the display is suppressed and the lower line increases to double height. This improves readability if you are seated some distance from the player. Press and hold the TIME/INFO key again to revert to the normal display.

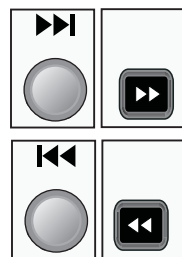


## 6b: Operation - 2

### Search

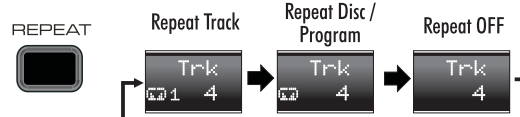
Press and hold the Forward Search button to search forward through one or more tracks. If you keep the button pressed, when the end of the disc is reached the player will cycle around a point 1 second before the end of the disc. On releasing the button the player plays to the end of the disc.

Press and hold the Reverse Search button to search back through one or more tracks. If you keep the button pressed, when the start of the disc is reached, nothing further happens. On releasing the button the player plays from track 1.



### Repeat

Press the repeat key to cycle the repeat mode.



### Program Play

You can create a custom program of up to 30 chosen tracks from a CD repeating the same track several times if you wish. Program mode must be accessed when the disc is stopped.

**Example: To enter a program of 4 tracks:**

Press PROG.

Choose a track, press STORE.

Choose another track, press STORE.

Choose a third track, press STORE.

**To enter a track number between 10 and 99 - say 22**

Press +

**To play the program:** press PLAY

**To stop Program play:** press STOP. The program is stored in the player's memory until erased.

**To erase a program from memory:** Press STOP twice or open and close the disc drawer.

**In program mode:**

- Repeat program (but not repeat track) is available.
- Fast Fwd./Rev. search and Prev./Next Track are available.
- Time/Info displays track time/track elapsed/CD Text only.

### Other Player Functions

#### Display

Press the DISPLAY key to toggle the display off/on.

**When the display is OFF:** Pressing any key will bring the display on. After a few moments the display will again switch off. Switching the 8200CD off and on restores the display.

**To alter the display brightness:** Press and hold the DISPLAY key. The current Brightness level displays. **You can now...**

- 1) Press the display key repeatedly to alter the level from 1-8
- 2) Press a number key from 1-8 to directly select the level.

#### Digital Filter

Press the FILTER key once to display the current filter. Press the FILTER key again to change filters. Pressing FILTER and then keys 1-7 will also bring up a filter as shown.

**"Optimal Transient"** filters exhibit no ringing - the transient nature of the music is preserved. Although exhibiting poorer performance in technical measurements, sound from this type of filter has a purity and "naturalness" that more than compensates for the lack of technical specifications. There are three Optimal Transient Filters. They exhibit identical frequency and time domain response but the internal structure of the filters varies, resulting in small but perceptibly different sonic nuances.

The **"Sharp Rolloff"** filter typifies industrial standard characteristics (-6dB at 1/2 Fs with significant time-domain ringing) and is included here for comparison purposes.

The **"Slow Rolloff"** filter starts rolling off at a lower frequency than the Sharp Rolloff filter but has a gentle rate of attenuation and significantly less "time-domain ringing".

The **"Minimum Phase"** filter has a gentle attenuation slope similar to the Slow Rolloff option, however it exhibits no pre-ringing in the time domain. It can be likened to an analogue filter applied in the digital domain.

The **"Optimal Spectrum"** filter is a digital filter which implements sampling theory and is designed for near perfect technical response in the frequency domain. This filter also has time-domain pre-ringing which can lead to listener fatigue.

The Audiolab 8200CD is unique in that it offers you a choice of filters to meet your listening expectations.

DISPLAY Display On

DISPLAY Display Brightness Level 8

5 Display Brightness Level 5

FILTER

5 Digital Filter Optimal Transient

6 Digital Filter Optimal Transient XD

7 Digital Filter Optimal Transient DD

1 Digital Filter Sharp Rolloff

2 Digital Filter Slow Rolloff

3 Digital Filter Minimum Phase

4 Digital Filter Optimal Spectrum



## 7: Playing Digital Inputs

### Selecting a Digital Input Source

Press the DIGITAL +/- buttons on the handset or the SEL button on the front panel to select a digital input.

When the input is locked, the front panel will display the input source frequency.

If the input display reads "No Lock" this is because the source is switched off, in standby, or the unit is paused.

There are no playback controls active when the 8200CD is processing a digital coaxial or digital optical input.

**Notes:** We recommend you pass a Digital signal to the 8200CD **without** any DSP processing or resampling at the source. This will allow the upsampling circuits in the 8200CD to work at their optimum.

If there is a digital volume control on the source unit, set it at maximum and use the analogue volume control in your preamplifier to alter the volume level. This may seem counter-intuitive but will preserve optimum performance.

Consult the user manual on your source unit for advice.

### Volume and Mute

The Volume and Mute keys are disabled when the 8200CD is used in default fixed output mode.

When variable output is enabled (*Adjustable Mode-see P15*) the Volume and mute keys operate.

Press the **Volume** +/- keys to alter the level. The range is -80dB to +3dB.

Press **Mute** to mute/unmute the sound on any input.

**Note:** When the display is switched off and the sound is muted the only indication that the unit is operational is the mains power light which remains lit whenever the unit is powered.

**Variable output mode should be enabled only when the 8200CD is used as a standalone pre-amplifier - see P 5.**



Digital Freq  
COAX1 44.1k

Digital  
COAX1 No Lock



Digital Level  
USB No Link -36dB



Trk Time Muted  
4 37:01 -36dB

## 8a: Using the 8200CD with a PC - 1

### Installation - Windows XP

The operating system must be Windows XP (SP2 or above).

It is essential that you use a fully certified USB 2.0 cable i.e a maximum length of 5 metres. Never use USB extension cables.

Switch the PC on and let it boot up. Plug the USB cable into the 8200CD and the computer and then switch the CD player on. The player software will now interface with the computer and the drivers will automatically load. When the drivers have loaded you will see an information screen saying something like "Audiolab 8200 Series is now ready for use" - the actual words will depend on the installed version of Windows.

This process normally needs no user intervention. The input does not have to be set to USB during this process. Please have your Windows Installation Disc available if prompted.

#### To check that the PC has recognised the player:

Navigate to "Control Panel"

Click on "Sounds, Speech and Audio Devices"

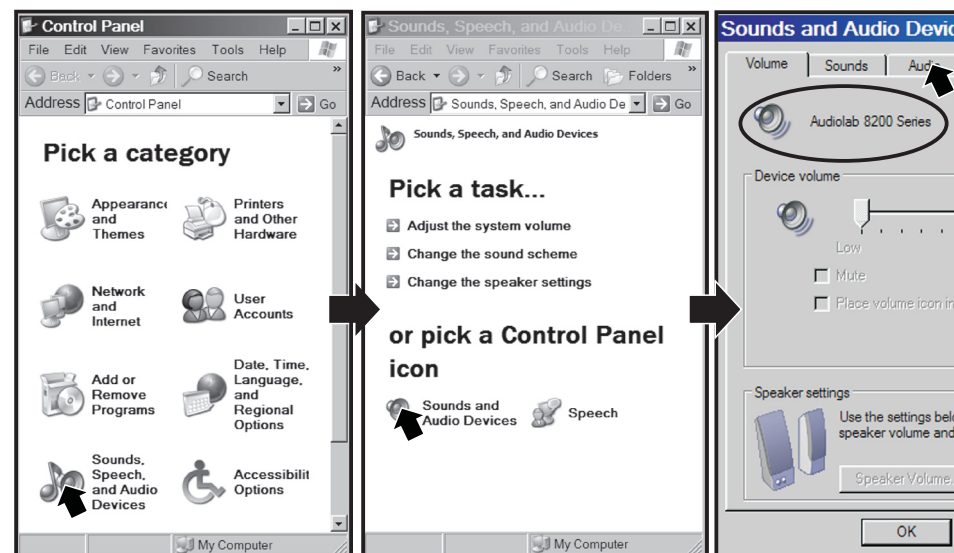
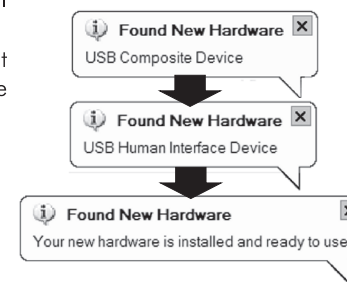
In the next screen click on "Sounds and Audio Devices"

Confirm that "Audiolab 8200 Series" is the default device.

#### If the 8200CD is not selected as the default device:

Click on the "Audio" tab,

Select "Audiolab 8200 Series" from the list. Click OK.



## 8b: Using the 8200CD with a PC - 2

### Disabling Windows sounds

If you are listening to the 8200CD while working at your PC you can suppress most of the Windows sound effects:

Click the "Sounds" tab.

In the next screen, select "No Sounds". Click "OK" to confirm.

- **The device is "Plug and Play":** When you disconnect or switch off the 8200CD the default sound device in your PC will automatically be re-selected.
- If you disconnect the 8200CD remember to deselect "No Sounds" in your Windows Sound scheme to restore the Windows sound effects.

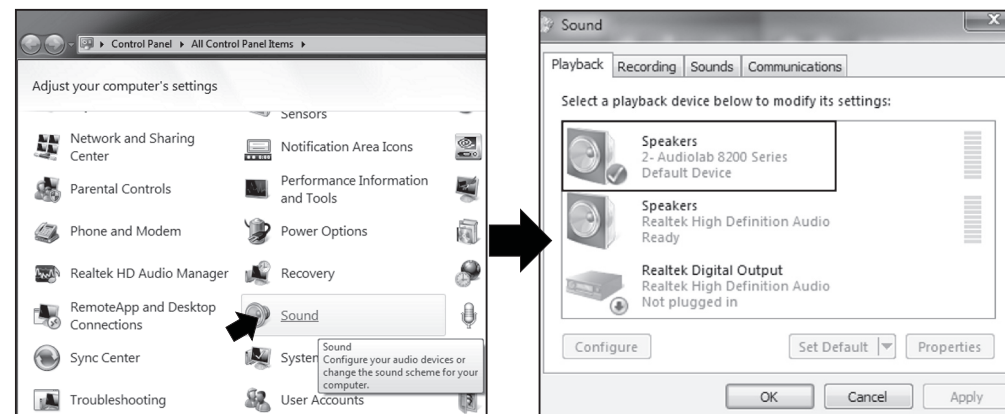
### Installation - Windows Vista/Windows 7

Use a fully certified USB 2.0 cable i.e a maximum length of 5 metres. Never use USB extension cables.

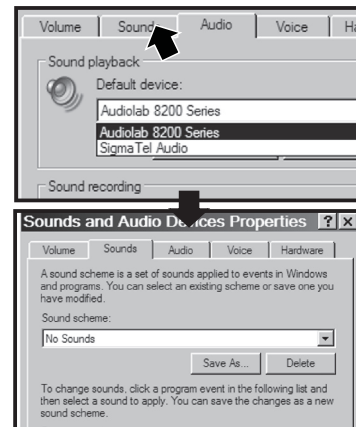
Switch the PC on and let it boot up. Plug the USB cable into the 8200CD and the computer and then switch the CD player on. The player software will now interface with the computer and the drivers will load. The input does not have to be set to USB during this process. Please have your Windows Installation Disc available if prompted.

**To check that the PC has recognised the player:**

Go to **Start/control Panel/all Control Panel Items**



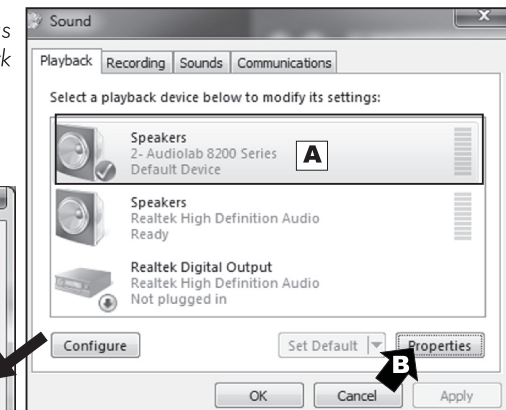
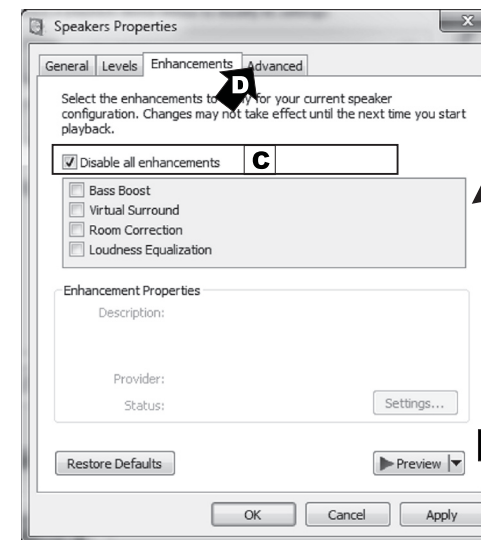
Click "Sound". "Audiolab 8200 Series" should appear as the default device.



If "Audiolab 8200 Series" does not appear as the default device, enable it. A green check mark appears by the default selection

**A:** Select "Audiolab 8200 Series"

**B:** Click **Properties**

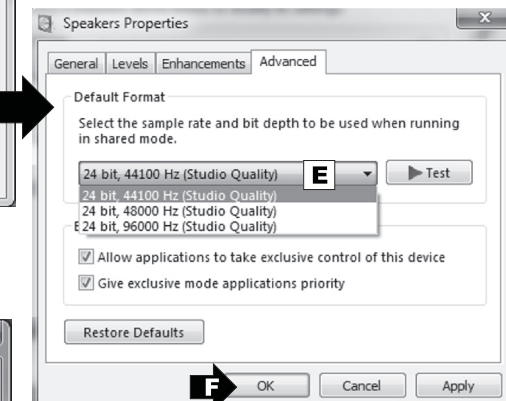
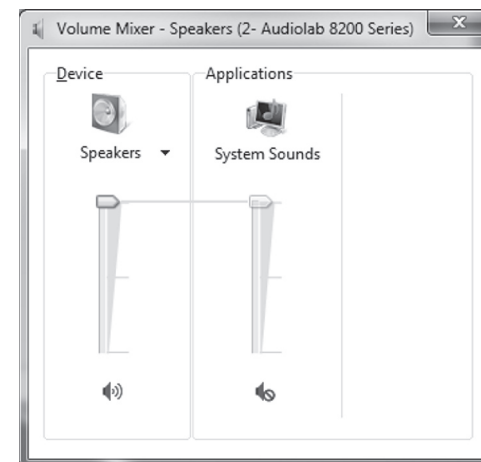


**C:** Ensure "Disable all enhancements" is ticked.

**D:** Click **Advanced**.

**E:** Select "24 bit, 44,100 Hz (Studio Quality)"

**F:** Click **OK**



Launch the **Volume Mixer** utility from the taskbar.

Set the "Speakers" setting to Maximum. All levels should be controlled from your pre-amplifier.

Set "System Sounds" to minimum. This will suppress most of the Windows sound effects.

Setup is now complete.



## 8c: Using the 8200CD with a PC - 3

### Basic Operation

Verify that the 8200CD is selected as the default player.

Use your preferred media player.

Set a low volume level on the 8200CDQ (or set Mute to on).

Make sure the Volume control is at full on the media player and in the PC control panel.

Press the DIGITAL +/- buttons on the handset or the SEL button on the front panel to select the USB input.

Select the music source in the PC and commence play.

Control the volume level via the 8200CDQ.

Press ► to play or

Choose a track with the ◀◀/▶▶ buttons: (press ► if necessary)

Press ► or ◀◀ to choose the next/previous tracks.

Press ► to pause and restart play.

Press and hold ►► or ◀◀ to forward search.

Press and hold ◀◀ or ►► to reverse search.

Press ■ to stop play.

*\*Functions depend on support from the chosen media player.*



*Input playing or player paused*

Digital 24bit  
USB 44.1k

*Player in STOP mode*

Digital  
USB

*No input*

Digital  
USB No Link

### Advanced Playback in Windows

The default Windows Media Player is not capable of ultimate Audiophile performance.

**Windows XP:** To achieve bit perfect results you need an ASIO driver and a media player that can handle ASIO streams.

**Windows Vista (SP1 and above) and Windows 7:** feature WASAPI, which was created specifically to get bit perfect data out, bypassing any internal mixers. You can also use ASIO to achieve bit-perfect results.

**ASIO (Audio Stream Input/Output):** ASIO installs a direct path from input to output. A free open-source ASIO driver is ASIO4ALL downloadable here: <http://www.asio4all.com/>.

**Media Players:** At the time of writing, the preferred player is Foobar 2000. This is a free open source media player, highly configurable, with ASIO and WASAPI support. This tutorial will help you get started with Foobar and ASIO which will operate in all Windows platforms from Win XP (SP2) onwards.

**Getting Started with Foobar 2000:** Enter this link in your web browser to download and install Foobar 2000: <http://www.foobar2000.org/download>.

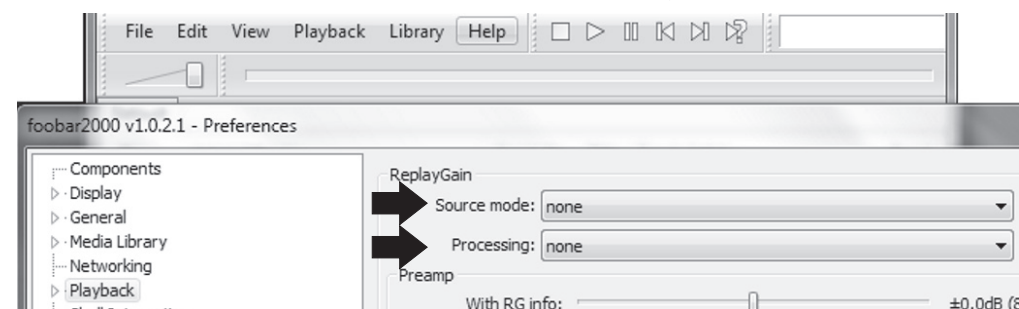
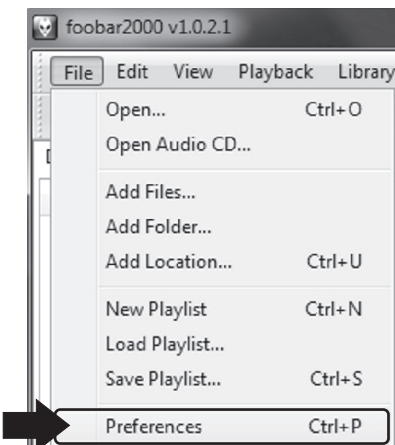
## 9a: Using Foobar - 1

### Using Foobar with Windows Vista and Windows 7

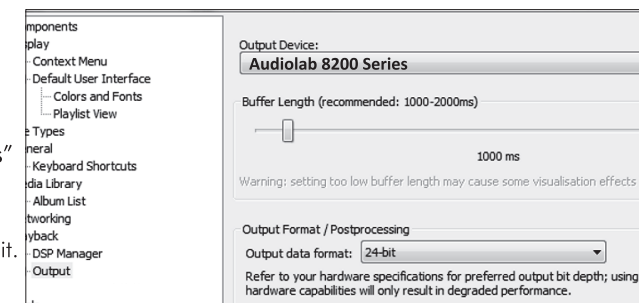
- Install Foobar. You will have to “allow” the installation.
- Accept all the standard prompts.

- Open Foobar and click **File/Preferences**

- In the Preferences Dialogue click “Playback”
- Make sure that “Replay Gain” is set to “None”



- Open the Playback dialogue
- Click “Output”
- Ensure “Audiolab 8200 Series” is the output device. If not, select it from the drop down menu.
- Set Output Data Format to 24-bit.
- Save all the changes



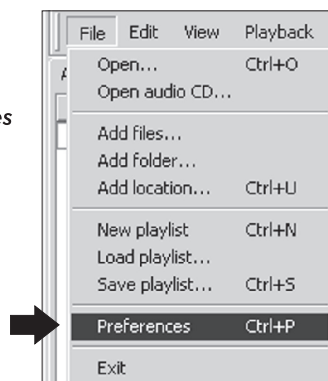
Foobar 2000 is now configured and ready for use.

*Refer to the next page for ASIO installation.*

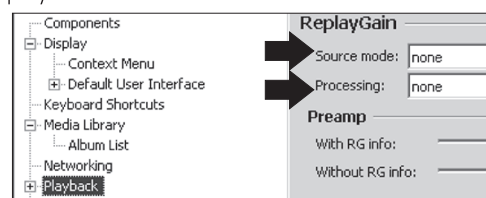
## 9b: Using Foobar - 2

### Using Foobar with Windows XP

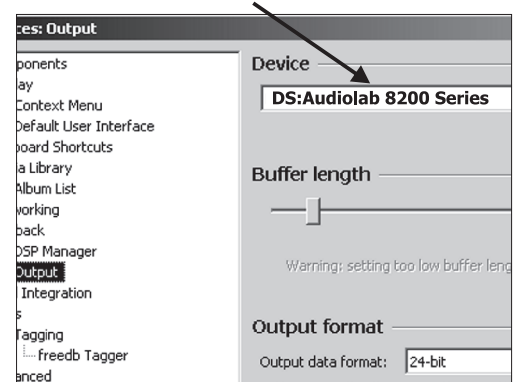
- Install Foobar.
- Accept all the prompts.
- Open Foobar
- Click **File/Preferences**



- Click "Playback"
- Set "Replay Gain" to "None."



- Open the Playback dialogue
- Click "Output"
- select "Audiolab 8200 Series" from the menu.



- Set Output Data Format to 24-bit.
- Save all the changes

Foobar 2000 is now configured.

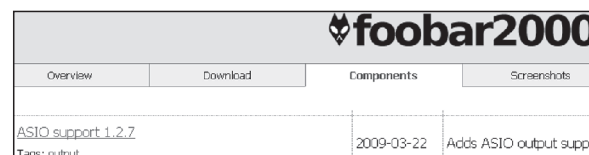
### INSTALLING ASIO SUPPORT IN FOOBAR

Installing ASIO enables bit-perfect playback.

To install ASIO into Foobar you need two utilities:

ASIO4ALL downloadable here: <http://www.asio4all.com/>.  
The ASIO plugin for Foobar, a download from the Foobar site.

- Access the Foobar site, click on **Components**.
- Select **ASIO Support** from the list and click on the link.
- In the next screen click "Download". The file is zipped.
- Extract the plug-in and place it on the PC desktop.

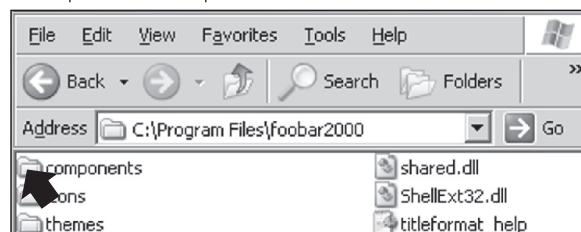


### Configuring Foobar and ASIO4ALL

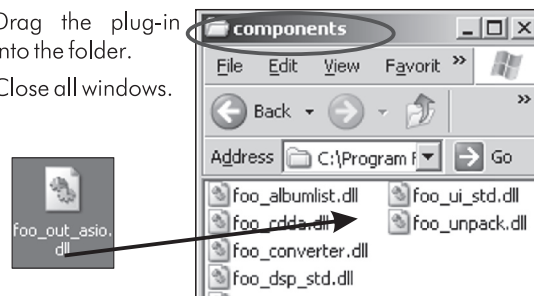
- Install ASIO4ALL:

To install the ASIO plugin into Foobar:

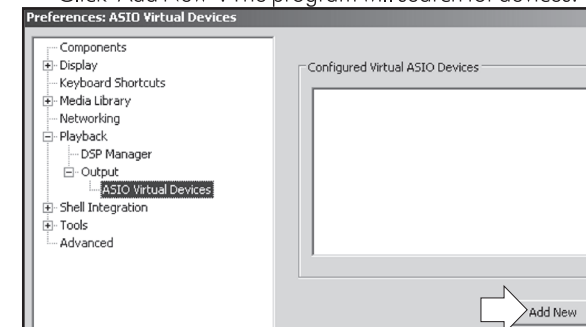
- Make sure Foobar is closed
- Navigate to the Foobar program folder. This will normally be found in C:\Program Files\foobar2000.
- Open the "Components" folder



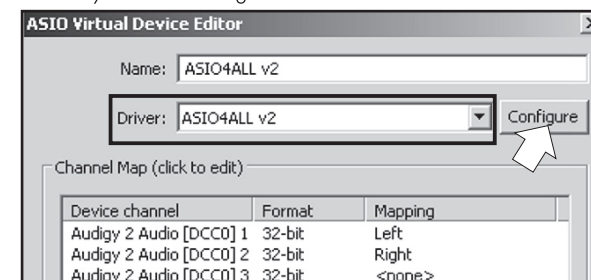
- Drag the plug-in into the folder.
- Close all windows.



- Open Foobar.
- Click File/Preferences: Select "ASIO Virtual Devices"
- Click "Add New". The program will search for devices.

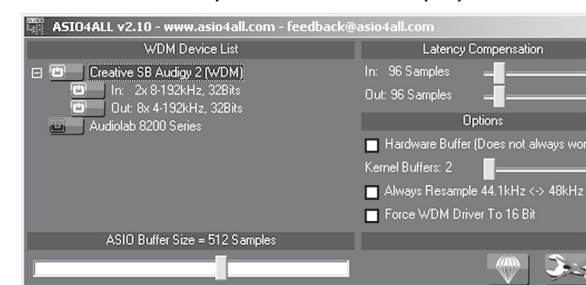


If there are no soundcards in the PC capable of ASIO operation, Foobar will find the 8200CDQ. If there is an ASIO capable device, Foobar may find only the installed device. You may see something like:



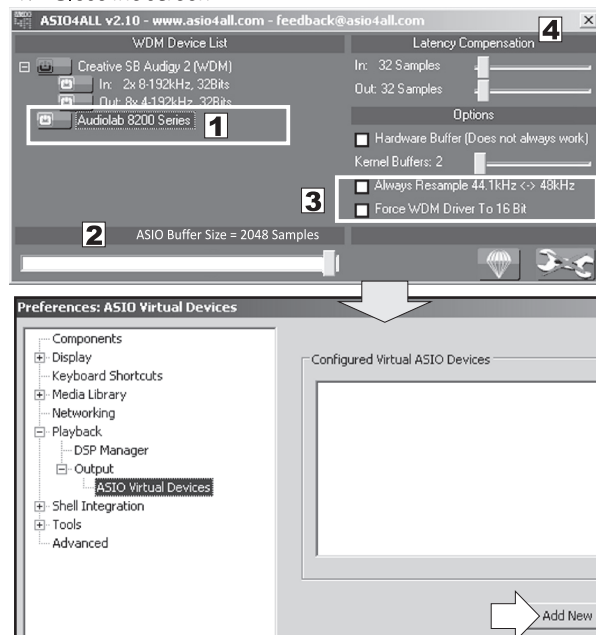
- Select ASIO4ALL as the driver.
- Click "Configure".

The ASIO4ALL setup screen will now deploy

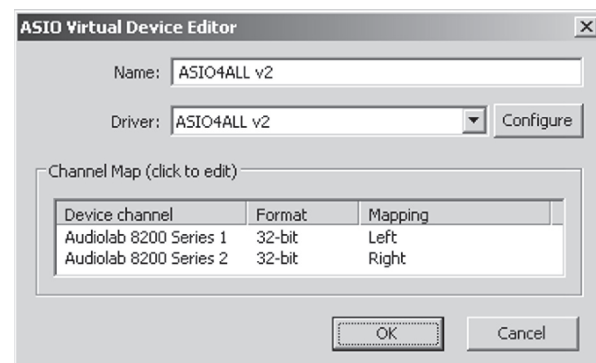


## 9b: Using Foobar - 3

- 1: Move the highlight to "Audiolab 8200 Series"
- 2: Set the ASIO Buffer Size to 2048 samples
- 3: Make sure these boxes are unchecked
- 4: Close the screen



- Click "Add New". **Audiolab 8200 Series** will appear.

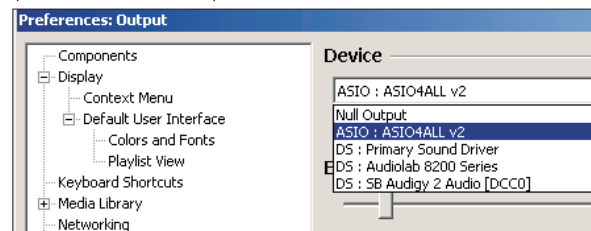


- Click OK to close the screen. ASIO4ALL will now appear in the ASIO Virtual Devices box and the 8200 will be enabled.
- Click OK to close preferences and save the new settings.

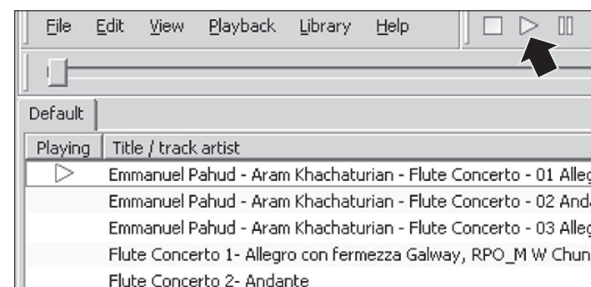
### Final Configuration

- Open Foobar. Click File/Preferences/Output
- Open "Devices". Select **ASIO4ALL** from the menu.

Note: If you select **DS: Audiolab 8200 Series** you will use the Direct Sound (DS) kernel in Windows XP. This will not provide Bit Perfect reproduction.



### Using Foobar



- Launch Foobar.
- Select the location or library that holds your audio files.
- Press PLAY

If all is well you will hear sound through the 8200CDQ. You will also see the bit depth and sampling frequency on screen.

**Input playing via Direct Sound: Win 7, Vista, XP**

Digital 24bit  
USB 44.1k

**Input playing: ASIO**

Digital 16bit  
USB 44.1k

**Player stopped or paused**

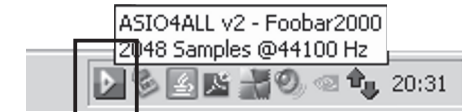
Digital  
USB

**No input**

Digital  
USB No Link

### ASIO settings:

When Foobar is playing, you will see this shortcut (green triangle) in the Quick Launch toolbar at the bottom right of your screen.



Click the shortcut to bring up the ASIO setup screen - refer to the previous page for guidance.

### Player Operation

Set a low volume level on the preamplifier.

Make sure the Volume control is at full on the media player

Press the DIGITAL +/- buttons on the handset or the SEL button on the front panel to select the USB input.

Control the volume level via the preamplifier.

Press ▶ to play or

Choose a track with the ▶▶|◀◀ buttons: (press ▶▶ if necessary)

Press ▶▶ or ◀◀ to choose the next/previous tracks.

Press ▶▶ to pause and restart play.

Press ■ to stop play.

### Disconnecting the 8200CD

If the 8200CD is permanently installed to the PC there should be no need to adjust any of the Foobar parameters.

When the player is disconnected from the PC it may be necessary to re-configure Foobar to play through another connected device.

- Open Foobar. Click File/Preferences/Output
- Open "Devices".
- Select the alternative device from the list.
- Click OK.

When the 8200CDQ is reconnected to the PC, repeat the procedure and re-enable "ASIO4ALL" or "Audiolab 8200 Series" as you require.

# 10a: Using the 8200CD with a Mac - 1

## Introduction

Modern Macs come pre-loaded with Apple iTunes. Although it is possible to use alternative Media Players, iTunes has outstanding audio characteristics, and hosts a variety of advanced features. The Mac platform should ideally be OS 10.4.11 or above. The 8200 will also interface with certain other Apple devices - refer to your user manual for guidance.

It is essential that you use a fully certified USB2.0 cable. USB extension leads should be avoided.

Switch the Mac on and let it boot up. Plug the USB cable into the 8200CD and the Mac and then switch the 8200CD on. The device drivers will load in the background.

## Initialising the 8200CD

Click on the "System Preferences" icon in the dock.



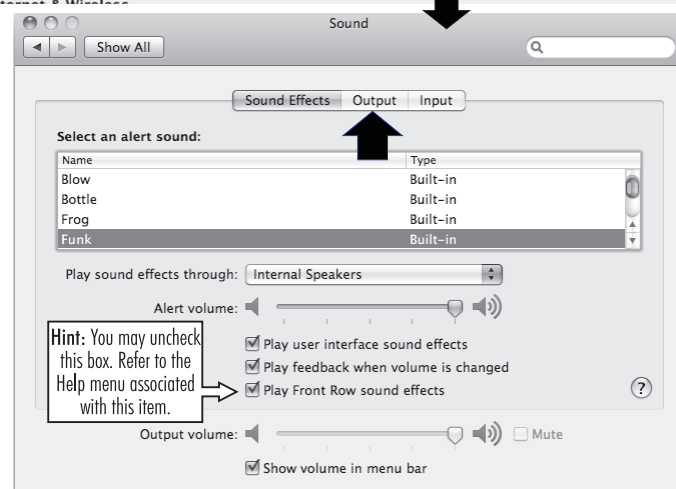
## In "System Preferences"

Click on the "Sound" icon



## In "Sound"

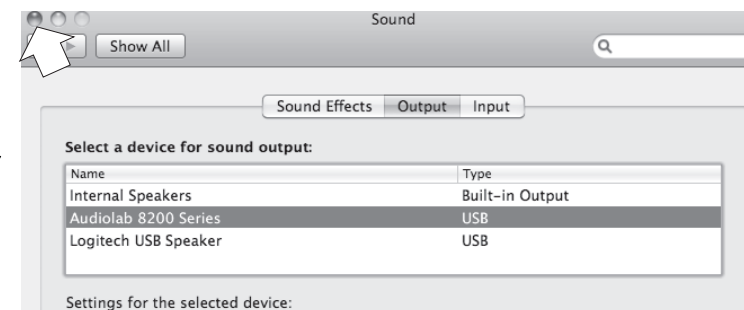
Click on the "Output" tab



## In "Output"

Select the "Audiolab 8200 Series" icon as the device for sound output

Close the window.



Go to the Desktop

A: Click the "Finder" Icon

B: Click "Applications"

C: Click "Utilities"

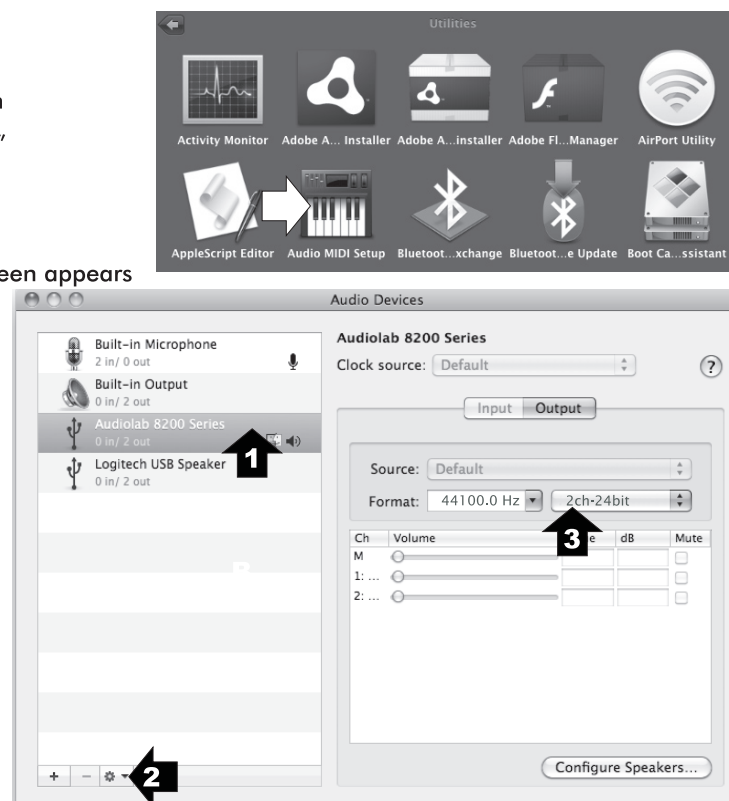




# 10b: Using the 8200CD with a Mac - 2

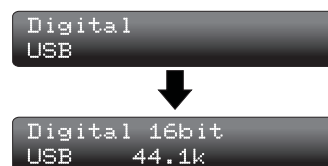
From the Utilities Screen  
Click "Audio MIDI Setup"

The "Audio Devices" Screen appears



Setting Up the 8200CD:

- 1: Highlight "Audiolab 8200 Series" in the list.
- 2: In the pop up menu: select "Use this device for sound output"  
*Music from iTunes will be directed to the 8200CD but the alert sounds will be sent to your secondary speakers.*
- 3: Set the format to "44,100 Hz - 24bit".
- 4: Select the USB input on the 8200CD.
- 5: Start iTunes, and choose a track to play.  
Press ►|| to play or  
Choose a track with the ►► |◄◄ buttons and then press ►||.  
Press ►► or |◄◄ to select next/previous tracks.  
Press ►|| to pause and restart play.  
Press and hold ►►◄◄ or ►► |◄◄ to search forward/reverse.



## Notes:

### Altering Bit Depth and Sampling Rate.

The default sampling rate should be selected as 44,100 Hz 24 bit. If you are playing music at other sampling frequencies, you should set the sampling rate (see Note 4 above) to match that rate. The bit depth should at all times remain set to 24 bit.

\* After changing the format, it is necessary to quit iTunes and then re-open it.

### DSP Processing and Resampling:

Always pass a Digital signal to the 8200CD **without** any DSP processing or resampling at the source. This will allow the upsampling circuits in the 8200CD to work at their optimum.

### Using the 8200CD with an iPad

OS 4.2+ supports Asynchronous USB mode via the optional Apple Camera Connection Kit. Older versions of the iPad should be updated to OS4.2 to realise the sonic benefits of this connection.

**To update the iPad:** Connect your iPad to a computer, launch iTunes, select your iPad under **devices** in the left pane and press the Update button.

Refer to <http://support.apple.com/kb/HT1414> for guidance.

Use the USB adaptor on the kit to connect to the iPad and connect a USB cable from the adaptor to the USB port on the 8200CD to stream high resolution sound.

The iPad is very transparent in operation with the 8200CD. No setup is required

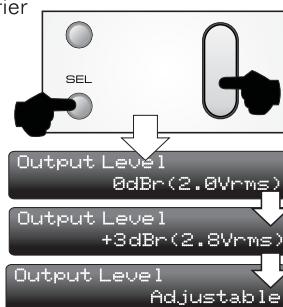
When you connect the iPad to the 8200CD, the iPad switches from its internal sound output to the connected USB Audio device. You can now use the Play/Pause/Prev/Next keys on the Audiolab handset to control playback from the iPad.

# 11: Advanced Setup Options

## Changing the Audio Output Level

The default audio output of 2 Volts (RCA Output) can be boosted by 3dB or made adjustable via the handset.

- Switch any connected pre-amplifier or power amplifier OFF
- Switch the 8200CD off.
- Hold the SEL button and switch the unit on.
- Press ► to select an option.



### After making the changes:

- Press the ■ button or switch the unit off and on to return to normal operation
  - Switch the pre-amplifier or power amplifier ON.
- 1) if you are using a passive pre-amplifier feeding a low-gain power amplifier the “+3dB” setting could be useful
  - 2) The “Adjustable” setting enables you to connect the 8200CD directly to a power amplifier, and control the output level via the remote handset.(see Page 8)

### If you select “Adjustable”:

After the 8200CD re-boots you will see the default volume level at the right of the screen.



Press the Volume +/- keys on the remote to alter the level. The mute key can also be used to mute/unmute the sound.

## CD Text Display

CD text options may be enabled or disabled as you prefer.

- Select the CD input.
- Press and hold SEL.
- Give a further short press on the SEL button to enable or disable CD Text



After a short interval the CD display will restore with the new settings in place.

**Note:** CD Text is a feature of specific CD discs. If a CD does not have CD Text (and, for example, many Classical CDs do not), enabling CD Text obviously will have no effect.

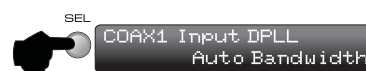
**Note:** CD Text is not available when “Large Characters” are enabled as both lines are required to display CD Text info.

## Altering the Digital Input Settings

The digital inputs of the 8200 CD are tolerant of high-jitter digital streams. Especially when receiving input from certain DVB-T and satellite receivers, games consoles etc., the high jitter may cause interface from clicking, drop-outs etc.

As supplied the 8200CD is set to Auto mode for maximum compatibility. Each of the four digital inputs may be altered to be more/less tolerant of jitter. These parameters should only be changed if you are experiencing difficulties.

- Select a digital input (not USB).
- Press and hold the SEL button.



- Further short presses on the SEL button will alter the settings of the selected input.

### There are four settings:

**Auto Bandwidth:** this is the default setting.

**Low Bandwidth:** this setting offers the best performance but with the lowest tolerance of source jitter errors.

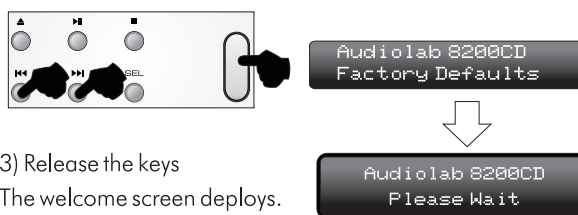
**Medium Bandwidth:**

**High Bandwidth:** this offers the highest tolerance to high jitter or unstable data streams but with reduced performance.

## Restoring Factory Defaults

The 8200CD can at any time be restored to factory default settings by following this simple procedure.

- 1) Switch the 8200 CD off.
- 2) Hold the ◀◀/▶▶ buttons in and press the power switch.



- 3) Release the keys
- The welcome screen deploys.  
Factory defaults are now restored.

# 12: Troubleshooting

*Until you are familiar with the operation of your 8200CD you may experience occasional difficulties. This guide will help you overcome the most likely issues.*

## No response/poor response to handset commands

- Are there fresh batteries in the handset ?
- Are you pointing the handset directly at the player ?
- Is CD mode enabled on the handset ?

## No sound

- Is the correct source selected ?
- Is the volume on the preamplifier turned up ?
- Is your signal source/pre/power amplifier(s) connected correctly and switched on ?

## Sound is poor quality / distorted

- Are all cables making good connections? If necessary, switch off the power, then withdraw the connector and plug it back in again, then switch on the power.

## Digital Inputs display “No Lock”

- Check that the digital source is switched on and streaming.

## USB input displays “No Link”

- Is the USB port is correctly connected ?
- The USB handshake may have gone down or the computer has “gone to sleep”.
- The source device is incompatible with the 8200CD.

## My media player won’t respond (Windows/USB source)

- Excessive use of Fwd/Rev Search buttons can trigger this.
- Press Stop ■ and then press ► to restore normal play.

## I hear crackles/interference when playing a USB source

- Are you using a certified USB 2.0 interconnect, connected directly to your computer?
- Webcams, Wireless devices etc may cause interference. Avoid sharing a USB port between the 8200CD and other devices and if possible, disable non-essential devices.

**If you are using an iPad:** You are probably using software previous to OS4.2. and should update your software. Connect your iPad to a computer, launch iTunes, select your iPad under devices in the left pane and press the Update button. Refer to <http://support.apple.com/kb/HT1414> for guidance. You should also use the optional Apple iPad Camera Connection Kit.





### Selectable and upgradeable Audiolab Digital filters

As Digital audio reproduction technology has progressed, the importance of the characteristics of Digital filters has become appreciated and better understood. The Audiolab CD/Q features in house Audiolab developed user selectable Digital filters for optimal listing and measurement modes. These, in addition to more conventional types for easy comparison, allow the user to tune the performance to his or her preference depending on system and musical tastes.

### Audiolab DAC

The Sabre32 DAC integrated circuit (Chip) provides the conversion of the Digital signal to the Analogue domain. 256 individual DACs per channel are used within the chips to increase inherent conversion resolution, while also reducing static conversion errors – a total of 512 DACs are used in a true balanced stereo configuration.

The conversion process within the Audiolab 8000CD results in the 512 DAC elements (256 DACs per channel) each operating at 84.672MHz, - a conversion process switching 3840 times higher than the typical audio upper bandwidth of 22 kHz. Without this Digital Upsampling technology, the analogue filters could affect frequencies at or near the audible range, resulting in unwanted level and phase variation within the audio band.

The ESS9018 Sabre32 DAC is a hybrid Multi-Bit Delta-Sigma DAC, which aside from its unique Jitter attenuation structure utilizes a novel “Hyperstream” modulator. This is an advanced form of Multi-Bit Delta-Sigma modulator structure which combines several methods to optimise the conversion process. The Hyperstream modulator is designed for optimal transient response, thus eliminating dynamic response deficiencies and noise floor modulation artefacts typical of traditionally designed Delta-Sigma DAC’s.

### Discrete Class A Analogue Stages

Additional to the close attention to the Master Clock Phase noise performance (Jitter), DAC section and PCB layout, another critical part of the circuit design in the Audiolab CD is the DAC’s True Balanced analogue outputs — connected directly to a pair of proprietary AudioLab FET based Class A stages buffers per channel. These FET based High current Class A buffers make a huge difference in transparency, resolution and dynamic performance.

The CD is fully DC coupled. High Tolerance Polypropylene Film / Foil capacitors, Ultra Stable Very Low VCR 0.1% MELF SMD resistors are used in the signal path to achieve the maximum audio performance.

### 96kHz – 24Bit Clock-Lock Asynchronous USB

When connecting the Audiolab 8200CD to a computer via USB, the DAC operates in "Asynchronous" USB mode (This should not be confused with Asynchronous Sample Rate Conversion - ASRC), where the AudioLab DAC controls the flow (speed) of the Audio data

streamed from the computer by providing a feedback control pipe (Control signal) to the computer over the USB Bus.

In Asynchronous mode, the Audiolab DAC has total control over the timing of the Audio Data transmission. The CD will instruct the computer to slow down or speed up the data transfer as necessary, thus avoiding any negative effects of full or empty buffer levels which can manifest itself as audible dropouts, pops or clicks – this speed control of Data transfer is referenced to the DAC’s internal Clock. Audio replay does not rely upon the computer’s poor internal clock source. The computer is effectively Clock-Locked to the DAC’s internal High precision, low Jitter Master Clock. This is the key feature that allows for Hi-Fi quality reproduction from USB sources.

### Remote Control of PC Media Player

The Audiolab 8200CD features a full system remote control, which not only allow control of other units within the Audiolab 8200 range, but also allows control of a PC / MAC / Media device over the USB connection from the armchair. When connected to the Computer, the CD identifies itself as an Asynchronous DAC, and an HID compatible device (Human Interface Device) – this allows driverless control of the PC / MAC Media Player.

### The Power Supply

The stability and low noise of power in any audiophile equipment is imperative to achieving ultimate performance. The CD/Q uses multistage regulation – with a total of 34 regulated supplies, of which 14 are ultra low noise discrete designs, combined with LC filtering for maximal inter-stage and RF isolation, a total of almost 250,000 µF of bulk storage capacitance is used within the CD.

To achieve the very best from the ESS Sabre32 DAC chip requires Ultra Low Noise digital power supplies. 10 regulators surround the DAC section with bulk decoupling provided by Organic Ultra Low ESR capacitors to eliminate noise and distortion on any supply rail within the DAC.

### High Quality SMT Component Manufacturing

The Audiolab 8200 CD uses precision SMT manufacturing, with computerised optical inspection systems for 90% of its 1700+ components. The remaining components are hand inserted by our highly trained production team, and QC tested at each stage of the manufacturing process for consistency and performance. Every component from the simplest resistor to the power transformer within the 8200 CD has been carefully selected and verified by the UK design team to achieve the highest audiophile standards.



# 13: Technical Description

The Audiolab 8200CD features a state-of-the-art external Stereo Digital to Analogue converter (the ESS Sabre32 9018 DAC) a Fully Balanced output, and Clock-Locked CD transport.

### Jitter Reduction - The Audiolab Solution

To deliver superb sonic performance Audiolab utilising a proprietary high performance discrete Master clock in conjunction with the Sabre32 patented sample rate converter in order to minimise Time Domain errors (Jitter) from all Digital input sources. The result is 100% Jitter attenuation within the Digital domain – leaving only the inherent jitter of the CD’s on board local Clock oscillator. This onboard Low Phase Noise Master clock, achieves sub pS jitter levels within the most critical frequency band.

### Audiolab’s “CATDA” - Time Domain Isolation

While the patented Sabre32 Sample Rate Converter achieves 100% Jitter attenuation within the Digital domain, external “Analogue domain” induced artefacts via RF breakthrough and PSU coupling etc. well affect the DAC’s ultimate Sonic Performance. Audiolab resolves this critical issue by its uniquely developed “CATDA” (Cascaded Asynchronous Time Domain Attenuator) circuit. This circuit isolates the DAC substrate from the potentially detrimental analogue domain of effects non-synchronous digital input data. To achieve the ultimate performance level, 3 identical cascaded stages are used – each individual stage providing increased isolation, thereby maximising timing performance even at higher RF frequencies.

### Upsampling / Oversampling

The Upsampling / Oversampling circuit converts the digital signal from one sample rate and bit depth to another. The sample rate is increased from the input sample frequency to 84.672MHz. With CD and USB 44.1 & 88.2 kHz inputs, the Oversampling process is synchronous, while other inputs and sample rates are Asynchronous Upsampled. All bit depths are extended to a minimum of 32 bits for internal processing.

The Audiolab 8200 CD operates in integer oversampling or upsampling mode, operating the DAC at 84.672MHz depending upon digital input source and sample rate:

- With its internal Clock-Locked CD transport and 44.1 kHz based Asynchronous USB, the output DAC Rate is x1920 Integer Oversampled, Other non-synchronous 44.1 kHz digital input sources are x1920 times Upsampled
- 48 kHz Digital input sources are x1764 Upsampled
- Asynchronous 88.2kHz USB – Integer x960 times Oversampled, other 88.2 kHz input sources are x960 Upsampled
- 96 kHz Digital input sources are x882 Upsampled.



# 14: Service & Warranty

## Care & Cleaning

While cleaning is in progress the AC power cord must be unplugged from the AC power supply socket.

Grease or dirt on the equipment may be removed with a soft, lint-free cloth slightly moistened with a mild solution of warm water and detergent or washing-up liquid. Do not use any other solutions or solvents.

If you have any queries regarding the use of Audiolab equipment, consult your dealer.

## Servicing

Servicing of Audiolab products should only be carried out by authorised service agents. If service is required the equipment should be returned, securely packaged, preferably using original packaging, to your dealer.

In the UK equipment may be returned to the IAG Service Centre address shown on this page.

Always telephone before returning any equipment.

A note should be enclosed with your name, address, telephone number, and a brief description of the reason for return.

If you require Service outside the Warranty period, do not hesitate to contact your dealer.

## Service Address

IAG Service Centre  
Unit 4, St Margaret's Way  
Stukeley Meadows Industrial Estate  
Huntingdon Cambs  
PE29 6EB  
England  
Tel: +44 (0)1480 452561 Fax: +44 (0)1480 413403

## Audiolab limited warranty

Audiolab Ltd. warrants this product, subject to the terms and conditions below, to be free from defects in materials and workmanship. During the warranty period Audiolab will repair or replace (at Audiolab's option) this product, or any defective part in this product, if it is found to be defective due to faulty materials, workmanship or function. The warranty period may vary from country to country.

### Terms and conditions:

The warranty starts on the date of purchase (or the date of delivery if this is later).

You must provide proof of purchase / delivery before work can be carried out. Without this proof, any work carried out will be chargeable to you.

All work will be carried out by Audiolab or its authorised agents or distributors. Any unauthorised repair or modification will void this warranty.

If any part is no longer available it will be replaced with a functional replacement part.

Any parts that are replaced will become the property of Audiolab.

Any repair or replacement under this warranty will not extend the period of warranty.

This warranty is valid only in the country of purchase, applies only to the first purchaser and is not transferable.

### The following are not covered:

- Products on which the serial number has been removed, altered or otherwise made illegible.
- Normal wear and tear and cosmetic damage.
- Transportation or installation of the product.
- Accidental damage, faults caused by commercial use, acts of God, incorrect installation, connection or packaging, misuse, neglect or careless operation or handling of the product which is not in accordance with Audiolab's user instructions.
- Equipment that has been operated in conjunction with unsuitable, inappropriate or faulty apparatus.

- Repairs or alterations carried out by parties other than Audiolab or its authorised agents or distributors.
- Products not purchased from an Audiolab authorised dealer.
- Products that were not new at the time of original purchase.
- Products sold 'as is', 'as seen' or 'with all faults'.

Repairs or replacements as provided under this warranty are the exclusive remedy of the consumer. Audiolab shall not be liable for any incidental or consequential damages for breach of any express or implied warranty in this product. Except to the extent prohibited by law, this warranty is exclusive and in lieu of all other warranties whatsoever, both express and implied, including, but not limited to, the warranty of merchantability and fitness for a practical purpose.

This warranty provides benefits that are additional to and do not affect your statutory rights as a consumer.

Some countries and US states do not allow the exclusion or limitation of incidental or consequential damages or implied warranties so the exclusions in the paragraph above may not apply to you. This warranty gives you specific legal rights, and you may have other statutory rights, which vary from state to state or country to country.

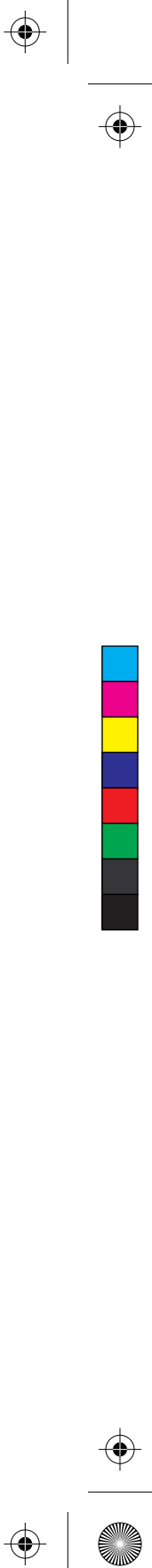
### How to claim:

To obtain warranty service contact the Audiolab authorised dealer from which you purchased this product. Do not despatch goods without the prior agreement of the dealer, Audiolab or their authorised distributors.

If asked to return products for inspection and/or repair, pack carefully, preferably in the original cartons or packaging affording an equal degree of protection, and return prepaid. If unsuitable packaging is used, Audiolab may make a charge for the supply of new packaging.

Insurance is recommended as goods are returned at owner's risk. Audiolab or their authorised distributors cannot be held liable for loss or damage in transit.

Packing, insurance and freight on the return journey will be paid by Audiolab or their authorised agents or distributor if corrective work proves to be necessary.



# 15: Specifications and Features

## Specifications

Output Level @ 1kHz	RCA: 2.05Vrms ±0.1dB XLR: 4.1Vrms ±0.1dB
Frequency Response, ref. 1kHz, 20Hz to 20kHz	RCA: ±0.2dB XLR: ±0.2dB
THD 1kHz, 0dB, 20Hz to 20kHz 'A' weighted	RCA: <0.0025% XLR: <0.0008%
Crosstalk, 1kHz	RCA: <-120dB XLR: <-130dB
Dynamic Range 'A' weighted	RCA: >98dB XLR: >100dB

## Product Features

- 32Bit 84.672 MHz Oversampled / Upsampled 512 Element MultiBit Array DAC
- x1920 times Oversampled with CD / USB 44.1kHz Source
- Asynchronous USB supporting 24 Bits / 96kHz with Driverless Remote Control of PC / MAC Media Player (Via HID Support)
- x2 96 kHz 24Bits Coax SPDIF Digital Inputs
- x2 96 kHz Optical Digital Inputs
- Low Jitter Optical and Coax SPDIF Output (CD Digital Output only)
- High Current Single Ended & Balanced Discrete Class A Output stages
- Custom CD Servo Design – with Ultra Low Noise PSU for OPU
- Full remote control & External Remote I/O bus
- 34 Regulated supply rails
- 14 Ultra Low Noise Discrete Regulators
- User Selectable Digital Filters – Software upgradeable Via USB Port
- Master Clock Jitter less then 3pS Short Term. Measured directly at DAC “XOut”
- Organic Ultra Low ESR capacitors, High Tolerance Polypropylene film / foil capacitors, Ultra Stable Very Low VCR 0.1% MELF SMD resistors, 4 Layer PCB.



IAG-A.LAB

Correct Disposal of this product. This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.





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