Audio Interface | Discrete 4 Synergy Core

The studio features Antelope Discrete 4 Synergy Core audio interface with four inputs and outputs.

- **Input 1** and **Input 2** are located on the front of the Discrete 4 audio interface. They can be used to connect additional microphones found in the bin on the shelf in the studio. They can be also used to connect an electric guitar or other electronic musical instruments.
- **Input 3** and **Input 4** are located on the back of the Discrete 4 audio interface. The Shure SM7B microphone mounted on the left boom arm is connected to input 3, and the Shure SM7B microphone mounted on the right boom arm is connected to input 4.
- The Discrete 4 audio interface also has four outputs for headphones.

INITIAL SETUP

- 1. Log into the iMac computer using your Emory credentials.
- 2. The **Antelope Launcher** should start automatically (give it a few seconds). Otherwise, launch it from the Dock.
- 3. Once the Antelope Launcher opens, it should automatically launch the Discrete 4 Synergy Core audio interface control panel (it may take a few seconds). If it does not, click on the **Discrete 4 Synergy Core** image in the window:



If you don't see the Discrete 4 image in the window, 1) check the back panel of the audio interface and disconnect/reconnect its power cable (needs to be unscrewed) and 2) ensure that the audio interface is connected to the Mac with its USB cable.

- Once the Discrete 4 control panel opens, load the Discrete4 Preset to reset any modifications made by previous users:
 - Click on Load in the top right of the window
 - Select Recently Used
 - Select "Discrete 4 Preset.as" and click Load



DISCRETE 4 CONTROL PANEL OVERVIEW

1. The top PREAMPS section in the Discrete 4 window controls microphones and instruments gain for inputs 1, 2, 3, and 4. You can adjust the input device and input gain as needed.



- 2. Selecting the right instrument:
 - When using a microphone, make sure that the microphone icon is selected for the given input. Input 3 and Input 4 have the microphones mounted on the boom arms connected by default. You can connect additional microphones to Input 1 and Input 2. The additional microphones and the additional XLR cables to connect them are found in plastic bins on the shelf in the studio.
 - If you connect an electric guitar to **Input 1** or **Input 2**, make sure the **guitar icon** is selected for the given input. The cable to connect the guitar is found in a plastic bin on the shelf in the studio.



- 3. Adjusting the gain:
 - The two microphones, Shure SM7B, mounted on the boom arms are connected to **Input 3** and **Input 4** on the back of the Discrete 4 device. Ensure that the gain of these inputs is set at <u>60-65 dB</u>.
 - If you are connecting additional studio microphones (Shure SM57, SM58, and Beta58A) to Input 1 or Input 2, set their gain level to about <u>45 dB</u>.

4. Ensure that the level under each used input fluctuates <u>between -20 and -5dB.</u> Adjust the respective input gain while speaking into the microphone or playing your instrument as needed to keep the level in that range. Avoid the level going into the red.



- 5. **Headphone Outputs.** Four numbered headphone outputs are located on the front panel of the Discrete 4 audio interface. Their volume controls can be accessed in the corresponding section of the control panel (HP1, HP2, HP3, HP4) and adjusted with the HEADPHONE dial.
- 6. **Monitor Outputs.** Studio monitors (speakers) volume can be adjusted by the MONITOR dial on the control panel in the MONITOR/HP1 section.

A To avoid unwanted feedback, do not increase monitor volume past about half-way.

If the monitors are not on, reach up in the back of each monitor for the power switch.

DISCRETE 4 FRONT PANEL CONTROLS

The physical controls on the front panel of the Discrete 4 audio interface can also be used to adjust output volumes and preamp levels.

- You can use the top small button on the front panel of the Discrete 4 audio interface to cycle through the output volume for the monitor, headphones 1-4, and line out output volume. Then use the large dial to adjust the volume of the selected output. You can also press the large dial to mute/unmute the selected output.
- You can use the bottom small button on the front panel of the Discrete 4 audio interface to cycle through the preamp gain levels for Input 1, 2, 3, and 4. Then use the large dial to adjust the gain of the selected input.



Recording in GarageBand or Logic Pro:

1. Launch the application from the Dock.

If it does not launch reporting that someone else is using it, reboot the computer: hold the power button on the back of the monitor (bottom left) until the computer shuts down, then power it back up.

2. Choose Empty Project:



- 3. Make sure that Discrete 4 audio interface is selected for both audio input and output.
 - In GarageBand, it should say, "My instrument is connected with: Discrete4 SC" and "I hear sound from: Discrete4 SC"



• In Logic Pro, it should say "Device: (Discrete4 USB)" for both Audio Input and Audio Output.

- 4. Under Audio Input, select your Input:
 - Select Input 3 for the left microphone mounted on the boom arm
 - Select Input 4 for the right microphone mounted on the boom arm
 - Select **Input 1** or **Input 2** only if you have a microphone connected to Input 1 or Input 2 located on the front panel of the Discrete 4 audio interface



- 5. Click Create.
 - If you want to add another audio source, such as a microphone, click + above your audio track.
 - Select your additional input:
 - Select **Input 3** for the left microphone mounted on the boom arm.
 - Select Input 4 for the right microphone mounted on the boom arm.
 - Select Input 1 or Input 2 only if you have something connected to Input 1 or Input 2 located on the front panel of the Discrete 4 audio interface
- 6. Disable the **Metronome Click** by clicking the purple metronome button on the top. You can also disable the **Count In** by clicking the purple "1234" button on the top.
- 7. In GarageBand, you need to add "Record Enable" button (it is already present in Logic):
 - Select Track -> Configure Track Header in the top menu or click Option+T
 - Under Buttons, select Record Enable

8. Click the red Record Enable button for each track to arm your track for recording. The button should start blinking red. Ensure that the channel is getting the signal – you should see a green bar moving.



- 9. To start recording, press '**R**' on the keyboard or the **Record** button in the application window.
- 10. To stop recording, press the **Spacebar** (use the Spacebar to play/stop a recording) or the **Stop** button in the application window.
- 11. Press the **Return** key to bring the playhead back to the start of the project, then press the **Spacebar** for playback.

You should keep saving your project as you record by pressing Command+S on the keyboard. or clicking File->Save in the top menu. Once you are done recording, save your project.

You can quickly edit your recording during your reservation in the studio. You should not reserve the studio for the sole purpose of editing. Such editing should be done in MediaLab on the 4th floor of the Library. MediaLab does not require a reservation, is always open, and staff help is available during the staffed hours.

To export your project into an audio file, select the track you need to export or press **Command** + **A** to select all tracks.

- In GarageBand, in the top menu, go to Share, Export Song to Disk...In the window that opens, name your file and choose your location (e.g., your desktop). Choose the desired format and sound quality. Click Export.
- In Logic, press **Command + B** or go to File, Bounce Project or Section...to "bounce" your project. In the window that opens, name your file. Choose the desired format(s) and rate. Click OK and select the location (e.g., your desktop) for the audio file(s).

BEST PRACTICES FOR USING THE MICROPHONES

- 1. Shure SM7B is a dynamic unidirectional cardioid microphone with a smooth, flat, widerange frequency response and is an industry standard mic for **podcasting, voice over**, and other **vocal** recordings. It can also be used for **musical instruments** recordings. Two Shure SM7B mics are mounted on broadcast arms on the studio desk and are connected to inputs 3 and 4 on the back panel of the Discreete4 Synergy Core AI.
- 2. **Shure SM58** and **Shure Beta58A** are unidirectional cardioid dynamic industry-standard mics for **vocal** recording. The mics can also be used to record **instruments**.
- 3. Shure SM57 is a dynamic unidirectional cardioid microphone for recording musical instruments, such as drums, guitar, and woodwinds. The mic can also be used to record voices. The studio has two such mics.

Application	Suggested Mic Placement	Tone Quality
Vocals	0-6 inches away from	Robust sound, emphasized
	mouth, on axis to mic.	bass, maximum isolation
		from other sources.
	6 in – 2 ft away from	Natural sound, reduced
	mouth, just above nose	bass.
	height.	
	8 in – 2 ft way from mouth,	Natural sound, reduced
	slightly off to one side.	bass, minimal "s" sounds.
	3 – 6 ft away.	Thinner, distant sound;
		noticeable levels of
		ambient noise.
Guitar and Bass Amplifiers	1 inch from speaker, on	Sharp attack; emphasized
	axis with center.	bass.
	1 inch from speaker, at	Sharp attack; higher
	edge.	frequency sound.
	6-12 inches from speaker,	Medium attack; full,
	on axis with center.	balanced sound.
	2-3 ft from speaker, on	Softer attack; reduced
	axis with center.	bass.
Tom-Toms	One mic on each tom or	Medium attack; full,
	between each pair of	balanced sound.
	toms, 1-3 in above	
	drumheads aimed at their	
	tops.	
Snare Drum	1-3 in above rim of top	Most "snap" from
	head of drum, aimed at	drumsticks. More "snare"
	drumhead.	sound.

- Aim the mic toward the desired sound source and away from unwanted sources to take advantage of the cardioid pickup pattern, which focuses on the main sound source in front of the mic.
- Place the mic as close as practical to the desired sound source.
- Work close to the mic for extra bass response.
- Use only one mic to pick up a single sound source.
- Use the fewest number of mics as practical. Use only necessary mics, mute the others.
- Keep the distance between the mics at least 3 times the distance from each mic to its source.
- Place mics as far as possible from reflective surfaces.
- Do not cover any part of the mic grille with your hand.



• Turn on the keyboard by pressing a small power knob on the back of the keyboard (to the right of the cable when facing the keyboard).



If you see a Keyboard Setup Assistant message on the computer display saying that your keyboard cannot be identified, do not click "Continue." Simply close the window. If you see another window asking you to select your type of keyboard, select ANSI (US and others) and click Done.

• Launch the sound editing application of your choosing. The keyboard is usually pre-set for Logic Pro X, but you can select a different preset or set the keyboard as you like.

Troubleshooting

- The studio computer is off:
 - a. Power the computer on by pressing the power button on the back left of the computer.
- You cannot login to the studio computer:
 - Make sure the yellow Ethernet cable (Internet) is connected to computer. The Internet connection is necessary to login.
 - If the above step did not work, login as lcuser, password unc0mm0nbalance. This is a shared account, so make sure to remove any private files after you are done.
- The computer has no access to the Internet:
 - Make sure the yellow Ethernet cable (Internet) is connected to the computer. Disregard the status of the WiFi icon in the top right of the display as library computers do not use WiFi.
- GarageBand / Logic Pro application does not launch reporting that someone else is using the application:
 - Hard restart the computer:
 - Press and hold the power button on the back left of the computer until the computer shuts down (ignore any warning messages).
 - Power the computer back up.
- The Antilope Launcher does not launch the Discrete 4 audio interface:
 - Wait a few seconds. If the control panel still does not launch, do the following:
 - Make sure the audio interface is connected to the computer with its USB cable marked with a red stripe.
 - Disconnect and reconnect the Discrete 4 audio interface power cable:
 - Locate the power cable on the back right side of Discrete 4 audio interface.
 - Unscrew the cable from its socket, disconnect and reconnect it.
- The studio monitors are turned off:
 - Reach down in the back of each monitor to locate the power switch and turn it on.
- A microphone does not work:
 - Make sure you have selected the correct input for the microphone in GarageBand or Logic. The microphone mounted on the left boom arm is connected to Input 3, and the microphone mounted on the right boom arm is connected to Input 4.
 - If you are using Audacity, it requires that you connect your microphones in sequence beginning with Input 1.