

THE AUTOMATIC EARTH

ELECTRONICS REQUIREMENTS and SETUP

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Personnel:

- 1 player (plays both 88-key Keyboard controller and Laptop Computer keyboard - I strongly suggest mounting a USB external keyboard on the MIDI keyboard so that the performer can easily reach the computer triggers (1-9) without having to lean away from the MIDI keyboard.)
- 1 person at the mixing console in the house to manually bring up the House System during measures 381–397. This person should be able to read score, or have an assistant next to them to cue them at the appropriate time.

Speakers:

- House System (usually a flown speaker array above the stage, fixed in the hall) – used ONLY in measures 381-397 – see below. Not strictly required, but makes the climactic moment much more effective.
- Main Stereo Pair mounted on poles behind the percussion section upstage Left and Right, just above the players' heads:
QSC K12.2 or similar:
<https://www.qsc.com/live-sound/products/loudspeakers/powered-loudspeakers/qsc-k2-seriestm-new/k122/>
- Subwoofer (automatic rollover from the Main Stereo Pair):
QSC KW181 or similar:
<https://www.qsc.com/live-sound/products/loudspeakers/powered-subwoofers/kw181/>
- Monitors: standard stage monitors (wedges) placed so that the ensemble can clearly hear the electronics. This is particularly important for the Piano, Harp, and Percussion section during the rhythmic portion in Mvt IV. The volume should be separately adjustable from the Mains.

Equipment (all onstage, part of the ensemble):

- Computer (Macintosh, preferably)
- Ableton Live Suite 10 (free demo version works fine) – see note below about configuring Ableton Live to respond to your MIDI keyboard
- Audio interface with 4 outputs (only need 3 of them) – compatible connectors with the laptop (depends on model, but USB2, USB3, Thunderbolt 2, and Thunderbolt 3 all work, as well as Firewire through certain adapters to Thunderbolt 2)
- 88-key keyboard controller (USB connection to the laptop, probably safer if it has its own power supply instead of receiving power from the computer)
- Earbud (wired or wireless) for conductor, with headphone amp and individual volume control at the podium (source originates at onstage audio interface and runs to the

podium). Usually: a very long cable from output 3 of the interface to the input of a headphone amp at the podium, and then an extension cable from the headphone amp output to any standard earbud headphone (make sure to test which side the sound is coming out of if it's stereo)

- Stand and stand light for computer / keyboard player
- Table to hold computer, interface, sheet music
- Power strip with enough outlets for large wall-wart plugs, etc.

Channel Outputs from audio interface:

1-2: Main Stereo Pair. House System is same, but only for m. 381, beat 4 – m. 397

3: Earbud/headphone click track for conductor (not audible anywhere else)

4: *not used*

Speaker testing:

You can check that each speaker is properly routed and functioning by using the following keys on the laptop:

“z” = MAIN LEFT SPEAKER (House Left)

“x” = MAIN RIGHT SPEAKER (House Right)

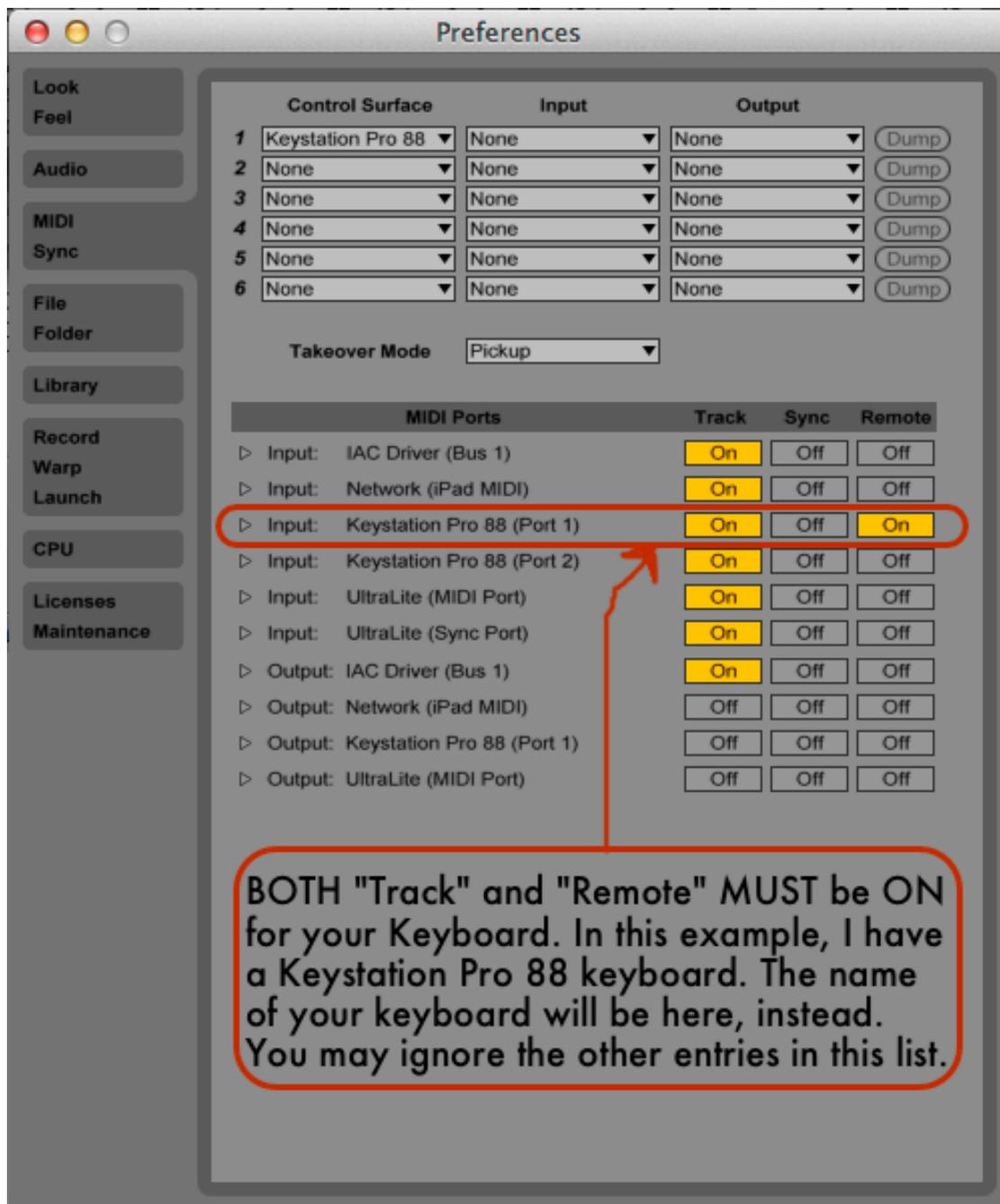
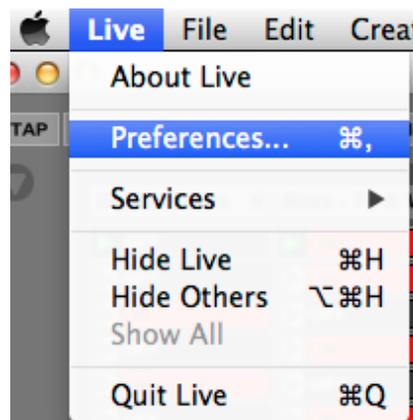
“c” = CLICK TRACK to conductor (only audible in the conductor's headphone)

In rehearsal and performance:

- The computer triggers (numbers 1-9 across the top of the keyboard) are for rhythmic cues that include click track (sometimes only a few bars).
- The 88-key keyboard triggers all other sounds, all of which are flexible and do not require strict tempo adherence from the conductor (within limits).
- The “/” key stops all playback if needed (only for use in rehearsals, not in performance!)
- I STRONGLY encourage you to check the click track for the conductor just before the piece begins (press “c” on the laptop, and when the conductor gives an affirmative, press “/” to stop it and reset all for performance)
- HOUSE SYSTEM: someone at the mixing console (usually the sound person for the house) will need to quickly fade in the flown house speakers at the big moment at m. 381, beat 4, and gradually fade them out starting at m. 397 as the sound fades over the course of that bar. This moment needs to be as loud (but balanced) as possible – up to but not over the threshold of pain. It should be uncomfortable for all involved. The purpose of this is not only to increase the volume, but the spatial presence of the sound, so that it suddenly exceeds the audience's expectations in a startling way.

NOTE: In order for Ableton Live to respond to your MIDI keyboard, you'll need to do the following. Load the Ableton Live set you were sent and go to Live->Preferences:

Make sure both "Track" and "Remote" are ON (in yellow) for your keyboard. The name of your keyboard will be listed here (I'm using an M-Audio Keystation Pro 88, which is why this example shows that name).



The image shows the 'Preferences' window in Ableton Live, with the 'MIDI' section selected in the left sidebar. The 'MIDI Ports' table is visible, with the 'Keystation Pro 88 (Port 1)' entry highlighted by a red circle. An arrow points from this entry to a red-bordered text box at the bottom of the window.

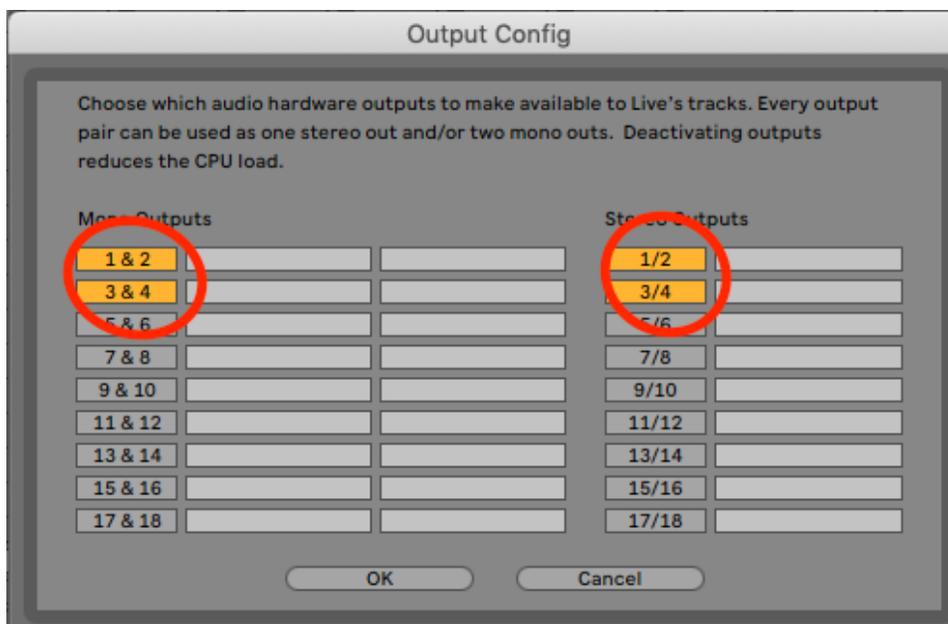
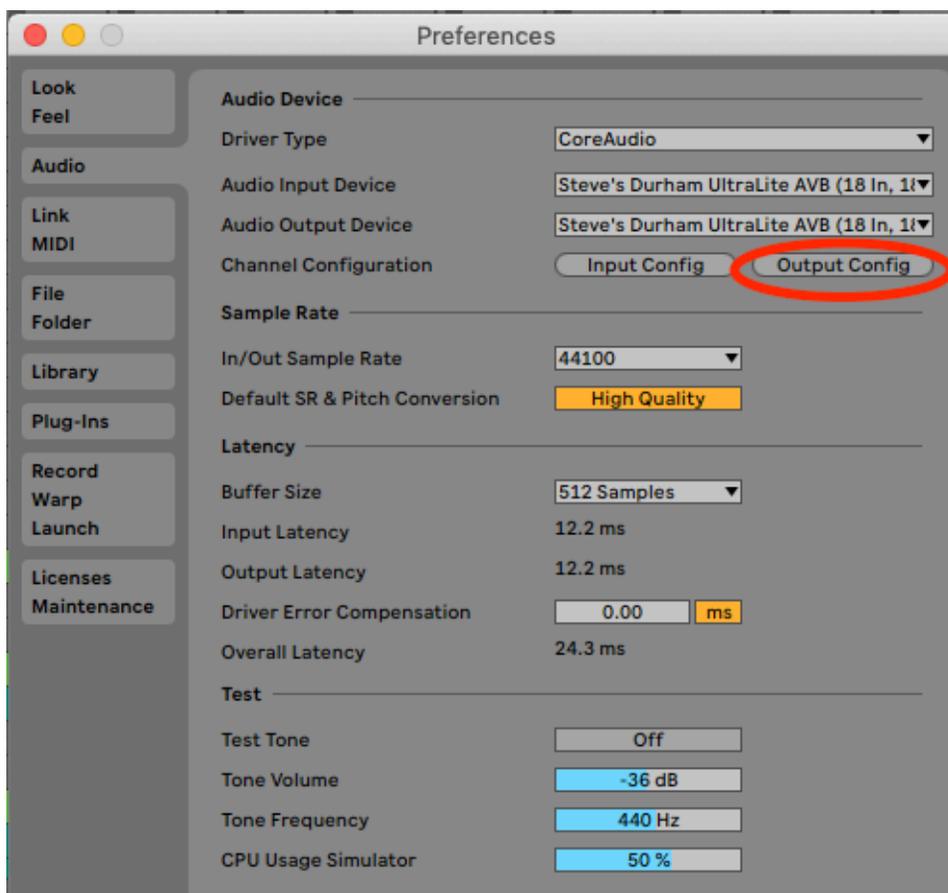
	Control Surface	Input	Output	
1	Keystation Pro 88	None	None	Dump
2	None	None	None	Dump
3	None	None	None	Dump
4	None	None	None	Dump
5	None	None	None	Dump
6	None	None	None	Dump

Takeover Mode: Pickup

	MIDI Ports	Track	Sync	Remote
▷	Input: IAC Driver (Bus 1)	On	Off	Off
▷	Input: Network (iPad MIDI)	On	Off	Off
▷	Input: Keystation Pro 88 (Port 1)	On	Off	On
▷	Input: Keystation Pro 88 (Port 2)	On	Off	Off
▷	Input: UltraLite (MIDI Port)	On	Off	Off
▷	Input: UltraLite (Sync Port)	On	Off	Off
▷	Output: IAC Driver (Bus 1)	On	Off	Off
▷	Output: Network (iPad MIDI)	Off	Off	Off
▷	Output: Keystation Pro 88 (Port 1)	Off	Off	Off
▷	Output: UltraLite (MIDI Port)	Off	Off	Off

BOTH "Track" and "Remote" MUST be ON for your Keyboard. In this example, I have a Keystation Pro 88 keyboard. The name of your keyboard will be here, instead. You may ignore the other entries in this list.

AUDIO OUTPUTS: In Ableton Live Preferences, set the "Audio Output Device" to your interface (in my case, it's the Ultralite AVB), and then check the "Output Config" button to enable OUTPUTS 3 & 4. This will allow the click track to go out its separate output (channel 3).



If you have any questions, please contact me at:
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