Continuum EaganMatrix Expander User's Guide

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About this document

The current version of this document can be found online in the Resources area of www.HakenAudio.com. We suggest new EaganMatrix Expander owners read this guide in its entirety. After you finish reading this guide, please keep it available as a reference. An on-line version is available in the Resources area at www.HakenAudio.com.

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1. Overview of the EaganMatrix Expander: xCEE and iCEE

Haken Audio's Continuum EaganMatrix Expander (CEE) provides two more DSPs for sound computations, in addition to the single DSP that is normally inside the Continuum Fingerboard. The added DSPs significantly increase the polyphony of EaganMatrix sounds. The increased polyphony is most useful for EaganMatrix sounds that require polyphony greater than the number of fingers simultaneously touching the surface, such as percussive sounds with releases that continue long after the finger is lifted from the playing surface.

The CEE also provides the ability to play different timbres using Split, or "half-advance" to another timbre using a foot pedal when notes from the previous timbre are still held, or to do layering. While these multi-timbre capabilities may seem important, the primary use of the CEE is to expand computation power for single timbres; split and layering is much less important for most Continuum players than for Midi keyboard players, because the primary way to affect timbre is changing playing style and not changing presets.

The CEE is available in two forms: Internal to the Continuum Fingerboard (iCEE), or as an external rack-mountable unit (xCEE). The iCEE is convenient when playing gigs (less cabling!), but the xCEE is more versatile (it can be connected to any Continuum, it provides a few additional connection possibilities, etc). From a sound-making standpoint, the iCEE and xCEE are identical.

In addition to this increased polyphony, the xCEE also provides a localized i2c connections to the Continuum Voltage Converter. The xCEE can be used as a desktop device, or mounted in a standard 19 inch rack using the optional rack ears.

The xCEE is only used in conjunction with the Continuum Fingerboard, and will not operate as a stand-alone device.

1.1. Front Panel of the xCEE
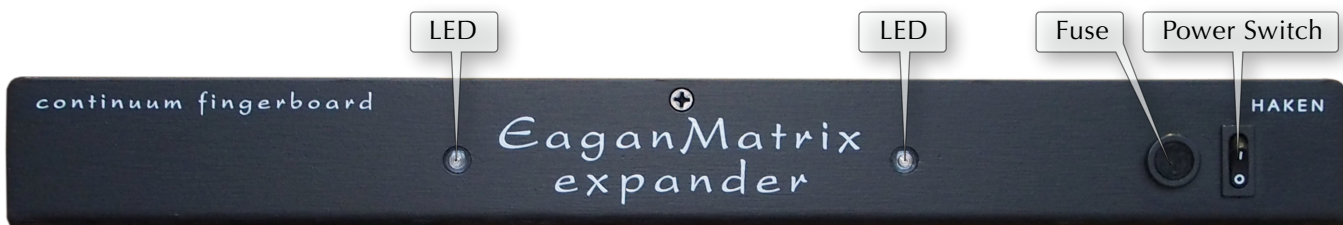
Front Panel of the Continuum EaganMatrix Expander (CEE)

The two LEDs on the front panel operating status of the two DSPs inside the xCEE. They will shine blue when power is on and the xCEE is running normally. Both LEDs will flash violet if there is a problem with the connection to the Continuum Fingerboard. LED colours will match the LED changes with the Continuum Fingerboard in normal operation, such as during surface configuration or firmware updates.

1.2.   Back Panel of the xCEE

The AC power is universal, and requires no adapters for international voltages. The xCEE uses a power cable with the standard IEC-13 line plug.

Back Panel of the Continuum EaganMatrix Expander (CEE)

The Aes3 Link In and Aes3 Link Out are for connecting the xCEE to the Continuum Fingerboard. These connections require two digital audio XLR cables, as described in Section 2.

The **Aes3 Audio In** and **Aes3 Audio Out** are standard 24-bit digital audio input and output connections. The digital audio out is at 48 or 96 kHz sample rate, or synced to any audio rate supplied by the AES3 audio input. For more details, please see the Continuum Fingerboard User's Guide.

If you have Continuum Voltage Converter, connect your CVC to the xCEE's Data 4 connector, but connect all your Midi equipment directly to the Continuum's Midi In and Out connectors. The CVC's Thru connector will not be operational when an EaganMatrix Expander is in use.

If you have two CVCs, you can connect the second CVC to the xCEE's Data 2 connector, for a total of 32 CV outputs.

If you own a Tri-Octave Pedal, it may be plugged into at the Control 1 input of your xCEE. This allows you to use the Tri-Octave Pedal in addition to two other pedals connected to your Continuum's pedal jacks.

The Control 2,3,4 connectors, Data 1,3 connectors, Out 1 and Out 2, and Buttons 1 and 2 are not used at this time, but are available for possible implementation in future firmware updates.

The DSP inside your Continuum together with the two DSPs inside your xCEE create a single stereo audio stream, available through the analog headphone output on your Continuum Fingerboard.

2.   Connecting the xCEE to the Continuum Fingerboard

Connect the EaganMatrix Expander to your Continuum Fingerboard with two digital audio XLR cables as follows:

from Continuum's Aes3 Out   to Continuum's Aes3 In

Connect the Continuum Fingerboard's Aes3 Out to the xCEE's Aes3 Link In. Connect the xCEE's Aes3 Link Out to the Continuum Fingerboard's Aes3 In. It is best to use proper digital audio XLR cables for this connection, which are different from analog XLR cables. Digital audio XLR cables have an impedance of 110 ohms.

When these connections have been made, turn on your Continuum Fingerboard and your xCEE. After flashing violet during startup synchronization, the LED on the Continuum Fingerboard and the two LEDs on your xCEE will shine a steady blue.

3.   Operating the EaganMatrix Expander

The first time you connect your EaganMatrix Expander to your Continuum Fingerboard, run the Continuum Editor and make sure everything is operating correctly. If you are not familiar with the Continuum Editor, please read the Continuum User Guide before continuing on with this User Guide.

When the EaganMatrix Expander is connected, the Continuum Editor will indicate that there is expanded polyphony for the DSP sound engine.

If the firmware version in the EaganMatrix Expander does not match the firmware version in your Continuum Fingerboard, the Continuum Editor will show a "Firmware Version Mismatch" error message. You will need to load firmware (with the EaganMatrix Expander connected and turned on) as directed in the Continuum User's Guide.

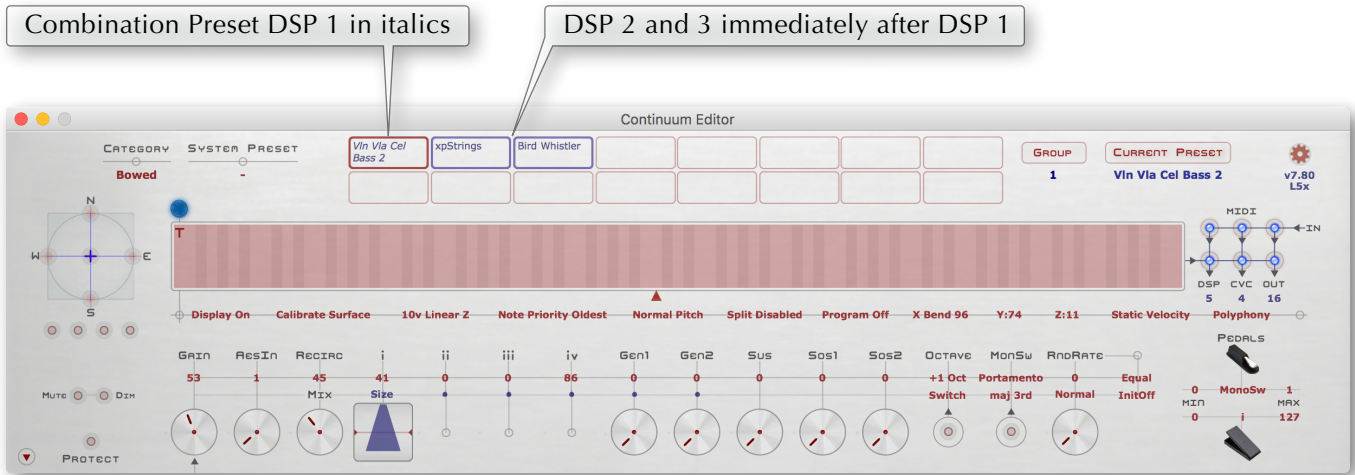## 3.1. The EaganMatrix Expander and Polyphony

The EaganMatrix Expander (xCEE, as well as the internal version, the iCEE) will significantly increase the polyphony of EaganMatrix Presets on the Continuum Fingerboard. In the Continuum Editor, you control a Base Polyphony, which is the polyphony when no Expander is in use. The Editor will display the true "total DSP polyphony". An exception is Polyphony 1; this will result in DSP polyphony 1 even when an Expander is connected. This tripling polyphony effect can be disabled by deselecting the "CEE Increases Polyphony" option in the Polyphony menu.

Total DSP Polyphony (currently 15)

Base Polyphony Menu (currently 5)

CEE Increased Polyphony expansion (currently active)

3.2. The EaganMatrix Expander and Combination Presets

Both the xCEE and the iCEE allow for the ability to combine three EaganMatrix Presets. These Presets can be performed under the same finger control, split into different regions of the playing surface, connected in a serial fashion, are cued for instantaneous overlapping patch switching. Refer to the Continuum User Guide for further information.

4. Using both an EaganMatrix Expander and the Continuum Voltage Converter.

If you have a Continuum Voltage Converter (CVC) you must Connect your CVC to Data Port 4 on the Expander. The CVC will not work if you connect it directly to your Continuum Fingerboard when the EaganMatrix Expander is present.

If you have two CVCs, connect the second CVC to the xCEE's Data 2 connector.

You must power on a CVC whenever it is connected; the LEDs flash violet if a CVC is connected without power.

5.   EaganMatrix Expander Troubleshooting

If the two LEDs on the xCEE's front panel do not turn on (stay dark), check the fuse to the left of the power switch on your xCEE. Please contact Haken Audio if you have to replace the fuse more than once.

Make sure your Continuum Fingerboard is running firmware version 5.60 or later; earlier firmware versions do not work an the EaganMatrix Expander.

You will see the **LEDs flash violet** if your EaganMatrix Expander is not communicating with your Continuum Fingerboard. Check your connections as described in Section 2 of this manual; try different cables to check if the cables are bad.

Contact Haken Audio if you have troubles with your EaganMatrix Expander. Use the email links at this web page. When you send email to Haken Audio, please describe your problem, and include a Profile (see the Continuum User Guide for instructions for creating a Profile) as well as the EaganMatrix Preset that shows the problem.