

A modular mixing powerhouse

Xcelon is an all-analog six-channel stereo audio mixer for eurorack modular systems. With an interface designed for immediate hands-on control and visual feedback, plus extensive CV and expandability, the module is a powerful mixing tool for both performance and production.

Features

- Six stereo/dual-mono channels with low-noise analog circuitry
- Two stereo FX sends and two dedicated FX returns
- Two stereo output mix busses selectable per-channel
- Variable input gain for both modular and line-level sources
- Long-travel volume faders with CV responsive LED indicators
- Balance controls with pan law curve and dual-mono crossfade mode
- Clickless mutes and VU meters on all channels
- Twenty-six discrete control voltage inputs
- Configurable jumpers for pre/post-fader FX and meters, plus volume VCA mode
- Expansion ports for channel expanders, direct outputs, and more

Technical Specs

- **Audio Inputs:** 16 x 3.5 mm jacks (8 stereo pairs)
- **Audio Outputs:** 8 x 3.5 mm jacks (4 stereo pairs)
- **CV Inputs:** 26 x 3.5 mm jacks
- **Input Impedance:** 100 k Ω
- **Channel Input Gain:** +15 dB
- **Width:** 48 HP
- **Depth:** 1.5 in (38 mm)
- **Weight:** 24 oz (680 g)
- **Power:** +12 V 395 mA (470 max), -12 V 320 mA

Jumper Settings

Each channel has three custom settings found on the back of the module, which are configured using jumpers.

VU METER	1 Jumper	FX SND 1	2 Jumpers	VOL CV	3 Jumpers (or 2)
POST (default)	Meter is affected by the channel volume	POST (default)	Sent signal is affected by the channel volume	MOD (default)	CV modulates volume with fader bias
PRE	Meter is NOT affected by the channel volume	PRE	Sent signal is NOT affected by the channel volume	VCA	CV replaces bias voltage and fader attenuates

PRE is very common on DJ mixers, and is useful for adjusting the gain and visually identifying a signal before bringing it into the mix.

PRE is useful (and necessary) to get a very washed-out effect where the effects mix is more than 50% wet

*VCA allows the volume circuit to be used as the final VCA in a patch, saving space and modules. Simply patch an envelope into **VOL CV**, and use the fader to adjust the level.*

Mix Tips

GAIN FOR PERFORMANCE – A useful tip for performance is to set each GAIN such that your mix sounds correct with all the faders up or at the same position. Now returning to a “balanced” mix is as simple moving faders back to the same position.

AUDIO VCA PATCH – Save space in a case for live performance or save VCAs for other purposes by using the VCA mode jumper setting for VOL CV. This allows a typical envelope to be fed into the CV input, and the overall volume can still be adjusted normally.

100% WET FX – If mix bus B is unused or not monitored, any channel can have a fully wet FX mix (no dry signal), even with rear jumpers set to POST. Just assign the channel to mix B (essentially muting it), be sure the FX return is assigned to mix A, and turn up the FX send of the channel.

XFADE MUTATION – The XFADE feature can be used to “mutate” a sound, crossfading between two similar sounds or waveforms. This is especially interesting when modulating with a rapidly changing CV signal.

FX RETURNS MUTE – Although the FX returns do not have mute buttons, the AB switch can be used to quickly remove them from either the A or B mix, which is still very effective during a live mix.

Limited Warranty

This product is guaranteed to be free of functional defects for a period of 180 days from original purchase date. Proof of purchase is required for any warranty claim. Return shipping costs are covered by Boredbrain Music within the first 30 days of purchase only. Products with obvious signs of abuse or that have been modified by the end user, may not be covered under this warranty, at the discretion of Boredbrain Music.

Service & Inquiries

If you experience a problem with your Boredbrain product, or just want to share something interesting with us, please contact us at the link below and be sure to include your name, original purchase date, and a description of the problem you are experiencing. Then just hold tight, as we return most inquiries within 48 hours. We want to work with you to resolve your issue as soon as possible. Thank you!

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XCELON

TRUE STEREO VOLTAGE-CONTROLLED MIXER

USER GUIDE

The 48 HP module consists of three main sections. On the left side are the channel inputs (both audio and CV), in the middle are the channel controls, and on the right are the mix outputs, plus FX I/O and controls.

Channel Inputs

Each of the six channels has a pair of audio input jacks (**INPUT 1**, **INPUT 2**, etc.) for left and right stereo signals. The jacks are normalised such that a single mono source in the left jack is simply copied to the right. Alternatively, two discrete mono sources can also share a channel (see **XFADE**). These AC-coupled inputs accept typical eurorack-level audio signals, as well as line-level audio signals when boosted using the channel's **GAIN** control.

The four jacks directly below each pair of audio inputs are CV inputs, which allow for voltage control of the channel parameters. **VOL** affects the volume within a range of 0 to +5V. By default, this control voltage input is biased by the fader position (summed), but in VCA mode it is attenuated by the fader (see Jumper Settings). **BAL** affects the channel balance within a range of -5V to +5V (even with **XFADE** enabled), while **FX1** and **FX2** affect their respective send levels within a range of 0 to +5V. These latter three control voltage inputs are all biased by their knob positions.

Channel Controls

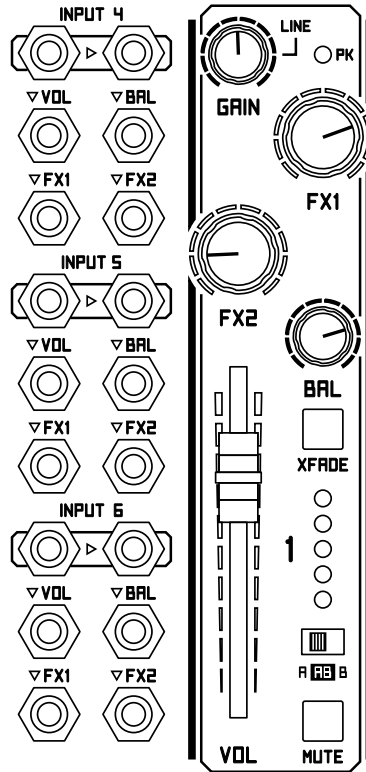
The **GAIN** parameter is used to boost the channel's input signal[s] up to +15 dB if necessary. Most eurorack audio sources may only need a small amount of gain, whereas line-level signals may require turning the knob up to the **LINE** position. The red **PK** (peak) indicator will illuminate just before either input signal becomes audibly distorted. For a clean mix, best practice is to set the **GAIN** such that only loud transients trigger the **PK** LED.

The **BAL** parameter adjusts the balance of the channel's two input signals, and behaves much like a pan control, especially with a mono input signal. Control of the parameter is not linear, but instead implements a curve according to the -4.5 dB pan law. This yields a more natural sounding stereo panning.

When the blue **XFADE** button is engaged, the channel is configured in dual-mono mode. Both channel input signals are positioned to stereo center, and the **BAL** parameter acts as a mono crossfader balancing the two signal levels. Signals that do not need stereo panning can then be doubled-up on a single channel, such as kick and snare drum, two different bass sounds, etc.

The **VOL** parameter adjusts the channel volume, and is also commonly referred to as the channel fader. Its 45mm vertical slider has a linear volume response for smooth fade ins and outs, with an entirely usable range. The brightness of the white LED indicates the volume position, and is of course responsive to incoming CV.

Next to the volume control is a 5-segment **VU METER** to help visualize signal level and dynamics. The meter is affected by both left and right channel signals. And although it does behave according to a decibel scale, the meter is intentionally biased upward for better resolution when comparing relative channel levels. By default, the **VU METER** is post-fader, meaning it is affected by volume adjustments, but can optionally be configured pre-fader (see Jumper Settings).



The red **MUTE** button, when activated, will effectively silence the channel with up to -93 dB of normal signal attenuation. Its electronically latching circuit is completely VCA-based with a very fast on/off slew, eliminating any clicks or pops when muting or unmuting the channel.

The channel's two gray knobs, **FX1** and **FX2**, are independent stereo effects sends. Using these parameters, an adjustable amount of the channel signal can be sent to the two shared effects busses **FX SND 1** and **FX SND 2**, which are commonly used for time-based effects such as delay and reverb. By default, both **FX1** and **FX2** are post-fader sends, meaning the amount of sent signal is also affected by the channel's volume position. However, **FX1** can be configured pre-fader (see Jumper Settings) to achieve a more than 50% wet mix of effect versus dry signal.

The **AB** switch assigns the channel output to one or both main output mix busses. In the leftmost and rightmost positions, the channel is routed to only one of the two busses, either A or B. In the middle position however, the channel is routed to both simultaneously, allowing for parallel processing, AFL monitoring (after fade listen), and other creative uses.

Mix Outputs & FX I/O

Xcelon's two aforementioned output mix busses are available at the pairs of jacks **MIX OUT A** and **MIX OUT B**. These eurorack-level stereo outputs can be patched and processed separately before reaching an output module like Monitr. Such processing modules may include stereo equalizers like EQx5, filters, compressors, limiters, crossfaders, etc.

The two pairs of output jacks **FX SND 1** and **FX SND 2** contain eurorack-level stereo submixes created with the effects sends controls of all channels. As previously mentioned, these are commonly patched into reverb and delay, but may also be used for other purposes like creating headphone mixes. If only the left output jack of **FX SND 1** or **FX SND 2** is used, any signals on the right side will be summed with the left so they are not lost.

The two pairs of input jacks **FX RTN 1** and **FX RTN 2** are dedicated stereo effects returns, where the output signals of effects can return to the mixer. Each return has its own manual level control, **RTN 1** and **RTN 2**, and CV input directly above. The CV inputs affect levels within a range of 0 to +5V and are biased by their knob positions. Additionally, the two returns share an **AB** switch to assign them to either or both mix busses.

NOTE: The effects returns can be used alternatively as extra stereo inputs.

Channel Expansion

Xcelon has two expansion ports to optionally add more channels to the system. These 16-pin ports are labeled **EXPANDER 1** and **EXPANDER 2** and can be found on the back of the module. Expander modules connected to these ports, such as Xcelon XP3, will have access to the two stereo mix busses and two stereo effects send busses. It may be possible to connect more than two channel expanders using a flying bus cable, but low noise performance cannot be guaranteed.

IMPORTANT: The expander ports should **NOT** be connected to a eurorack power bus or damage to the module(s) can occur.

Direct Outputs

The module is also equipped with several direct output ports to access individual channel signals for multi-track recording. Each bank of three stereo channels has two direct output ports, **PRE** and **POST**, to tap the channel signals either before or after the volume faders. An additional port provides direct access to the two stereo returns and mix A.

These groupings of six signals are connected using an 8-pin cable to the optional direct output modules for balanced line outputs. They can be mixed and matched in any order, and both the **PRE** and **POST** direct outputs for a bank of channels can be used simultaneously. This leaves the door open for future expansion such as dedicated cue monitoring and additional effects sends.