OPERATOR'S MANUAL

ZLIN

CROSSFADER

Model of 1982

Voltage and manually controlled crossfader · Linear, DC-coupled VCA with drone and duck functions · Feedback controller · Visual indication of mix ratio · AUX jack for patching tricks

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MODULE OVERVIEW

Salut! Thank you for purchasing this Xaoc Devices product. Zlin [zlin] is a small utility module that can act as a signal and CV crossfader, a linear VCA with drone control, a ducking VCA, or a feedback controller. It is DC-coupled and built around a modern high-quality dual VCA chip, ensuring wide dynamic range with low noise and distortion. A slider potentiometer with an illuminated bi-color LED provides clear visual feedback of the module's state. An auxiliary jack with three selectable functions adds further flexibility for creative patching.

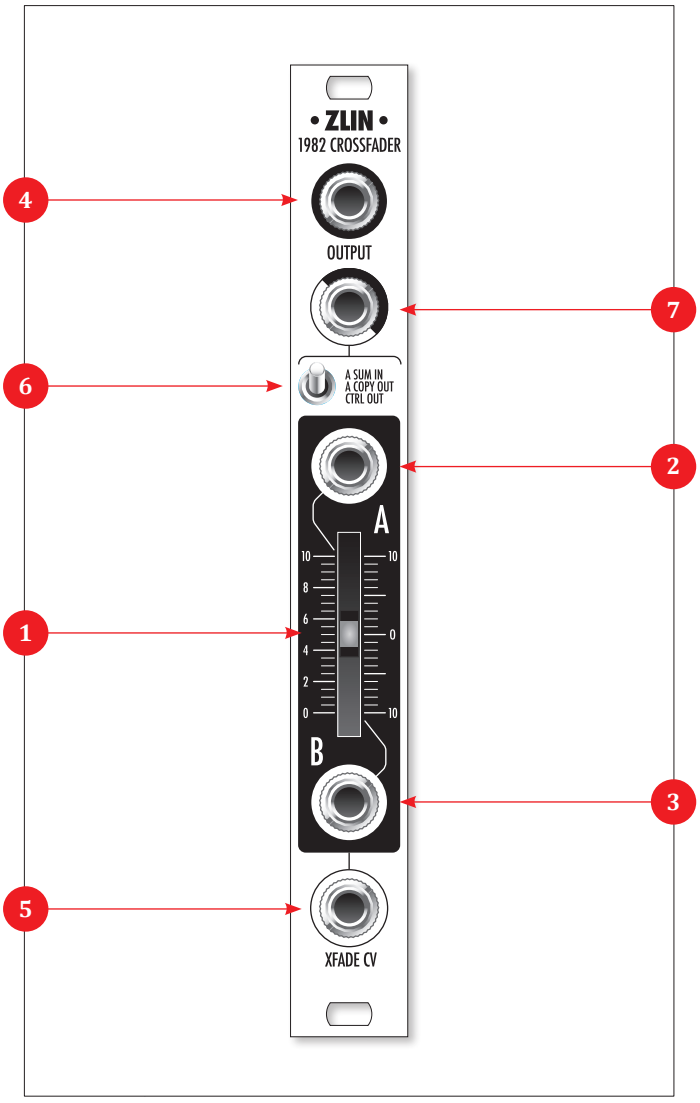
INSTALLATION

The module requires only 3hp worth of free space in the Eurorack cabinet. The ribbon-type power cable must be plugged into the bus board, paying close attention to polarity orientation. The red stripe indicates the negative 12V rail and is supposed to match the arrowhead, **MINUS 12V**, *or* **RED STRIPE HERE** *marks on both the unit and the bus board.*

The module itself is secured against reversed power connection; however, reversing the 16-pin header **MAY CAUSE SERIOUS DAMAGE** *to other components of your system because it will short-circuit the +12V and +5V power rails.*

The module should be fastened by mounting the supplied screws before powering up. To better understand the device, we strongly advise reading through the entire manual before using the module.

fig. 1: ZLIN FRONT PANEL LAYOUT AND CONTROLS



MODULE OVERVIEW

The interface of Zlin is straightforward (fig. 1). The slider potentiometer ❶ *controls the attenuation or crossfade between the two input signals:* **A** ❷ *and* **B** ❸*. The resulting signal is available at the top* **OUTPUT** *jack* ❹*. The mix ratio is determined by the slider position and by the control voltage patched to the* **XFADE CV** *input* ❺*.*

With no CV applied, the center slider position provides an exact 50/50 mix. Moving the slider upward has the same effect as applying a +5V control voltage: input **A** *is increased to 100% while input* **B** *is attenuated to zero. Moving the slider downward has the same effect as applying a -5V control voltage: input* **B** *is increased to 100% while input* **A** *is attenuated to zero. In other words, the full travel of the slider corresponds to a 10V control range.*

The bi-color LED embedded in the slider provides immediate visual feedback. It remains unlit at the 50/50 point and shifts color according to the dominance of either input: red for A and green for B.

A miniature switch ❻ *selects one of three auxiliary jack* ❼ *functions:*

— **A SUM IN** *(up position): additional signal input mixed with input A.*

— **A COPY OUT** *(center position): copy of input A available as an output.*

— **CTRL OUT** *(down position): control voltage output representing the combined effect of the slider and* **XFADE CV**, *scaled to -5V to +5V.*

This third option allows for easy linking of two or more Zlin units for processing multi-channel signals or stereo pairs. Just take the CV output from the auxiliary jack and use it as **XFADE CV** *for another Zlin unit.*

THE PRINCIPLE OF OPERATION

At the heart of Zlin, there are two DC-coupled VCA cells controlled in opposite directions by the combined voltage from the slider potentiometer and the **XFADE CV** *input. The VCAs are trimmed so that when one is fully open, the other is fully closed.*

With signals present at both **A** *and* **B** *inputs, moving the slider produces a smooth linear crossfade between them. The mix point can also be modulated by applying a control voltage to the* **XFADE CV** *input.*

The slider biases the control range. In the center position, a ±5V (10 Vpp) bipolar CV will sweep the mix fully from **A** → **B**. *A unipolar 0 to +10V envelope achieves the same effect when the slider is set to the bottom.*

When only input **A** *is used, Zlin functions as a linear VCA. With the slider at the bottom, the VCA is closed and opens fully at a 10V control voltage. Raising the slider gradually offsets the VCA into an "always open" state, which is useful for drone operation.*

If the source signal is patched to input **B**, *the module operates as an inverted or "ducking" VCA, closing in response to rising CV. Used with an envelope follower, this enables basic dynamics processing such as compression or ducking.*

Zlin can be used as a feedback controller, creating a proportional mix of an original signal and a processed return. To set up this configuration:

Patch Zlin's **OUTPUT** *to the input of the target module or processing chain. Patch the original signal to input* **B**. *Patch the output of the target module back into input A. For monitoring, take a copy of the processed output. The auxiliary jack provides this when the switch is set to the center position.*

With this patch, moving the slider upward gradually increases the feedback amount while reducing the direct input signal, thus maintaining consistent headroom. At the top slider position, the patch delivers 100% feedback while completely removing the original signal, which may lead to self-oscillation (depending on the target module's internal gain).

PATCH IDEAS

• *Patch a VCO waveform with low harmonic content (e.g., triangle or sine) into input* **B**, *and one with rich harmonic content (e.g., saw or pulse) into input* **A**. *Then, patch an envelope to the* **XFADE CV** *input. This configuration offers a classic subtractive-style dynamic timbre shaping, without relying on the conventional filter sweep effect.*

• *Patch two VCO waves to the* **A** *and* **B** *inputs of Zlin. Patch a third wave to the* **XFADE CV** *input. Depending on the position of the slider, you get a variety of new waveforms. The effect is similar to ring modulation, but without the typical loss of signal energy.*

• *Patch the same signal filtered by two differently tuned filters (or two outputs of a multi-mode filter) to the* **A** *and* **B** *inputs. Use CV produced by the auxiliary jack with the switch in the lower position to control one or both filters. This arrangement offers plenty of morphing options between signal spectra.*

ACCESSORY

Our Coal Mine black panels are available for all Xaoc Devices modules. Sold separately. Ask your favorite retailer. •

TECHNICAL SPECIFICATION

WIDTH	DEPTH TOTAL	CURRENT DRAW	REV. POWER PROTECT.
3hp	*32mm (including cable bracket)*	*+25mA* *-25mA*	*protected*

INPUTS		OUTPUTS	
INPUT A, B	*all Eurorack signals*	**(MAIN) OUTPUT**	*-10.5V to +10.5V*
(AUXILLIARY) INPUT	*all Eurorack signals*	**(AUXILLIARY) OUTPUT**	*-5V to +5V*
XFADE CV	*-10V to +10V*		

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