



KONIN

AMPLITENUATOR

Model of 1963

- *Precision attenuator*
- *Attenuverter*
- *Signal amplifier up to +20dB*
- *Dual adjustable voltage source*



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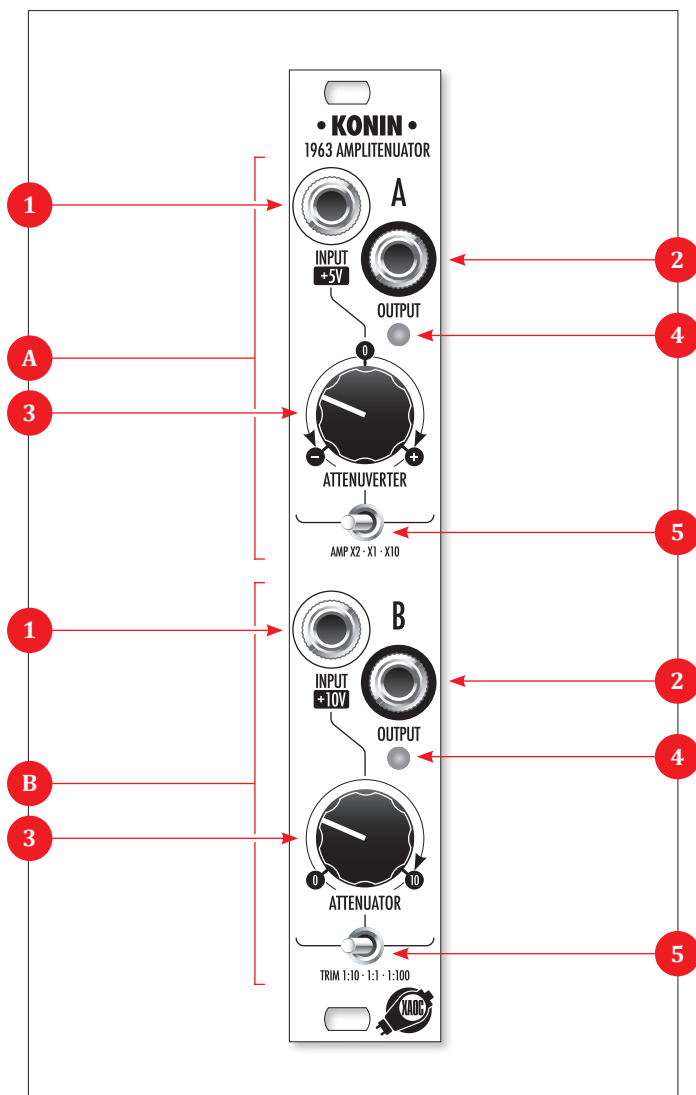
MODULE INSTALLATION

Salut! Thank you for choosing this Xaac Devices product. Konin [*ˈkɒnɪn*] is a compact utility module designed for precise manual control of gain and attenuation across two channels. Whenever you need to boost a weak signal by up to +20 dB or tame it down to just 1% (or even less!) of its original amplitude, Konin is ready to oblige.

It also serves as a versatile voltage source, spanning the full range from -10V to +10V, or fine-tuning to 10mV, all adjustable with a single, smooth turn of the knob.

Dual red/green LED indicators provide instant visual feedback of signal and voltage polarity and amplitude.

fig. 1: KONIN FRONT PANEL LAYOUT AND CONTROLS



INSTALLATION

The module requires 4hp 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 voltage rail and should match the arrowhead, -12V, or red stripe marks on both the unit and the bus board.

The module itself is secured against reversed power connection; however, reversing the 16-pin plug **MAY CAUSE SERIOUS DAMAGE** to other components of your system because it will short-circuit the +12V and +5V power rails. Always pay close attention to the proper orientation of your ribbon cable on both sides!

Before installing, select the control response of the upper bipolar potentiometer by setting the jumper at the back in one of the two available positions, for moderate (leftmost pin) or extreme bending (rightmost pin) of the response, or remove the jumper entirely (or hang it on one pin) for a regular linear response. The bent responses yield a flattened segment at the middle of the turn to make it easier to hit zero.

NOTE: The labeling on the PCB of the first batch of the module does not correspond to the functionality described above. The PCB labeling will be updated in all future revisions.

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.

MODULE OVERVIEW

The front panel of Konin (fig. 1) features two visually separated sections, A and B. Each has an input **1** and output jack **2**, a rotary potentiometer **3**, a signal indicator LED **4**, and a 3-position range switch (**AMP** or **TRIM**) **5**.

Note that the two sections differ in function. The **A** section provides switchable amplification ranges of **x1**, **x2**, and **x10**. Its bipolar gain control attenuates the signal near the center position, while gain increases toward both extremes; the left half of the control range produces an inverted output. The **B** section, in contrast, offers unipolar preci-

sion attenuation with selectable scales of **1:10**, **1:1**, and **1:00**, using a logarithmic potentiometer for finer control over very low signal levels.

**THE BIPOLAR AMPLIFIER
(SECTION A)**

Depending on the position of the **AMP** switch, the upper section adjusts the gain of the incoming signal or CV within one of three ranges:

- 2:1...0...+2:1 (**x2** position),
- 1:1...0...+1:1 (**x1** position),
- 10:1...0...+10:1 (**x10** position).

In other words, in the middle switch position, it functions as a standard attenuverter, while the left and right positions provide additional gain of +6 dB and +20 dB, respectively.

The input jack of this section is normalled to an internal +5V reference, allowing the module to function as an adjustable voltage source when nothing is plugged in. Depending on the gain range, it can output -10V...0...+10V (**x2** position) or -5V...0...+5V (**x1** position). Although the rightmost (**x10**) switch position provides a nominal gain of x10, the output is limited by the amplifier's headroom and will clip at approximately ±11.5V.

Because setting an exact zero point with an attenuverter can be difficult, Konin offers two selectable "bent" potentiometer responses (see fig. 2). In general, bending the response shape flattens the center region of the control, making fine adjustments around zero easier. These options can be selected via a jumper on the rear panel. Note that the curved response increases precision near zero, but reduces it toward the extremes, where small knob movements cause faster voltage changes.

**THE PRECISE ATTENUATOR
(SECTION B)**

The B section provides precise attenuation of audio or control voltages down to minute levels. Its unipolar logarithmic (audio-taper) response ensures fine control at low amplitudes. Depending on the **TRIM** switch, the attenuation range covers

- x0...0.1 (left **1:10** position),
- x0...1 (middle **1:1** position), or
- x0...0.01 (right **1:100** position)

of the input signal. The input jack of this section is normalled to an internal +10V reference, allowing it to function as an adjustable voltage source when no external signal is connected. In this mode, the output range becomes 0...1V, 0...10V, or 0...100mV, respectively, depending on the **TRIM** setting.

THE LED INDICATORS

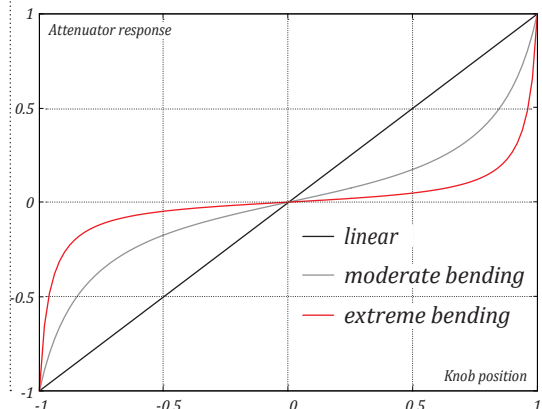
Both sections include bi-color LED indicators that display the instantaneous voltage polarity and amplitude in accordance with international electrical standards. The LEDs are unlit when the voltage is close to zero and become gradually lit red as the voltage increases. Conversely, negative voltages are shown in green.

Please keep in mind that, for practical reasons, these indicators ignore the switches, and the light intensity corresponds solely to the signal affected by the respective potentiometer. When handling bipolar signals, such as audio, the LEDs alternate rapidly between red and green, producing a visually mixed color due to optical blending.

PATCH IDEAS

- Since the **A** section of Konin provides an optional gain of up to x10 (+20dB), it can amplify low-level sources. For instance, it allows you to bring studio or line-level signals up to Eurorack level.
- Insert Konin's **A** section between a modulation source and a wavefolder or filter FM input. With the gain switch set to **x10**, it allows controlled overdrive or inversion of the modulation, producing rich asymmetric tone movement.

fig. 2: SELECTABLE ATTENUATOR RESPONSES IN SECTION A



- Place the **A** section in a feedback path. The inverted half of its control range allows instant polarity reversal of the feedback signal, enabling subtle phase coloration or controlled self-interaction effects.

- Use the **B** section to attenuate complex modulation sources such as random or chaotic voltages. With the **1:10** or **1:100 TRIM** settings, it provides

fine control, turning unstable modulation into subtle, musically useful variations.

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.
4hp	31mm (including cable bracket)	+15mA -10mA	protected

INPUTS		OUTPUTS	
INPUT A	-10.5 to +10.5V	OUTPUT A	-10.5 to +10.5V
INPUT B	-10.5 to +10.5V	OUTPUT B	-10.5 to +10.5V

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