

The Simple Amplifier Modules from Dome Music Technologies

The Simple Amplifier and Poly Simple Amplifier from Dome Music Technologies are no-frills Voltage-Controlled Amplifiers (VCA), intended to be companion modules for the stock Cherry Audio Envelope Generator and Poly Envelope Generator.



Audio In Socket (Simple Amplifier)



The Audio In socket is where you plug in the signal which you want to attenuate. This is usually an audio source such as an Oscillator or Noise Generator.

However, the Audio In can be used to process static DC voltages and low-frequency control voltages (CVs), too.

Audio In Socket (Poly Simple Amplifier)



The Poly Simple Amplifier has two Audio In sockets: Poly and Mono.

The Poly Audio In should be used when you want to process all voice channels independently. This is perfect for when you are using the module as the final VCA in a typical polyphonic synth patch, or if you want to ring-modulate two poly oscillators together.

The Mono Audio In should be used if you want to process a single audio (or CV) source across several polyphonic voices. An example would be if you wanted to process a single white noise generator being fed into a Poly VCF on high resonance, with the cutoff frequency being controlled by poly pitch:



The Mono Audio In is also a great way to provide a Mono-to-Poly 'Multiple' adapter for audio and CV signals.

The Poly and Mono Audio In sockets can be used together. When this is done, the Mono signal is added to each independent Poly voice signal in turn, up to the current polyphony count.

Audio Out Socket (Simple Amplifier)



The Audio Out socket is where the module sends its processed Audio In signal, after being attenuated by the Out Level slider control and the Env In control voltage.

Audio Out Socket (Poly Simple Amplifier)



The Poly Simple Amplifier has both Poly and Mono (mixed) outputs available. Use the Poly output if you want to keep each voice's signal separate, for further processing. The Mono (mixed) output is useful if the Poly Simple Amplifier is the final VCA module in your polyphonic patch.

All voice output signals are added together linearly before being sent to the Mono (mixed) output. This can result in very high signal levels if the polyphonic voice count is high. If the "Mono Auto Comp" switch is in the "ON" position, the module will automatically reduce the maximum output level as the polyphony count increases. This helps to prevent overloads in downstream modules.

Out Level Slider



The Out Level slider acts like a global volume control for the module.

When it is at the top of its range (100.0%), the Audio Out signal is at full volume.

When it is at the bottom of its range (0.0%), the Audio Out signal is completely muted and there is silence at the Audio Out socket.

The slider works in a linear way, with 50.0% attenuation at the half-way point.

The Envelope Input Socket



The Env In socket allows you to control the output level with an external voltage source.

It is intended to be used with the non-inverting (positive) output of the stock Cherry Audio Envelope Generator (or Poly Envelope Generator) as shown below:



When the envelope voltage is at 0V, the Audio Out will be silent, regardless of the setting of the Out Level slider.

When the envelope voltage is at +5V, the Audio Out will reach the level set on the Out Level slider.

If you use the inverting (negative) output of the Envelope Generator, when the envelope voltage is at -5V, the Audio Out will reach the level set on the Out Level slider, but the waveform will be inverted in polarity.

If the ENV IN socket is disconnected, then the module operates as a simple attenuator, manually controlled by the "OUT LEVEL" slider.

Advanced Uses for the Env In Socket

The most common use for the Env In socket is, unsurprisingly, to drive it from an envelope generator. However, Simple Amplifier allows you to modulate the amplitude of the Audio In signal using any kind of voltage source:

Static DC voltage, positive or negative.

Low Frequency Oscillators, unipolar or bipolar.

Audio-rate signals, again unipolar or bipolar.

How the Simple Amplifier Works 'Under the Hood'

The Simple Amplifier multiplies the voltage at the Audio In socket by the voltage at the Env In socket (if it is connected). The resultant voltage is then divided by 5 and attenuated by the Out Level slider's setting. This means that the Simple Amplifier can also be used as a linear ring modulator, as shown below:



In both versions of the Simple Amplifier, the ENV IN and AUDIO IN sockets can be used interchangeably (when both are used simultaneously). i.e. You can plug your envelope generator into the AUDIO IN and your audio signal into the ENV IN, and get exactly the same result at the output. However, if you are using it as a simple attenuator, then you **MUST** plug the audio signal into the AUDIO IN socket, otherwise you will get silence at the output.

In the case of the Poly Simple Amplifier, you might want to use a single (mono) envelope generator (or other mono CV source) to control the amplitude of a group of polyphonic signals, while keeping them sonically separated. This can be achieved by plugging the **mono envelope generator** into the **(mono) AUDIO IN** socket, and feeding the **poly audio signal** into the **(poly) ENV IN**. Similarly, you can make a 'Poly Attenuverter' by feeding a **+5V or -5V** signal to the **(mono) AUDIO IN** and the **poly input signals** to the **(poly) ENV IN**.