

The Q108 Voltage Controlled Amplifier is a staple of any synthesizer system. The amplitude of any waveform can be controlled by another signal such as an envelope generator, sequencer, oscillator, etc. An Initial Gain control allows manual adjustment of the amplitude and a Level Control determines the impact of the control signal. Both Linear and Exponential responses are available to simulate a variety of real-world sounds. Positive and negative output signal polarities are provided. Two inputs are provided for mixing.

Specifications

Panel Size: Single width 2.125"w x 8.75"h.

Input Signal Range: 10V PP, DC to 20khz

Control Signal Range: 0 to 5V, DC to 1khz

Power: +15V@30ma, -15V@30ma.

Controls and Connectors

Response Switch

Sets the response curve of the control inputs – Linear or Exponential.

Initial Gain Control

Manually sets the output level of the amplifier. This control is mixed with the values of the control signal inputs.

Control #1 Level Control

Determines the impact of Control #1 signal input.

Control Input #1 Connector

Controls the output level of the amplifier. This signal is adjustable with the Control #1 Level control. Its value is mixed with the other control input.

Control Input #2 Connector

Controls the output level of the amplifier. This signal is not adjustable. Its value is mixed with the other control input.

Signal #1 and #2 Input Connectors

These are the signal who's amplitude will be controlled.

- Output Connector

Inverted output signal.

+ Output Connector

Non-Inverted output signal.



Usage and Patch Tips

Basics

The amplitude of a signal determines its volume. Actually the Q108 Amplifier is a Voltage Controlled Attenuator because it only attenuates signals (reduces the volume), not amplifies them. In any case, the Q108 Amplifier allows control of the amplitude of a signal. Normally a patch will contain an envelope generator that will control the overall amplitude of a sound throughout its duration.

Voltage Levels

It's important to understand the voltage levels used to control the amplifier. The Q108 Amplifier responds to control signals that are 0 - 5 volts. Where 0 volts is off and 5 volts is full volume. The Q109 Envelope Generator produces 0 - 5 volt outputs which are perfect for use by the amplifier and can be patched directly. The Q106 Oscillator produces waveforms that are -5 - +5 volts, so if you want Amplitude Modulation (tremolo) you'll need to attenuate the signal by 2 (adjust the Control Level to 5) and shift it up (adjust the Gain control to 5) which will result in an on-off range. This attenuation and shifting (offset) can also be accomplished with a Q125 Signal Processor.

There are two control signal inputs which are added together with the position of the Gain Control in order to determine the output amplitude. Gain Control input #1 has a level adjustment.

Practical Settings

If you're controlling your Amplifier with a Q109 Envelope Generator, patch its output into Control Input #1, Set the Gain control to 0 and set the Control Input #1 Level to the desired volume.

When controlling the Amplifier with a Q106 Oscillator, patch its output into Control Input #1, Set the Gain control to 5 and set the Control Input #1 Level to the desired volume.

You can use both Oscillators and Envelope Generators to control the Amplifier by mixing both control signals at the amplifier. Only one of them is adjustable. Patch the other through a Q125 Signal Processor, or a Q112 Mixer to adjust it's level if needed.

AC and DC Signals

The Q108 Amplifier will work for both AC and DC signals. This means you can control the amplitude of both audio (AC) signals and of slow moving or non-moving control signals (DC).

One example of this is to use the velocity output from a Keyboard Controller to control the amplitude of an Q109 Envelope Generator which in turn controls the output amplifier. This will result in faster keystrokes causing louder sounds.

Responses

The Response switch allows for both Linear and Exponential responses. This determines how fast the amplitude will rise and fall. Use the Exponential setting for fast string-plucking rise times and the linear for a smoother, slower response. There's nothing better than experimentation to determine which response you're looking for.

Outputs

Inverted and non-inverted outputs are provided. When simply amplifying audio signals you'll just use one of them but for controlling the amplitude of modulation signals you may be able to use the two inverted signals to perform interesting control functions such alternating between two different sounds.

