

Hampshire Electronics

Quad VCA in Eurorack Format

Instructions and Details



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Overview

The Hampshire Electronics Quad VCA is a 100% analogue voltage-controlled amplifier in the popular Eurorack format.

The VCA feature four independent linear amplifiers with attenuation for the CV input and an offset control.

The offset control applies a controllable positive or negative voltage to the amplifier, enabling biasing of the CV control voltage. This is useful, for example, when using a -5v / +5v LFO input to modulate the amplitude of another signal, with the output expected to be in the range 0v to +5v.

The key details of the Quad VCA are:

- 16HP Wide Eurorack module with thin profile (20mm deep from faceplate)
- Controls designed and laid-out with performance in mind
- 100% analogue circuitry
- Tough yet light composite faceplate
- Provides four completely independent voltage-controlled amplifiers
- Each voltage-controlled amplifier features a CV input, CV attenuator and an offset control to bias the amplifier
- CV inputs accept a voltage range of -5v to +5v
- Inputs accept a voltage range of -5v to +5v
- Linear VCA behaviour
- Diode protected power input
- 23ma @ +12v
- 23ma @ -12v

Installation

Power Availability

The Quad VCA module draws the following current from your power supply:

23ma @ +12v

23ma @ -12v

You should first ensure that your power system has enough power capacity to drive the module before considering installation. If you are in doubt, please consult with your power supply manufacturer.

Connecting the Power

Refer to the writing on the back of the module next to the 16-pin power connector to ensure that you connect the power supply correctly. The +12v, -12v and ground (GND) pins will be clearly marked.

The power inputs are diode protected but damage may occur if the unit is connected incorrectly.

Fitment

Use the screws provided to firmly fit the module into your case. You should make sure that the module does not move when you insert and remove patch cables.

Using the Quad VCA Module

The Quad VCA module provides four completely independent linear voltage-controlled amplifier.

Despite its name, a voltage-controlled amplifier doesn't actually amplify the input signal but rather attenuates it. Control of the attenuation level is via a CV input, which accepts a standard Eurorack voltage range of -5v to +5v.

An offset knob allows the CV input to be biased.

With no biasing, a 0v input at the **CV** jack will fully mute an input signal. A 5v input at the **CV** jack will offer no attenuation to an input signal. All control voltages between 0v and 5v at the **CV** jack will offer varying levels of attenuation of the input signal.

Attenuating an Input Signal

To attenuate an input signal, it should be inserted into the **in** jack socket of one of the VCAs. The output will be present at the **out** jack.

With no **CV** input signal, the **OFFSET** knob can be used to increase and decrease the level of the output signal.

Turning the **OFFSET** knob fully clockwise will allow the full input signal to reach the output. Turning the **OFFSET** knob fully counter-clockwise will fully attenuate the signal at output.

Inserting a voltage source into the relevant **CV** jack will enable attenuation by the inserted voltage. The **CV** knob can be used to attenuate the amount of voltage reaching the VCA and will reduce the effect of the control voltage on the input signal.

Using the **OFFSET** knob in combination with a **CV** input and the **CV** knob gives a significant amount of control over the output signal.

Usage Suggestions

Volume Control with an LFO

An LFO, such as the Hampshire Electronics Dual LFO module, can be used to provide a tremolo effect, where the volume of a signal is modulated by the LFO.

A bi-polar, -5v to +5v, signal should be inserted into the **in** jack of a VCA channel. The LFO output should be inserted into the **CV** jack of the same VCA channel. The **out** should then be used to feed your output stage of your patch.

The **OFFSET** knob should be adjusted until the desired tremolo effect is reached. The **CV** knob can then be used to vary the depth of the tremolo effect.

Volume Control with an ADSR Envelope

An envelope generator, such as the Hampshire Electronics ADSR Envelope Generator module, can be used to affect a volume profile output from the Quad VCA module.

Using an ADSR envelope to vary the volume of a signal in this way is one of fundamental building blocks of synth patch creation.

A bi-polar, -5v to +5v, signal should be inserted into the **in** jack of a VCA channel. The 0v to +5v of an envelope generator should then be inserted into the **CV** jack. In this instance you want the 0v control voltage input to fully mute your input so the **OFFSET** knob should be set at 12 o'clock to offer no control voltage bias.

The **CV** attenuator knob should generally be fully clockwise to enable the full control voltage signal to operate on the VCA.