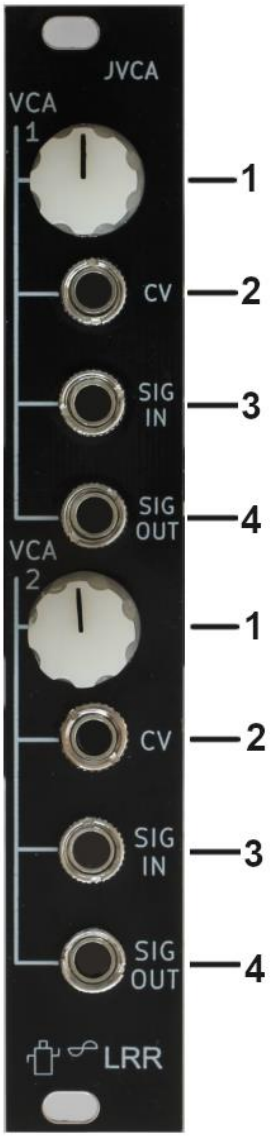
JVCA Eurorack Module Manual



Size	Width: 4 HP Depth: 42 mm
Power	360 mW
12 V	15 mA
-12 V	15 mA
Channel Definitions	
1 (knob)	User control knob/DC offset
2 (CV)	Control voltage 0-5 V range
3 (SIG:IN)	Input Signal -5 to +5 V
4 (SIG:OUT)	Output Signal

This Eurorack module contains 2 JFET based voltage-controlled amplifiers (VCA). VCA's are a core component in synths. They're commonly used in conjunction with an envelope generator for shaping sounds, or with two oscillators for tone synthesis. The inputs and outputs are buffered using fast professional audio grade op-amps to maintain signal integrity and performance.

Power

The module uses a standard 10 pin Eurorack connector with polarity marked

Inputs and Outputs

1. Knob
   Adds a DC offset from 0 to 5 volts to the control voltage.
2. CV
   This is the control voltage gain input, and it is normalized to 0 V. The recommended input range is 0 to 5 V. Voltages less than 0 will have the same gain as 0 V, and Voltages greater than 5 V will have the same gain as 5 volts.
3. Sig:In
   The signal input is DC-coupled and will accept audio or CV signals. The recommended input range is -5 to +5 V. Voltages outside this range will cause increased distortion.
4. Sig:out
   Signal output

Inputs are tolerant to voltages from -12 V to + 12 V. Exceeding this range will damage the module.

Gain Response

The response of the VCA is exponential. A representative plot showing gain vs control voltage is shown in Figure 1.

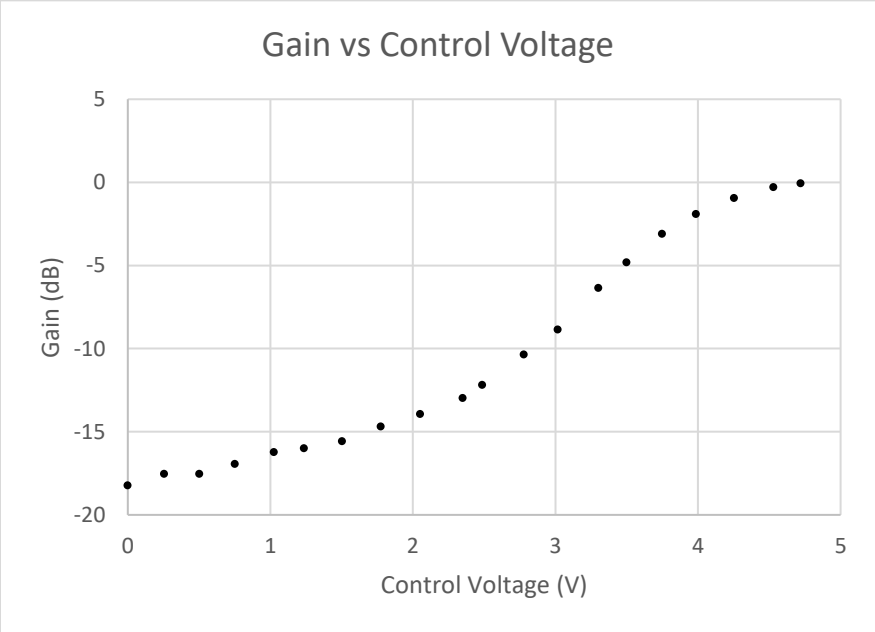


Figure 1. Gain vs Control Voltage

Adjusting the Trim Pots

Each VCA uses three trim pots to account for the manufacturing tolerances of the JFETs used for signal amplification. The trim pots are adjusted when the module is manufactured, and should never need to be readjusted. If you have gremlins or want to adjust them for 'reasons'. This is how they were set during manufacturing.

Tools

- 2 mm standard flat-blade screw driver
- 2 input Oscilloscope
- Signal source (~ 1 kHz square wave preferred)

Connections

- Sig-In: test signal and o-scope
- Sig-Out: o-scope
- CV: 0-5 V adjustable DC power supply

Method

Since both VCAs are identical part numbers will be indicated in this format VCA1 (VCA2).

Set CV to 0 V, and control knob counter clockwise. Adjust RV5 (RV7) until output signal is constant 0 V. Turn clockwise to decrease signal amplitude.

Set CV to 5 V, adjust RV3 (RV4) until output signal matches input signal. Turn counter clockwise to increase signal amplitude

Set CV to 0V, turn control knob fully clockwise. adjust RV6 (RV8) until output signal matches input signal. Turn counterclockwise to increase signal amplitude