Tiptop Audio — VCA

- Manual PDF

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Tiptop Audio VCA Eurorack Cheat Sheet

A single-channel, variable-slope Voltage Controlled Amplifier (VCA) with full morphing between Logarithmic, Linear, and Exponential curves. Suitable for clean amplification, modulation, FM index control, audio/CV mixing, and sidechaining.

Controls Overview

Control	Type	Description
LEVEL	Knob	Sets output volume (post-VCA gain). Useful for gain staging or matching shapes.
SHAPE	Knob	Continuously morphs the CV response curve: Logarithmic ← Linear → Exponential.
OFFSET	Knob	Adds offset to CV, manually opens/closes the VCA, or shifts bipolar mod sources for full bipolar modulation.
CV IN	Knob	Attenuates incoming CV (from CV IN jack). Helps prevent CV clipping.

Input/Output Reference

Jack	Type	Function	Voltage Range
CV IN	Input	CV control of the VCA or for Amplitude Modulation with audio-rate CVs.	±10V recommended
Audio IN	Input	Audio or CV signals to be amplified/processed.	Up to ~20Vpp*
Audio OUT	Output	Final amplified/processed audio/CV signal.	Up to ~20Vpp*

*Precise limits not stated, but standard for Eurorack; incoming signal clipping is indicated with a red LED.

LED Indicators

LED	Location	Indicates
CV Clip LED	Panel	CV IN signal is clipping
Audio Clip LED	Panel	Audio IN signal is clipping

Typical Voltage Ranges

- CV IN: Designed for ±10V (unipolar envelopes, LFOs, or bipolar LFOs). Envelope peaks should avoid clipping as indicated by the CV LED.
- Audio IN: Typical Eurorack audio (±5V, 10Vp-p).

Key Functions

- **Dynamic Volume Control**: Control over audio amplitude via envelopes, LFOs, sequencers, etc.
- **CV Attenuation and Offset**: Tune incoming control signals for mod depth and baseline.
- **SHAPE Morphing**: Sweep through log/lin/exp responses for nuanced dynamics or CV shaping.
- **Amplitude Modulation (AM)**: Use audio-rate CVs for audio AM effects.
- **FM Index Control**: Use VCA to modulate amount of FM sent to other oscillators or destinations.
- **Sidechaining**: Invert envelope CV for “ducking” effects.
- **FX Send Automation**: Dynamically automate effect sends.

Quick Start

1. Set SHAPE to center (linear).
2. Patch audio to Audio IN, Audio OUT to sound system.
3. LEVEL to max, OFFSET up to bring signal through.
4. Patch envelope/LFO to CV IN, adjust CV IN knob for modulation amount.
5. Adjust SHAPE to hear curve differences.

Calibration Trimmers (on module rear, factory set)

Trimmer	Function
BIAS ADJ TR2	Matches output level across shape morphing
OTA OFFSET T1	Minimizes DC offset at output
CV OFFSET T3	Minimizes bleed when VCA is “closed”

Patch Tips

- **Linear:** Best for controlling CV/mod signals.
- **Exponential:** Best for audio amplitude (matches human hearing).
- **Logarithmic:** Creative modulation source shaping or special effects.
- **OFFSET**: Center for bipolar LFOs, LEFT for silence, adjust for sustained S&H/no silence envelopes.
- **CV IN+LEVEL:** Both affect final gain; use together for precise control.

Example Uses

- **Envelope-controlled VCA**: Patch envelope to CV IN to shape amplitude of incoming audio.
- **Modulated Filter FM**: VCA controls modulation amount into filter cutoff.
- **Audio-rate AM/FM**: Send VCO to CV IN for ring/AM/FM effects, index controlled by OFFSET or envelope.
- **Automated FX Sends**: Sequence wet/dry FX amounts via CV automation.
- **Sidechaining**: Invert envelope for ducking audio during drum hits.

Module Inputs/Outputs & Controls Table (Summary for Quick Reference)

Label	Jack/ Control	Function	Typical Voltage Range
LEVEL	Knob	Output level	N/A (audio gain)
SHAPE	Knob	Morph between log/lin/ exp curves	N/A

Label	Jack/ Control	Function	Typical Voltage Range
OFFSET	Knob	Adds DC to CV in	N/A
CV IN	Knob	Attenuates CV input	N/A
CV IN	Jack	Control voltage input (CV or audio)	±10V
Audio IN	Jack	Audio or CV in	±5V to ±10V typical
OUT	Jack	Audio or CV out	Module powered output
