Tiptop Audio — Z4000

- Manual PDF

Z4000 Voltage Controlled Envelope Generator Manual PDF

Tiptop Audio Z4000 VC-EG Cheat Sheet

The Z4000 is a four-stage envelope generator (Attack, Decay, Sustain, Release) with unique CV processing features (Attenuverter/Deviater) for shaping, scaling, inverting, mirroring, or offsetting the envelope.

🛠 Panel Controls Summary

Name	Type	Function	Range
A (Attack)	Knob	Sets attack time; voltage controllable	0ms to minutes (via knob & CV)
D (Decay)	Knob	Sets decay time; voltage controllable	0ms to minutes (via knob & CV)
S (Sustain)	Knob	Sets sustain level; voltage controllable	0V (min) to ~8V (max, via knob & CV)
R (Release)	Knob	Sets release time; voltage controllable	

Name	Type	Function	Range
			0ms to ∞ (fully CW) (via knob & CV)
Attack Curve Switch (ATK)	Toggle	Selects attack curve slope (exponential/ logarithmic)	N/A
Attenuverter	Knob	Scales and inverts envelope output; 12h = 0V, CW = full pos, CCW = full neg	± envelope out
Deviater	Knob	Offsets envelope output voltage (+ or - static voltage)	± static V
Deviater CV Amt	Knob	Level of external signal mapped by Deviater VC input	N/A

🔌 Jacks Reference (Inputs & Outputs)

Jack Label	Type	Function	Voltage Range
GATE	In	Gate/trigger input to start envelope	+2V min (typical)
RTRG (Retrigger)	In	Pulse retriggers envelope during held gate	+2V min (typical)
A, D, S, R	In		

Jack Label	Type	Function	Voltage Range
		Voltage control for Attack, Decay, Sustain, Release	0–5V = 0–100% of parameter; summed w/ knob
DEVIATER VC	In	Modulates Deviater offset	0–5V for full range
OUT	Out	Main envelope output (processed by Attenuverter and Deviater)	±8V maximum (scaled/inverted/ offset)

🚦 Usage Quick Start

1. **Basic Envelope**
2. Plug gate into **GATE**
3. Set envelope shape:
    - **Attack=Min, Decay=50%, Sustain=50%, Release=50%**
4. Set **Attenuverter** to full CW (full pos)
5. Set **Deviater** to center (0 offset)
6. Patch **OUT** to desired CV input (VCA, filter, etc.)
7. **Sculpt Envelope**
8. Adjust **A/D/S/R** for shape and timing.
9. **First 50%**: fine tuning, ultra-fast percussive/transient control
10. **Above 50%**: extends segment times up to minutes *or infinite Sustain*
11. Switch **ATK** (Attack Curve) for subtle slope changes.
12. **Advanced Shaping**
13. **Attenuverter**:
    - Center = 0V

    - CW = normal
    - CCW = inverted envelope
    - LED indicates polarity (red = pos, yellow = neg)

14. **Deviater**
    - CW = +V offset
    - CCW = -V offset
    - Modulate with **Deviater VC** or external signal for dynamic shifting, mirroring, clipping etc.

15. **Voltage Control**

16. Patch CV sources (sequencer, LFO, other envelopes) into **A/D/S/R** or **Deviater VC** as desired

17. 0–5V = full range for segment control (CV is summed with knob)

18. **Retrigger**

19. Send pulses to **RTRG** (while GATE is held) to restart Attack for accents, modulation, or rhythmic variations

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🛑 Protection

- **Reverse Polarity Power Protection**: Module is fully protected, cannot be damaged by reverse power plug-in.

Summary Table

Function	Jack/ Control	Voltage/ Action	Note
Envelope Gate	GATE (In)	>2V trigger/ gate	
Retrigger	RTRG (In)		

Function	Jack/ Control	Voltage/ Action	Note
		>2V pulse retrigger	
Attack CV	A (In)	0–5V	Summed w/ knob
Decay CV	D (In)	0–5V	Summed w/ knob
Sustain CV	S (In)	0–5V	Summed w/ knob
Release CV	R (In)	0–5V	Summed w/ knob
Deviater Mod	DEVIATER VC (In)	0–5V	Summed w/ knob
Envelope Output	OUT (Out)	-8V to +8V (max)	Depends on Attenuverter/Deviater settings
Attack Curve	ATK Switch	Expo/Log selection	Subtle, long Attack best auditioned

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