



ECHELON AUDIO

EA-3A

Solid-State Optical Leveling Amplifier

USER MANUAL · v1.1.0



The EA-3A interface. Every control is documented below; hover any control in the plugin for the same description as a tooltip.

WHAT EA-3A IS

EA-3A is a solid-state optical leveling amplifier: the same two-knob faceplate as EA-2A, different guts, different attitude. The photocell is quicker to grab and quicker to let go, the law is steeper, and the solid-state gain stage stays clean at idle but bites as the unit works harder. It is the mid-forward one — for electric guitars, drum rooms and vocals that need to cut rather than sit.

Peak Reduction decides how hard the light hits the cell; **Gain** is the makeup after it. A COMP / LIMIT lever picks the ~3:1 vocal law or a steeper peak-catching one. The rear panel carries parallel Mix, a sidechain Emphasis trim, a sidechain high-pass, Cal, Ext SC and Auto Makeup. Blue jewel lamp = this is the solid-state one; EA-2A's tube/opto sibling glows amber.

Matched Bypass is on by default: bypass compares at equal loudness, so the only thing you judge is the sound.

SIGNAL FLOW

IN → fast opto cell (Peak Reduction · COMP/LIMIT) → solid-state Gain stage → mid-forward output iron → Mix (dry / wet, latency-aligned) → OUT · sidechain: program or Ext SC → SC HPF → Emphasis → feedback key → photocell

The detector is a feedback key: it listens after the cell, through the SC HPF and the Emphasis brightness trim, and lights the cell accordingly. Gain reduction happens in the optical attenuator, the solid-state stage restores level (clean until the unit is working hard, then it bites), the output iron adds a presence lift and tighter lows, and Mix blends the result against the latency-aligned dry signal.

Auto Makeup (rear, on by default) holds loudness steady as you move Gain and Peak Reduction, so you can audition the squeeze without chasing the fader.

EVERY KNOB, SWITCH AND SELECTOR

FRONT PANEL CONTROLS

Control	Range · default	What it does
Gain	0...40 dB · 12	Solid-state makeup after the cell — clean until the unit is working hard, then it bites.
Peak Reduction	0...100 · 40	How hard the light hits the cell — more = deeper, smoother leveling. The only compression control you need.
COMP / LIMIT lever	COMP / LIMIT · COMP	LIMIT is a steeper law for catching peaks; COMP is the gentle ~3:1 classic vocal setting. Lever up = LIMIT, down = COMP.
Meter	GR / OUT · GR	VU mode. GR shows how much the cell is pulling down; OUT shows output level against the 0 VU reference.

PRESS REAR TO FLIP THE UNIT

REAR PANEL

The fine print lives on the back: these controls change how the unit listens and how it sits in a chain, and they are saved with every preset.

Control	Range · default	What it does
Mix	0...100 % · 100	Parallel blend for thickness without losing the transient.
Emphasis	0...100 · 35	Sidechain brightness — higher makes the cell react more to sibilance and top-end energy (flat <-> bright).
SC HPF	Off (20)...300 Hz · Off	Stops bass from pumping the cell. The filter is on the detector only; the audio never passes through it.
Cal	-6...+6 dB · 0	Calibration — shifts the 0 VU reference ± 6 dB so the unit sits right in any chain.
Ext SC	off / on · off	External sidechain — key the compressor from the sidechain input instead of the program.
Auto Makeup	off / on · on	Holds loudness steady across Gain and Peak Reduction moves, so the squeeze is judged at equal level. Switch it off to ride Gain by hand.

METERS AND DISPLAY

Element	What it shows
VU	Needle ballistics. GR mode reads gain reduction downward from 0; OUT reads output level against 0 VU (0 VU = -18 dBFS, shifted by Cal).
Power lamp	She's on. Blue jewel = the solid-state one (EA-2A's opto glows amber).

SHARED ACROSS THE ESSENTIALS LINE

CHASSIS BUTTONS

Every Essentials unit shares one chassis, so the footer strip works the same way on all twelve. The buttons below are present on EA-3A; the ones the unit does not need are simply not there.

Button	What it does
Presets	Use-named factory starting points plus your saved USER presets. Pick one, tweak, then + Save your own; Del removes a USER preset (factory presets cannot be deleted).
A / B	Two independent settings slots. Click to flip between A and B while the audio runs; both slots are saved with the session.
A>B (copy)	Copy the current slot into the other one, so B starts from A and you only change the one thing you are auditioning.
ARTIST	The five-knob face: the same engine with only the controls that matter for a performance-led session, at a size that reads across the room. Toggle back for the full panel at any time.

Button	What it does
DELTA	Hear only what the unit is changing — output minus the latency-aligned input. If it sounds wrong here, it sounds wrong in the mix. The honesty check for any move.
BYPASS	Bypass the whole plugin.
= (Matched Bypass)	Bypass compares at equal loudness — no louder-is-better trick. On by default.
REAR	Flip the unit around for the fine-print controls (mix, sidechain filter, link, calibration and the unit's deeper options).
GR / +4 / +8	Meter mode. GR shows how much the unit is pulling down; +4 and +8 show output level against the 0 VU reference (0 VU = -18 dBFS, shifted by the Cal trim).
SAVE	Store the current settings as a USER preset you can recall anytime.

PRESETS

Factory presets are named for the job, not the setting — pick the one that describes your source, then adjust by ear. Any change you make can be stored as a USER preset with + Save.

Vocals — Lead Vocal Smooth · Vocal Ride Gentle · VO Broadcast · Rap Vocal Punch · RnB Vocal Smooth · Pop Vocal Bright · BGV Glue · Parallel Vocal Slam · Aggressive Vocal Grab · Podcast Leveler

Drums — Drum Bus Snap · Room Mic Explode · Snare Fatten · Kick Sustain

Bass and low end — Bass Warm Hold · 808 Tighten · Sub Bass Hold · Bass Guitar Even · Warm Bass Thick

Guitars and keys — Acoustic Gtr Silk · Piano Glue · Electric Gtr Grind · Synth Lead Level · Acoustic Gtr Level · Strings Silk · Guitar Bus Sustain · Piano Even

Bus and utility — Init · Parallel Warmth · Catch Peaks Only · Master Bus Cohesion · Full Mix Squeeze

CALIBRATION AND LEVEL

Like every Essentials unit, EA-3A is built around the analog convention **0 VU = -18 dBFS**. Feed it a signal whose average sits around -18 dBFS and every default, every preset and every meter reading lands where it was voiced to.

An optical leveler has no threshold knob: Peak Reduction sets how deep the cell sits relative to the incoming level, so a track that hits the unit 6 dB hot is 6 dB deeper into leveling at the same setting. Because EA-3A's gain stage bites as it works, level matters twice here — it changes both how much and how dirty. Use the Cal trim on the rear panel to re-centre the 0 VU reference if your chain runs hot or cold, and read GR on the VU while you set Peak Reduction.

LATENCY

EA-3A reports its latency to the host — a few samples of oversampler group delay around the gain stage, constant regardless of settings — and the DAW compensates automatically. Delta and Mix are always time-aligned to the dry signal, so a parallel blend never combs.

TIPS

- Set Peak Reduction until the VU shows 4–6 dB of GR on the loudest phrases, then set Gain until Matched Bypass sounds level. The faster cell means this reads as punch, not glue.
- Electric guitars: Peak Reduction 50, Emphasis 35, then push Gain until the stage starts to grind. The bite is the point — back Gain off a hair if it stops being tone.
- Rap and pop vocals that need to cut: Emphasis 50–55 so the cell grabs the bright consonants first; A/B against EA-2A for the same line and keep whichever sits.
- Drum room: Peak Reduction 65, Gain 16, then Mix 40 % for the explosion under a clean kit. Raise SC HPF to 50 Hz if the kick is driving the cell.
- Use DELTA while setting Emphasis — if the delta is mostly sibilance you are in the sweet spot; if it is mostly vowels, bring Emphasis down.

Echelon Audio · EA-3A · drag a knob to adjust, Shift-drag for fine control, double-click to reset, right-click or double-click a value to type it.
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