

Spectral Mass Rebalance — Quick Start

MULTIBAND DYNAMIC TILTS • VST3 • AU • AAX • MACOS & WINDOWS

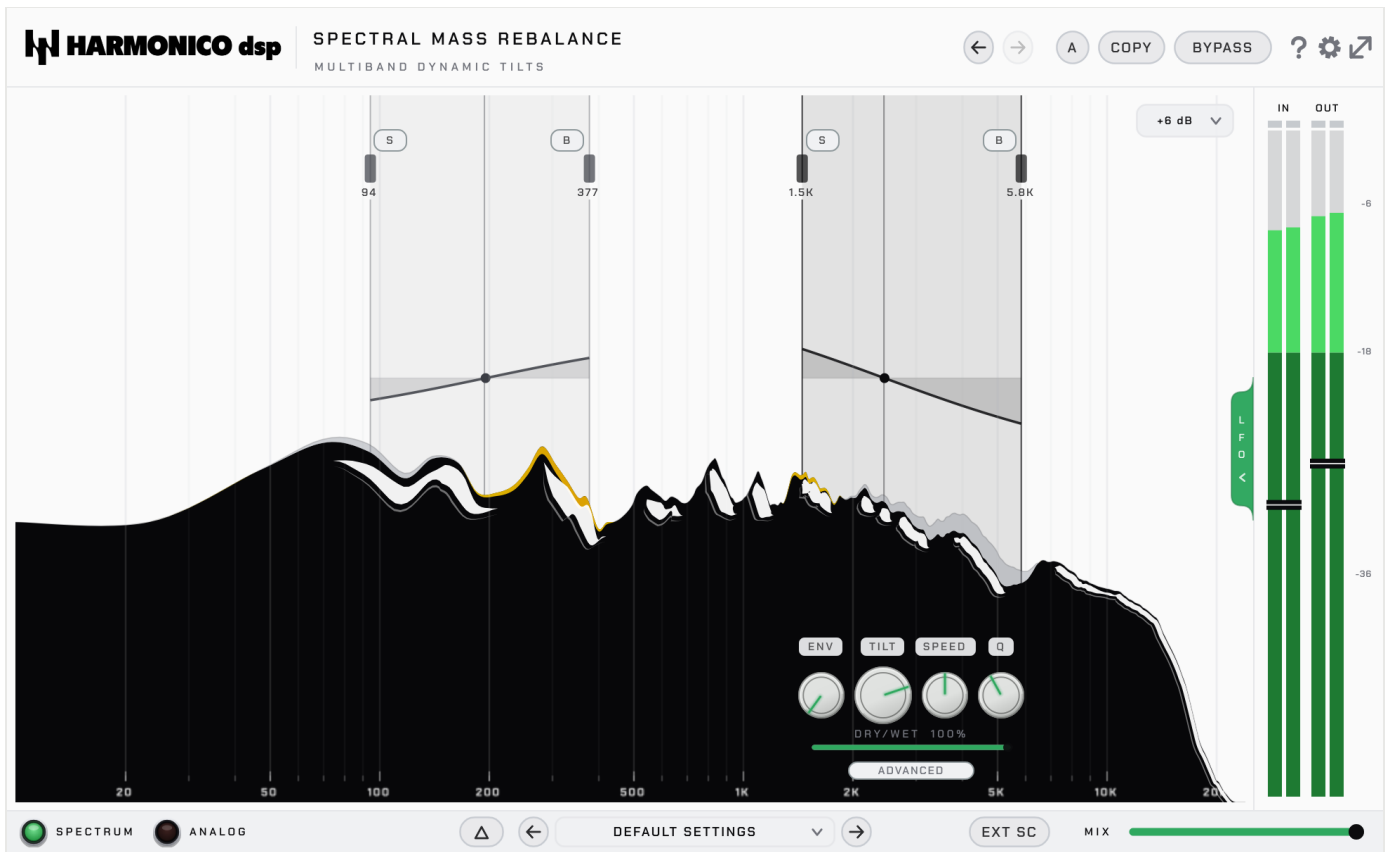
The idea

Spectral Mass Rebalance (SMR) is **an EQ that works on energy, not on fixed curves**. Instead of boosting fixed frequencies, it measures the **center of mass** of the energy inside each band you draw, then **tilts the energy around that pivot** — shifting weight between lows and highs while keeping the band's **total energy constant**. Because the pivot follows the real content, the effect adapts to the material: when a voice rises, the pivot rises with it. Up to **4 draggable bands**, each with its own dynamics (ENV) and pivot mode, plus a minimum-phase **Analog** mode.

Install & activate

1. Run the installer (**macOS .pkg / Windows**). It installs VST3, AU (mac) and AAX. 2. Open the plug-in in your DAW — it's **fully featured for 14 days**. 3. To activate: click the **gear icon** → **Import License...** → select the **.license** file from your purchase email. Unlocks instantly, offline.

The interface



- **Spectrum analyser** — a live, display-only FFT of the input/output. The output curve is literally *input* × *gains*, so before/after comparison is exact.
- **Bands** — click to create, drag the left/right edges to set the range (10 Hz–24 kHz). Up to 4, and they can overlap (gains multiply).
- **Pivot** — the content-following point each band tilts around, drawn on the spectrum.
- **Per-band panel** — TILT, Q, SHIFT, DRY/WET, SOLO, BYPASS, plus an **ADVANCED** section (MODE, ENV, ATK/REL, SPEED).
- **Footer / global** — MIX, ANALOG, SPECTRUM (show/hide analyser), presets, A/B, undo.
- **IN / OUT meters** — peak meters that are *also* gain controls (drag them, ±24 dB).

Controls

CONTROL	WHAT IT DOES
TILT	Tilts the band's energy around the pivot (−1..+1). > 0 pushes weight toward the top of the band, < 0 toward the bottom — a see-saw, not a boost. Total

CONTROL	WHAT IT DOES
	band energy stays constant.
Q	Morphs the curve shape (0..1, default 0.4). 0 = smooth, bounded Baxandall shelf; 1 = pure tilt (constant slope that carries all the way to the band edges).
SHIFT	Biases the pivot toward one edge of the band (−1..+1), in octaves. At +1 the pivot sits at the top edge and the tilt acts as a one-sided shelf.
MODE	Pivot calculation: Mean / Peak / Median / Fixed (see below).
ENV	Makes the tilt follow the dynamics: modulates tilt <i>depth</i> vs the band's own recent average. 0 = constant tilt; up = doubles on louder passages, eases off when quiet. Reacts to <i>variation</i> , not absolute level, so it doesn't pump.
ATK / REL	Attack (1–300 ms, default ~25 ms) and release (10–1000 ms, default ~180 ms) of the ENV follower. Short ATK catches transients; long REL gives slow, breathing moves.
SPEED	Pivot inertia (0..1, default 0.5). Low = fast, reactive pivot; high = slow, near-frozen pivot.
DRY/WET (band)	Per-band blend of the spectral tilt. At 0 the band does nothing (gain = 1 everywhere).
SOLO	Auditions the band's frequency range via clean IIR HP/LP filters (no FFT ringing).
BYPASS (band)	Mutes just this band's processing (its smoothers keep running, so no jump on re-enable).
MIX	Global dry/wet (footer). 0 = 100 % dry, 1 = 100 % wet (default 1). Dry is latency-aligned, so no comb filtering.
ANALOG	Zero (default) = clean, transparent, zero added phase; Analog = adds the minimum-phase rotation of a real 1st-order filter for subtle character. Magnitude (level) is identical either way.
IN / OUT	Input/output gain trim (±24 dB), set by dragging the meters. IN is applied <i>before</i> analysis (you can drive the ENV detector); OUT <i>after</i> processing

CONTROL	WHAT IT DOES
	(match the bypassed level).
FFT SIZE / LATENCY	Gear menu: 512 (~12 ms), 1024 (~23 ms, default), 2048 (~46 ms). Smaller = less latency, coarser low-frequency resolution.

Pivot modes

Each band picks how its pivot is found (ADVANCED → MODE):

- **Mean** (default) — the spectral centroid: magnitude-weighted average frequency.

Stable, tracks the band's overall brightness. Good everywhere.

- **Peak** — the strongest frequency (lightly smoothed). Nervous; follows the dominant note/partial. Great for melodic material and bass.

- **Median** — the frequency that splits the band's cumulative energy in half.

More robust than Mean when a single loud peak would skew the average.

- **Fixed** — the geometric center of the band, $\sqrt{f_{\text{Low}} \cdot f_{\text{High}}}$. The pivot never moves: a static, 100 % predictable EQ-like tilt.

Zero vs Analog — a separate choice (ANALOG button). *Zero* applies pure real gains (no phase shift added — best for mastering and strict parallel work); *Analog* adds the minimum-phase response of a 1st-order shelf for analog-style character. The magnitude, and therefore the level and the drawn curve, is the same in both.

LFOs & modulation

Two assignable **LFOs** live in the drawer on the right edge (click the **LFO** tab).

- **ASSIGN** — click, then click any knob to route the LFO to it (several targets

per LFO are fine). **CLEAR** removes the routing; the modulation rings on the knobs show depth at a glance.

- **RATE / DEPTH / PHASE** — speed (free Hz or synced divisions), amount, offset.
- **SYNC** — locks the LFO to the **host transport**: cycles land *on the beat*

during playback (PHASE shifts the downbeat), so what you hear is what bounces.

- LFO routings are **saved with presets and the A/B slots**, and cleared by

DEFAULT SETTINGS.

Quick recipes

- **Tame a harsh mix** — draw a band ~1.5–5 kHz, TILT slightly negative to shift

weight *down* out of the presence region, MODE Mean, a touch of ENV (~0.3) so it only clamps down on the loud, harsh moments. Level stays put.

- **Add air, dynamically** — band ~8–18 kHz, TILT positive, ENV up with a short

ATK: the top sparkles more on transients and settles back on sustains, without a static high-shelf's constant hiss.

- **Balance a bass-heavy master** — full-band ~20 Hz–20 kHz, TILT ~-0.30 (warm,

adaptive global tilt), FFT 2048, ANALOG off (zero phase), Q low, SPEED high so the pivot stays stable, ENV 0. Energy conservation keeps the A/B honest.

Tips

- The pivot **follows the content** — that's the whole point. On a rising vocal,

a Mean pivot rides up with it, where a fixed EQ shelf would treat a low verse and a high chorus the same.

- **The level doesn't move when you turn TILT** — by design (per-band energy

conservation). You're changing *timbre*, not loudness, so A/B is honest. Use **OUT** only for fine level-matching against bypass.

- For fine low-frequency work, switch to **FFT 2048**: at 512 a bin is ~86 Hz, too coarse for a narrow 30–150 Hz band. And push **IN** to drive the ENV detector harder.

Specs & support

VST3 · AU · AAX — macOS & Windows. 14-day full trial. Questions? See the **contact page** on harmonicodsp.com.

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