

MASTERING ELLIPTICAL EQUALIZER

Comprehensive Studio Reference & User Manual (Master & Live Edition)

SAMPLE RATE
Up to 192kHzPROCESSING
64-Bit DoubleLATENCY
Zero Latency

1. Plugin Overview & DSP Philosophy

PRECISION M/S EQUALIZATION

ELLIPTRA EQ1 is a studio-grade mastering elliptical equalizer engineered to eliminate **Phase Cancellation** and control low-frequency stereo smearing. By splitting incoming stereo audio into **Mid/Side (M/S)** components, it applies progressive elliptical filtering exclusively to the Side channel, seamlessly collapsing low frequencies into a focused **Center Mono**. This tightens low-end punch, unlocks mix headroom, prevents vinyl lathe tracking errors, while preserving an expansive stereo image across mid and high frequencies.

6-Stage DSP Signal Processing Chain

STEP 01

M/S Matrix

Splits L/R stereo into discrete Mid (Sum) & Side (Diff)

STEP 02

Elliptical Core

Filters low-end Side (20-400Hz) to mono center

STEP 03

Visual Analyzers

CRT Goniometer Scope & 31-Band 1/3 Oct RTA

STEP 04

Master M/S Trim

Precision ± 3 dB gain trims with dedicated Solo switches

STEP 05

Matrix Monitor

Monitoring console: Mono, Phase, Cube, Dim, Mutes

STEP 06

Analog Flavor

5 Distinct analog saturation modeled circuits

2. Master Control Surface Map (Annotated UI)

1024 x 571 NATIVE MATRIX



3. Overview of 8 Primary Interface Zones

CONTROL SECTIONS

- Header & License Bar:** Master/Live edition switcher, perpetual license activation status, and UI zoom scaling (100%-125%).
- Filter Topologies:** 3 Distinct analog circuit models: British Oval, Smooth Oval, and Linear Side Cut with LED indicators.
- Top 5 Primary Knobs:** Core DSP parameter controls: Cutoff, Egg Contour, Stereo Width, Slope Rate, and Side Low Gain.
- Master Mid/Side Trims:** High-precision ± 3.0 dB Mid and Side gain calibration trims with dedicated dark maroon Solo buttons.
- Matrix Monitor Console:** Studio monitor routing: Left, Right, Mono, Phase Invert, Mute L/R, Dim -20dB, Cube 5C, Harsh, Sibillance.
- CRT Scope & 31-Band RTA:** Dual analyzer displaying polar Lissajous CRT Goniometer and 31-Band 1/3 Octave FFT spectrum.
- Phase Meters & Bypass:** Dual-band correlation meters (Low 20-80Hz, Full-Band 20-20kHz) and hardware relay Master Bypass (BYP).
- Analog Saturation Strip:** 5 Modeled analog harmonic profiles: Solid (Class-A), Tube, Iron (Transformer), OpA, and VCA.

1 Zone 1: Header Bar, License Management & GUI Scaling

SYSTEM CONTROLS

Activate / License Management Button

Cyan button in the top-right corner displays license status (Full Perpetual License or Trial Countdown).

Single Click Opens license dialog to enter key or inspect cloud server activation.

Double-Click Deactivates license to release seat for another workstation.

Scale / Zoom Dropdown (100% / 110% / 125%)

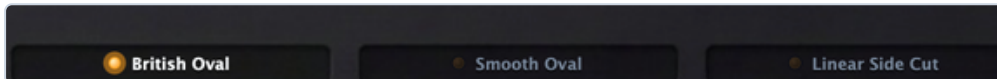
Optimizes GUI size for high-DPI Retina 4K/5K displays or large live touch screen operation.

Select Item Choose scale **100% (Native)**, for razor-sharp vector factor: **110%, 125%** rendering.

Behavior Persists UI scale preferences automatically across DAW projects and sessions.

2 Zone 2: Analog Filter Topology Selection

3 ANALOG CIRCUITS



British Oval (Amber LED)

Topology: Modeled after classic British console elliptical desks with warm, musical curves.

Sonic Character: Smooth low-end rolloff that preserves organic bass body. Ideal for Rock, Jazz, and Acoustic mixes.

Smooth Oval (Amber LED)

Topology: Linear-phase smoothed curve designed for pristine transparency and zero phase smearing.

Sonic Character: Maintains sharp transient focus on vocals and leads. Perfect for Modern Pop and Hi-Res Mastering.

Linear Side Cut (Amber LED)

Topology: Steep surgical cut on low-end Side channel to lock sub-bass 100% mono.

Sonic Character: Delivers maximum headroom and ultra-tight 808/kick transients for EDM, Trap, and Hip-Hop.

*** Note: EGG CONTOUR** is disabled in this mode as filtering is purely surgical.

3 Zone 3: Top 5 Continuous Rotary Knobs & Presets

CORE DSP ENGINE



1. CUTOFF FREQ (20 Hz – 400 Hz) • Amber Center Knob

Presets: 40Hz, 80Hz, 160Hz

Function & Purpose: Sets the transition frequency below which Side channel energy is progressively summed to Center Mono.

Sonic Result: Eliminates sub-bass phase cancellation, tightening low-end punch while preserving wide stereo mid/highs.

Vertical Drag Continuously adjusts frequency with realtime readout displayed below knob.

Click Preset (40Hz / 80Hz / 160Hz) Jumps immediately to calibrated industry standard values with LED confirmation.

Double-Click Toggles parameter Bypass (resets to 20Hz floor) and restores previous value for rapid A/B auditioning.

2. EGG CONTOUR (0.10 – 1.00 a/b) • Emerald

Function: Modulates the transition ellipse aspect ratio.

Sonic Result: Lower values (0.2-0.4) yield tighter mono centering; higher values create wider spatial immersion.

Drag Adjusts visual Target Contour curvature on CRT Scope.

3. STEREO WIDTH (–100% to +200%) • Cyan

Function: Scales the overall stereo soundstage above the Cutoff frequency.

Sonic Result: 0% = Mono, 100% = Neutral, >100% = Expanded stereo width.

Presets (Mono/Norm/150%/200%) Instant width switching with LED indicator.

Double-Click Bypasses to 100% Norm and restores on second double-click.

4. SLOPERATE (6, 12, 18, 24 dB/Oct) • 4-Step Knob

Function: Configures filter attenuation slope on low-end Side energy.

Sonic Result: 6dB = Gentle natural roll-off; 12-18dB = Standard; 24dB = Surgical isolation.

5. SIDE LOW GAIN (–12.0 dB to +12.0 dB) • Rose

Function: Boosts or cuts low-frequency gain specifically within the Side channel.

Sonic Result: Cut to eliminate low mud, or boost to inject subtle stereo warmth.

★ Audio Engineer Pro-Tip: Fast A/B Comparison via Double-Click Gesture

Performing a **Double-Click** on **CUTOFF FREQ**, **STEREO WIDTH**, **Master Mid Trim**, or **Side Trim Knobs** instantly sets that parameter into **Bypass**. Double-clicking again restores your exact dialed-in value, enabling instantaneous A/B auditioning without losing precise settings.

4 Zone 4: Master Mid / Side Precision Trims & Solo

PRECISION CALIBRATION



Master Mid Trim & Side Trim Knobs (-3.00 dB to +3.00 dB)
Function & Calibration: High-resolution Bakelite knobs for micro-level gain balancing between Center (Mid) and Sides.
Sonic Result: Compensates for perceived vocal/snare power (Mid) vs. ambient wide reverb balance (Side).
Presets (-3, -1.5, 0, +1.5, +3dB) Click step buttons for immediate gain selection.
Double-Click Bypass / Reset: Sets gain to 0.00 dB, second double-click restores dialed value.

SOLO MID & SOLO SIDE Buttons (Dark Maroon Glow)
Function: Mutes opposite channel to isolate Mid (Center Core) or Side (Stereo Difference) in solo.
Click (Toggle) Instantly engages Solo mode with prominent dark maroon illumination.

5 Zone 5: Matrix Monitoring Controller (Studio Monitor Section)

STUDIO MONITOR MATRIX



1. Monitoring Mode Selector Switches (STEREO, LEFT, RIGHT, MONO, PHASE)
STEREO (Default - Cyan LED): Unrestricted full-range stereo reproduction.
LEFT / RIGHT (Amber LED): Isolates left or right speaker independently.
MONO / PHASE (Amber LED): Sums L+R to mono, or inverts phase by 180° to expose cancellation.

2. 3D Triangular Function Buttons (MUTE L ▼, DIM ▲ -20dB, MUTE R ▼)
MUTE LEFT / MUTE RIGHT: Temporarily cuts left or right speaker for single-side inspection.
DIM (-20 dB): Attenuates output by -20dB for conversation and low-level mix checking.

5.2 Diagnostic Acoustic Audition Filters

ACOUSTIC AUDITION

Cube Mode (5C Speaker Icon)
Operation: Emulates the frequency response of legendary Auratone 5C MixCubes, stripping sub-bass and high air.
Benefit: Verifies midrange translation across mobile phones, laptops, and consumer playback devices.

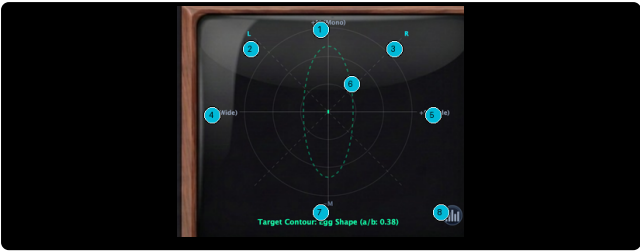
Harshness Solo (3.15 kHz)
Operation: Narrow bandpass filter isolating the 3.15 kHz region where human ear ear canals are most sensitive.
Benefit: Identifies harsh resonances in electric guitars, snare drums, or cymbals for targeted notch EQ.

Sibilance Solo (7.0 kHz)
Operation: Dedicated bandpass filter zeroing in on vocal sibilance frequencies around 7.0 kHz.
Benefit: Allows audio engineers to precisely gauge vocal 'S' and 'T' harshness before committing to de-essers.

★ **Studio Reference Routine: Professional Mix Auditioning Workflow**
Begin by engaging **MONO** to verify that bass punch and vocal presence remain solid without vanishing. Next, engage **Cube 5C** to ensure perfect midrange balance. Finally, audition **PHASE**: if energy drops dramatically, the mix relies heavily on out-of-phase stereo widening that may fail on mono sound systems.

6.1 CRT Goniometer Scope

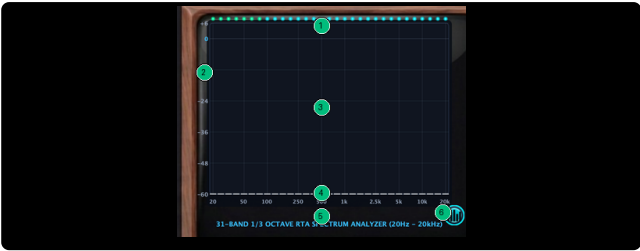
POLAR LISSAJOUS



- **[1] +M (Mono Vector):** Vertical axis indicating phantom center energy core.
- **[2, 3] L & R:** 45-degree diagonal axes displaying discrete stereo speaker vectors.
- **[4, 5] -S / +S:** Horizontal axis reflecting stereo difference width.
- **[6] Target Contour:** Dynamic dotted elliptical curve illustrating safe stereo bounds.
- **[7] Status Readout:** Displays live target parameters, e.g. Target Contour: Egg Shape (a/b: 0.38).
- **[8] Mode Switch:** Lower-right icon button toggles display to 31-Band RTA Spectrum.

6.2 31-Band 1/3 Octave RTA Spectrum

REALTIME FFT



- **[1] 31 Multi-Color LEDs:** Realtime energy level across 31 discrete ISO center frequencies.
- **[2] Amplitude Scale:** Vertical dB scale (+6dB, 0dB, -12dB down to -60dB noise floor).
- **[3] FFT Response Curve:** Dynamic curve tracing post-EQ Mid and Side magnitude response.
- **[4] Logarithmic Axis:** Standard ISO octave bands (20Hz, 50, 100, 250, 500, 1k, 5k, 20kHz).
- **[5] Mode Title:** Header banner 31-BAND 1/3 OCTAVE RTA SPECTRUM.
- **[6] Return Button:** Glowing cyan icon button returns to CRT Goniometer.

7 Phase Correlation & BYP

PHASE & BYPASS



- **LOW-BAND (20-80Hz):** Sub-bass correlation (optimal range **+0.85 to +1.00**).
- **FULL-BAND (20-20kHz):** Broadband phase coherence (+0.30 to +0.70 typical).
- **BYP Button:** Hardware relay Master Bypass cutting all DSP processing immediately.

8 5 Analog Saturation Strip

5 FLAVORS



- Solid:** Class-A fast punch
- Tube:** Warm vintage tube
- Iron:** Transformer heft
- OpA:** Clean Op-Amp air
- VCA:** British console glue
- OFF:** Pure digital signal

★ Complete Mouse Gestures & Keyboard Interaction Guide

SHORTCUT CHEAT SHEET

Action / Gesture	Target Control	System Behavior & Response
Single Click	Presets / Monitor Buttons / Modes	Instantly switches parameter value or active mode with LED confirmation.
Vertical Drag	All Continuous Rotary Knobs	Smooth continuous parameter adjustment with live numerical readout below knob.
Shift + Drag (Fine)	All Continuous Rotary Knobs	Engages high-precision fine-tuning for decimal-level calibration.
Double-Click	CUTOFF, WIDTH, Mid/Side Trims	Toggles parameter Bypass (or resets to 0dB), double-clicking again restores original value.
Double-Click Activate	Activate Button (Top-Right)	Opens confirmation dialog to deactivate license and release seat.

★ 4-Step Quick-Start Mastering Studio Workflow

1. Analyze Low-End: Engage CRT Scope, inspect low frequencies on bass and kick drum for excessive side spread. | **2. Focus Low Frequencies to Mono:** Set **CUTOFF FREQ** to 80-120Hz and select **British Oval** or **Smooth Oval**. | **3. Balance Mid/Side Dimension:** Increase **STEREO WIDTH** to 120-150% and dial in **Side Trim** for perfect spatial depth. | **4. Add Analog Saturation:** Engage **Solid** or **Tube** mode to add analog harmonic warmth and density to your master.