User Manual

Measurement-fitted broad-stroke EQ with signature Air Band.

The Offline Promise: GlassBreaker EQ is offline-first. The plugin does not collect telemetry or send usage data. Website and manual links in the Settings panel only open if you click them.

01. INTRODUCTION

GlassBreaker EQ is a measurement-fitted broad-stroke equaliser with a signature **Air Band** — a high-shelf boost at selectable frequencies up to 40 kHz that adds presence, shimmer, and "air" to audio material. "Glass" points to clarity; "Breaker" points to the more forceful side of the EQ when pushed.

KEY FEATURES

- Five fixed-frequency bands (Sub, 40 Hz, 160 Hz, 650 Hz, 2.5 kHz), each −5 to +5.
- Signature Air Band with five selectable frequencies (2.5K–40K) and independent Gain.
- Complementary filter bank — flat response when all bands are equal.
- **Break mode** — alternative voicing engine with its own colour and tilt character, switchable inline.
- Reports 0 samples of latency. Fixed-band broad-stroke EQ processing.
- Offline cryptographic validation.

WHAT MAKES IT SPECIAL

The bands interact through a **parallel summing topology**. Unlike surgical, narrow-Q EQs, GlassBreaker EQ is designed for broad boosts and cuts. The Air Band adds broad high-frequency lift — a defining feature for vocals, acoustic instruments, and full mixes.

02. INSTALLATION

GlassBreaker EQ is currently available for **Windows** and **Linux**.

SYSTEM REQUIREMENTS & PLUGIN LOCATIONS

REQUIREMENT	MINIMUM SPECIFICATION
Operating System	Windows 10+ or Linux
Plugin Formats	VST3, CLAP — VST2 is not supported.
Sample Rates	44.1 kHz to 192 kHz
Latency	**0 samples reported** — sample-by-sample IIR processing

PLATFORM	FORMAT	DEFAULT LOCATION
Windows	VST3	`C:\Program Files\Common Files\VST3\`
Windows	CLAP	`C:\Program Files\Common Files\CLAP\`
Linux	VST3	`~/.vst3/ (per-user) or /usr/local/lib/vst3/ (system-wide)`
Linux	CLAP	`~/.clap/ (per-user) or /usr/local/lib/clap/ (system-wide)`

WHY NO MACOS?

macOS distribution requires Apple Developer ID signing and notarization. We choose not to participate. Our plugins are designed to be offline-first, privacy-respecting, and free from vendor-controlled distribution requirements.

03. INTERFACE OVERVIEW

GlassBreaker EQ features a clean, focused interface with the primary controls always visible. Settings, Presets and Licensing live in slide-in panels accessible from the header.

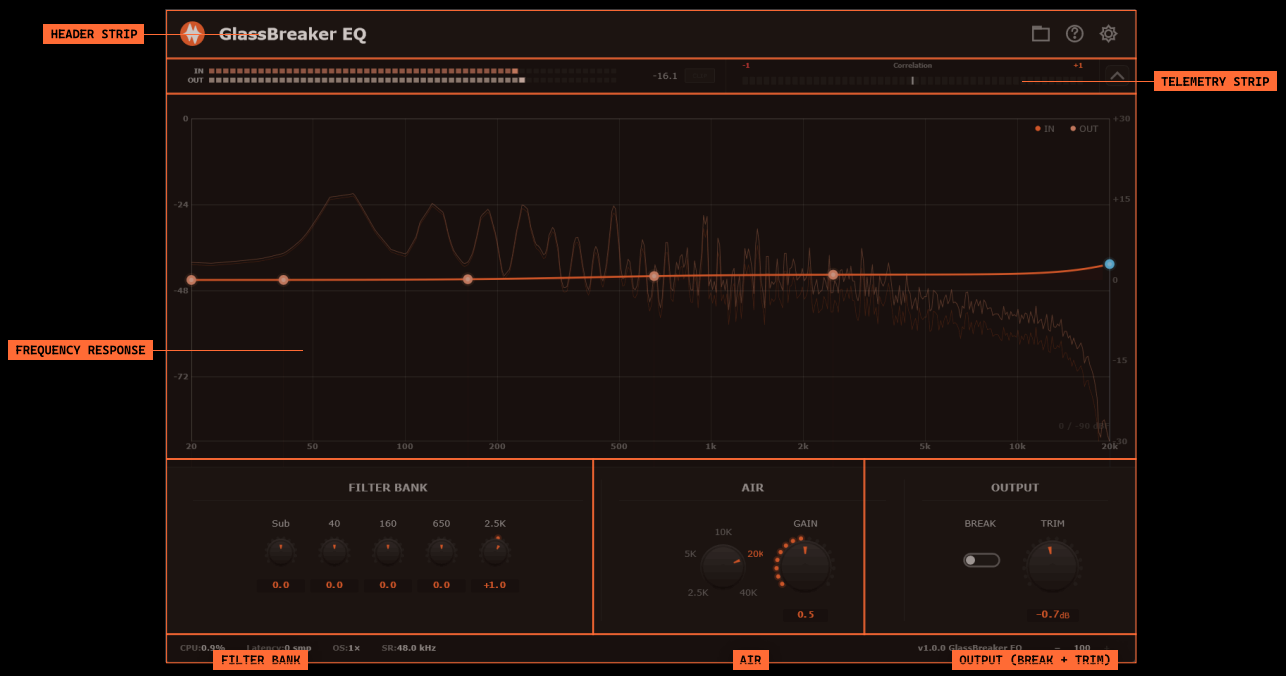

FIG. 1 — INTERFACE OVERVIEW: STRIPS, ANALYZER, AND CONTROLS

FREQUENCY RESPONSE DISPLAY

Shows the current EQ curve in real-time. The display updates as you adjust parameters, giving immediate visual feedback of your changes.

STATUS FOOTER

ITEM	DESCRIPTION
CPU	Plugin CPU load as percentage of audio buffer budget.
Latency	Always **0 smp** — the plugin reports 0 samples of latency.
SR	Host sample rate in kHz.
Version	Plugin version string (bottom-right).
Zoom	UI scale control (− / percentage / +). Chosen scale is remembered per DAW project.

04. EQ BAND CONTROLS

Five fixed-frequency bands with bipolar knobs (−5 to +5). Center position (0) is neutral.

BAND	PEAK FREQ (MEASURED)	AT +5 (FULL BOOST)	AT −5 (FULL CUT)	CHARACTER
SUB	21 Hz	+15.7 dB	−2.2 dB	Subsonic weight, very broad
40	37 Hz	+15.9 dB	−4.4 dB	Kick drum thump, bass foundation
160	157 Hz	+17.1 dB	−4.2 dB	Low-mid body, potential muddiness
650	596 Hz	+15.9 dB	−3.8 dB	Midrange body, boxiness control
2.5K	2.86 kHz	+18.9 dB	−5.2 dB	Presence, clarity, vocal cut-through

Values measured at 96 kHz sample rate with a single band at ±5 and all others at centre. Peak frequencies are where the band's contribution maxes out; at ±5 figures are the dB shift at that frequency relative to flat.

Asymmetric response (by design): Notice that every band **boosts far more than it cuts** — +16 to +19 dB at full boost vs. only −2 to −5 dB at full cut. This asymmetry comes from the measured reference behaviour. These are not narrow surgical bells; they are **broad, overlapping, boost-leaning bands** that work together. Expect heavy interaction between neighbours — boosting one affects adjacent frequencies significantly. That is the design.

FIG. 2 — FILTER BANK: SUB, 40, 160, 650, 2.5K KNOBS

THE "FLAT WHEN EQUAL" PROPERTY

When all five band knobs are set to the same value, the frequency response is **flat within measurement tolerance** (pure gain). This is a defining characteristic of the complementary filter bank topology. You can use this to add a gentle broadband boost or cut without changing the tonal balance.

05. THE AIR BAND

The signature feature of GlassBreaker EQ. A high-shelf boost at selectable frequencies designed to add presence, shimmer, and broad high-frequency lift.

AIR BAND FREQUENCY SELECTOR

POSITION	FREQUENCY	BEST FOR
2.5K	2.5 kHz	Dense mixes, adding presence and forwardness
5K	5 kHz	Vocal presence, string brightness
10K	10 kHz	Broad high-frequency "air" — recommended default
20K	20 kHz	Subtle top-end sparkle
40K	40 kHz	Ultra-high (88.2 kHz+ sample rates only)

AIR GAIN

Controls the amount of Air Band boost (0–10). At 0, no air boost is applied. Higher values add increasing high-frequency lift.

Pro Tip: Start with Air Band at 10K, Air Gain at 3-4. Adjust frequency based on source material — lower for dense material, higher for sparse arrangements.

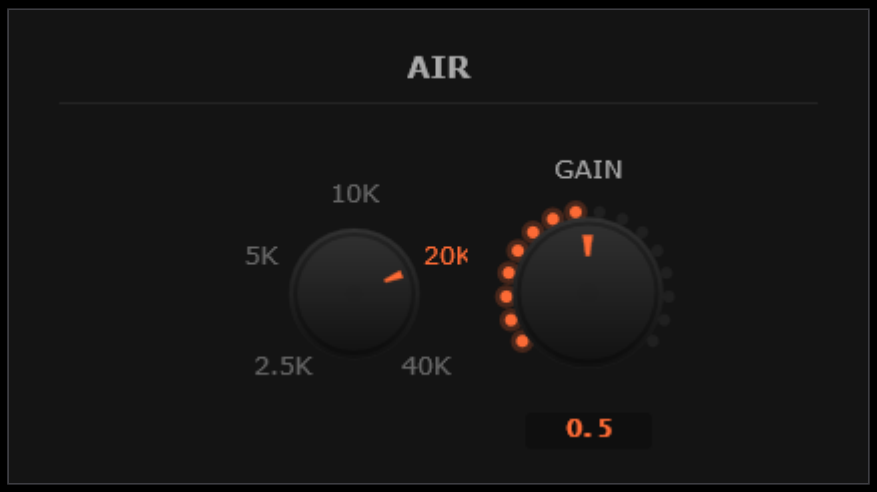

FIG. 3 — AIR BAND: FREQUENCY SELECTOR (2.5K / 5K / 10K / 20K / 40K) AND GAIN KNOB

Sample Rate Note: At 44.1 kHz and 48 kHz, the 40K position is clamped to 90% of Nyquist. For full 40K shelf behaviour, use 88.2 kHz or higher sample rates.

06. BREAK MODE

Break mode is an alternative voicing engine with its own colour and tilt character. It's a simple toggle switch on the dashboard (labelled **BREAK**, next to Trim in the Output section) — no menu dive, no Advanced panel.

STATE	BEHAVIOUR
Break OFF	Standard voicing. The five bands plus Air Band operate as the complementary filter bank described above. Flat when all bands are equal.
Break ON	Alternative voicing engine takes over with its own colour and tilt fingerprint. Same five knobs + Air Band drive the sound, but the tonal response changes character — denser, more aggressive, less linear.

When to use it: Break mode is for when you want tonal coloration *on top of* the EQ shape. Especially useful on drums, bass, and lo-fi-leaning material where you want the EQ to push back rather than stay clean. The "Lo-Fi Crunch" factory preset engages Break mode by default.

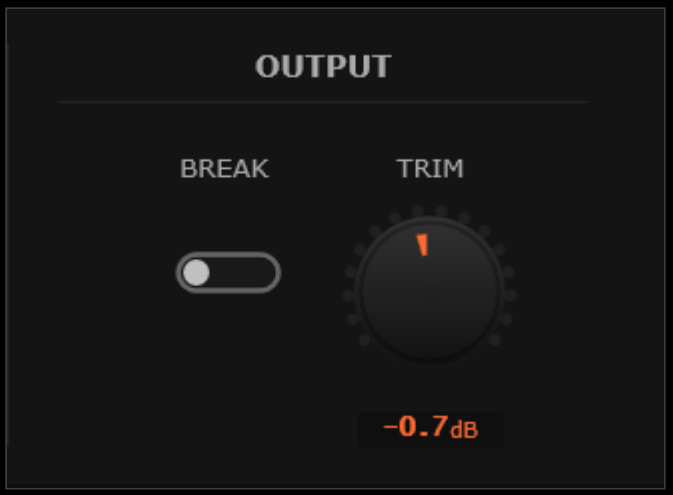

FIG. 4 — OUTPUT SECTION: BREAK TOGGLE AND TRIM KNOB

07. OUTPUT & BYPASS

TRIM

Output level adjustment, −12 dB to +12 dB. Use to match bypass level after EQ boosts or cuts, or to compensate for broadband gain when all bands are lifted together.

BYPASS

Bypass is the **power button in the top-right of the header**. If the header power button is hidden, use the host/DAW bypass control instead. The plugin reports 0 samples of latency — no delay compensation needed. Use Trim above to level-match before/after for level-matched A / B comparison.

STATE	BEHAVIOUR
`Power OFF (bypass)`	Input passes directly to output. No filtering, no trim.
`Power ON`	Full EQ processing active.

A / B comparison tip: Before comparing bypassed vs. processed, use Trim to match perceived loudness. Louder can be perceived as better — match levels first for a level-matched comparison.

08. SETTINGS PANEL

Opened from the gear icon in the Header. Holds plugin-global preferences that live outside the main dashboard.

AUDIO ENGINE

SETTING	BEHAVIOUR
DC Blocker	Removes DC offset and very-low-frequency build-up on the output path.
Clip Latch	How long the CLIP indicator stays lit after a peak.
Corr. Speed	Correlation-meter response time (faster = more reactive, smoother = more readable).

PREFERENCES

SETTING	BEHAVIOUR
Accent Color	Eight-swatch accent colour picker for the UI.
Theme Mode	Dark or Light theme.
Show Power Button	Show or hide the header power button.
Tooltips	Show explanatory tooltips on hover for controls.
License	Displays activation status and the licensed-to email hash.

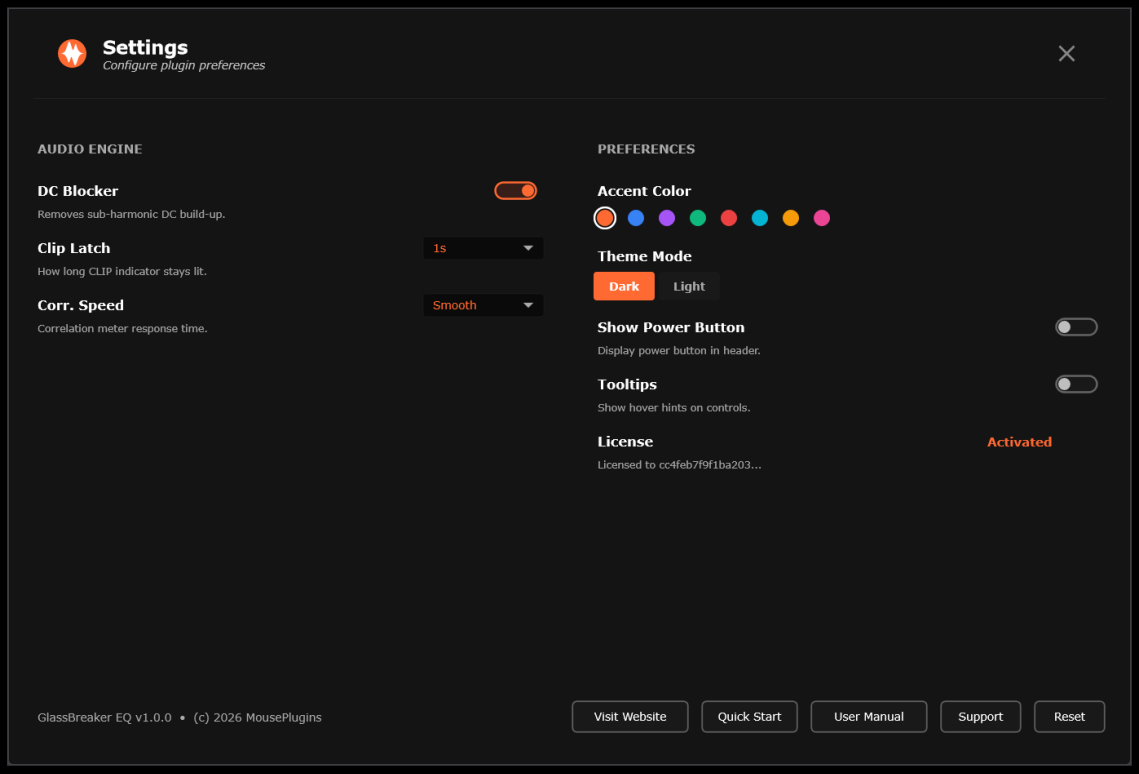

FIG. 5 — SETTINGS PANEL: PLUGIN-GLOBAL PREFERENCES

09. PRESETS PANEL

Accessed via the **presets icon** in the header.

FACTORY PRESETS

PRESET	DESCRIPTION
`Flat`	All bands centered, no EQ. Starting point or reference.
`Vocal Presence`	Mid-forward with gentle air lift — 160 dipped slightly, 650 and 2.5K lifted, Air Gain at 10K.
`Bass Boost`	Sub and 40 Hz lifted, 2.5K trimmed. Foundation for bass-forward material.
`Bright & Airy`	High-shelf air (20K) with a gentle 2.5K push. Shimmer with broad high-frequency lift.
`Smiley Curve`	Scooped mids, boosted lows and highs. Scooped-mid V-shape voicing.
`Lo-Fi Crunch`	Heavy tilt with **Break mode** engaged. 160 Hz push, 2.5K cut, Air Band at 2.5K. Pushed, coloured, lo-fi.

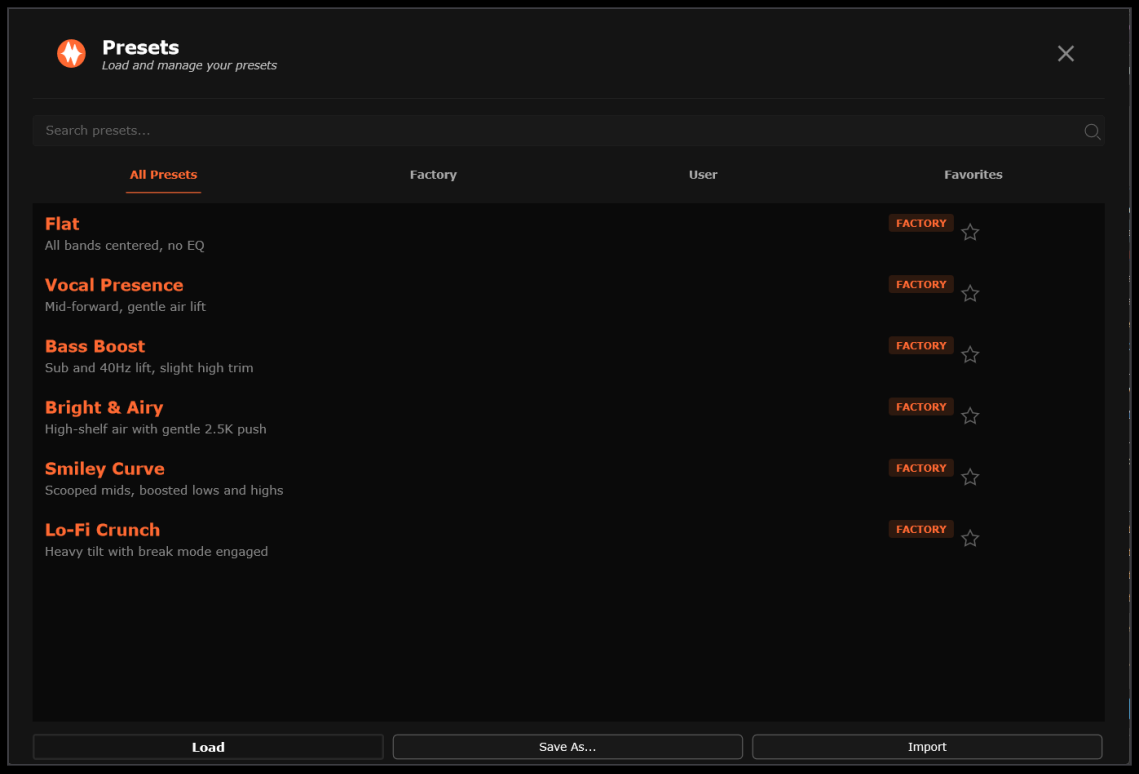

FIG. 6 — PRESETS PANEL: BROWSE, LOAD, SAVE AND MANAGE PRESETS

10. LICENSING

OFFLINE LICENSING

GlassBreaker EQ uses **offline cryptographic validation (Ed25519)**. Your license key works without an internet connection for normal plugin use. Click the license badge in the header to open the activation flow.

DEMO MODE

Fully functional with periodic **0.5s noise bursts** every 60 seconds. **Noise bursts will be printed in renders/exports.**

> **Important:** Use the **Paste** button in the licensing panel to enter your key. Ctrl+V is not supported in the key field.

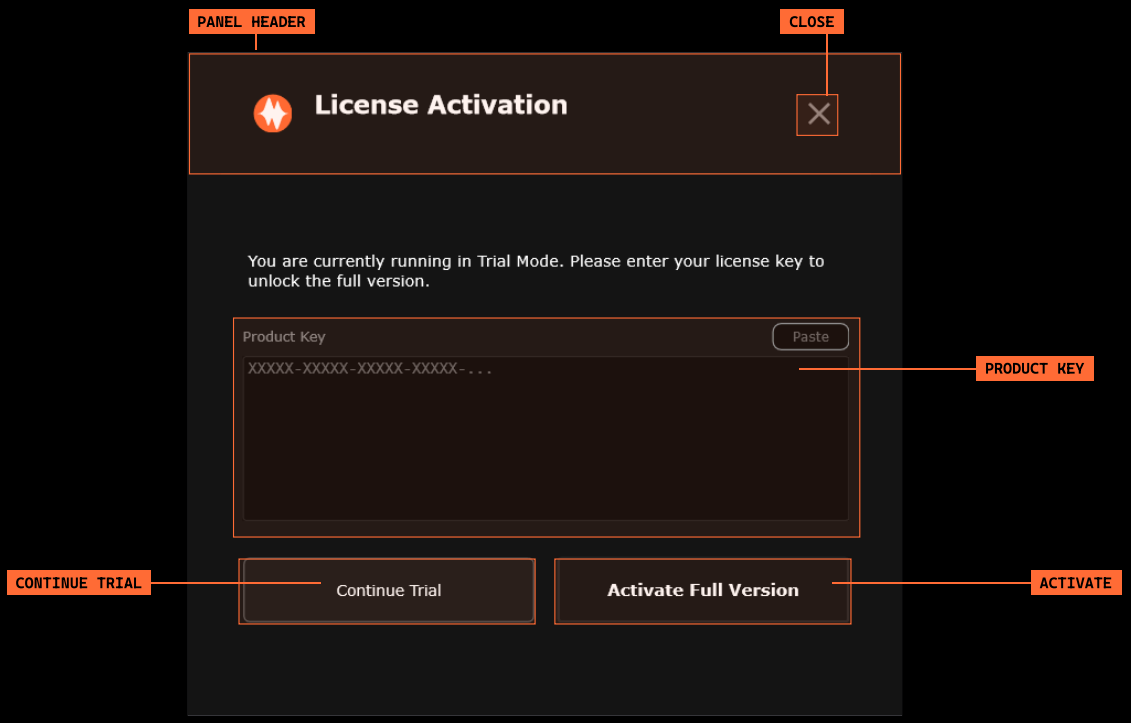

FIG. 7 — LICENSING PANEL (CLICK THE LICENSE BADGE IN THE HEADER)

11. SIGNAL CHAIN RECOMMENDATIONS

Option A: Clarity Polish (Recommended)
Source → **GlassBreaker EQ** → mix bus
Use Air Band (10K–20K) at moderate gain for presence and openness.

Option B: Low-End Foundation
Kick / bass track → **GlassBreaker EQ** → compressor
Boost Sub and 40 Hz before compression to add controlled weight.

Option C: Full Spectrum Sculpt
Source → **GlassBreaker EQ** (broad boosts) → surgical EQ (targeted cuts)
Use GlassBreaker EQ for broad tonal lifts, follow with narrow surgical cuts.

STARTER VALUES

PARAMETER	SAFE START	PUSH IT	DANGER ZONE
Sub	0 (center)	+3	+5 (boomy)
40 Hz	0 (center)	+3	+5 (muddy)
160 Hz	0 (center)	+2	+4 (boxy)
650 Hz	0 (center)	+2	+4 (honky)
2.5 kHz	0 (center)	+2	+4 (harsh)
Air Gain	0	5	8+ (sibilant)

Anti-Patterns:

- Don't boost Sub and 40 Hz together above +3 — headroom problems.
- Don't bypass-compare without level-matching — louder sounds better.
- Don't use Air Band 40K at 48 kHz — it's clamped near Nyquist.