



User Manual

Studio-hardware-style hum synthesis with drift, ripple, and noise-floor texture.

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

01. INTRODUCTION

StudioHum adds a controlled layer of mains-synchronous hum, transformer-style buzz, and background noise to digital recordings. The complete absence of background noise in digital recordings can make mixes sound static; this controlled imperfection adds low-level movement and texture.

KEY FEATURES

- Hum synthesis with transformer-style harmonic profiles.
- Region selection for 50 Hz or 60 Hz.
- Three character profiles representing different hum-source behaviours.
- Live spectrum analyzer with 4 traces (IN, HUM, OUT, DIFF).
- Reports 0 samples of latency. Offline cryptographic validation.

02. INSTALLATION

StudioHum 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

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)

Linux paths vary by distro. Check your DAW's plugin scan settings.

WHY NO MACOS?

macOS distribution that works smoothly for most users 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

StudioHum's interface is organized top-to-bottom. The default window is 1100 × 750 pixels. The UI is resizable — use the zoom control in the Status Footer, and the chosen scale is remembered per DAW project.

SECTION	DEFAULT HEIGHT	PURPOSE
Header Strip	54 px	Logo, power, licensing, and panels.
Telemetry Strip	40 px	Live metering and mains lock.
Spectrum Graph	Flexible	4-trace live analyzer.
Dashboard	200 px	3-column primary control surface.
Status Footer	32 px	CPU, latency, system data, and UI scaling.

Heights scale proportionally with the zoom setting. Values shown are at 100%.

STATUS FOOTER

The status bar runs along the bottom of the window. Left side shows live diagnostics; right side provides UI scaling controls.

ITEM	DESCRIPTION
CPU	Plugin CPU load as a proportion of the current audio buffer budget.
Latency	Reported latency in samples. StudioHum reports 0 samples of latency — this reads 0 smp.
OS	Internal processing status shown by the plugin. Informational only.
SR	Current host sample rate in kHz.
v1.0.0	Plugin version number.
– 100 +	UI scale control. Click — or + to decrease or increase the window scale. The number shows the current scale percentage (default: 100). Keyboard shortcuts: Ctrl + — to scale down, Ctrl + + to scale up.



FIG. 1 – INTERFACE OVERVIEW: FIVE FUNCTIONAL ZONES

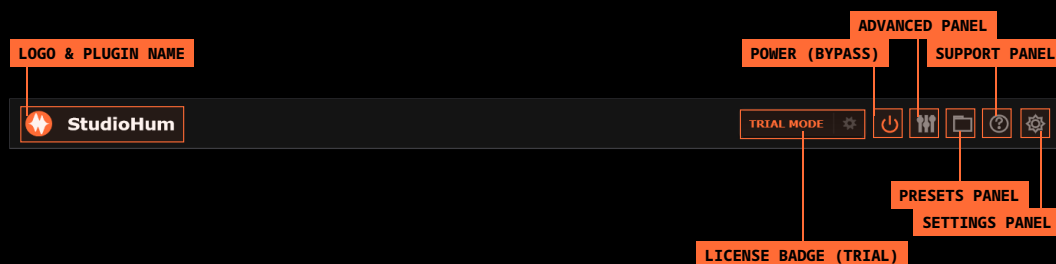


FIG. 2 – HEADER STRIP: LOGO, LICENSE BADGE, POWER, AND PANEL BUTTONS

04. TELEMTRY STRIP

Divided into three cells for live diagnostics.

- **Mains Cell:** Displays locked status and current region (50Hz/60Hz).
- **Dynamics Cell:** Vertical stack showing **HUM** RMS and **OUT** RMS levels.
- **Correlation Cell:** Arc-style meter showing stereo phase relationship.



FIG. 3 – TELEMTRY STRIP: MAINS LOCK, DYNAMICS LEVELS, STEREO CORRELATION

05. SPECTRUM GRAPH

Provides a live frequency-domain view from 20 Hz to 20 kHz on a logarithmic scale.

TRACE	COLOR	DESCRIPTION
IN	Dim accent	Raw input signal before processing.
HUM	Medium accent	The isolated hum signal generated by the engine.
OUT	Bright accent	Final combined output signal (Input + Hum).
DIFF	Blue	Magnitude of the difference between OUT and IN per FFT bin (floored to a minimum level). Highlights what StudioHum adds.

Pro Tip: Use the **DIFF (Blue)** trace to see how much energy is being added to a busy mix.

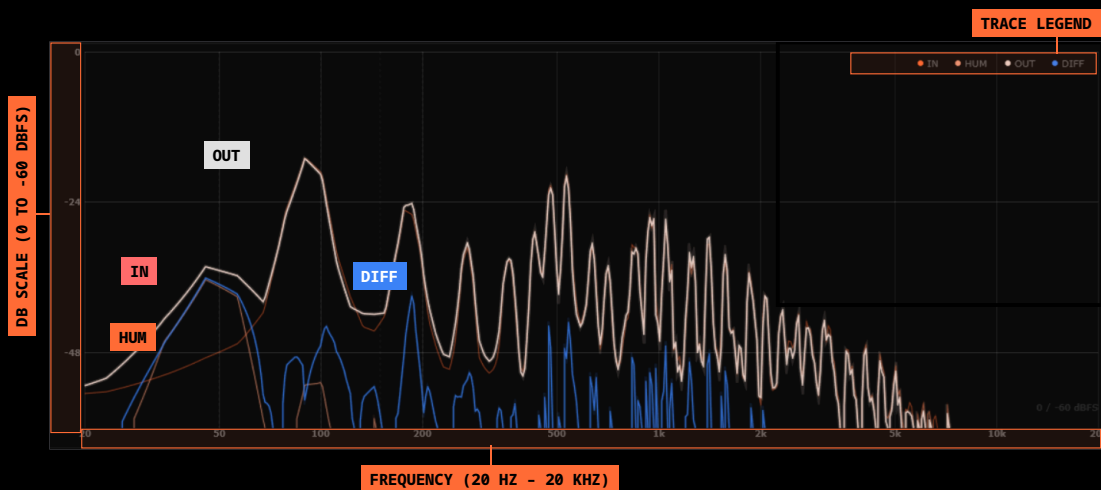


FIG. 4 – SPECTRUM GRAPH: TRACES, SCALES, AND FREQUENCY RANGE

06. DASHBOARD CONTROLS

MAINS & CHARACTER

Region: Toggles fundamental frequency between 50 Hz (EU/UK) and 60 Hz (US).

CHARACTER	DESCRIPTION
Console Iron	Even-harmonic dominant — strong H2, weak H3. Rounded and low-harmonic focused.
PSU Buzz	Multi-harmonic — H2, H3 and H4 all strong, plus pronounced mains ripple. Edgy, gritty.
Open Frame	Lighter harmonic content, fundamental-forward. Thin, airy, raw.

MASTER HUM LEVEL

Large LED ring knob controlling overall intensity from -60 dB to 0 dB.

STONE & SPATIAL

- **Brightness:** Spectral tilt emphasizing or rolling off high harmonics.
- **Warmth:** Boosts fundamental and low harmonics (H1-H4).
- **Spread:** Stereo decorrelation.

OUTPUT

Bipolar trim applied *after* the hum is mixed with the input — ± 12 dB, centre = 0 dB. Use it to level-match the output to bypass, or to pull the overall signal back after a heavy Hum Level boost.

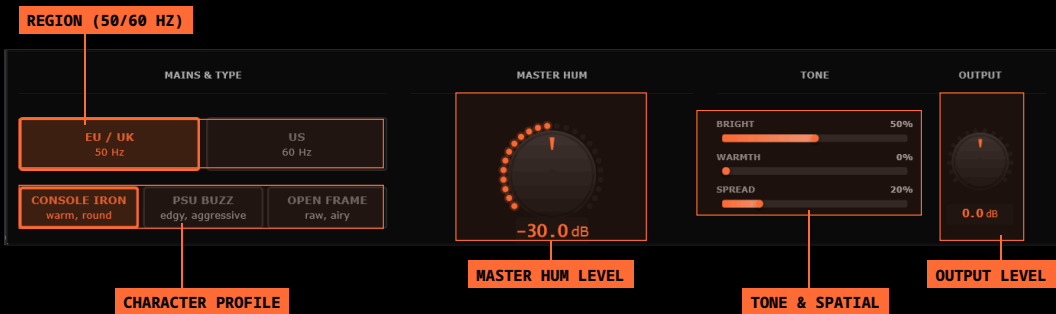


FIG. 5 – DASHBOARD CONTROLS: REGION, CHARACTER, HUM LEVEL, STONE, AND OUTPUT

07. ADVANCED PANEL

CONTROL	DEFAULT	EFFECT
Hash	20%	Diode switching noise / buzz.
Ripple	30%	100Hz/120Hz power supply rectification pulse.
Mismatch	10%	Adds controlled channel imbalance.

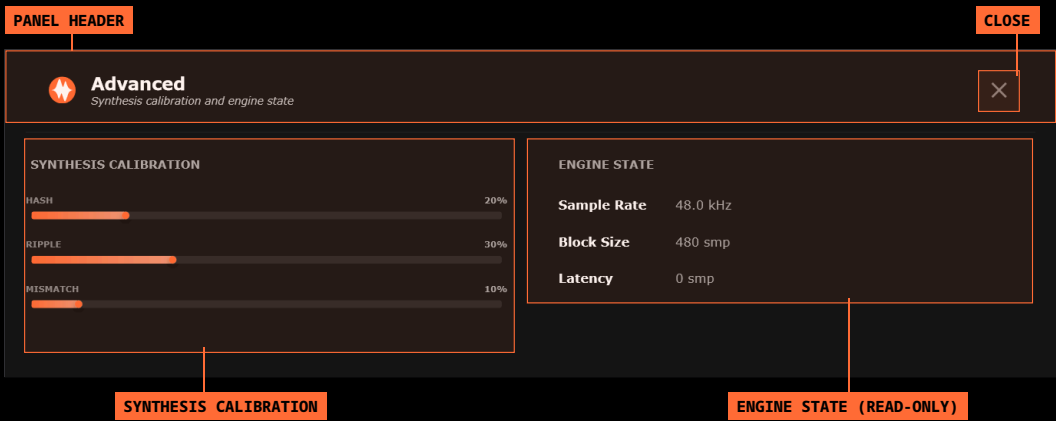


FIG. 6 – ADVANCED PANEL: SYNTHESIS CALIBRATION AND ENGINE STATE

08. SETTINGS PANEL

Accessed via the **gear icon** in the header. Settings are saved to disk and persist across DAW sessions. Project saves store plugin state; the Settings panel controls global UI and behavior preferences.

AUDIO ENGINE

CONTROL	TYPE	DEFAULT	EFFECT
DC Blocker	Toggle	ON	Removes DC offset and very low-frequency drift from the hum signal.
Clip Latch	Dropdown	1s	How long the CLIP indicator stays lit (500ms / 1s / 2s).
Corr. Speed	Dropdown	Smooth	Correlation meter response time (Fast / Smooth).

PREFERENCES

CONTROL	TYPE	DEFAULT	EFFECT
Accent Color	8 swatches	Orange (default)	Choose UI accent: Orange, Blue, Purple, Green, Red, Cyan, Yellow, Pink.
Theme Mode	Radio	Dark	Switch between Dark and Light themes.
Show Power Button	Toggle	ON	Show or hide the power (bypass) button in the header for minimal UI or mastering chain safety.
Tooltips	Toggle	OFF	Show explanatory tooltips on hover for controls and abbreviations.

Reset: The footer **Reset** button restores all settings to factory defaults. **Visit Website**, **User Manual**, and **Quick Start** links open in your default browser.

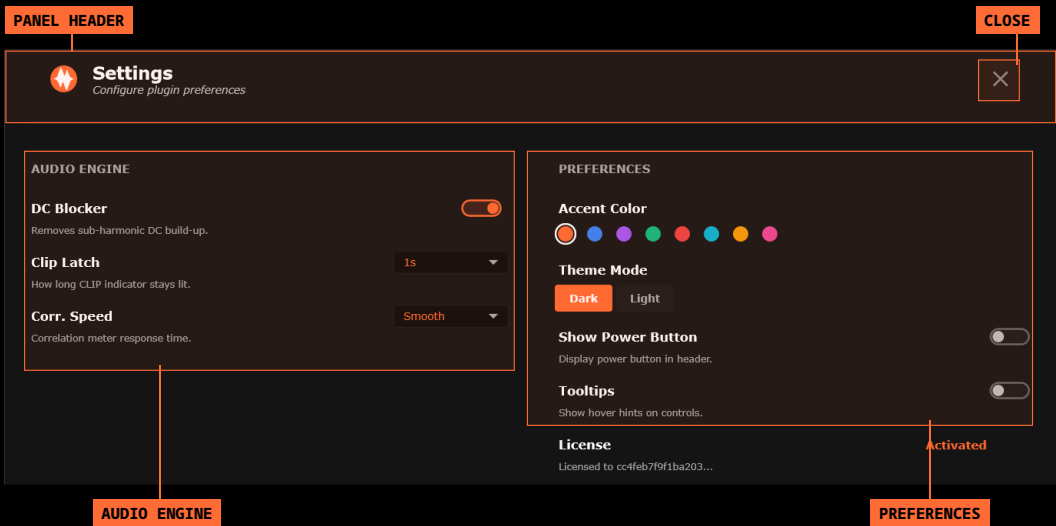


FIG. 7 – SETTINGS PANEL: AUDIO ENGINE AND PREFERENCES

09. PRESETS PANEL

Accessed via the **presets icon** in the header. Browse, search, and manage presets.

NAVIGATION

- **Search Bar:** Filter presets by name as you type.
- **Category Tabs:** All, Factory, User, Favorites.
- **Single-click** to select, **double-click** to load immediately.
- **Star icon** on each preset toggles favorite status.

FACTORY PRESETS

PRESET	CHARACTER	HUM LEVEL	DESCRIPTION
Console Bed	Console Iron	-38 dB	Gentle "there's a box running" vibe — invisible until you bypass it.
PSU Buzz	PSU Buzz	-30 dB	Audible power supply attitude without HF sandpaper.
Broadcast Snow	Open Frame	-34 dB	Lo-fi air and hash noise bed for texture.

Presets store all sound parameters (Character, Hum Level, Tone, Spatial, Advanced). Region is excluded.

ACTIONS

- **Load:** Apply the selected preset.
- **Save:** Save current settings as a new User preset.
- **Import:** Not available in v1.0.0.

Note: Loading a preset does **not** change your Region (50/60 Hz) setting. Set Region to match your mains frequency (or choose creatively).

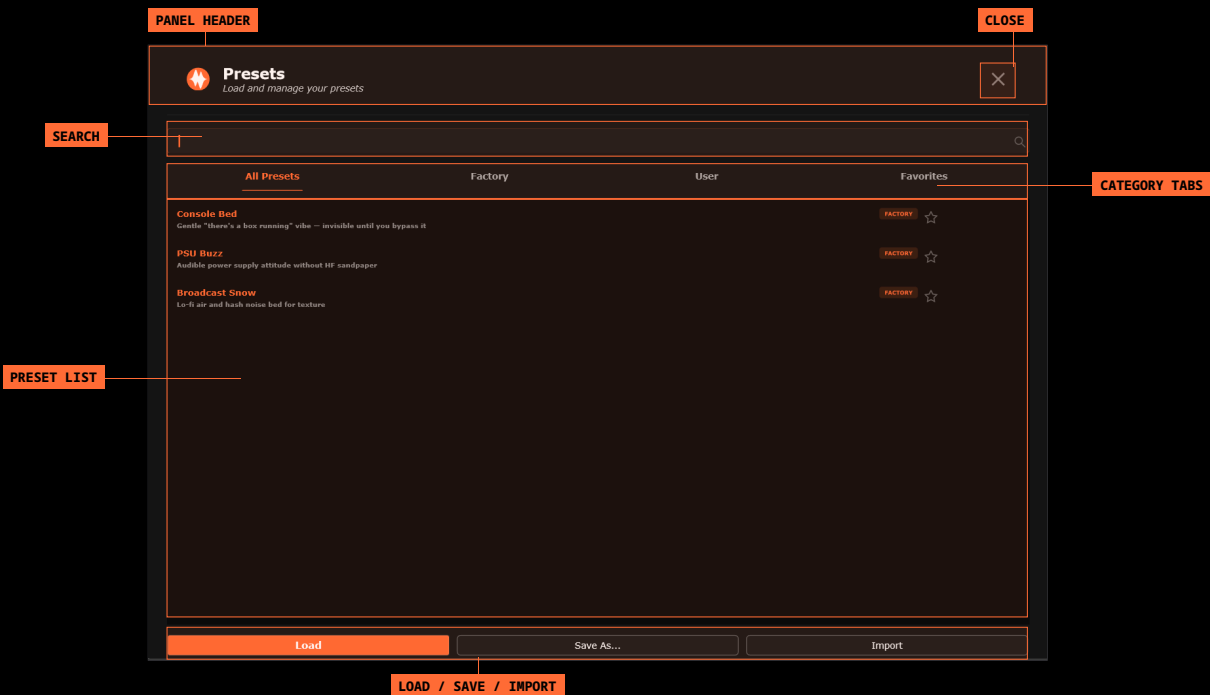


FIG. 8 — PRESETS PANEL: SEARCH, CATEGORIES, PRESET LIST, AND ACTIONS

10. SUPPORT & DIAGNOSTICS

Accessed via the **? icon** in the header. Provides system and plugin information for troubleshooting. Diagnostics are generated locally. Exporting or contacting support is user-initiated.

ACTIONS

BUTTON	DESCRIPTION
Copy Diagnostics	Copies a full diagnostics report to the clipboard. Button confirms with "Copied!" for 1.5 seconds.
Save Diagnostics (.txt)	Saves a plain text diagnostics report. You choose the location.
Contact Support	Opens the MousePlugins support page in your default browser.
Copy Email	Copies the support email address to the clipboard.

SELF-RESCUE

BUTTON	DESCRIPTION
Reset UI Settings	Clears all UI preferences immediately with no confirmation. Use to recover from a broken layout.
Reset DSP Parameters	Resets all audio parameters to defaults after a confirmation prompt. Changes the sound.
Open Config Folder	Reveals the plugin configuration folder in your system file explorer.
User Manual	Opens this manual in your default browser.
Quick Start	Opens the Quick Start guide in your default browser.

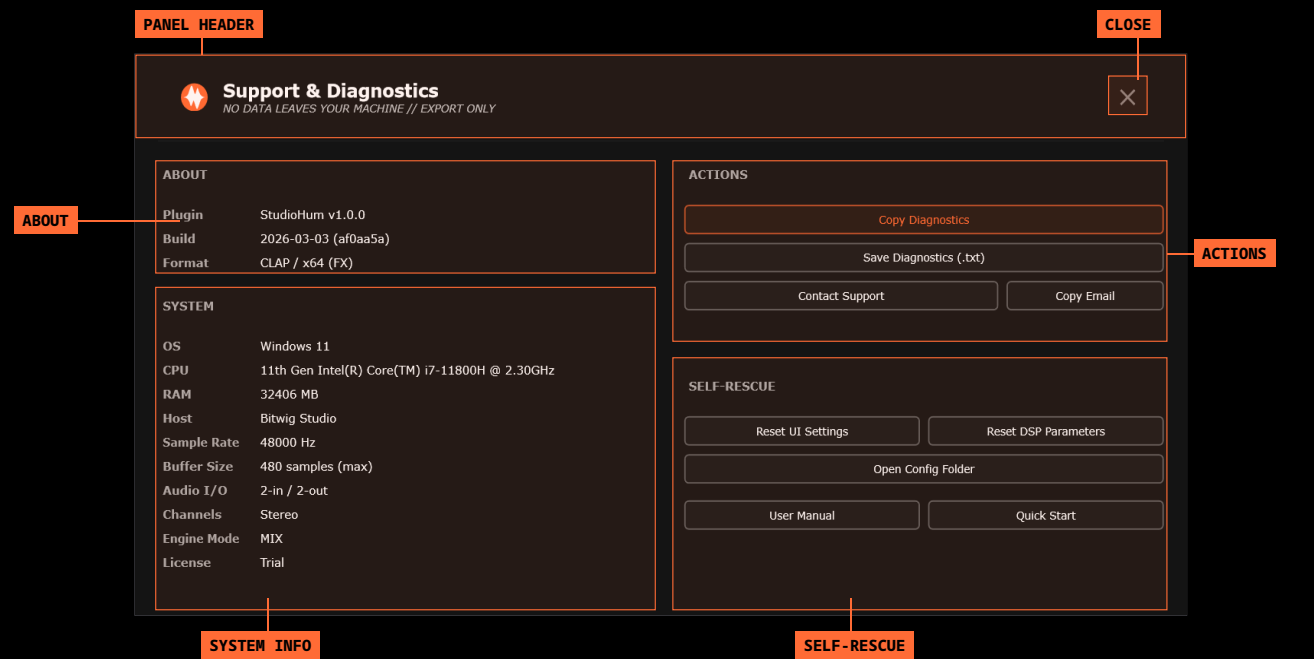


FIG. 9 – SUPPORT & DIAGNOSTICS PANEL: ABOUT, SYSTEM INFO, ACTIONS, AND SELF-RESCUE

11. LICENSING

StudioHum uses **offline cryptographic validation (Ed25519)**. Your license key works without an internet connection for normal plugin use.

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

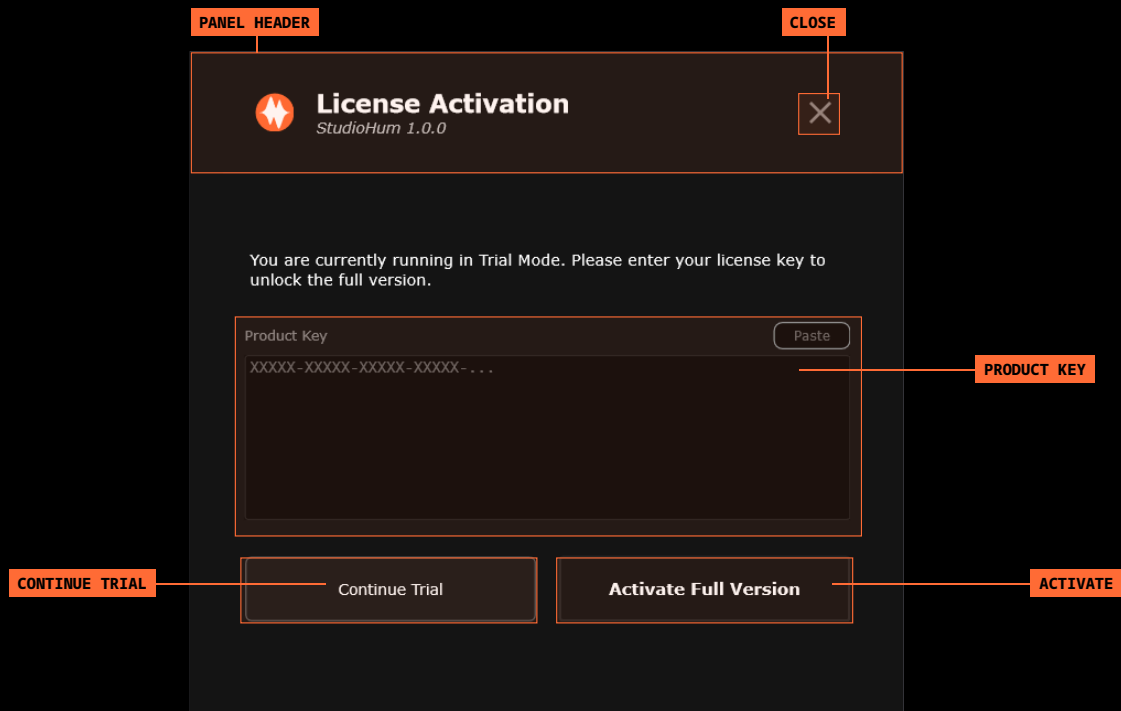


FIG. 10 – LICENSING PANEL: PRODUCT KEY ENTRY AND ACTIVATION

12. DEMO MODE

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

13. SIGNAL CHAIN RECOMMENDATIONS

Option A: Clean Bed (Recommended)

Mix bus (late): your EQ / compression → **StudioHum** → final colour stage
Place StudioHum late in the chain so its hum layer feeds the final colour stage.

Anti-Pattern: Avoid placing StudioHum before a gate. The hum can keep the gate open or cause chatter.

Note: If placed after a gate, the hum can remain audible during gated silence because the gate will not remove it.

APPENDIX: CHARACTER PROFILES

Measured harmonic levels, relative to the fundamental (H1), with Hum Level = -18 dBFS, Region = 50 Hz, and neutral Tone/Advanced settings. Brightness, Warmth, Hash and Ripple shift these values in predictable directions.

CHARACTER	H2 REL (DB)	H3 REL (DB)	H4 REL (DB)	SIGNATURE
Console Iron	+12.3	-2.0	+6.2	Even-harmonic dominant — rounded, low-harmonic focused
PSU Buzz	+13.3	+5.0	+9.1	H2/H3/H4 all strong — edgy, gritty
Open Frame	+7.3	-1.0	+3.2	Lighter harmonic content — thin, airy

Note: H2 sits above H1 on all three characters at neutral settings. This reflects the asymmetric behaviour of iron-core and transformer-style hum sources, where even-harmonic content can exceed the fundamental. Raising Warmth lifts H1 and the lower harmonics; raising Brightness emphasises the upper harmonics.

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