P422 FAIRUZ

The Vintage Resonance EQ That Never Existed

User Guide – Version 2.0.0

PULSAR MODULAR

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Preface

Fairuz [Fay-rooz] is the Arabic word for turquoise, a stone long associated with wisdom, balance, and artistic inspiration. The ancient Persians called it "Pirouzeh": victory. A fitting name for a tool designed to bring out the best in whatever it touches.

P422 Fairuz does not emulate any existing hardware. Every frequency point, every gain step, every curve has been designed by ear to serve one purpose: to make your instruments sound more like themselves, only better.

Fairuz's roots go back to the API 550 equalizer, designed by Saul Walker in the late 1960s and built into the console strips that shaped decades of recorded music. At the heart of that sound is one component: the API 2520, a proprietary discrete op-amp whose punch, warmth, and headroom under pressure defined the sound of an era. That same op-amp character runs through every band in Fairuz. Fairuz takes that foundation and pushes it further, adding dimensions of tonal control and creative range that the original hardware never offered.

"Michelangelo once said, 'The sculpture is already complete within the marble block before I start my work. It is already there. I just have to chisel away everything that is not the sculpture.'"

Every instrument you record carries its own natural resonance, its own richness, its own voice. Fairuz does not impose a sound upon your music. It reveals the sound that was already there, waiting. When you reach for a shelf filter, a Contour band, or the Hammer circuit, you are not simply adding or removing frequencies. You are sculpting space for what already exists to breathe and be heard.

You are not boosting and cutting. You are sculpting.

This philosophy runs through every control on the plugin, from the broadest tonal gesture to the finest harmonic detail. Understanding it is the key to getting the most from Fairuz, and to hearing what your music has been trying to say all along.

Ziad Sidawi
Audio Equipment Designer & CEO
Pulsar Modular

1. Signal Chain Overview

Understanding the order in which Fairuz processes your signal helps you make better creative decisions. Here is the complete path your audio takes through the plugin:

1.1 HPF POST Output Stage (default)

```
Input → TREMOR → VOICE → 4 EQ Bands → L-Shelf  → H-Shelf → LPF → OUT → Hammer
→ HPF → MIX → Trim Out →
```

1.2 HPF PRE Output Stage

```
Input → TREMOR → VOICE → 4 EQ Bands → L-Shelf  → H-Shelf → LPF → HPF→ OUT →
Hammer → MIX → Trim Out →
```

TREMOR sits at the very beginning of the chain, before the four EQ bands. This is intentional: the sub-bass energy TREMOR generates flows into and excites the EQ bands that follow, creating a more lively and musical interaction between the low-end foundation and the midrange shaping.

The filter-order switch changes the position of the HPF relative to the OUT → Hammer block. LPF remains after the four EQ bands and before the HPF.

- **Pre:** EQ → LPF → HPF → OUT → Hammer
- **Post:** EQ → LPF → OUT → Hammer → HPF

The MIX knob at the top right blends the fully processed wet signal with the original dry signal, enabling parallel processing without any additional routing in your DAW.

2. Getting Started

If you want to hear what Fairuz does before reading another word, try these approaches:

2.1 Instant warmth on any instrument

- Load Fairuz on a guitar, piano, or vocal track
- Enable the Hammer circuit using the transformer icon in the toolbar
- Slowly turn the OUT knob clockwise
- Notice the low-mid body that arrives, bringing warmth without muddiness

2.2 Instant presence and punch on a snare or vocal

- Set the HI-MID band to Contour mode using the middle waveform icon
- Boost the gain slider to taste
- The Contour automatically sculpts a complementary shape, adding presence without harshness

2.3 The Play-Dough low-end method

Think of TREMOR as play-dough for your low end. Add the foundational weight first with TREMOR, then sculpt the shape with LOW band attenuation to remove boom and keep the lift focused. Finally, set the HPF to define the floor and decide whether it sits before or after the Hammer for headroom versus character.

- Move the TREMOR slider right until the low end feels supported and grounded
- Apply LOW band attenuation at a nearby frequency to remove excess boom
- Set the HPF to tighten the floor and control rumble
- Choose HPF position relative to the output stage for the low-end character you want

This method produces more controlled and repeatable low end than trying to do everything with a single bell or shelf move.

3. VOICE: Setting the Tonal Stage

Before you touch a single EQ band, VOICE sets the character of what enters Fairuz. It is not just a broad tilt control. VOICE is the input transformer stage, with gain compensation built around it.

Think of it this way:

Lower VOICE settings keep the path cleaner, deeper, and more relaxed. Higher VOICE settings push the source forward, increase harmonic activity, and make the signal feel firmer before it reaches the EQ bands, filters, and Hammer.

- **Clockwise (+100):** More forward, more harmonically active, more assertive at the input stage.
- **Center (0):** Neutral transformer drive. A balanced starting point.
- **Counterclockwise (−100):** Cleaner, deeper, more relaxed presentation with less harmonic push.

3.1 Practical examples

- Vocal sitting too far back in the mix? A gentle clockwise nudge on VOICE can bring it forward before you touch the EQ bands.
- Acoustic guitar already bright enough but lacking conviction? Increase VOICE slightly for more firmness without reaching straight for top-end EQ.
- Need more depth and less push on a dense source? Back VOICE down and let the rest of the circuit work from a cleaner starting point.

VOICE is the input transformer stage. Hammer is the output transformer stage. Used together, they let you decide both how the signal enters the EQ and how it leaves the plugin.

3.2 VOICE and Hammer: Input vs. Output Transformer

When the Hammer is engaged, VOICE and OUT become a two-dimensional control over the transformer character of the plugin. VOICE controls how hard the input transformer is driven. OUT controls how hard the output transformer (Hammer) is driven. TRIM OUT compensates for level changes so you can judge the tonal result honestly.

This creates three distinct staging approaches:

Push-pull (open, airy, harmonically rich): Increase VOICE to push the input transformer, generating harmonic activity and openness at the input stage. Pull OUT back to keep the output transformer clean, preserving transient snap. Compensate with TRIM OUT. The input transformer provides the character; the output transformer preserves the dynamics. This is the approach to reach for when you want a source to feel more present and alive without losing definition.

Starve (transient clarity, snappy, defined): Pull VOICE to its most negative setting to keep the input transformer completely relaxed. Set OUT to its minimum and compensate with maximum TRIM OUT. The Hammer circuit remains in the signal path, contributing its transformer topology, but both stages are barely engaging their nonlinearities. The result is maximum transient preservation with just a whisper of transformer character. Use this on close-miked drums, plucked instruments, or any source where attack definition matters more than warmth.

Drive-out (warm, dense, saturated): Keep VOICE low or negative for a clean, relaxed input stage, then drive OUT positive to push the output transformer hard. Compensate with TRIM OUT. The Hammer does the heavy lifting, adding warmth, density, and low-mid body from the output transformer while the input stays transparent. This is the approach for sources that need weight and saturation character, where the warmth should feel baked in rather than added on top.

The key principle: when Hammer is on, always consider what each transformer stage is contributing. If you drive both VOICE and OUT hard simultaneously, both transformers saturate and transients can lose their edge. That may be exactly what you want on an aggressive guitar lead, but on a vocal or a mix bus it can cost you clarity. Controlling each stage independently is what gives Fairuz its range.

4. The Four EQ Bands

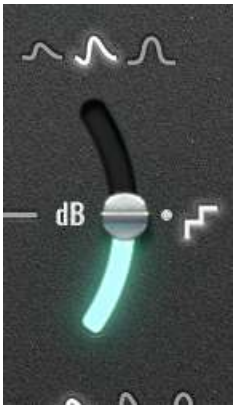
Fairuz provides four bands of equalization: LOW, LO-MID, HI-MID, and HIGH. Each covers its frequency region with three distinct filter shapes, stepped or continuous frequency selection, and a visual feedback system that tells you what the band is doing at a glance.

4.1 Frequency Ranges

Band	Frequency Range
LOW	20Hz – 400Hz
LO-MID	70Hz – 1,000Hz
HI-MID	800Hz – 11,500Hz
HIGH	2,500Hz – 18,000Hz

Each band can operate in stepped or continuous mode, switched by the staircase icon next to the frequency dial. Both modes cover the same frequency range.

4.2 Band Controls



- **Large center knob:** Sets the center frequency of the band.
- **Gain slider (right side):** Boosts or cuts up to ±12 dB. The small dot marks 0 dB, your visual anchor for neutral.
- **Staircase icon:** Switches between stepped (designer-curated sweet spots) and continuous (full range freedom) frequency control.
- **Three waveform icons:** Selects the filter shape: Contour, Contour X2, or Bell (Peak).

4.3 Stepped vs. Continuous Frequency

Every stepped frequency point on Fairuz was selected by ear for its musical usefulness. These are not arbitrary divisions. They are the specific frequencies where instruments actually live and where boosts and cuts sound most natural. A stepped value may even land on a fractional Hz value that a conventional continuous control would never precisely hit.

The stepped frequency choices on the HI-MID and HIGH bands also reflect deliberate Presence voicing decisions. In the HIGH band, 7–8 kHz can exaggerate vocal S/T consonants and make hats sound pokey at moderate boosts. Default to 6 kHz for presence, then jump to 9 kHz when you want sheen or air. Use 7 kHz only when the source tolerates it.

Switch to continuous mode when you need to chase a specific resonance or problem frequency that the stepped positions do not precisely reach.

4.4 The Three Filter Shapes

4.4.1 Bell (Peak)

A proportional Q bell filter. The harder you boost or cut, the narrower and steeper the curve becomes. Gentle boosts are wide and musical. Large boosts are focused and precise. The most familiar EQ shape. At gentle settings it handles broad tonal moves; at larger boosts or cuts, the proportional Q narrows it into a precision tool for targeted problem frequencies.

4.4.2 Contour

This is where Fairuz begins to think differently. Contour mode is inspired by the classic Pultec trick, where engineers would simultaneously boost and cut the same frequency band to create a focused, punchy result with a natural dip that made the boost feel more controlled and musical.

With Fairuz Contour, you do not need two separate filters. You simply boost, and the complementary sculpting happens automatically. Each band's Contour shape has been individually optimized for its frequency region: what sounds musical at 80 Hz is not the same as what sounds musical at 3 kHz, and the curves reflect that.

The result is a boost that feels focused and punchy rather than broad and vague. The surrounding frequencies are gently managed, keeping the mix from getting congested while the targeted frequency steps forward.

Because of the complementary sculpting, the effective peak of a Contour boost sits slightly above the frequency shown on the dial, while the dip sits below it. This means a Contour boost at 3 kHz on the HI-MID band does not peak at 3 kHz; it peaks higher, in the 3.5 to 4 kHz region, while clearing the 1 to 2 kHz range underneath. This is by design: the dial sets the center of the sculpting region, not the peak. The upper bands (HI-MID, HIGH) have more pronounced peak shift and deeper dips than the lower bands (LOW, LO-MID), where the sculpting is gentler and more controlled to suit the behavior of low-frequency content.

4.4.3 Contour X2

The same concept as Contour but more aggressive. The complementary shaping is deeper and more pronounced. Use Contour X2 when you want a bold, dramatic sculpting effect: a kick drum that really thumps, a vocal that really cuts through.

Contour X2 has roughly 50% more peak-to-dip contrast than Contour at the same gain setting. On the HI-MID band at +6 dB, Contour produces about 7 dB of peak-to-dip separation; Contour X2 produces about 10 dB. The actual peak gain of a Contour X2 boost is also higher than the dial value suggests, because more energy is redistributed into the focused peak. This makes Contour X2 a fundamentally different move from a louder Bell boost: the total energy may be similar, but the sculpted shape around it is not.

> **Tip:** *For removing an unwanted resonance without losing the frequencies around it, cut with Bell while boosting on either side with Contour or Contour X2. The Bell removes the problem while the Contour bands enhance and protect what surrounds it.*

5. The Hidden Power: Band Saturation Mode

Every EQ band on Fairuz contains an op-amp, the same class of circuit found in legendary API recording consoles. Engineers discovered that pushing these op-amps hard produces a distinctive, harmonically rich coloration that became one of the most sought-after sounds in recording history. On a conventional EQ you can only access that character by boosting a band 6dB or more. Below that threshold, the saturation is minimal.

Fairuz gives you direct access to this character without needing to change your EQ curve at all.

5.1 How It Works

Each band has a small LED indicator next to its label. When the LED is lit, the band is active as an EQ filter. Click the LED to turn the band off. The EQ curve disappears, but the band stage stays in circuit. The gain control now biases the op-amp character around that selected region instead of changing the frequency response.

Now the gain slider controls saturation directly, with no frequency boost or cut in your mix:

- **Positive gain (above the dot):** increases op-amp character around that band's selected frequency region. This is color and drive, not an EQ boost.
- **At the dot (0 dB):** neutral baseline. The stage is still present, but not being intentionally biased toward extra color or extra cleanliness.
- **Negative gain (below the dot):** moves that region toward the cleaner, more hi-fi end while the stage remains active.
- **Minimum (−12 dB):** our practical clean-state convention for minimizing band-stage contribution relative to baseline.

5.2 Reading the Visual Feedback

The glow under each frequency dial makes the system completely visual:

- **Aqua green glow (band ON):** The band is shaping your frequency response. Brighter glow = more boost or cut applied.
- **Red glow (band OFF):** The band is in saturation mode. Brighter red = more harmonic color. Dimmer red = cleaner, more hi-fi character at that frequency.

You can read the entire plugin's behavior at a glance: green bands are sculpting your frequency response, red bands are shaping your harmonic character.

5.3 Creative Applications

- Set the LOW band to the fundamental region of a bass guitar, turn the band off, and push the gain slightly positive. You add low-region op-amp weight without drawing an obvious EQ curve.
- Pull the HI-MID gain to minimum with the band off. That region becomes cleaner and less characterful without using a visible cut.
- Use multiple bands in saturation mode with the Hammer engaged for a frequency-aware harmonic workflow. The filter shape you select still influences the character of the saturation, even with the EQ curve removed. Bell is the most neutral, biasing the op-amp character evenly around the selected frequency. Contour and Contour X2 leave a stronger fingerprint because their push-pull topology interacts differently with the op-amp stage: the complementary dip structure shapes how the saturation distributes across the frequency region, even when no EQ boost or cut is visible. For saturation-mode presets that need maximum warmth and character, Contour X2 at positive gain produces the most harmonically dense result. For saturation-mode presets that need transparency with just a touch of coloration, Bell at negative gain produces the cleanest result.

Full saturation mode: Turn all EQ bands off, push all gain sliders positive, set VOICE to maximum, and enable the Hammer. Fairuz becomes a full-bandwidth harmonic exciter. Use the MIX knob to blend to taste.

6. LO SHELF and HI SHELF

Most shelf filters do one thing: boost or cut everything above or below a set frequency. The Fairuz shelves do something more considered. They sculpt.

6.1 The Complementary Dip

The LO SHELF, with a default position of 100Hz, does not simply lift the low end. It boosts the sub and bass region and then introduces a gentle complementary dip just above the shelf frequency, in the low-mid range where muddiness lives. You can add significant low-end weight without the mix becoming congested. The dip clears space automatically.

The HI SHELF, with a default position of 10 kHz, works in the opposite direction. It lifts the air and top end but first introduces a gentle dip just below the shelf frequency in the upper presence range. Added brightness does not come at the cost of harshness. The dip cushions the transition.

Both shelf frequencies are adjustable: the LO SHELF sweeps from 20 Hz to 5 kHz, and the HI SHELF sweeps from 60 Hz to 18 kHz. This is the same push/pull philosophy that runs through the Contour bands, applied to the shelves. You are never just adding. You are always sculpting.

6.2 Gain Range

The shelf controls are normalized voicing macros. Boost runs from 0 to +1. Cut runs from 0 to −0.5. Think of small values as subtle polish or practical cleanup, moderate values as musical enhancement, and larger values as bold macro voicing rather than simple dB gain.

> **Tip:** *Try both shelves simultaneously at moderate boost settings. The combined shape creates a managed smile curve with built-in low-mid and upper-mid management. Add HPF and LPF if you want to bound the extremes further.*

7. HPF and LPF: Filters With Character

The High Pass Filter and Low Pass Filter on Fairuz are 12 dB per octave, two-pole filters positioned after the four EQ bands in the signal chain.

7.1 High Pass Filter (HPF)

Range: 20 Hz to 400 Hz. The HPF rolls off everything below the set frequency. What makes the Fairuz HPF distinct is a moderate resonant peak that sits right at the cutoff point and travels with it as you sweep the frequency.

This resonant peak is a design choice, not an artifact. As you raise the HPF to clean up the low end, you simultaneously add a gentle emphasis right at the boundary. Set it at 60 Hz on a kick drum and you get sub-bass removal plus a gentle 60 Hz punch. Set it at 120 Hz on a muddy guitar and you clean up the low end while accentuating the warmth you want to keep.

At its maximum setting of 400 Hz the HPF becomes almost a bandpass filter, useful for telephone or lo-fi creative effects.

7.2 Low Pass Filter (LPF)

Range: 800 Hz to 20 kHz. The LPF rolls off everything above the set frequency, but it is musically active even at 20 kHz. Use it not only to remove unwanted high-frequency content, but also to smooth brittle digital edge, calm transient sharpness slightly, and make a source feel more polished or finished.

> **Tip:** *A 20 kHz LPF can smooth the final top edge without sounding obviously filtered. If that closes the top too much, a very small HI SHELF boost can restore openness while keeping the smoother presentation.*

7.3 HPF Before or After the Output Stage

The filter-order switch changes the position of the HPF relative to the OUT → Hammer block. LPF remains after the four EQ bands and before the HPF.

- **Post (default):** EQ → LPF → OUT → Hammer → HPF

The transformer colors the fuller signal first, then the HPF cleans it. This is the richer saturate-then-clean workflow. Fuller, weightier, more baked-in low-end character.

- **Pre:** EQ → LPF → HPF → OUT → Hammer
  The HPF tightens the signal before it reaches the output stage. Cleaner, more controlled, more headroom. The transformer is driven by a tidier signal and behaves accordingly.

Neither position is correct; they sound different and suit different material. Tracks with complex or problematic low end often benefit from filtering before the transformer. Tracks where you want maximum warmth and body often benefit from filtering after.

7.4 TREMOR + HPF: The Power Combination

TREMOR and the HPF were made to work together. TREMOR adds body and resonance in the infrasonic region. The HPF's resonant peak reinforces the boundary between what you keep and what you remove. Together they create a low end that is simultaneously powerful and controlled: big without being loose, tight without being thin.

> Tip: *Set the HPF at 30–60 Hz and increase TREMOR simultaneously. The HPF removes truly subsonic content while the resonant peak and TREMOR work together at the boundary, adding controlled, focused weight right at the edge of the pass band.*

8. TREMOR: Infrasonic Foundation

TREMOR is the first stage in the Fairuz signal chain, positioned before the four EQ bands. It operates in the infrasonic and deep sub-bass region, at frequencies so low they are felt rather than heard on most playback systems.

Moving the slider to the right increases both the amplitude and the frequency position of the TREMOR circuit simultaneously. The sub-bass energy it generates then flows directly into the EQ bands that follow, exciting and animating them from below. This is why TREMOR feels like it makes the whole plugin come alive, not just the low end.

On headphones and subwoofer-equipped systems, TREMOR creates a physical sensation. On smaller systems, its influence is felt indirectly through the way it energizes the low-frequency content of the active EQ bands above it.

> **Tip:** *TREMOR pairs exceptionally well with LOW band attenuation. Add TREMOR for foundational weight, then use the LOW band to sculpt and focus that weight. This gives you far more precise control over the character of your low end than either tool alone.*

9. The Hammer: Output Transformer

The Hammer is an output transformer stage. The difference between Fairuz with the Hammer off and the Hammer on is the difference between a clean solid-state signal path and a transformer-coupled one.

9.1 What the Hammer Does

With the Hammer off, Fairuz outputs a clean signal. Whatever shaping you have done with the EQ bands and shelves is delivered transparently.

With the Hammer on, the signal passes through an output transformer circuit that introduces smooth low-driven coloration and harmonic reshaping. Its sense of weight is centered around the body region, but the result is not best thought of as a fixed EQ bump. It is transformer behavior: added density, slightly altered transient presentation, and a fuller, more finished feel.

Think of it as the difference between a recording going through a direct box versus a quality transformer-coupled hardware equalizer. The frequency content is the same. The feeling is different.

9.2 OUT Knob and the Hammer

When the Hammer is off, the OUT knob is a clean digital output control.

When the Hammer is on, the OUT knob feeds directly into the output transformer. Turn it up and you are driving Hammer harder. TRIM OUT then lets you bring the level back down after the transformer, so you can judge the added density and harmonic change without being misled by loudness.

The OUT knob does not just control level into the Hammer; it controls how deeply the Hammer's nonlinearities engage. At high OUT values, the transformer saturates more, softening transients and adding harmonic density. At low or negative OUT values, the transformer is barely driven; its topology is still in the signal path, but its nonlinear character is minimal. This is a useful creative tool: setting OUT to its minimum and compensating with TRIM OUT keeps the Hammer circuit active while preserving

maximum transient definition. The transformer contributes its subtle phase and impedance character without compressing or thickening the signal.

This interacts directly with VOICE (see Section 3.2). When both VOICE and OUT are high, both transformer stages saturate simultaneously and the sound becomes very dense and harmonically rich, which can cost transient clarity. When VOICE is high and OUT is low, the input transformer provides harmonic openness while the output transformer stays clean. When both are low, the transformer topology is present but barely coloring the signal. Matching these two controls to your intent is one of the most powerful creative tools in Fairuz.

9.3 Oversampling

The Hammer circuit can be optionally oversampled at sample rates of 88.2 kHz and below. Enable this from the plugin toolbar for the cleanest harmonic behavior at standard sample rates. In practice, oversampling slightly tidies the nonlinear result rather than radically changing the voicing. Oversampling can also benefit presets without the Hammer, particularly on high-frequency sources where steep EQ boosts or aggressive band processing may introduce aliasing.

> **Tip:** *With Hammer active, think in pairs: drive with OUT, then level-match with TRIM OUT. For a fuller, more characterful result, place HPF after Hammer so the fuller low end excites the transformer first and cleanup happens afterward.*

10. MIX: Parallel Sculpting

The MIX knob is located inside the P422 Fairuz logo at the top right of the plugin. It blends your fully processed wet signal with the unaffected dry signal, enabling parallel processing without any additional routing in your DAW.

Turn the MIX knob clockwise to add dry signal. At maximum counterclockwise you hear only the processed signal.

The spectrum visualizer always displays the fully processed signal, regardless of the MIX setting. Blending in dry signal with MIX does not affect what you see in the visualizer, so the EQ curve and spectrum display remain an accurate picture of the processing at all times.

Parallel processing is one of the most powerful ways to use Fairuz. Heavy sculpting (bold shelf boosts, aggressive Contour bands, maximum Hammer drive) can be blended back against the dry signal to taste. The character of the processing is preserved while the dynamics and transient detail of the original remain present.

11. Toolbar Controls

The toolbar at the top of the plugin contains controls that affect the plugin globally.

- **Bypass:** Passes audio through without processing. Use to compare processed and unprocessed signal.
- **Polarity (Ø):** Inverts the phase of the audio signal.
- **OS (Oversampling):** Enables oversampling at sample rates of 88.2 kHz and below. Applies to the Hammer circuit and also benefits presets with aggressive high-frequency EQ, where band processing itself can produce aliasing artifacts even without the Hammer engaged.
- **Hammer icon:** Enables or disables the Hammer transformer circuit.

- **Force Mono:** Collapses both channels to a single mono signal. Useful when inserting the plugin as a stereo instance on a mono source track in your DAW.
- **Dual Mono:** When enabled, introduces slight randomization between L and R channels. This makes Fairuz behave like a true stereo hardware EQ where unit-to-unit variation creates natural width. It is not a mono utility tool.

Recommended use:

  - **OFF:** individual instrument tracks, unless the preset is explicitly intended for bus or section use.
  - **ON:** stereo bus, group, ensemble, overhead or room context, where you want true stereo hardware behavior. It can also be used creatively on mono sources to add subtle micro-width softening from the L/R randomization.

- **Trim Out:** A clean level trim at the end of the signal chain, after the MIX blend. Use it to compensate for level increases when driving the OUT knob into the Hammer. Drive OUT for saturation and transformer character, then pull back with Trim Out without reducing the drive.

- **A/B Comparison:** Stores two different settings for instant comparison. The arrow button copies the active setting to the inactive slot.

11.1 Metering

Fairuz displays both input and output levels. Click on either the RMS or PEAK label to switch between metering modes:

- **RMS:** Averaged measurement reflecting perceived loudness over time. More useful for judging the overall impact of your processing.
- **Peak:** Instantaneous peak level detection. More useful for preventing clipping.

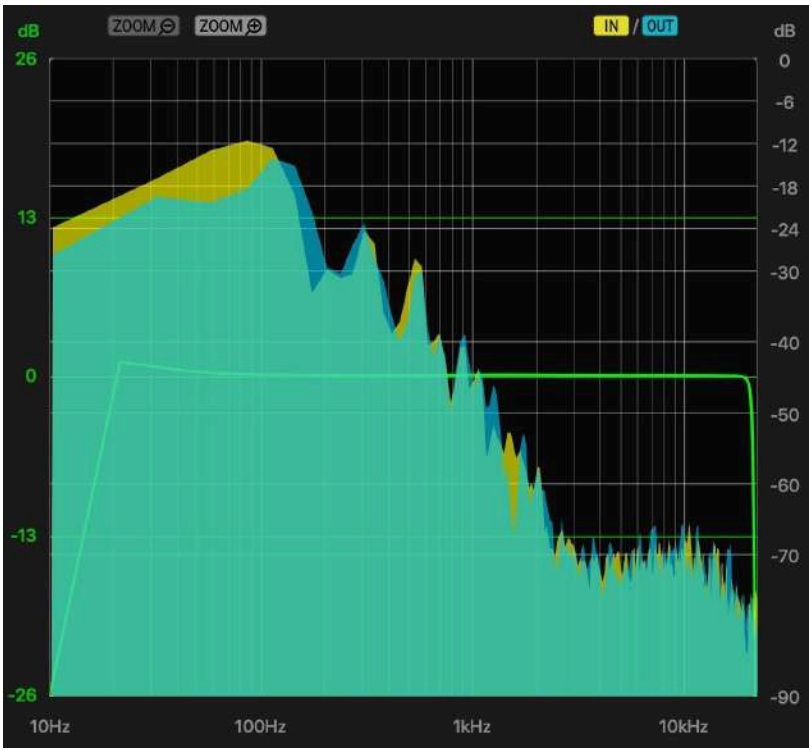
12. Help Menu

The help menu is accessed by clicking the hamburger icon (≡) in the top left of the toolbar. It contains the following options:

- **About:** Displays the plugin name, version number, and the current plugin format in use (AAX, VST3, or AU).
- **License Status:** Shows your current authorization state, including how many activations have been used against your license allowance (for example, 1 out of 2). Use this to authorize a new machine or deauthorize one you no longer use.
- **User Guide:** Opens the PDF version of this user guide directly from within the plugin.
- **Show Labels:** Toggles parameter value labels on and off. When ON, values are displayed as you move knobs and sliders. Turn this OFF if you prefer a cleaner interface without numeric readouts while dialing in settings.
- **Set Default Size:** Resizes the plugin window to a preferred size that persists across sessions. Resize the plugin window to your preferred dimensions, then select this option. Every new instance of the plugin will open at that size from that point on.

13. The Spectrum Visualizer

Click the >> button to the right of the main plugin panel to expand the spectrum visualizer. Click again to collapse.



- **IN:** Overlays the input signal spectrum.
- **OUT:** Overlays the output signal spectrum.
- **Both active:** Displays input and output simultaneously using three colors to show their relationship.

The visualizer always displays the EQ curve as a linear frequency response of all active bands, shelves, and filters. Use the **IN** and **OUT** buttons at the top right to overlay signal spectrum displays on top of the EQ curve:

In the spectrum view, three colors show the relationship between input and output:

- **Yellow:** Input signal spectrum.
- **Blue:** Output signal spectrum.
- **Turquoise:** Frequencies shared between input and output.

Adjust the dB scale of the EQ display by clicking and dragging vertically on the visualizer or using the + and – buttons at the top right of the display. The zoom level is a global display preference and is not saved per preset, so the view stays consistent as you navigate presets.

14. Tips & Tricks

- **Full saturation unit:** Turn all EQ bands off, push all gain sliders to maximum, set VOICE to +100, engage the Hammer, and blend with MIX. Fairuz becomes a full-bandwidth harmonic exciter with transformer output coloration.
- **Surgical resonance removal:** Cut the problem frequency using a Bell filter. Place Contour or Contour X2 bands on either side to boost and protect the surrounding frequencies. The Bell sculpts away the unwanted resonance while the Contour bands frame what you want to keep.
- **The ultimate low-end stack:** Enable TREMOR, set HPF at 30–60 Hz, and engage the Hammer. TREMOR provides infrasonic foundation, the HPF resonant peak adds punch at the cutoff, and the Hammer adds low-mid body. Adjust the HPF position switch to find the most musical relationship between the filter and the transformer.
- **Parallel aggressive processing:** Use the MIX knob to blend extreme Fairuz settings with the dry signal. Heavy Contour boosts, maximum shelves, and full Hammer drive can all be pulled back to a musically useful blend without losing the character of the processing.
- **Per-frequency transparency:** With a band off and gain pulled to minimum (−12 dB), that frequency range becomes maximally clean and hi-fi. Use this on multiple bands to selectively reduce coloration in specific frequency regions while leaving others warmer.
- **VOICE into Hammer overdrive:** Set VOICE positive, enable the Hammer, and slowly increase OUT beyond unity. The transformer overloads progressively and musically. This is the loudest and most harmonically complex sound Fairuz can produce.

Push-pull transformer staging: With Hammer on, set VOICE positive (try +15 to +30) and pull OUT back to zero or slightly negative, then compensate with TRIM OUT. The input transformer generates harmonic richness and openness; the clean output transformer preserves transient snap. This is especially effective on vocals, acoustic instruments, and mix buses where you want the source to sound more present without losing articulation.

Maximum transient definition: Set VOICE to its minimum, OUT to its minimum, and TRIM OUT to +12. The Hammer stays in the signal path but both transformer stages are barely driven. The result is maximum transient clarity with the subtle character of the transformer topology still present. Use this on snare close mics, percussion, plucked instruments, or any source where the attack needs to cut through.

- **Presence without sibilance:** Use the HIGH band stepped frequencies at 6 kHz or 7 kHz for presence, or jump to 9 kHz and above for air. The stepped design deliberately avoids the 8 kHz zone that tends to make consonants harsh and cymbals pokey.

15. Keyboard Shortcuts

Action	Shortcut
Fine adjustment	Hold Ctrl (Windows) or Control (macOS) and drag. Or right-click and drag without a modifier.
Reset to default	Double-click any control. Or hold Alt (Windows) / Option (macOS) and left-click.
Temporary bypass	Hold Ctrl+Alt (Windows) or Cmd+Option (macOS) and hover over shelves, HPF, LPF, TREMOR, VOICE, or band gain.
Cycle options	Left-click to cycle forward, right-click to cycle backward through multi-state controls.

15.1 Resonance Hunt

Right-click on a band frequency knob and drag to sweep at +6 dB, letting you listen for problem resonances in context without committing to a specific position.

To hunt while attenuating instead of boosting, hold Shift before right-clicking and drag. This sweeps at −6 dB, so you can hear which frequency creates the most relief when removed.

In continuous mode, the FINE Hz slider appears below the frequency knob while the Resonance Hunt is active. Use it to nudge the frequency in small increments once you've located the area and need to zero in precisely.

> **Tip:** *Hunt in context with the full mix playing rather than soloing the track. The goal is to find frequencies that affect the mix, not just the most obvious resonance on a soloed source.*

16. Managing Presets

16.1 Factory and User Presets

When installing an update, the installer will overwrite factory presets unless you deselect the “Install Presets” option during installation. Your own user presets are never affected by updates.

To protect any modifications you have made to factory presets, save them with new names using the “Save As” option in the preset browser before updating.

> **Tip:** *The preset browser captures keyboard focus while open, which means the spacebar will not pass through to your DAW transport. To audition presets in context, start playback in your DAW first, then open the preset browser and navigate. Playback continues uninterrupted while you browse.*

16.2 Backing Up Presets

Presets are stored as files on your computer and can be backed up by copying them to any location you choose.

- **Windows:** C:\Users\Public\Documents\Pulsar Modular\P422 Fairuz\Presets
- **macOS:** /Users/Shared/Pulsar Modular/P422 Fairuz/Presets

17. Uninstalling P422 Fairuz

17.1 Windows

- **VST3:** C:\Program Files\Common Files\VST3\Pulsar Modular: delete P422 Fairuz.vst3
- **AAX:** C:\Program Files\Common Files\Avid\Audio\Plug-Ins\Pulsar Modular: delete P422 Fairuz.aaxplugin
- **Shared files:** C:\Users\Public\Documents\Pulsar Modular: delete the P422 Fairuz folder

17.2 macOS

- **AU:** /Library/Audio/Plug-Ins/Components: delete P422 Fairuz.component
- **VST3:** /Library/Audio/Plug-Ins/VST3/Pulsar Modular: delete P422 Fairuz.vst3
- **AAX:** /Library/Application Support/Avid/Audio/Plug-Ins/Pulsar Modular: delete P422 Fairuz.aaxplugin
- **Shared files:** /Users/Shared/Pulsar Modular: delete the P422 Fairuz folder

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Please kindly report any errors or omissions in this user guide to psupport@pulsarmodular.com.

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