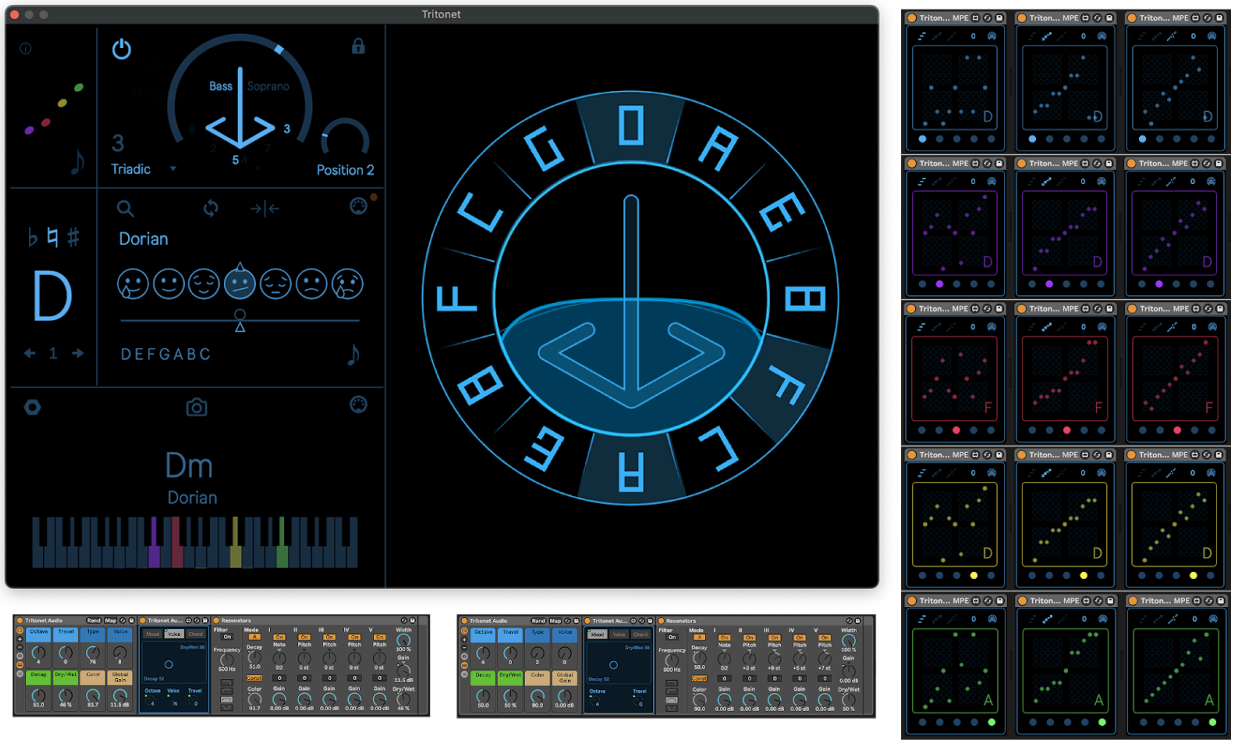
Tritonet v3

Manual

CONTENT

1. Introduction



What is Tritonet?

Tritonet is a harmonic navigation and composition tool built for musicians, producers, and educators. It runs as a Max for Live device inside Ableton Live.

At its core, Tritonet is based on the **Circle of Fifths**—used here not only as a map of scales and chords, but as a **compass for harmonic direction**. Moving clockwise increases tension; moving counterclockwise resolves it. By following these movements, you can shape entire progressions without relying on abstract theory.

Tritonet turns harmony into something **visual and playable**. Instead of memorizing rules, you interact directly with the Circle of Fifths to lock into scales, build chords, and distribute harmony across multiple tracks.

Originally developed as both an **educational tool** and a **performance device**, Tritonet bridges the gap between theory and real-time music making. Whether you're learning harmony, improvising, or composing, Tritonet adapts to your workflow.

Philosophy and Design Goals

Traditional music theory education is largely based on 18th-century frameworks, such as Rameau's *Treatise on Harmony (1722)*. While historically important, these systems are tied to the aesthetics of their time and can feel limited today.

Tritonet takes a different path. It treats harmony as **relationships between vibrations**, not as a style or period. By working with proportional ratios (fifths, thirds, tritones), Tritonet can adapt to **any tradition, genre, or culture**.

Design Goals

- **Flexible Harmony in Production**
  Harmony becomes its own layer. You can reshape it at any stage—even post-production.

- **A New Approach to Music Education**
  By simplifying navigation, Tritonet lets you grasp in weeks what usually takes years.

- **Proportional Thinking Beyond Music**
  Harmony as ratios encourages you to see connections across music and other vibrational systems.

What's New in v3

Tritonet v3 introduces major improvements in **performance, visuals, and usability**:

- **GPU-Based Visuals** – The new Jitter engine uses the GPU, leaving CPU power for audio.

- **Polyphonic Chorder** – Each note now generates a full chord, allowing extended harmonies with multiple simultaneous inputs.

- **Full MPE support** - including slide

- **Inter-device communication**

2. Installation & Setup

- **Download and Install**
  Tritonet is distributed as an Ableton Live Pack. Once downloaded, double-click the file to install. The process is automatic and works on both **macOS** and **Windows**, provided you are running **Ableton Live 11 Suite or Live 12 Suite**.

- **Included Devices**
  The Pack installs three core devices:

  - **Tritonet Lead** – the main control hub for all harmonic operations.
  - **Tritonet MIDI Module** – adapts MIDI tracks in real time to Tritonet Lead's key and scale.
  - **Tritonet Audio Module** – extends Ableton's Resonator, tuned dynamically by Tritonet Lead.

- **Demo Set**
  A demo project is included. Open it to experience Tritonet immediately and save devices to your User Library for quick access.

Together, these modules let you distribute Tritonet's harmonic framework across multiple tracks in real time.

3. Quickstart – First Five Minutes

If you're new to Tritonet, here's the fastest way to hear it in action:

Step 1 – Load Tritonet Lead

- Drag *Tritonet Lead* onto a MIDI track. This track is going to be the harmony track of your set.
- Choose a key and scale in the **Key & Scale Panel**. You'll see the Circle of Fifths update instantly.

Step 2 – Add a MIDI Module

- Place a *Tritonet MIDI Module* on another MIDI track (for example, with a piano instrument).
- Play notes or trigger clips. They will be automatically adapted to the chosen key and scale.

Step 3 – Try Chord Generation

- In Tritonet Lead, enable the **Chorder**.
- Play a single MIDI note. You'll hear a full 4-voice chord instead of just one note. Make sure you have an instrument loaded into this track.

Step 4 – Add an Audio Module

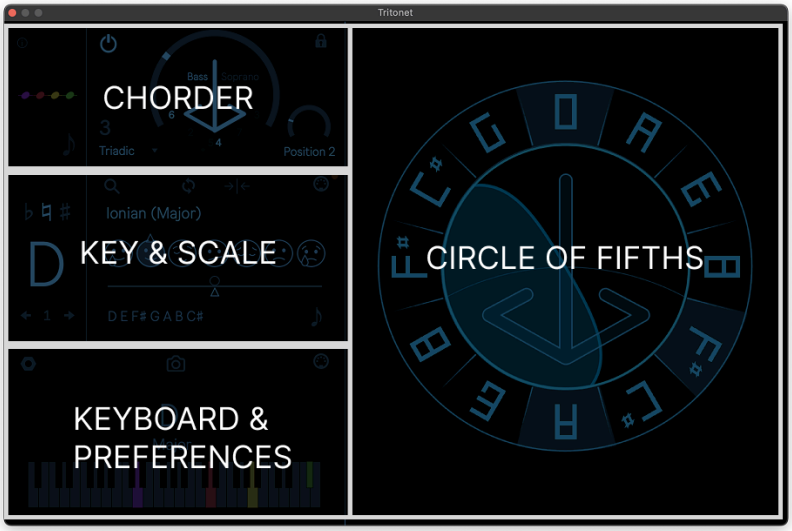
- Place a *Tritonet Audio Module* on an audio track.
- Adjust the XY Pad (Dry/Wet vs Decay). You'll hear the Resonator lock onto the same harmony.

Step 5 – Change the Harmony

- Change the key, scale, or chord in Tritonet Lead.
- All connected MIDI and Audio Modules update instantly, keeping your entire set in tune.

4. User Interface Overview

Tritonet Lead



The interface of Tritonet Lead is organized into **four main sections**, each serving a distinct role in harmonic navigation:

1. **Circle of Fifths**
    - The central visualization of Tritonet.
    - Works as a harmonic compass: clockwise movement adds tension, counterclockwise brings resolution.
    - Interactive: clicking any note triggers it, making the Circle both a visual map and a playable instrument.

2. **Chorder**
    - Expands single notes into full chords with dynamic voice leading.
    - Includes controls for chord interval (thirds, fourths, seconds), chord type, soprano vs bass interpretation, and chord lock.
    - Useful for composing or improvising rich progressions with minimal input.

3. **Key & Scale Panel**
    - Defines the global key and scale.

- Displays moods and related scales, with tools like Travel slider, Random, and Negative Harmony.
- Any change here is instantly broadcast to all MIDI and Audio Modules.

4. **Keyboard & Preferences**

    - Displays the currently active chord name and its notes on a piano roll (color-coded as bass, tenor, alto, soprano).
    - Provides access to **Preferences**, where you can:

        - Control how MIDI and Audio Modules follow Tritonet Lead.
        - Adjust appearance and behavior of the interface.

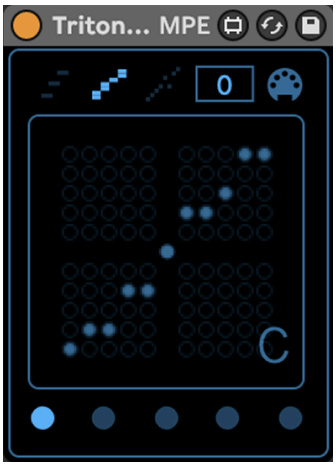
Together, these sections give you a complete overview:

- The **Circle** provides direction.
- The **Chorder** generates harmonies.
- The **Key & Scale Panel** sets the framework.
- The **Keyboard & Preferences** visualize and refine the results.

Follower Modules

Tritonet also includes two **follower devices**: the MIDI Module and the Audio Module. Their interfaces are simpler, but they extend Tritonet's harmonic logic across your entire Ableton Set.

1. **Tritonet MIDI Module**



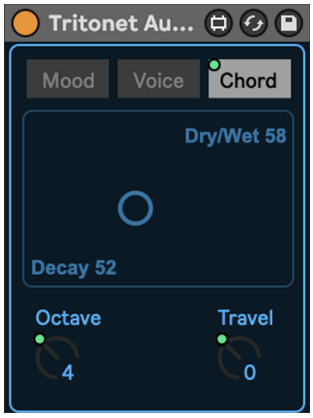
Place on any MIDI track.

Receives real-time key and scale from Tritonet Lead.

Automatically adapts all notes on that track to the correct harmony.

Keeps your entire set harmonically aligned without manual transposition.

2. **Tritonet Audio Module**



Place on any audio track.

Works specifically with Ableton's **Resonator effect**.

Instead of pitch-shifting the audio, it introduces **tuned resonances** based on Tritonet Lead's key and scale.

This makes audio feel "in tune" with the harmonic framework while preserving its original pitch content.

Both modules update **dynamically**: whenever you change the key, scale, or chord in Tritonet Lead, all follower devices instantly respond.

Note: Tritonet Audio comes as a rack that includes both the module and the resonator, along with the assigned macros. Make sure to use the rack instead of a single patch. If you use only the patch, you will need to add the resonator manually and press the **Update** button.

5. Components of Tritonet

Tritonet Lead is built from four interactive components that together define how harmony is visualized and controlled:

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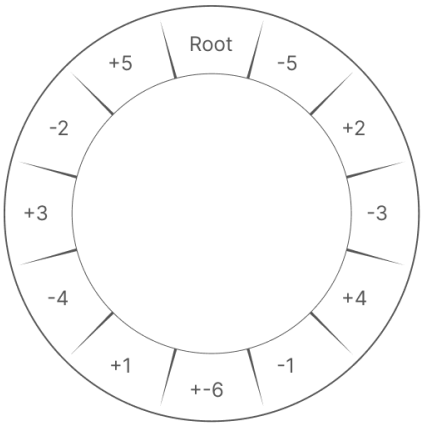
1. The Table



Displays all 12 notes as Circle of Fifths fashion.

Interactive: clicking on any note triggers it as a MIDI event.

Harmonic movement is directional:

Right (clockwise): adds upper harmonics, creating tension.

Left (counterclockwise): adds lower harmonics, creating resolution.

This turns the Circle into a living map where you can navigate tension and release in real time.

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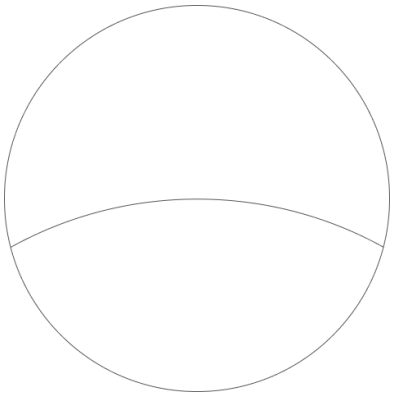
2. The Horizon



A horizontal line divides the circle, and the upper notes constitute the scale.

Raised Horizon → Pentatonic scales (5 notes).

Default Horizon → Natural scales (7 notes).

Disappearing Horizon → Crystal scales (8–12 notes).

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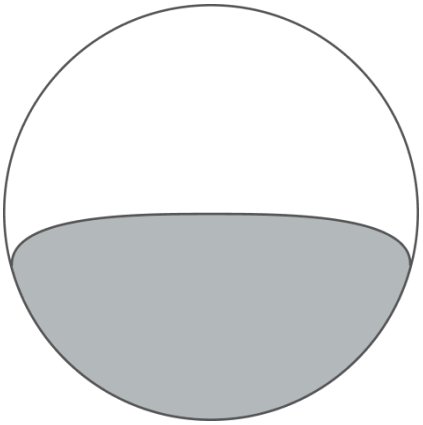
3. The Night



A vertical divider that splits the Circle into two halves.

Left side notes sharpened (raised).

Right side notes flattened (lowered).

If you imagine placing the Earth in the center of the circle (with the pole at the center), the division corresponds to **day and night**. The crossing points between day and night mark the location of the tritones, aka color tones.

One Night = Natural scales.

Two Nights (Sun + Moon) = Compound scales with multiple tritones.

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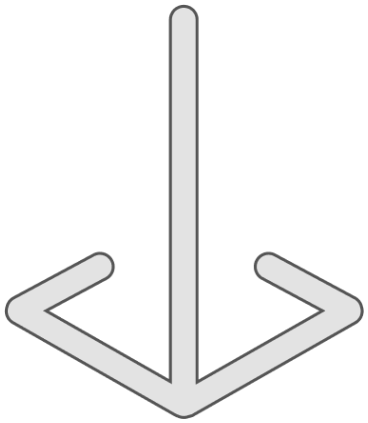
4. The Compass



Defines chord construction and harmonic motion.
Tip shows the bass note.

Wings: chord tones, grouped by function:

Wing tips → modal intervals (3rd & 6th).

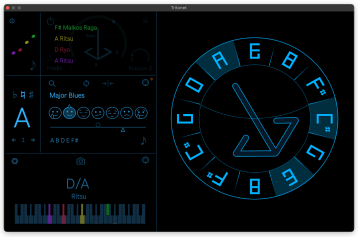
Wing centers → melodic intervals (2nd & 7th).

Directly below → harmonic intervals (4th & 5th).

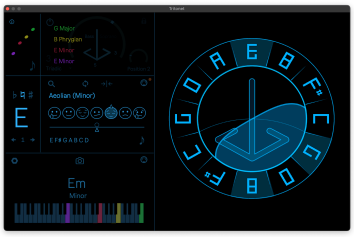
Think of it as an airplane: the chosen tones suggest a natural “flight direction” for your progression, which you can follow or deliberately avoid.

Scale Families in Tritonet

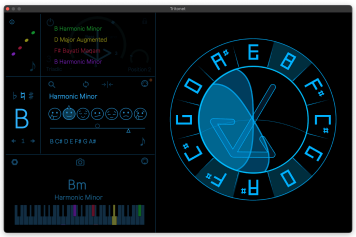
Tritonet organizes scales into four families:



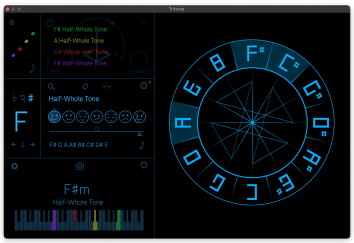
Pentatonic Scales – 5 tones, shaped by raising the Horizon.



Natural Scales (Modes) – 7 tones, shaped by one Night.

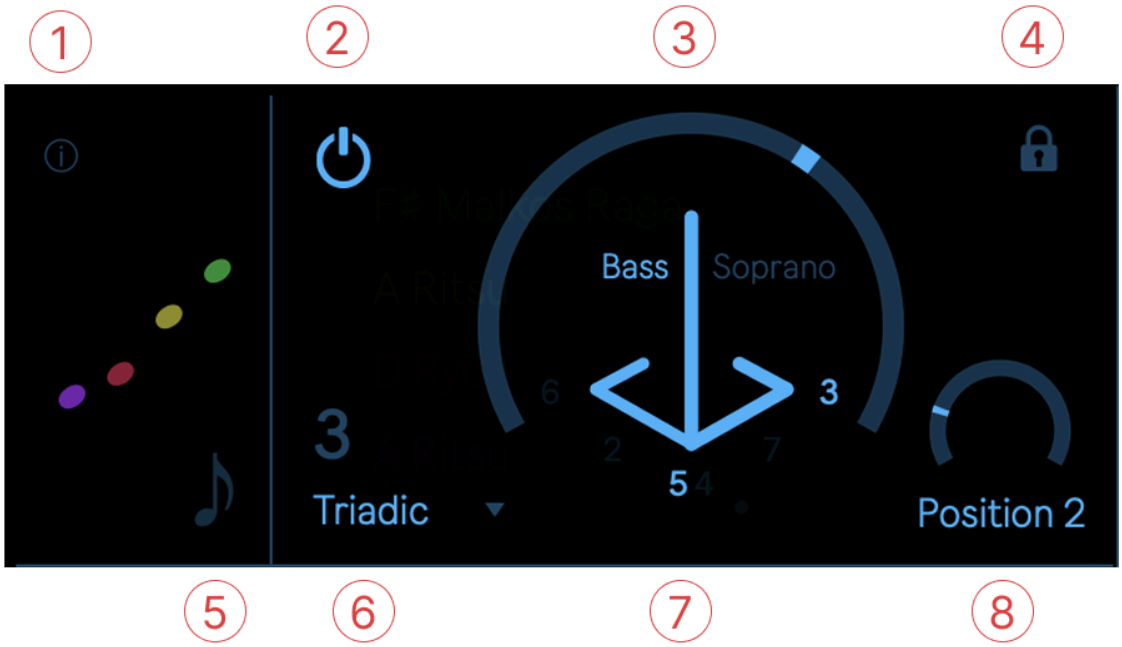


Compound Scales – 7 tones, shaped by two Nights, containing multiple tritones.



Crystal Scales – 8–12 tones, when the Horizon disappears and notes are connected by geometric arms.

6. Chorder Panel



The Chorder transforms single MIDI notes into rich **four-voice chords** (SATB) with dynamic voice leading based on modular mathematics.

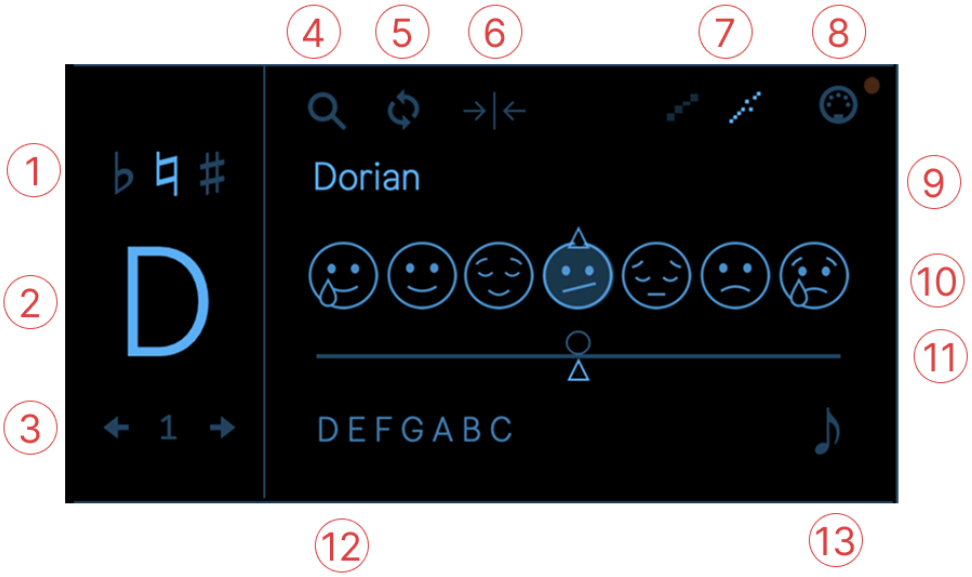
Main Controls:

1) **i (Info Monitor):** shows each chord note's relative harmonic function in color-coded zones.
2) **On/Off:** activates or disables chord generation.
3) **Chord Interval:** large knob around the Compass for selecting chord intervals.
4) **Lock:** fixes chord position when retriggered.
5) **Auto vs. Manual :** automatic or manual chord triggering.When it is on, it will wait for a trigger on the orange area to build a chord.
6) **Chord Types:** builds chords by 2nds (dyadic), 3rds (triadic)or 4ths (quartal).
7) **Soprano vs. Bass:** interprets the played note as either the highest or lowest voice.
8) **Chord Position:** fixes the starting chord layout when playback begins.

Important Note:
Even when the **Chorder is turned off**, Tritonet Lead still analyzes all incoming MIDI notes. If it detects a chord, it will send the corresponding **relative key and scale information** to the connected modules—just as if the Chorder were active. In other words, Tritonet always follows the harmonic content of what you play, whether or not chord generation is enabled.

7. Key & Scale Panel

This panel defines the **global key and scale** of your project and offers tools to explore related tonalities.



Key Controls

1) Flat / Natural / Sharp symbols for quick chromatic movement.
2) Dropdown menu with 21-step layout (arranged by fifths).
3) Arrow buttons to rotate the circle by chosen steps (fifths, thirds, etc.).

Top Bar Icons

4) **Search (🔍):** opens the scale library (600+ entries).
5) **Random (🔄):** temporarily selects a random scale, reverts when off.
6) **Negative Harmony (⇄):** mirrors the tonality around its root.
7) **Resolution (Chord / Scale / Full):** the Input Panel includes a Resolution control. This lets you **regulate the MIDI signal from Tritonet Lead** before it is mapped into the new harmonic framework.
    a) **Scale:** incoming notes are forced into the current scale.
    b) **Full:** chromatic structures are preserved, with notes distributed relative to input and output scales.
8) **Input Tab (⚙):** defines input tonality (affects only Tritonet Lead).

Key & Scale Options

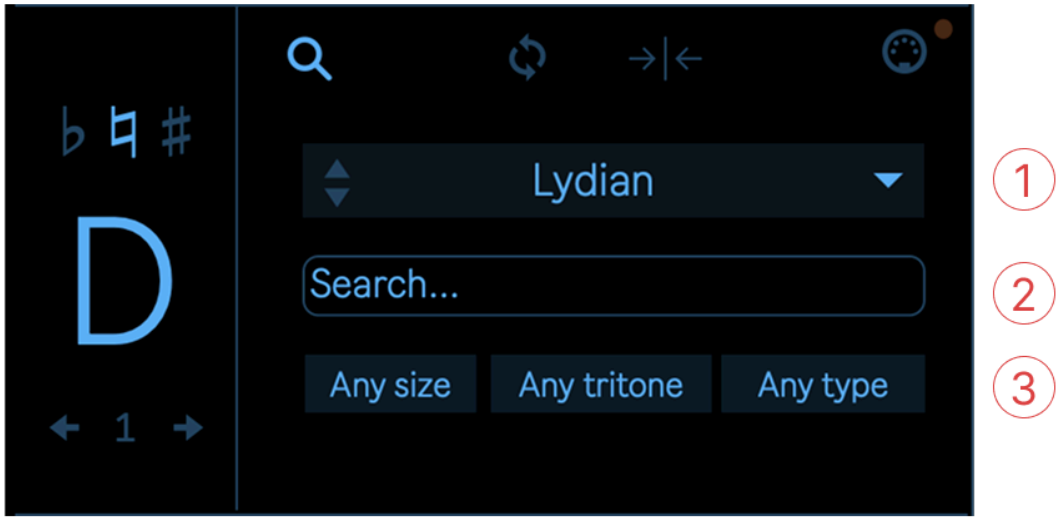
9) **Name of the Scale :** shows the selected scale
10) **Moods (😊 😢 😠):** seven natural modes, each tied to a tritone pair and emotional color.
11) **Travel Slider:** explores intermediate scales between moods based on the same tritone pair.
12) **Note Names (🔤):** shows the active notes of the current scale.
13) **Listening Mode (🎶):** lets Tritonet analyze the notes you play and determine a fitting scale:

    - While active, all played notes are collected.
    - When released, Tritonet determines:
        - **Root** = the lowest note played.
        - **Scale** = the closest matching mode from its library.
    - **If no exact match exists, Tritonet creates a temporary custom scale** from the collected notes, so the system always stays harmonically responsive.
    - The detected or generated scale is sent to all follower modules in real time.

Use Cases:

- **Education:** helps beginners discover scales by ear, even with unusual note collections.
- **Performance:** lets you define harmony live by simply playing notes.
- **Fallback:** temporary scales allow improvisation beyond the library without breaking the flow.

8. Search Panel



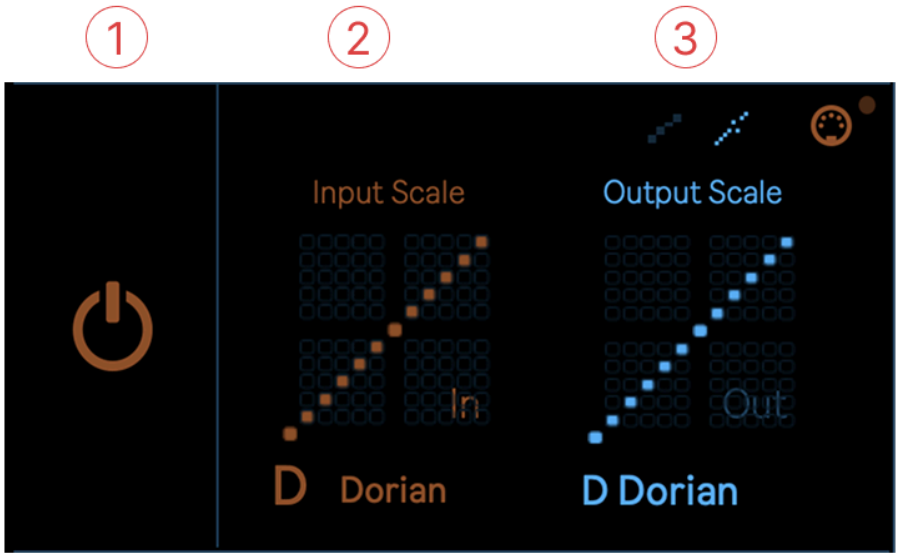
The Search Panel gives you quick access to Tritonet's library of **600+ scales**.

1) **Dropdown:** lists all scales, with live filtering as you type.
2) **Search Bar :** type the name of the scale you are looking for.
3) **Filters:** refine results by:

   - **Size:** number of notes (5, 6, 7, …).
   - **Tritone pairs:** how many tritones the scale contains.
   - **Type:** scale family (Natural, Compound, Crystal).

Selecting a scale immediately sets it as the global key & scale and broadcasts it to all MIDI and Audio Modules.

9. Input Panel

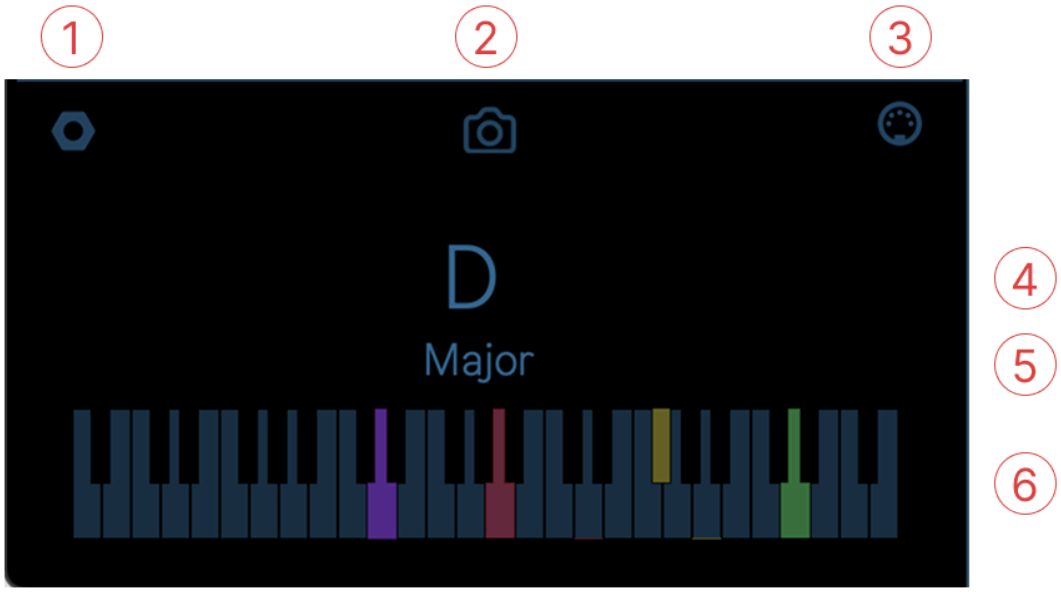


The Input Panel lets you reinterpret incoming MIDI into Tritonet's harmonic framework.

1) **Input On/Off:** when enabled, incoming notes are mapped to the chosen Input Root and Input Scale.
2) **Input Root & Scale:** define the tonality of the original material (e.g., *C minor*). Tritonet then **translates harmonic functions** into the active Key & Scale.
3) Original key and scale chosen by the key&scale panel

Example: If Input is set to *C minor* and the Key & Scale panel is set to *G Major*, Tritonet reinterprets the material in G Major while preserving harmonic functions. Resolution determines how strictly incoming notes are adapted in this process.

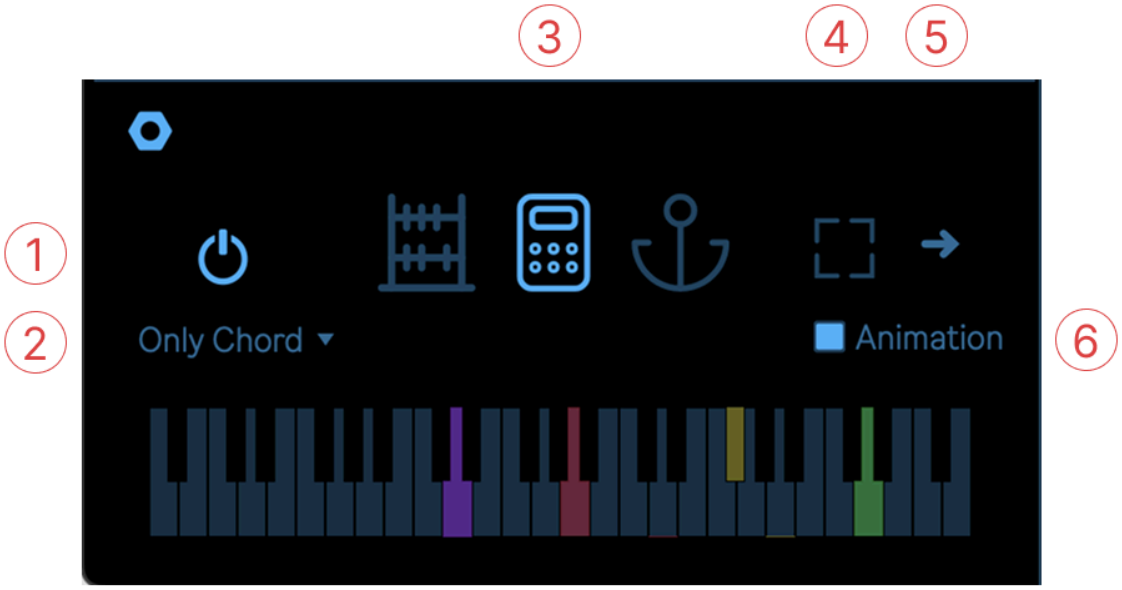
10. Keyboard Panel



At the bottom of Tritonet Lead is the **Keyboard Panel**, combining quick-access functions with real-time chord visualization.

1) **Settings (hexagon):** adjust Tritonet Lead's appearance and behavior.
2) **Snapshots (camera):** store and recall up to 12 different key/scale combinations.
3) **Ableton Sync (MIDI icon):** synchronize the Ableton Set's global key & scale with Tritonet Lead.
4) **Chord Display:** shows the most recently triggered chord, with voices (bass, tenor, alto, soprano) highlighted.
5) **Relative Scale :** current position of the harmony within the key & scale.
6) **Keyboard:** current chord within Tritonet lead.

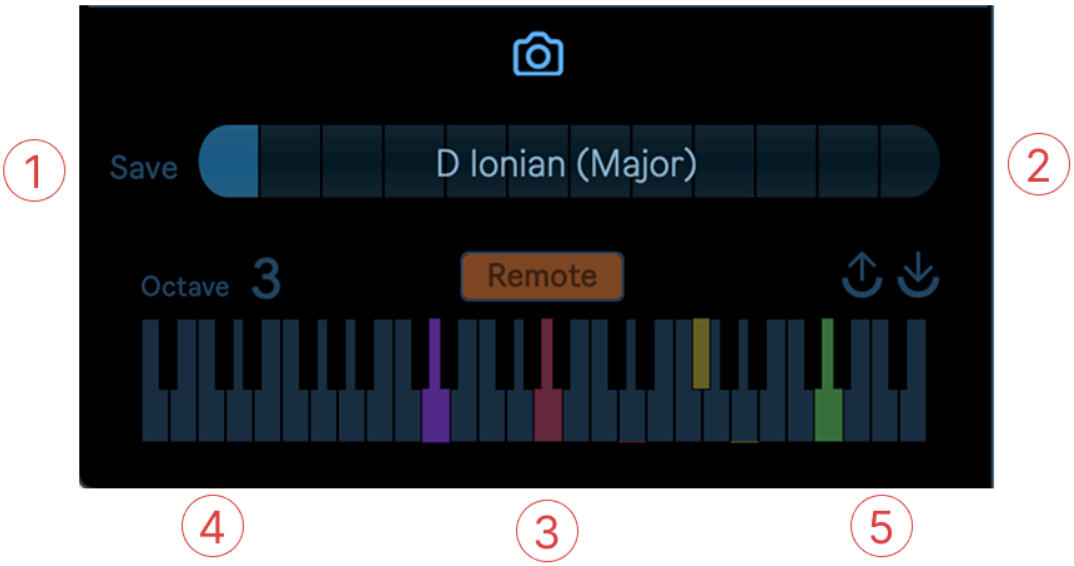
11. Preferences Panel



The Preferences Panel gives you control over how Tritonet behaves and appears.

1) **On/Off (left icon):** activates or deactivates the entire Tritonet system. Default = On.
2) **Display Modes:**
    a) *Show Scale* → only key & scale information.
    b) *Show Chords* → key/scale + active chord.
    c) *Show All* → shows chord and scale data even for single notes.
3) **Scheme Views:** switch between three visual representations (Abacus, Calculator, Mundi).
4) **Detached View / Hide:** open the scheme in a separate window for fullscreen.
5) **Right Screen :** hide or show the side Circle of Fifths visual.
6) **Animation Toggle:** enable/disable animations. Turning them off reduces GPU load.

12. Snapshots Panel

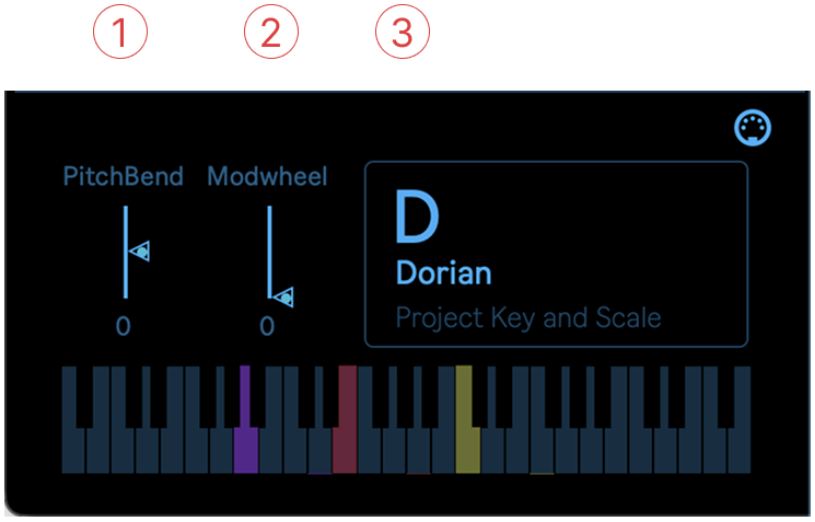


Snapshots allow you to save and recall up to **12 different key & scale combinations**.

1) **Save Function:** press *Save* to arm the snapshot bar. Press any slot to store the current state.
2) **12-Slot Bar:** quickly switch between stored tonalities.
3) **Remote Control:** map snapshot changes to a MIDI keyboard.
4) **Octave**: choose the control octave for snapshots.
5) **Context**: load/save different snapshot banks (12-slot sets).

Snapshots are stored with your Ableton Set, so they persist across sessions.

13. Ableton Set Panel



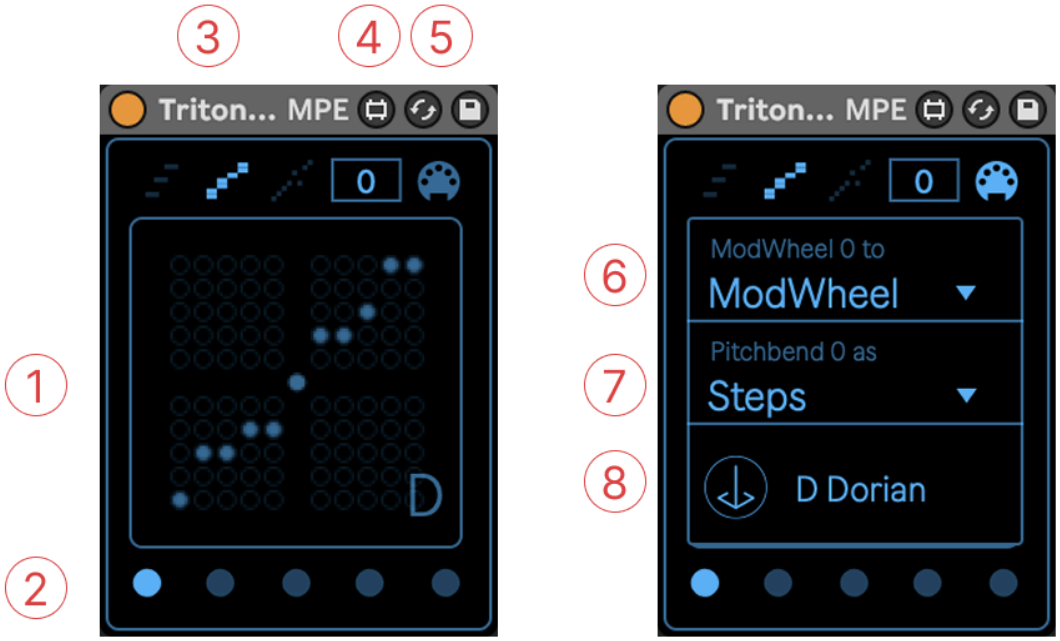
This panel keeps Tritonet aligned with the rest of your project.

1) **Pitch Bend:** Sends global pitch bend messages (-12 to +12) to all modules at once, allowing you to colorize the music by raising or lowering the overall pitch of the set.
2) **Modwheel:** Sends global modwheel messages to all modules at once. These messages can be assigned in the MIDI module.
3) **Project Key & Scale (right section):** define the overall tonality of your Live Set. When working with an existing project, enter its key & scale here.
   If using Ableton 12's *Scale Awareness*, set a fixed tonality in Live and mirror it in Tritonet for perfect sync.

Working with Ableton Scale Awareness (Live 12)

Ableton Live 12 introduces Scale Awareness, which locks MIDI input and editing to a chosen key and scale. Currently, Tritonet overwrites Scale Awareness to keep everything in the same key and scale. Once Ableton's internal LOM (Live Object Model) system provides clip-level data, full integration will be possible. At that point, there will be no need to adjust the input key and scale manually.

14. Tritonet MIDI Module



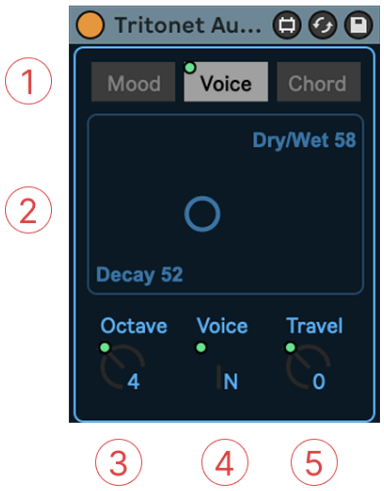
The MIDI Module applies the **key and scale information** from Tritonet Lead to any MIDI track. This ensures that all incoming notes stay harmonically aligned with the project.

1) **Matrix Display :** Works similarly to Ableton's Scaler, but the root note is always at the center. Other notes expand outward as if pulled by gravity.
2) **Voices :** there are five different voices you can select from:
    a) **Leftmost dot:** fixed to Tritonet Lead's global key & scale.
    b) **Other four dots:** dynamic, color-coded to represent chord tones from Tritonet Lead. Each follows the related key & scale of its voice.
3) **Resolution :** Three modes define how strictly notes are adapted:
    a) **Chord Resolution** – Only the active chord notes are available. Even out-of-key material is forced into the chord.
    b) **Scale Resolution** – Standard scale mapping. Only in-scale notes are allowed; out-of-scale notes are corrected.
    c) **Full Resolution** – Includes both scale and non-scale notes, mapped relative to the input root/scale.

        Example: Input = *C Major*, Output = *E Minor*. All E Minor notes map to their C Major counterparts, and non–E Minor notes map to non–C Major positions, which enables **chromatic structures** while preserving harmonic relationships.
4) **Transpose :** shifts output ±2 octaves. Behavior depends on Resolution mode.

5) **Preferences :** opens the preferences panel.
6) **Modwheel :** assigns the Modwheel macro to a parameter to pass through the instrument. It offers four options: *Off, Velocity, Modwheel,* or *CC11.*
7) **Pitch Bend :** assigns the Pitch Bend macro to the MIDI module. It offers four options:
    - Off
    - Steps (pitch bend affects the pitch at the step level)
    - Chord (pitch bend affects the pitch of the chord notes)
    - Octave (pitch bend shifts only by octaves, up or down)
8) **Local Key and Scale :** If a clip has a different key and scale than the one set in Tritonet Lead, you can activate this section to choose an alternative key and scale. This is useful when adding external MIDI clips in a different tonality.

15. Tritonet Audio Module



The Audio Module extends Ableton's **Resonator** by making it dynamic and harmony-aware. Instead of static pitch settings, it follows Tritonet Lead's key, scale, and chords. It can be either used as subtle **Enhancement** to reinforce harmonic center of a vocal, guitar, or drum loop or **Sound Design** to create evolving, scale-locked resonances.

1) **Modes**
    a) **Mood** – Uses tonal center + tritone notes of the scale; fixed harmonic environment.
    b) **Voice** – Monophonic resonance. A knob lets you pick among *Neutral, Bass, Tenor, Alto, Soprano*. Only the chosen voice's related key is followed.
    c) **Chord** – Inserts the active chord from Tritonet Lead into the Resonator. Notes update dynamically with each chord change.

Note: Because of Resonator's nature, chord/voice changes may cause audible artifacts.

2) **XY Pad L :** Horizontal is assigned to Dry/Wet**;** Vertical to Decay**.** Designed for intuitive two-parameter control in performance.
3) **Octave :** sets root pitch octave.
4) **Voice Selector :** lets you add resonance on a single note based on a chosen voice.
5) **Travel :** available in Mood/Chord modes; shifts resonator notes up/down within the scale without leaving it.

Note: Tritonet Audio comes as a rack that includes both the module and the resonator, along with the assigned macros. Make sure to use the rack instead of a single patch. If you use only the patch, you will need to add the resonator manually and press the **Update** button.

16. Q&A

Q1: Does Tritonet use Artificial Intelligence?
A1: No. Tritonet is not AI-based—it is the result of 20 years of structured harmonic development. Think of it like a Swiss watch: precise, mechanical, and reliable.

Q2: Why doesn't it fully integrate with Ableton Scale Awareness?
A2: Ableton's Scale Awareness (Live 12) doesn't yet provide clip-level data, which Tritonet requires. Once Ableton expands this, deeper integration will be possible. For now, you can use both together by setting them to the same fixed key & scale (see Ableton Set Panel).

Q3: Can it run in Push 3 Standalone?
A3: Yes. All musical functionality works. Only GPU-based visuals are unavailable in standalone mode.

Q4: How can I use it on stage?
A4: Currently on your own computer. In the future, a bridge module will sync multiple systems on stage, letting every musician follow the same key & scale in real time.

Q5: What genres is it for?
A5: Tritonet is **genre-agnostic**. From classical to electronic to jazz, any music that benefits from harmonic clarity can use it.

Q6: What about CPU/GPU load?
A6: Very light. Visualizations use GPU, not CPU. Disable animations in Preferences if you want even lower load.

Q7: Does it replace music theory knowledge?
A7: Not exactly. For trained musicians, it's a bridge between theory and practice. For beginners, it provides a sense of direction and helps internalize harmony quickly. In both cases, it's a guide—not a replacement.

Credits

Product Design & Concept
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