
Binaural Box

USER MANUAL

Made in Michigan

by **Julius Biercott & Claude**

2026

BOX INSTRUMENTS

What Are Binaural Beats?

When your left ear hears a tone at one frequency and your right ear hears a tone at a slightly different frequency, your brain perceives a third sound — a gentle pulsation at the difference between the two. This is a binaural beat.

If your left ear receives 432 Hz and your right ear receives 442 Hz, your brain perceives a 10 Hz beat. No 10 Hz sound exists in the room — it's created entirely by your auditory system.

These perceived beats correspond to natural electrical rhythms of the brain known as brainwaves. Exposure to binaural beats at specific frequencies is believed to encourage the brain to synchronize — a process called brainwave entrainment. This can gently guide the mind into states associated with deep relaxation, meditation, restorative sleep, and heightened awareness.

The practice is rooted in the understanding that our mental, emotional, and physical states are closely tied to brainwave patterns. By listening to carefully tuned binaural frequencies, we can nudge the brain toward patterns that support wellbeing.

Binaural Box lets you explore this with precision — choosing your brainwave target, tuning carrier tones to healing frequencies, and layering them with your own audio.

Headphones are required. Speakers blend the two channels and eliminate the binaural effect.

The Brainwave Bands

Binaural Box includes preset detents across five brainwave bands:

Band	Range	State	Presets
Delta	0.5–4 Hz	Deep sleep, physical healing, regeneration	0.5 / 2.0 / 3.5
Theta	4–8 Hz	Meditation, creativity, REM sleep	4.0 / 6.0 / 7.83
Alpha	8–13 Hz	Relaxed focus, calm alertness	10.0 / 12.0
Beta	13–30 Hz	Concentration, active thinking	14.0 / 20.0
Gamma	30–50 Hz	Higher cognition, insight, memory	40.0

The 7.83 Hz preset is the Schumann Resonance — the electromagnetic frequency of Earth's ionosphere.

Solfeggio Carrier Frequencies

The carrier is the actual pitch of the sine tones. Presets include the nine Solfeggio frequencies and 432 Hz natural tuning:

Frequency	Association
174 Hz	Pain relief, comfort
285 Hz	Tissue and cellular healing
396 Hz	Liberation from fear and guilt
417 Hz	Facilitating change, clearing negativity
432 Hz	Natural tuning, universal harmony
528 Hz	Transformation, love, DNA repair
639 Hz	Connection, relationships, empathy
741 Hz	Expression, awakening intuition
852 Hz	Intuition, spiritual insight
963 Hz	Divine connection, higher consciousness

Using Binaural Box

Audio Import & Pitch Detection

Drag and drop an audio file onto the import zone or click to browse. The instrument accepts WAV, MP3, OGG, and FLAC. It analyzes the audio's fundamental pitch using autocorrelation, then suggests harmonically compatible carrier frequencies. The DETECTED button always returns to the original analyzed pitch. Importing is optional.

Carrier Frequency

The blue readout shows the current carrier (50–1000 Hz). Click a Solfeggio preset or use the slider. The L/R readout shows exact frequencies sent to each ear.

Beat Frequency

The pink readout shows the binaural interval (0.5–50 Hz). Use the slider or brainwave presets. The beat interval is preserved regardless of carrier tuning.

Visualizations

Each lane (Carrier, Beat, Master) supports three modes:

Scope — real-time oscilloscope with auto-gain. Shows the actual audio signal at that point in the chain.

Ripples — concentric water rings radiating from center. Ring spacing maps to carrier frequency; brightness responds to amplitude.

Cymatics — Chladni plate visualization. The pattern shows where sand would collect on a vibrating surface at the current frequency. Different frequencies produce different geometric nodal patterns.

Mix Controls

Audio / Binaural Mix balances imported audio against carriers. **Binaural Tone Volume** sets carrier level independently. **Master Volume** controls overall output.

Exporting Audio

File → Export Audio (Ctrl+E) renders offline then encodes to WAV. Choose "Match Audio File" or set a custom duration in minutes and seconds.

Setting	Options
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Duration	Match file length / Custom (min:sec)
Sample Rate	44,100 / 48,000 / 88,200 / 96,000 Hz
Bit Depth	16-bit / 24-bit
Format	Stereo WAV (PCM)

Sessions & Shortcuts

Sessions save as .bbsession files storing all parameters.

Action	Shortcut
New Session	Ctrl + N
Save Session	Ctrl + S
Open Session	Ctrl + O
Export Audio	Ctrl + E
Play / Stop	Spacebar

Audio files are not embedded in sessions. Re-import after loading.

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