

Gaines Bass Freq BF-1

LOW END MANAGEMENT

USER MANUAL · v2.0 · macOS (Apple Silicon) · AU / VST3

OVERVIEW

BF-1 is a dual-channel low-end processor built for the kick/bass relationship — the single most consequential decision in any low-end mix. Rather than treating kick and bass as separate problems, BF-1 puts both channels in one plugin, on one screen, so you can shape, filter, limit, and even synthesize your sub-bass without leaving the low end.

The plugin is organized around two channels — **DOMINANT** and **SUB-MISSIVE** — each of which can be assigned to either your kick or your bass source. Whichever channel is **DOMINANT** leads; the other follows and ducks out of its way. A built-in sidechain, per-channel limiters, and a note-locked sub synth round out the toolkit.

THE CORE IDEA

Traditional low-end management asks: "which EQ do I reach for?" BF-1 asks a more useful question first: "which of these two sources is allowed to dominate the low end right now?" Everything else in the plugin — filtering, limiting, sidechain ducking — flows from that one decision.

QUICK START

- Insert BF-1 on a bus that receives both your kick and bass (or insert separately on each and use the KICK/BASS assignment to tell BF-1 which is which).
- In the **DOMINANT** row, click **KICK** or **BASS** to assign that channel's role. SUB-MISSIVE automatically takes the opposite role — see the invariant below.
- Set each channel's **FILTER** knob to its crossover point — where DOMINANT's low end ends and SUB-MISSIVE's begins.
- Turn on **SC** (sidechain) if you want the non-dominant channel to duck when the dominant one hits.
- Watch the analyzer: red is DOMINANT, blue is SUB-MISSIVE. The dashed marker shows your sidechain crossover frequency.

The Channel Invariant

DOMINANT AND SUB-MISSIVE CAN NEVER SHARE A SOURCE

BF-1 enforces a strict rule: if DOMINANT is set to KICK, SUB-MISSIVE is automatically set to BASS, and vice versa. Clicking KICK on SUB-MISSIVE while DOMINANT is already KICK will flip DOMINANT to BASS — SUB-MISSIVE always wins the click, DOMINANT yields. This is intentional: the two channels model a leader/follower relationship, and that relationship only makes sense when they're pointed at different sources. You cannot break this by clicking quickly, loading a preset, or automating the assignment — the plugin self-corrects to a valid state every time.

INTERFACE GUIDE

Header

Control	Function
BYPASS	Bypasses all processing; audio passes through unaffected.
SC	Master sidechain enable. When off, SC DEPTH/ATTACK and ducking have no effect.
LEARN	Starts/stops the sub synth's note learner (see Sub Synth, below).
LOCK	Applies the notes captured by LEARN to the sub synth's key/scale response.

Channel Strips – DOMINANT & SUB-MISSIVE

Each channel strip is identical in layout and independent in operation, aside from the shared invariant described above.

Control	Range	Function
KICK / BASS	toggle	Assigns this channel's source role. See invariant above.
FILTER	20 Hz – 500 Hz	Sets this channel's crossover/filter frequency. Displayed live in the large Hz readout beside the knob.
LO	±12 dB	Low-band trim relative to this channel's filter point.
MID	±12 dB	Midrange trim.
HI	±12 dB	High trim — shapes the click/attack character of the channel.
VOL	±12 dB	Channel output volume, applied after filtering, trim, and limiting.

Per-Channel Limiter

Each channel has its own limiter with four fixed stages. Engage **LIMIT** to activate, then choose a stage — the active stage highlights and its live gain-reduction reading appears beside it. Four small meters beneath each channel's LIMIT row show real-time reduction per stage.

Stage	Character
1 — SOFT	−3 dB ceiling, 4:1 ratio. Gentle control, minimal audible squashing.
2 — MED	−6 dB ceiling, 8:1 ratio. The everyday setting for most kick/bass duties.
3 — HARD	−9 dB ceiling, 15:1 ratio. Noticeable control for aggressive low end.
4 — BRICK	−12 dB ceiling, 20:1 ratio. Hard-limiting for maximum-loudness low end.

Sidechain (SC)

Control	Range	Function
SC DEPTH	0 – 100%	How far the non-dominant channel ducks when the dominant channel triggers.
SC ATTACK	0.1 – 50 ms	How quickly the duck engages after the dominant channel's transient.
MODE	Peak / RMS / Transient	Detection method: Peak reacts to instantaneous level, RMS to average loudness, Transient to attack sharpness only.

The analyzer's dashed vertical line marks the DOMINANT channel's filter frequency and doubles as the visual reference for where the sidechain crossover sits.

SUB SYNTH

BF-1 includes a monophonic sub-bass synthesizer that can generate low end from scratch or reinforce your existing bass — driven either by MIDI, by analyzing your audio's pitch in real time, or both.

Mode	Behavior
SUB SYNTH	Synth runs independently of the incoming audio, following MIDI or the locked note set.
AUDIO	Synth pitch is driven entirely by real-time pitch detection on the incoming audio.
MIDI	Synth responds only to MIDI note input to the plugin.
HYBRID	Combines audio-detected pitch with MIDI/locked notes for the most stable tracking.

Synth Controls

Control	Range	Function
KEY	C – B	Root note used by the SCALE control to constrain generated pitches.
SCALE	Chromatic / Major / Minor / Pentatonic	Limits which notes the synth can output.
WAVE	Sine / Tri / Square / Saw / 808	Oscillator waveform — Sine and 808 are cleanest for sub; Saw and Square add harmonic content for smaller speakers.
LEVEL	0 – 100%	Sub synth output level.
OCT	–2 to +2 oct	Octave transpose.
DRIVE	0 – 100%	Adds harmonic saturation, useful for translating on small speakers.
TUNE	±12 semitones	Fine pitch offset.
AUDIO	0 – 100%	Blend between the synthesized tone (0%) and your original audio (100%) — this is an isolation control, not a mix-with-dry control.

Envelope (ADSR + Portamento)

Control	Range	Function
ATK	0 – 500 ms	Attack time of the synth's amplitude envelope.
DEC	0 – 2000 ms	Decay time.
SUS	0 – 100%	Sustain level.
REL	0 – 2000 ms	Release time.
PORTA	0 – 200 ms	Glide time between notes.

Note Learner (LEARN / LOCK)

HOW THE NOTE LEARNER WORKS

Press **LEARN** to begin listening. BF-1 analyzes your incoming bass audio in real time using pitch detection, building a histogram of which notes actually occur in your part. The display shows the currently detected note, its frequency in Hz, and a confidence indicator (SEARCHING → PROBABLE → LOCKED) as it gathers evidence. Press **LEARN** again to stop. Once learning is complete, press **LOCK** to constrain the sub synth's note output to only the notes it actually heard in your part — this keeps the synthesized sub in perfect unison with your bassline instead of wandering into notes that were never played.

Learning works best over a full 8–16 bar phrase of your actual bass part, played or recorded at performance level. The longer BF-1 listens, the more confident and accurate the learned note set.

THE ANALYZER

The right-hand display shows the real-time frequency response of both channels: **red** for DOMINANT, **blue** for SUB-MISSIVE. The dashed marker and its Hz label track the sidechain crossover point. Use this view to confirm your two channels are actually separated in frequency, not fighting for the same space.

PRESETS

Use the arrow buttons beside the preset name to step through the built-in preset list, or click the preset name itself to open the full list. **SAVE** captures your current settings as a new preset in your user bank.

SPECIFICATIONS

Formats	Audio Unit (AU), VST3
Platform	macOS — Apple Silicon (Windows in development)
Latency	Zero added latency (no oversampling on this plugin)
Channel config	Mono and stereo

SUPPORT

Questions, issues, or feature requests: gainesaudio63@gmail.com. Please include your Stripe receipt, your DAW and macOS version, and a short description of what you're hearing or seeing.