

TZ-12

TRACEZERO

FEEDBACK SUPPRESSOR · 12 SVF

"No Feedback, Pure Sound."

OPERATION MANUAL

ENGLISH · VERSION 1.x · REV. AUGUST 2026

1 · WHAT TZ-12 IS

TZ-12 TraceZero is an automatic feedback suppressor built by a FOH engineer who does not trust automatic feedback suppressors.

The classic objections are all fair: wide notches that hollow out a PA, detectors that shoot at saxophones, and wizard workflows nobody can run nine seconds before a howl takes the room. TZ-12 was designed against that list, with three rules that are permanent, not adjustable:

Rule one — notches never widen

Every intervention is a surgical state-variable notch. When a frequency keeps ringing, TZ-12 goes **deeper** — in small inaudible steps, down to -60 dB — but never **wider**. If a neighbouring frequency starts to ring, it gets its own notch. Bandwidth has a hard floor of 4 Hz; your mix keeps its tone at every stage of the fight.

Rule two — it decides, you supervise

Feedback is confirmed by three independent criteria — **narrowness** (a howl is spectrally thin; music is not), **persistence** (it stays put) and **growth** (it rises against the room). When all three agree, the cut happens automatically, in a fraction of a second. You don't approve anything mid-song. You watch it happen — and you can lock or release any action with one tap.

Rule three — zero added latency

Detection runs in a background analyser, never in the audio path. The audio path is twelve notch filters and nothing else: no lookahead, no FFT, no linear-phase blocks. 0 samples added, on every buffer size.

HONEST PHYSICS — Any minimum-phase notch bends phase *inside its own bandwidth*. That is physics, and TZ-12 does not pretend otherwise. What we guarantee: the phase effect stays confined to the notch width (as narrow as 4 Hz), and the plugin adds zero latency. Claims of "zero phase" feedback suppression are marketing — you won't find that claim on this product.

2 · QUICK START

Installation & activation

Run the installer (macOS: VST3 + AU into the system plugin folders; Windows: VST3 into `Common Files\VST3`).
Activate with your personal key file — offline, two machines, no account.

Where it goes

On the path you're protecting: a monitor bus, the PA master, or a problem channel (lectern mic, acoustic guitar). One instance per path — each path howls at its own frequencies.

The two-minute ring-out

1. Insert TZ-12, walk the system up toward show gain.
2. Let it ring — gently. TZ-12 confirms and cuts each howl in a fraction of a second; every cut appears on the spectrum as a colored dip with its depth labelled in dB.
3. The first six confirmed frequencies fill the six **CAP**ture slots — these are your room's fingerprint for the night.
4. Tap the dips you want to keep forever tonight — they turn pink (**LOCKED**).
5. Press **TRACE**. The six tracker slots now float, hunting whatever the show invents later. Done.

The twelve slots

SLOT TYPE	COUNT	BEHAVIOUR
CAPTURE (CAP)	6	Fill automatically with the first confirmed feedback frequencies and hold them. Deepen if their frequency re-offends. Your ring-out lives here.
TRACKER (TRK)	6	Stay dynamic for the whole show: confirm, cut, hold while the threat persists, and gently release when it's gone — freeing the slot for the next surprise.
LOCKED	any	A slot you've frozen by tapping its dip (or chip). Locked cuts never move and never release until you release them.

ROAD TIP — Ring out monitors *per mix*: one TZ-12 per monitor bus, CAP slots locked after soundcheck, TRACE on for the show. The PA master usually needs fewer locks — let the trackers breathe there.

Formats & requirements

ITEM	SPECIFICATION
Filters	12 SVF notches: 6 auto-capture + 6 dynamic trackers
Depth / width	to -60 dB · bandwidth floor 4 Hz, never widens
Added latency	0 samples
Formats	VST3 · AU — macOS 12+ (Apple Silicon) · Windows 10+ (x64)
License	Offline signed key · 2 machines · no iLok

3 · THE SPECTRUM & CONTROLS

Reading the display

The 64-band spectrum shows the programme with broadcast-style ballistics — fast enough to trust, slow enough to read. Every intervention is drawn as a colored dip at its true frequency, with its depth in dB next to it. Nothing TZ-12 does is invisible:

-  **Gold dip** — a CAPTURE slot: part of the room's fingerprint.
-  **Teal dip** — a TRACKER slot currently engaged on a live threat.
-  **Pink dip** — LOCKED by you. It stays until you say otherwise.

Tap to lock, tap to release

The spectrum is a control surface: **tap any dip to lock it** (it turns pink); tap a pink dip to release it. The slot chips under the display are buttons too — same action, bigger target, per slot. Chips show each slot's frequency and current depth.

The panel

CONTROL	WHAT IT DOES	WHEN TO TOUCH IT
SENS	Detector sensitivity — how much evidence the three criteria need before a cut is confirmed.	Raise it for stubborn low-mid feedback in dense rooms; lower it if programme material ever triggers a false cut. Default suits most PAs.
TRACE	Arms the six tracker slots for continuous hunting after the CAP slots are filled.	On for the show. Off while you deliberately ring out, if you prefer the captures to land one by one.
OUT	Clean output trim after the notch bank.	Gain staging only.
BYPASS	True bypass.	A/B honesty checks. Careful at show gain — the howls are still out there.

Troubleshooting

SYMPTOM	LOOK AT
A low howl (60–150 Hz) survives	Raise SENS. Low-frequency howls are wider by nature; TZ-12 relaxes its narrowness test below ~470 Hz, but dense rooms may still need more sensitivity.
A cut released and the howl came back	Lock it. Trackers release when a threat is gone; a recurring frequency belongs in a locked slot for the night.
All 6 CAP slots are full, new room problem	That's what the 6 trackers are for. If your room genuinely rings at more than 12 stable points, fix the PA aim/EQ first — no suppressor should be a system tech.
Music triggered a cut (rare)	Lower SENS slightly; release the slot with a tap. The three-criteria detector is conservative by design.

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