

ORRA AUDIO · PRODUCT MANUAL

Version 1.1.0

ORRA DUCKER

SPECTRAL SIDECCHAIN DUCKER

*Spectral, per-frequency-bin ducking.
Draw the focus band. Key it from any track, in any DAW.*

Orra Audio LLC · 2026

Welcome

Orra Ducker is a **spectral sidechain ducker**. Where an ordinary ducking compressor turns down your whole signal whenever the sidechain is loud, Orra Ducker works **per frequency**: it analyses the trigger signal across roughly a thousand frequency bins and ducks your audio only where, and only when, the two actually collide. A kick drum keyed against a bass makes room in the low end without dropping the whole bass line; a lead vocal keyed against a pad carves a pocket in the vocal's range and leaves the rest of the pad untouched.

Everything is driven from one large analyzer. The input, the sidechain, the output, and the live per-frequency gain-reduction curve are all drawn on the same log-frequency display, so you can see exactly what is being ducked and where. Two draggable handles on the plot set a **focus band** — ducking is restricted to the range between them, so you can aim the effect at just the low end, just the harsh mids, or the full spectrum.

Orra Ducker also reads **Orra Link**, the companion sender plugin that streams audio from any track in your project onto a cross-DAW bus. With Orra Link 2 senders, tracks appear in the trigger-source menu **by name, with their track color** — drop Orra Link on a vocal, and "Lead Vox" shows up in the Ducker's Source menu ready to pick. The trigger can be the plugin's own input, the host's external sidechain bus, or any Link track — so you can key the ducker from any track even in hosts whose routing won't normally allow it. See the *Sidechaining* chapter.

This manual runs front-to-back: start with the *Interface Tour*, read *How Spectral Ducking Works* for the one concept that makes the rest obvious, then skim *The Controls*. The later chapters cover latency modes, the analyzer, sidechaining with Orra Link, and a workflow tips section.

System Requirements

Formats	VST3, Audio Unit (AU), and AAX (Pro Tools).
macOS	10.13 or later (Universal 2: Apple Silicon + Intel).
Channels	Mono or stereo (input and output matched), with an optional mono or stereo sidechain input bus.
Latency	Selectable per the LATENCY mode: HQ 2048, Balanced 1024, Fast 512, or Live 0 samples. Choosing a Link sidechain source adds one host block. All latency is reported to the host for delay-compensated (PDC) routing.

Interface Tour

The window is organised top-down into four horizontal regions, sitting on a brushed-gunmetal faceplate. The header and the control cards are raised out of the plate; the analyzer is recessed into it.

1. Header

Spans the top of the window. On the left, the **ORRA DUCKER** wordmark. On the right: the **LATENCY** mode selector (HQ / Balanced / Fast / Live) with a live read-out of the reported latency in milliseconds beside it; the **UI scale** selector (75–200 %); and the circular **?** tips toggle on the far right, which turns hover tooltips on and off.

2. Curve Toggles

A raised strip just below the header carries four toggles — **IN**, **SIDE**, **OUT**, and **DUCK** — that show or hide the four traces on the analyzer. Each is a colored dot matching its curve. **Right-click** the IN, SIDE, or OUT toggle to open a small pop-over with that trace's display **Smooth** and refresh **Rate** — visual settings only; they never touch the audio. **Right-click DUCK** instead to set the reduction meter's range — see *The Analyzer*.

3. Analyzer

The large recessed screen is a log-frequency spectrum display (20 Hz – 20 kHz, dBFS). It overlays four traces: the **input** spectrum (green fill), the **sidechain** / trigger spectrum (gold line), the **output** spectrum (blue fill), and the live **ducking** curve (red) showing the per-frequency gain reduction being applied right now. Two gold **focus handles** on the plot set the low and high edges of the ducking range — drag them directly. The frequency region outside the focus band is dimmed to show it passes through un-ducked. The LOW CUT and HIGH CUT knobs move the same handles.

4. Control Cards

Three raised cards along the bottom group the knobs by job. **SIDECHAIN** holds the trigger-source selector plus the THRESHOLD and LINK knobs; **DUCKING** holds the duck-target selector (Stereo / Mid / Side), the Δ delta-listen toggle, and the RATIO, ATTACK, and RELEASE knobs; **FOCUS** holds RESOLUTION, LOW CUT, and HIGH CUT. The two most important controls — THRESHOLD and RATIO — are drawn larger as the hero knobs of their cards. Double-click any knob to return it to default; double-click its value to type an exact number.

How Spectral Ducking Works

It is worth thirty seconds on the core idea, because the rest of the plugin follows from it.

A normal ducker measures one number from the sidechain — its overall level — and uses it to pull down one fader on your signal. Loud kick, whole bass drops. Orra Ducker instead runs a 2048-point FFT (Hann window, 75 % overlap) on both the trigger and your audio, splitting each into roughly a thousand frequency bins. Every bin gets its own detector and its own gain computer. A bin in your signal is only ducked when the **matching bin** in the sidechain crosses the threshold — so energy in the trigger only carves the part of your signal that shares its frequency.

That is why a kick can make space for itself inside a bass without audibly dropping the bass: only the bins the two share get touched. It is also why the **RESOLUTION** control matters — it sets how finely the per-bin reduction is allowed to vary across frequency (surgical and narrow, or broad and smooth), which is the difference between a precise notch and a gentle tilt.

The **LIVE** mode is the exception: it skips the FFT and runs a classic broadband envelope ducker (one detector, one gain) at zero latency, for live monitoring. Every other mode is fully spectral.

Signal flow

trigger source (None / External / Link) → per-bin detector → per-bin gain computer (THRESHOLD, RATIO) → temporal smoothing (ATTACK, RELEASE) → frequency smoothing (RESOLUTION) → focus mask (LOW / HIGH CUT) → applied to your audio → output. Stereo detection is blended by the LINK control before the gain computer.

The Controls

Eleven controls across three cards, plus the header's latency selector. All knobs are automatable, double-click to default, and double-click-to-type.

SIDECHAIN

Where the trigger comes from, how hard it has to hit, and how the two channels are linked.

Control	Range	Purpose
Source	None / External (DAW) / Link tracks & channels	Trigger source. None keys off the plugin's own input (self-ducking). External (DAW) uses the host's sidechain bus. Below those, the menu lists every live Orra Link track by name (with its track color) plus a <i>Link channels</i> submenu of the numbered Link 1–36 slots currently broadcasting. See <i>Sidechaining</i> .
Threshold	–60 to 0 dB	The level a sidechain bin must exceed before that bin is ducked. Lower = more sensitive, more of the spectrum triggers. <i>Hero knob</i> .
Link	0 to 100 %	Stereo linking of the detector. 0 % ducks left and right independently; 100 % ducks both channels by the same amount. Linking is applied to the detector levels, never the raw audio, so wide material can't phase-cancel the trigger. Disabled in the Mid and Side duck-target modes, which always use one linked detector.

DUCKING

How deep the ducking goes, how it moves in time, and which part of the stereo image it is allowed to touch.

Control	Range	Purpose
Duck Target	Stereo / Mid / Side	Where the ducking is applied. Stereo ducks left and right as usual. Mid ducks only the center of the image (mono content); Side ducks only the width. In Mid or Side the detector is a single linked curve and the LINK knob is disabled. Classic move: duck only the Sides of a wide pad under a centered lead vocal — the pad's stereo halo parts for the vocal while its core holds steady.
Δ (Delta)	on / off	Delta listen. Monitors only what the ducking removes — the dry signal minus the ducked output — instead of the processed signal. Press it while dialing THRESHOLD and RATIO to hear exactly what you're taking out; release it to hear the result. A monitoring tool only; remember to switch it off.
Ratio	1:1 to 100:1	Depth of attenuation applied above threshold. 2:1 is a gentle lean; 10:1 and up is firm ducking; toward 100:1 the ducked bins are pushed down to the threshold (near gating). <i>Hero knob</i> .

Control	Range	Purpose
Attack	0.1 to 100 ms	How quickly ducking engages when the trigger appears. Short attacks catch transients tightly; longer attacks let the leading edge through for a softer pull.
Release	10 to 1000 ms	How quickly the signal recovers after the trigger stops. Match it to the tempo so the signal breathes back in on the beat rather than pumping.

FOCUS

Which part of the spectrum the ducker is allowed to touch, and how finely.

Control	Range	Purpose
Resolution	0.1 to 10	Frequency selectivity. High values give surgical, narrow-band ducking that follows the trigger spectrum bin-for-bin; low values smooth the reduction across frequency for a broad, gentle duck. Think of it as how sharply the duck can carve.
Low Cut	20 Hz to 20 kHz	Lower edge of the focus band. Below this, your signal passes through un-ducked. Also the left gold handle on the analyzer.
High Cut	20 Hz to 20 kHz	Upper edge of the focus band. Above this, your signal passes through un-ducked. Also the right gold handle on the analyzer.

The focus band has a soft transition (half an octave) at each edge, so the boundary between ducked and un-ducked is gradual, not a hard wall. With LOW CUT at 20 Hz and HIGH CUT at 20 kHz the whole spectrum is in play.

LATENCY (header)

Trades spectral precision against reported latency. Bigger FFT frames resolve frequency more finely and duck more precisely, but report more latency to the host. All modes are delay-compensated, so the choice is about tracking feel, not timing.

Control	Range	Purpose
HQ	2048 samples (~43 ms @ 48k)	Finest frequency resolution. The default for mixing and anything not monitored live.
Balanced	1024 samples (~21 ms @ 48k)	Half the latency, still fully spectral. A good general-purpose setting.
Fast	512 samples (~11 ms @ 48k)	Lowest-latency spectral mode, for near-real-time monitoring.
Live	0 samples	Bypasses the FFT entirely and runs a broadband envelope ducker (one band) at zero latency, for tracking through the plugin — not frequency-selective.

Selecting a **Link** sidechain source adds one host block of latency on top of the mode's figure, so the cross-track trigger lines up sample-accurately. The latency read-out beside the selector always shows the true reported total.

The Analyzer

The recessed screen is the center of the plugin — it is how you see the collision between your signal and the trigger, and how you aim the duck. The horizontal axis is log frequency (20 Hz – 20 kHz). It carries two vertical rulers: the **left** is signal level in dBFS, for the input, sidechain, and output traces; the **right**, in red, is gain reduction for the ducking trace. They are independent scales — left tells you how loud each frequency is, right tells you how hard the ducker is pulling.

The four traces

Trace	What it shows
Input (green)	Your signal going in. A filled green curve.
Sidechain (gold)	The trigger spectrum — the signal driving the duck. A gold line. Watch where it pokes above your input to predict what gets ducked.
Output (blue)	Your signal after ducking. A filled blue curve. With no ducking it sits exactly on the input trace; any gap between them is the reduction, made visible.
Ducking (red)	The live per-frequency gain-reduction curve. Dips downward wherever the ducker is pulling a band down right now. Read its depth against the red reduction ruler on the right edge.

Toggle any trace on or off with the IN / SIDE / OUT / DUCK buttons on the riser. A legend in the top-right of the plot lists whatever is currently shown.

The reduction scale

The ducking trace reads on its own vertical scale — the red ruler down the right edge of the plot, independent of the dBFS scale on the left. It runs top-down: 0 dB of reduction at the top, the selected maximum at the bottom, so the curve hangs from the top and dips wherever the ducker is working.

Because most musical ducking only moves a few dB, the scale is zoomable. **Right-click the DUCK toggle** and choose a range — **6, 9, 12, or 24 dB** (12 dB by default). A small range makes gentle, surgical reduction easy to read; a larger range keeps heavy ducking on-screen. The ruler relabels the moment you change it, and the choice is remembered with your session.

The reduction scale is a display setting only — it changes how deep the red curve looks, never how much the ducker actually does. RATIO and THRESHOLD set the reduction; this just sets the zoom you read it at.

The focus handles

The two gold circles sitting on the plot are the LOW CUT and HIGH CUT handles. Drag them left and right to set the frequency range the ducker is allowed to work in; the area outside the band dims to show it passes through untouched. They are the same two parameters as the LOW CUT / HIGH CUT knobs on the FOCUS card — move either, and the other follows. Dragging writes proper automation, so you can record focus sweeps.

Per-trace display settings

Right-click the IN, SIDE, or OUT toggle to open a pop-over with two knobs: **Smooth** (how much the trace is averaged across frequency for a calmer display) and **Rate** (how often it refreshes, 5–60 Hz). These are purely cosmetic — they change how the spectrum is drawn, never how the audio is processed. Turn Smooth up for a clean overview, down to see fine detail.

Sidechaining

The SIDECHAIN card's **Source** dropdown chooses what drives the duck. Four kinds of source are available:

- **None** — the default. The ducker keys off its own input, comparing each bin to the rest of the same signal. Useful for spectral self-leveling and de-masking, though most ducking uses an external trigger.
- **External (DAW)** — the host's dedicated sidechain bus. Route a track to the plugin's SC input in your DAW and it drives detection. The classic setup: send a kick to the sidechain to duck a bass under every hit — except here it ducks only the overlapping frequencies, not the whole bass.
- **Orra Link tracks** — every track in the project carrying an Orra Link 2 sender appears in the menu **by name**, with a swatch in its track color. Pick the track and the Ducker follows it wherever it goes: the pick is remembered by name, so it survives session reloads and channel reshuffles. If the source disappears (the Link instance is removed or its track deleted), the picker face shows a dimmed ■ warning next to the name and the ducker gracefully falls back to self-detection until it returns.
- **Link channels** — the numbered Link 1–36 slots, in a submenu listing only the channels currently broadcasting. This is the classic numbered workflow, and it is also how senders from the original Orra Link plugin appear — both generations work side by side.

The Orra Link companion plugin

Orra Link is a small sender plugin that ships alongside Orra Ducker (and is shared with Orra Press and the rest of the Orra range). It broadcasts a track's audio onto a shared bus that every Orra plugin in the project can read — along with the track's **name and color**, which is how sources show up by name in the Ducker's Source menu. Assign a numbered channel for the classic Link 1–36 workflow, or just let the track publish under its own name. A **SEND** toggle mutes the broadcast at the source, and an **OUTPUT** gain stages the trigger feed alone — it changes only what Orra receivers hear, never the source track's own audio.

Latency. Orra Link introduces one audio block between sender and receiver. The DAW can't see the cross-track dependency, so Orra Ducker pulls the latest audio Link wrote — in the worst case the previous block. When a Link source is selected, Orra Ducker delays its own input by one block and reports the extra latency, so the trigger and your audio stay sample-accurate under host anticipation (Reaper Anticipative FX, Cubase ASIO Guard, Studio One Dropout Protection).

Sandboxed hosts. A few DAWs run AU plugins in sandboxes that can block the shared-memory connection. If the bus can't be opened, Link channels simply read as silent and no ducking occurs — fall back to the host's External (DAW) sidechain bus in that case.

Offline renders, bounces, and Pro Tools Commit. During an offline render, Orra Ducker validates every Link read against the render timeline, so a **full-mix bounce** — where the Link sender's track renders in the same pass — keeps the ducking sample-accurate. A **solo-track commit or freeze** is different: the host renders only the committed track, the Link sender never runs, and no plugin can conjure the missing trigger audio. In that case Orra Ducker automatically falls back to the **External (DAW)** sidechain bus if you have one routed, and otherwise ducks nothing rather than guessing from stale audio. If you commit tracks as part of your workflow, route the trigger to the DAW sidechain as a backup before committing — realtime playback will keep using Link, and commits will use the routed bus.

Whichever source you pick, turn on the **SIDE** trace to see it on the analyzer in gold — that is the single fastest way to confirm the trigger is arriving and to see which frequencies it will carve.

Tips & Workflow

Watch the gold line

The fastest way to dial the plugin is to turn on the SIDE (gold) and DUCK (red) traces and watch them. Wherever the gold sidechain pokes up above your input, that is where the red ducking curve will dip. If the red curve isn't moving, your THRESHOLD is too high or the trigger isn't arriving.

Zoom the reduction meter to your material

If the red ducking curve barely seems to move, you're probably only pulling a decibel or two — right-click DUCK and drop the range to 6 dB to see it clearly. If the curve keeps slamming to the bottom of the plot, raise the range to 24 dB. The aim is a meter you can actually read at the depths you work at; it doesn't change the sound, only the view.

Aim before you squash

Set the focus band first. If you only want the kick to clear space in the bass, drag HIGH CUT down to ~300 Hz so the duck can't touch your mids and highs. A narrow focus band plus a firm RATIO is far more musical than a broadband duck at a gentle ratio.

Resolution is the carving tool

High RESOLUTION carves narrow, following the trigger's exact shape — great for making room between two busy parts. Low RESOLUTION smooths the duck across frequency for a broad, gentle level shift that sounds more like a classic ducker. If a duck sounds 'phasey' or pinched, lower RESOLUTION.

Duck the Sides, keep the center

Set **Duck Target** to **Side** to duck only the stereo width. A wide pad or double-tracked guitars keyed from a centered lead vocal will part around the vocal while their mono core keeps the arrangement solid — often more transparent than ducking the whole image. **Mid** is the mirror move: clear the center for a bass or kick while the width carries on.

Press Δ to hear what you're removing

The Δ button on the DUCKING card flips the output to just the removed signal — dry minus ducked. If the delta sounds like the actual collision (kick thump, vocal presence), your focus band and threshold are aimed right; if it sounds like musical material you wanted to keep, back the RATIO off or narrow the focus. Switch it off before you print.

Match RELEASE to the groove

Ducking lives and dies on its release. Too short and it pumps; too long and the signal never comes back between hits. Start around 150–250 ms and tune by ear against the tempo until the signal breathes back in just before the next trigger.

Pick the right latency mode

Mix in HQ for the finest carving. Drop to Fast or Live only when you're monitoring a live performer through the plugin and the delay is in the way — remember Live is broadband, not spectral, so it behaves like an ordinary ducker.

Cross-DAW sidechaining with Orra Link

If you've ever fought your DAW's sidechain routing — especially bus-to-bus sends in hosts that don't support them — Orra Link bypasses the host entirely. Drop it on the source track, then pick that track **by name** in Orra Ducker's Source menu. Works in every DAW we've tested.

Use the “?” tips toggle

The circular ? button at the far right of the header toggles hover tooltips. With tips on, hover any knob, button, or the analyzer to read what it does — handy while you're still learning the plugin.

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