ORRA AUDIO · PRODUCT MANUAL

Version 1.0

ORRA PUMP

TEMPO-SYNCED MODULATION FILTER

Draw the shape. Lock it to the beat.
A filter, tremolo or auto-pan — looped, tempo-synced, or sidechain-triggered.

Orra Audio LLC · 2026

Welcome

Orra Pump is a **drawable, tempo-synced modulation engine** — a rhythmic auto-filter in the spirit of the classics, built around one shape you draw yourself. Instead of a fixed sine or a menu of canned waveforms, you place and bend control points on a large screen to draw exactly the curve you want, and that curve becomes a looping modulator.

The shape drives one **destination** of your choice: a resonant filter (low-, high-, band-pass or notch), **volume** for tremolo and rhythmic gating, or **pan** for auto-panning. A **channel** selector aims the effect at the full stereo signal, the mid, or the side — so you can filter only the centre, or wobble only the stereo edges.

The curve can run as a **free-running LFO**, lock tightly to the **host tempo** at any note division, or be **triggered from a sidechain** — playing once per hit (one-shot) or restarting a loop on every hit. A drawable **swing** grid lets you place points with groove, and live overlays on the screen show you exactly what the modulation is doing as it plays.

This manual runs front-to-back: start with the *Interface Tour*, read *How Drawn Modulation Works* for the one idea the rest follows from, then skim *The Controls*. The later chapters cover the curve editor in detail, triggering and tempo sync, 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. On a mono instance the Mid and Side channel modes fold down gracefully — see *The Controls*.
Latency	Zero. Orra Pump adds no latency and reports none to the host, so it is safe to track and monitor through in real time.

Interface Tour

The window is organised top-down into four horizontal regions, sitting on a near-black brushed-metal faceplate. The header, the riser, and the control cards are raised out of the plate; the curve screen is recessed into it like a pane of glass.

1. Header

Spans the top of the window. On the left, the **ORRA PUMP** wordmark. On the right: the **UI scale** selector (75–200 %) and the circular **?** tips toggle, which turns hover tooltips on and off. A small **ORRA AUDIO** maker's plate sits on its own raised pad to the right of the riser, mirroring it.

2. Clock & Trigger Riser

A raised strip just below the header carries the timing and trigger controls. **SNAP** makes drawn points snap to the grid; **SYNC** locks the modulation to the host tempo (versus a free Hz rate); the **division** selector sets the note length of one cycle when synced; the **SWING** box shifts the off-beat grid lines for groove; and the trigger **source** selector (Internal / External) chooses what fires the sidechain modes.

3. Curve Screen

The large recessed screen is where you draw. The horizontal axis is one full cycle of the modulator; the vertical axis is the modulation value (low at the bottom, full at the top). Click to add control points, drag them to move, and drag a segment's mid-handle to bow the line between two points. A moving **playhead** shows the live position, and three overlays — an **effective-output ghost**, a second **stereo playhead**, and a **trigger meter** — show exactly what the bottom-row controls are doing. See *The Curve Editor*.

4. Control Cards

Three raised cards along the bottom group the knobs by job. **SHAPE** holds the TARGET and CHANNEL selectors plus the DEPTH, SMOOTH, and MIX knobs; **FILTER** holds CUTOFF and RESO; **CLOCK** holds the TRIGGER-mode selector plus RATE, PHASE, STEREO, and THRESH. The most important controls of each card — DEPTH, CUTOFF, and RATE — are drawn larger as hero knobs. Controls that don't apply to the current mode grey out. Double-click a knob to return it to default; double-click its value to type an exact number.

How Drawn Modulation Works

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

The shape you draw is a curve from left to right across one cycle, with a value between 0 (bottom) and 1 (top) at every point. A **playhead** sweeps across that curve, and the value under the playhead is the modulation signal. How fast the playhead moves is set by the clock — a free **RATE** in Hz, a tempo-locked note **division**, or a sidechain **trigger**. What the modulation *does* is set by the **TARGET**.

DEPTH scales how strongly the curve pushes the destination. For the filter targets, the **CUTOFF** knob sets the floor — the most-closed point — and the curve opens the filter upward from there by DEPTH; at DEPTH 0 you get a static filter parked at CUTOFF, and at full DEPTH the curve sweeps it all the way open. For **Volume**, the curve scales level (tremolo and rhythmic gating); for **Pan**, it moves the signal across the stereo field.

Two final stages shape where the effect lands. The **CHANNEL** selector decides which part of the stereo image is processed — the whole stereo signal, just the mid, or just the side — and **MIX** blends the processed signal back against the dry. Because the groove is drawn into the shape itself, a tempo-locked Orra Pump stays perfectly in time with your project with no extra setup.

Signal flow

drawn curve (the shape) → playhead (RATE / division / trigger) → value × DEPTH → TARGET (filter cutoff / volume / pan) → CHANNEL routing (Stereo / Mid / Side) → MIX → output. SMOOTH slews the value before the target; STEREO offsets the right-channel playhead so the two sides move apart.

The Controls

Three cards of knobs, two card selectors, and the riser's timing controls. All knobs and selectors are automatable; knobs double-click to default and double-click-to-type.

SHAPE

What the curve modulates, where it lands in the stereo field, and how strongly.

Control	Range	Purpose
Target	LP / HP / BP / Notch / Volume / Pan	What the drawn curve drives. The four filters sweep cutoff (with CUTOFF and RESO on the FILTER card); **Volume** is tremolo / gating; **Pan** is auto-panning.
Channel	Stereo / Mid / Side	Which part of the stereo field is processed. **Stereo** affects both channels; **Mid** the centre (sum); **Side** the stereo difference (great for filtering or wobbling only the width). Greyed for the Pan target, which always repositions the whole field.
Depth	0 to 100 %	How strongly the curve drives the destination. At 0 % the destination is static; at 100 % the curve has full range. *Hero knob.*
Smooth	0 to 100 %	Slews the modulation (up to ~150 ms) to round off sharp corners in the shape and prevent clicks — especially useful for Volume and Pan, or steep filter sweeps.
Mix	0 to 100 %	Dry / wet blend of the processed signal against the input.

FILTER

The base filter, swept by the curve. Active for the four filter targets only.

Control	Range	Purpose
Cutoff	20 Hz to 20 kHz	The filter's floor — its most-closed point. The curve opens the filter upward from here by DEPTH, so CUTOFF sets where the closed parts of your sweep sit. Set it low for a full-range sweep, higher to keep the filter bright. *Hero knob.*
Reso	0 to 100 %	Resonance / emphasis at the cutoff. Low values are clean; high values add a vocal peak that sings as the curve sweeps the cutoff past it.

CLOCK

How the playhead is driven, where it starts, and how the sidechain fires it.

Control	Range	Purpose
Trigger Mode	Loop / One-Shot / Loop (Trig)	**Loop** runs continuously (tempo-locked when SYNC is on). **One-Shot** plays the curve once on each sidechain hit, then holds its end value. **Loop (Trig)** restarts the loop on every hit. See *Triggering & Sync*.
Rate	0.01 to 40 Hz	Free-running cycle rate, used when SYNC is off. When SYNC is on the division selector sets the rate instead and this is greyed. *Hero knob.*
Phase	0 to 360°	Start-phase offset — slides the whole curve along its cycle, moving the playhead's read position without redrawing the shape.
Stereo	0 to 180°	Offsets the right channel's playhead from the left, so the two sides modulate out of phase. A little adds stereo movement; larger values give ping-pong sweeps and panning. (Applies in the Stereo channel mode.)
Thresh	–60 to 0 dB	The sidechain level that fires the trigger, in the One-Shot and Loop (Trig) modes. Lower = more sensitive. The screen's trigger meter shows the live level against this mark.

The riser (clock & trigger)

The strip above the screen carries the timing and trigger settings.

Control	Range	Purpose
Snap	On / Off	Snaps points you add or drag to the grid — including the swung off-beat lines.
Sync	On / Off	Locks the modulation to the host tempo using the division selector. Off frees it to the RATE knob's Hz.
Division	4 Bars … 1/32 (dotted, triplet)	The note length of one full cycle when SYNC is on. Straight, dotted (D) and triplet (T) values are provided.
Swing	0 to 100 %	Shifts the off-beat grid lines later (shown dotted), up to a 3/4 shuffle. Snapping follows them, so points you place pick up the groove. A drawing guide — it shapes where your points land, it does not warp playback.
Source	Internal / External (DAW)	Trigger detector source for the sidechain modes. **Internal** follows the main input's transients; **External** uses the host's sidechain bus.

The Curve Editor

The recessed screen is the heart of the plugin — it is both where you draw the modulation shape and where you watch it work. The shape is a series of control points joined by curved segments, looping seamlessly from right back to left.

Drawing the shape

Action	How
Add a point	Click anywhere on empty screen to drop a new control point.
Move a point	Drag it. The first and last points are pinned to the left and right edges and move vertically only; points in between stay ordered between their neighbours.
Bend a segment	Each segment has a small mid-handle. Drag it up or down to bow the line concave or convex — straight lines, smooth ramps, exponential curves, anything in between.
Delete a point	Double-click or right-click it. The two end points can't be removed.

Grid, snap & swing

Faint grid lines divide the cycle into beats and subdivisions. Turn on **SNAP** (on the riser) and points you add or drag lock to the nearest grid line, which makes it easy to place modulation exactly on the beat. The **SWING** box shifts every off-beat grid line later — these appear as dotted ghost lines that slide right as you raise swing, up to a three-quarter shuffle. Snapping follows the dotted lines, so a shape you draw on the swung grid carries the groove with it.

The live overlays

Four overlays turn the screen into a live picture of what the bottom-row controls are doing, so you can see the effect of a knob before you even hear it:

- **The playheads.** A cyan line and dot track the live read position across your curve. Raise **STEREO** and a second, violet playhead splits off from it — that's the right channel reading the curve at an offset, the source of the stereo movement. **PHASE** slides both along together.
- **The smoothed trace.** A cyan line showing your shape after the **SMOOTH** slew rounds its corners and adds a little lag — the actual modulation that comes out. The cyan playhead dot rides this line, not the drawn curve. Turn SMOOTH up and the trace visibly softens away from your gold shape; it appears only when smoothing is doing something at the current rate (faster rates round more).
- **The effective-output ghost.** A dashed gold line shows the value actually sent to the destination once DEPTH (and, for filters, the CUTOFF floor) is applied. As you lower DEPTH it collapses toward the base; as you raise CUTOFF its floor lifts. It sits on your drawn shape when there's nothing to show and separates when there is.
- **The trigger meter.** In the sidechain trigger modes, a slim meter down the left edge shows the live detector level with a gold **THRESH** mark across it. It brightens the instant the level crosses the mark and fires the curve — so you can set the threshold by eye.

Triggering & Sync

Orra Pump's playhead can be driven three ways, chosen with the **TRIGGER** selector on the CLOCK card. The first runs continuously; the other two wait for a sidechain hit.

Loop

The default. The curve loops continuously. With **SYNC** on, the loop is locked to the host transport — one cycle spans the chosen note division and the curve stays aligned to the bar, so it always starts in the same place relative to your project. With SYNC off, the curve free-runs at the **RATE** knob's Hz. The loop also runs while the transport is stopped, so you can hear and tune it without playing.

One-Shot

The curve becomes a one-shot envelope. Each time the trigger source crosses **THRESH**, the playhead jumps to the start, plays through the shape once at the set rate, and then holds the curve's end value until the next hit. Draw a shape that rises and falls and you have a per-hit filter or volume envelope — a pluck, a swell, a gated stab — fired by a kick, a snare, or the track's own transients.

Loop (Trig)

A retriggered loop. The curve loops continuously as in Loop mode, but every sidechain hit restarts it from the beginning — so the modulation re-locks to the groove on each trigger rather than to the bar. Useful when you want a free rate that still snaps back into phase with the performance.

The trigger source

In the two sidechain modes, the **source** selector on the riser chooses what the detector listens to:

- **Internal** — the plugin's own input. The curve fires from the main signal's transients, so a drum loop can trigger its own filter envelope with no routing at all.
- **External (DAW)** — the host's sidechain bus. Route any track to Orra Pump's sidechain input and its hits fire the curve, the classic way to key one track's rhythm onto another.

Set the threshold while watching the trigger meter on the left of the screen: lower **THRESH** until the meter crosses the mark and fires reliably on the hits you want, but not on the ones you don't.

Tips & Workflow

Cutoff is the floor, depth is the sweep

If the CUTOFF knob seems to do little, your DEPTH is probably high — at full depth the curve drives the filter and CUTOFF sets only the lowest point of the sweep. For a full-spectrum sweep, set CUTOFF low. To keep a bright filter that only dips a little, raise CUTOFF and lower DEPTH. Watch the dashed ghost line to see exactly where the sweep sits.

Draw on the grid, then add swing

Turn on SNAP and draw your points on the beat first — it's far easier to get a tight, musical rhythm when points lock to the grid. Then dial up SWING and watch the off-beat lines slide; re-place the off-beat points on the dotted lines to give the shape a shuffle without redrawing it.

Use Side for width, Mid for focus

The CHANNEL selector is the secret weapon. A low-pass on **Side** filters only the stereo edges, narrowing the image rhythmically; **Volume** on Side is a rhythmic width wobble. **Mid** keeps the centre — vocal, kick, bass — steady while you move everything around it. On a mono track these fold down sensibly, so the same preset still works.

Tremolo and gating without a filter

Set TARGET to **Volume** and the curve becomes a tempo-locked tremolo. Draw smooth humps for a gentle pulse, or square steps with SNAP for a hard rhythmic gate. Add a little SMOOTH to round the edges and keep it click-free.

Stereo movement from one knob

Raise STEREO to split the left and right playheads. On a filter target this sweeps the two channels out of phase for a wide, swirling motion; on Volume it becomes a stereo tremolo; combined with a panning shape it ping-pongs. Watch the violet playhead to see how far the right channel is lagging.

One-shot envelopes from the kick

In One-Shot mode with the Internal source, a drum bus triggers its own per-hit filter envelope. Draw a fast rise and slow fall for a classic pluck, or an instant drop and slow open for a reverse-swell feel. Tune the rate so the shape finishes just before the next hit.

Use the “?” tips toggle

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

Orra Pump is a product of Orra Audio LLC.
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