

Motra

An analogue-style stacked synth for fat basses and pads, with a step sequencer that also changes the filter type and the number of stacked voices on every step.

A Lab plug-in. The Lab is where new GFX plug-ins are built in the open: they may change sound or controls between versions. This is the Lab version of the Stable Motra: it sounds the same until you use the new FILTER and STACK step lanes.



Overview

Motra is a two-oscillator analogue-style synth on a starship hull of off-white plating, livery blocks and hazard stripes. Every note can play a STACK of up to four voices, detuned apart and spread across the stereo field: that is where its big basses and wide pads come from. The voices run through a four-stage ladder filter with drive

into it and resonance up to self-oscillation. It can be a 2-pole or 4-pole low-pass, a band-pass, a high-pass or a notch.

The motion comes from two LFOs and the SEQUENCER: four tracks of sixteen steps - pitch, cutoff, level and one you assign - that run while you hold a key, in time with the project. Two step lanes run under them. FILTER picks the filter type for each step and STACK picks how many voices each step plays, so a bass line can go from a single thin voice to a four-voice stack and back, or switch from low-pass to band-pass to high-pass as it plays. Each step can also just follow the panel.

The top row always shows the performance controls: the filter and envelope, four ASSIGN knobs you set to any parameter, a light for each voice, and MODE and STACK. Below it is the SEQUENCER page, or every parameter when EDIT is lit.

Reach for it for

- Huge stacked mono basses, from sub to growl
- Wide, detuned pads and strings
- Sequenced basslines and rhythmic filter motion
- Acid lines with glide and a singing filter
- Sequences that change filter type and thickness from step to step
- Plucks, stabs and brass stacks

Loading and playing it

1. Insert Motra on a new track (it is an instrument) and arm it for your MIDI keyboard, or put a MIDI item on the track.
2. Play: POLY is the default. Choose MONO for legato bass and leads (with GLIDE on the EDIT page).
3. STACK 1 - 4 sets how many voices each note plays. Turn DETUNE and SPREAD (EDIT page) to taste.
4. To hear the sequencer, turn it ON and hold a key: the PITCH track plays on top of the key you hold.
5. PRESETS loads a whole sound, the sequence included.

Controls

Knobs: drag (Shift for fine moves) or use the mouse wheel; double-click to reset. A knob's value shows while you touch it. Drop-down boxes open their list with a click.

The top bar

PRESETS	The preset list (a click on the display does the same); ◀ / ▶ step through it.
MIDI	Flashes when a note arrives.
EDIT	Lit: the lower half of the panel shows every parameter. Dark: it shows the SEQUENCER.
S / M / L, ?	Panel size, and the pop-up with the design credit and the address of this manual.

FILTER / ENVELOPE

CUTOFF	20 Hz - 16 kHz.
RESONANCE	0 - 100%, up to self-oscillation.
ATTACK	The amp envelope's attack; the filter envelope's attack follows it.
DECAY / REL	Sets the amp and filter envelopes' decay and release together. Set them apart on the EDIT page.

ASSIGN

Four knobs	Each can be set to any sound parameter: click the name under the knob for the list. By default: SUB, DRIVE, DETUNE and FILTER ENV.
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VOICES

A light for each of the eight voices, lit while it sounds.

MODE

MONO / POLY	MONO: one note at a time, legato, the last note played, with GLIDE. POLY: up to eight voices (the default).
STACK 1 - 4	How many voices each note plays. In POLY, STACK 2 leaves four notes at a time and STACK 4 two; the line below

shows how many.

The SEQUENCER page

OFF / ON	The sequencer runs while a key is held: in time with the project while REAPER plays, free at the project tempo while it is stopped.
RETRIG	Restarts the envelopes on every step (lit by default).
RATE	1/32, 1/16 (default), 1/8, 1/4, 1/16 triplet or 1/8 triplet.
PITCH	0 - 24 semitones on top of the key you hold, step by step.
CUTOFF	Moves the filter, with its DEPTH knob.
LEVEL	The step's level, with its DEPTH.
SEQ 4	One assignable track - PW, RESONANCE, DRIVE, PAN or NOISE - with its DEPTH.
Drawing	Press in a track and drag across the steps to draw them; the value shows while you draw. The lights above show the step playing.
FILTER lane	The filter type for each step: LP2 (2-pole low-pass), LP4 (4-pole low-pass), BAND (band-pass), HIGH (high-pass) or NOTCH. Click a step for the list. A dim step follows the panel's filter type (shown in grey); a lit step sets its own. The list also has All steps follow the panel, which clears the lane. A change of type glides over 10 ms, and the filter keeps running through it, so a step that changes type never clicks.
STACK lane	How many voices each step plays, 1 to 4. Click a step for the list; a dim step follows the panel's STACK. When a step adds voices they fade in over about 6 ms; when it drops them they fade out. The voices still playing spread out again across the stereo field (with SPREAD) and the level is evened out, so a thicker step isn't simply louder.

How many notes

While the sequencer is on, each note takes as many voices as the biggest step in the STACK lane. In POLY that sets how many notes you can hold: a lane that reaches 4 leaves two notes, the same as STACK 4. The line under the STACK keys shows how many.

After the key

While a note rings out after you let go of the key, it keeps the last step's filter type and stack. With the sequencer off, both lanes are ignored and the panel's FILTER type and STACK apply.



The EDIT page

DCO 1	SAW, TRI or PULSE; FREQ (-24 to +24 semitones); PW.
DCO 2	OFF, SAW, TRI or PULSE; FREQ; FINE (cents, +7 by default); PW; MIX (DCO 1 against DCO 2).
SUB / NOISE	A square an octave (-1) or two (-2) below DCO 1, and NOISE.

STACK	DETUNE (how far apart the stacked voices are, in cents), SPREAD (across the stereo field) and GLIDE.
FILTER	The type, from the list: 2-POLE LP, 4-POLE LP (the default), BAND-PASS, HIGH-PASS or NOTCH. All five come from the same ladder, each mixing its stages differently, so they all sing with RESONANCE. The FILTER lane can override the type step by step. Then DRIVE into the filter; ENV AMT (+/-); KEY tracking; VEL (velocity to the envelope amount). CUTOFF and RESONANCE are on the top row.
FILTER ENVELOPE / AMP ENVELOPE	ATTACK, DECAY, SUSTAIN and RELEASE each; AMP VELOCITY.
LFO 1 / LFO 2	RATE, SYNC (FREE, or 1 bar to 1/16 and 1/8 triplet, in time with the project; the RATE dial dims while synced), SHAPE (TRIANGLE, SAW, SQUARE, RANDOM), TO (PITCH, CUTOFF, PW, PAN) and AMOUNT. The mod wheel adds LFO 1.

The PLAY strip

MIDI CH	Omni (the default) or 1 - 16.
BEND	The pitch-bend range, 0 - 12 semitones (2).
DRIFT	0 - 100% (30%): every voice's oscillators wander on their own and every voice sits at its own tuning and cutoff, on top of the GFX instrument drift.
VOLUME	-24 to +6 dB.
SAT	The house output stage's band saturation; the soft clip is always on.
OUTPUT	The output level.

MIDI

Notes (sample accurate), pitch bend, CC1 (adds LFO 1), CC64 sustain, CC123 all notes off. A voice taken for a new note fades out first (4 ms), so nothing clicks.

Presets

Init	Two saws, a little detune, POLY.
Fat Bass	MONO, a stacked saw and pulse with a sub, a punchy filter envelope and drive.
Sub Bass	MONO: a deep, dark bass with a strong sub.
Stack Pad	A wide stacked pad with a slow attack and a moving filter.
Wide Strings	Four stacked saws, spread wide, with a slow LFO.
Seq Bass	MONO: the sequencer walking the pitch and the filter.
Seq Motion	The sequencer moving the cutoff, level and pulse width under a held chord.
Acid Line	MONO: one saw, high resonance and glide, the sequencer driving it.
Pluck	A short, bright stacked pluck.
Brass Stack	A brassy stack with vibrato.
Drone	MONO: four stacked voices with slow LFOs, for long held notes.
Wobble	MONO: LFO 2 sweeping the cutoff in time.
Glide Lead	MONO: a gliding lead with vibrato.
Dark Pad	A dark, stacked 4-pole pad.
Saw Stab	Short, stacked saw stabs.
Bell Steps	The sequencer stepping the pitch on a bright, bell-like tone.
Type Steps	Hold a chord: the FILTER lane moves it through low-pass, band-pass, high-pass and notch, with RETRIG off so the chord sustains.

Stack Steps	MONO: a bass line where the STACK lane switches between one voice and stacks of two, three and four.
Shape Shifter	MONO: both lanes at once. Some steps change the filter type, others thicken the stack, and the rest follow the panel.

Tips

- For the biggest bass, MONO with STACK 3 or 4, DETUNE 10 - 20 cents and a little SUB.
- Pads open up with more SPREAD; keep DETUNE lower on higher notes.
- Point an ASSIGN knob at whatever you want to ride live - CUTOFF stays on the top row anyway.
- Draw a few PITCH steps at 12 for octave jumps in a bass line; RETRIG off makes them legato.
- A single-voice step between stacked ones makes it sound like an accent. Put the stacks on the downbeats and leave the steps in between thin.
- BAND and HIGH steps thin a bass out for a moment. Put them on off-beats so the low end stays on the beat.
- Leave most steps following the panel and set only a few: the knobs then still shape the whole sequence.

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