VEIRA

WAVETABLE SYNTHESIZER

VEIRA Black Synth

User Manual

VEIRA's first instrument: a modern wavetable synthesizer, all black. Two wavetable oscillators with unison and warp, sub, noise, an eight-type filter, three envelopes, four LFOs, a drag-and-drop modulation matrix and five effects.



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Welcome

Thank you for choosing **VEIRA Black Synth**, VEIRA's first instrument. It is a modern wavetable synthesizer: two oscillators that each play one of twelve wavetables and morph through it, up to 16 detuned voices per oscillator for width, seven ways to bend each wave, a sub oscillator and noise, a filter with eight types, three envelopes, four LFOs, four macros, a 16-slot modulation matrix you fill by dragging, and a chain of five effects. Basses, leads, pads, plucks, keys, bells, arps, chords and effects all start from the same panel.

What makes it different

- **Wavetables that move.** Each table holds 32 frames. POSITION morphs smoothly between them, and the 3D view shows the whole table with the frame that is playing drawn bright, moving as you modulate it.
- **Clean at every pitch.** Every table is stored in band-limited copies, one per octave, so even the highest notes stay free of the harsh, unrelated tones (aliasing) that cheaper oscillators add.
- **Drag to modulate.** Drag a source's **+** handle onto any knob that can move. A ring around the knob shows how far it will travel, and a dot shows where it is right now.
- **Big unison that keeps its level.** Up to 16 voices per oscillator, spread in pitch and across the stereo field, without getting louder as you add them.
- **Effects built in.** Distortion, chorus, delay, reverb and a compressor, each with its own switch, in a fixed order that suits a synth.
- **Black, all the way down.** A dark panel, a graphite keyboard and live displays drawn in white, with modulation in blue.

How this manual is organised. *Getting started* covers installing and activating. *The panel at a glance* names every part of the window. *How a wavetable synthesizer works* is a short primer and follows a note through the instrument. *Oscillators*, *The filter*, *Envelopes and LFOs*, *Macros, voice and the keyboard*, *Modulation* and *Effects* explain every control with drawings. *Presets*, *Recipes*, *Specifications* and *Troubleshooting* close the manual.

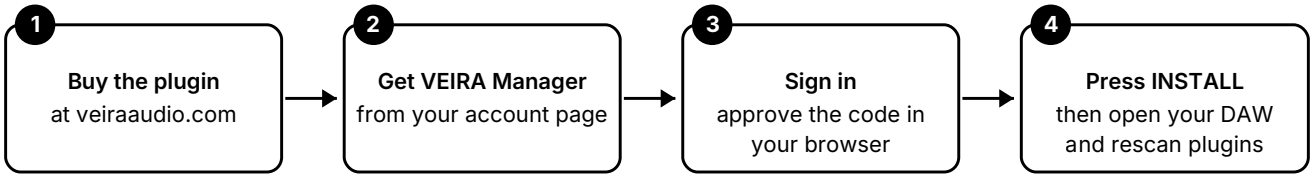
Getting started

What you need

macOS	macOS 11 Big Sur or later. Native on Apple silicon and Intel Macs (universal).
Windows	Windows 10 or 11, 64-bit.
Plugin formats	VST3 (macOS and Windows), Audio Units (macOS), and a standalone app. Pro Tools (AAX) versions arrive once they are signed for Pro Tools.
Hosts	Any DAW that loads VST3 or Audio Units: Logic Pro, Cubase, Nuendo, Ableton Live, Studio One, Reaper, FL Studio, Bitwig and others.
Account	A VEIRA account at veiraaudio.com, and the free **VEIRA Manager** app.
Internet	Needed to install and to refresh the licence. The plugin itself never goes online.

Install with VEIRA Manager

VEIRA plugins are not downloaded from the website one by one. You install them with **VEIRA Manager**, the free VEIRA app that installs, updates and activates everything you own. Its own manual covers it in full; the short version is:



One account works on up to three computers. Updates are free for life.

FIGURE 1 From purchase to first sound in four steps.

1. **Buy** VEIRA Black Synth at **veiraaudio.com**. It's a one-time purchase: you own it for good, with free updates.
2. **Download VEIRA Manager** from your account page (or veiraaudio.com/manager) and install it.
3. **Sign in.** VEIRA Manager shows a short code and opens your browser; confirm the code there. Your password is never typed into the app.
4. Find VEIRA Black Synth in the list and press INSTALL. When it says SHOW, it's installed. Open your DAW and let it rescan its plugins.

After installing, VEIRA Black Synth appears in your DAW under the manufacturer **VEIRA** (in Logic Pro: Audio Units ▸ VEIRA ▸ VEIRA Black Synth).

Activation and the licence

VEIRA Manager keeps a licence on your computer that the plugins check. It is refreshed every time VEIRA Manager opens and stays valid for 30 days offline, so you can work without internet as long as you open VEIRA Manager now and then.

Without a valid licence, VEIRA Black Synth still loads and works, but **its sound fades out for 1.5 seconds every 30 seconds**, and a strip along the bottom of its window says why (for example, *NOT ACTIVATED ON THIS COMPUTER. SIGN IN WITH VEIRA MANAGER.*). Clicking the strip opens your account page.

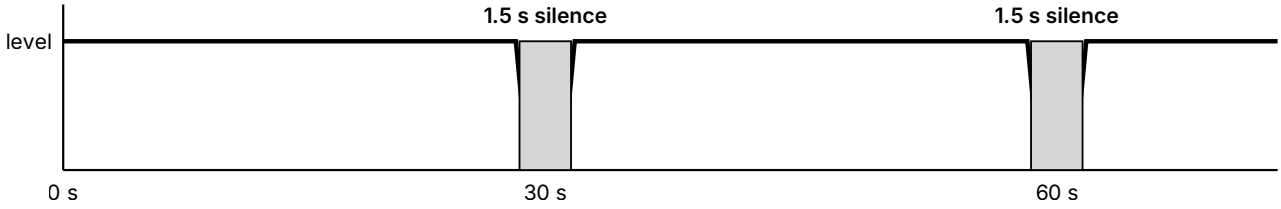


FIGURE 2 What an unlicensed copy does. With a valid licence the audio is never touched.

- **Activating while your DAW is open** takes effect within about two minutes. You don't need to reload the plugin.
- **"Not activated on this computer"**: open VEIRA Manager and sign in.
- **"Expired"**: open VEIRA Manager while online; it renews the licence at once.
- **"Not included"**: the signed-in account doesn't own VEIRA Black Synth. Check that you're signed in with the account you bought it with.

Formats and where the files go

VEIRA Manager puts every format in the standard place, so you never need to copy files by hand:

Format	macOS	Windows
VST3	`~/Library/Audio/Plug-Ins/VST3` (just for me, the default) or `/Library/Audio/Plug-Ins/VST3` (all users)	`C:\Program Files\Common Files\VST3` (all users, the default) or `%LOCALAPPDATA%\Programs\Common\VST3`
Audio Units	`~/Library/Audio/Plug-Ins/Components` or `/Library/Audio/Plug-Ins/Components`	(Audio Units are macOS only)
Standalone	`~/Applications/VEIRA` or `/Applications/VEIRA`	`C:\Program Files\VEIRA` or `%LOCALAPPDATA%\Programs\VEIRA`

You choose *just for me* or *all users* in VEIRA Manager's install settings.

The standalone app runs VEIRA Black Synth on its own, with your audio interface's input and output, which is handy for trying presets without a DAW.

On an instrument track. VEIRA Black Synth is an instrument, not an effect: load it on an instrument (software instrument, MIDI) track, not as an insert on an audio track. In Logic Pro it is under *AU Instruments* ▸ *VEIRA* ▸ *VEIRA Black Synth*. The standalone app plays from your MIDI keyboard, or from the keyboard on its own screen, through your audio interface.

The panel at a glance



FIGURE 3 VEIRA Black Synth playing *Pad ▸ Evolving Pad*, a C minor 9 chord held on the keyboard. The rings around both POSITION knobs show their modulation: Env 3 sweeps oscillator A's table, LFO 1 moves oscillator B's.

	Part	What it does
1	Preset browser	Steps through and saves presets. See *Presets*.
2	Pages	SYNTH (this page), EFFECTS and MATRIX.
3	VOICES PLAYING	How many notes are sounding right now.
4	OSC A	The first wavetable oscillator, with its table view.
5	OSC B	The second wavetable oscillator (off in *Init*).
6	SUB	A sub oscillator under the note.
7	NOISE	Four colours of noise.
8	FILTER	Eight filter types, the response drawing, and what goes through it.
9	ENV 1 to ENV 3	Three envelopes; ENV 1 shapes the level of every note.
10	LFO 1 to LFO 4	Four LFOs, with the shape drawn and its position moving.

	Part	What it does
11	MACROS	Four knobs to route anywhere.
12	VOICE	Polyphony, mono, glide, bend range, velocity and the volume.
13	MIDI sources	Handles for velocity, note, mod wheel, pressure and a random value.
14	Keyboard	Plays notes and shows the ones held.

The sound flows across the top of the panel from left to right: the two oscillators, then sub and noise, then the filter. The row below holds what moves the sound: envelopes, LFOs, macros and the MIDI sources, with the voice settings at the right. The keyboard runs along the bottom of every page.

Quick start: your first sound in four moves

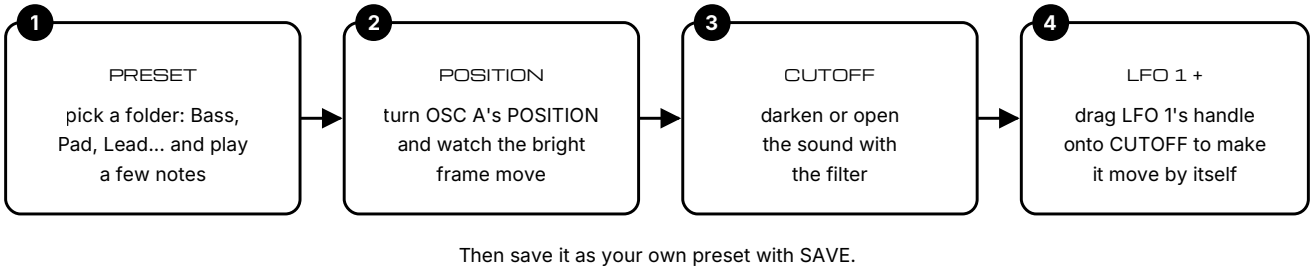


FIGURE 4 From a preset to a sound of your own. *Default* ▸ *Init* is the plainest start: one oscillator between a triangle and a saw, the filter open.

Using the controls

Every VEIRA plugin is played like a piece of hardware. The same few parts appear on every panel:

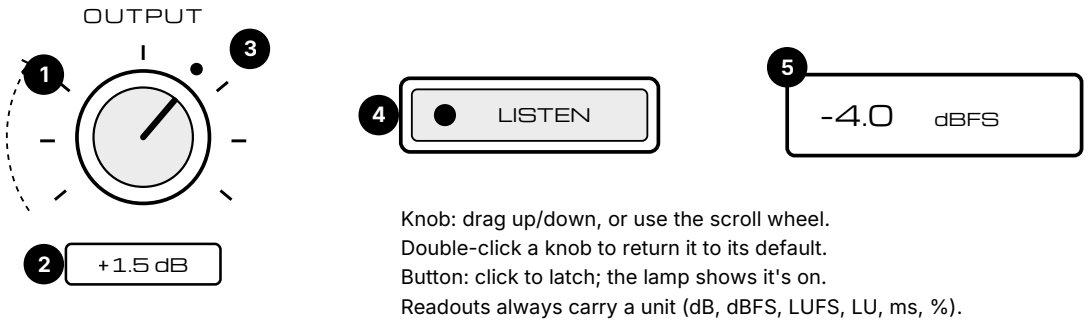


FIGURE 5 The parts you'll find on every VEIRA panel (the labels are examples).

- 1 **Knob.** Drag up to turn it clockwise, down to turn it back, or use your mouse wheel. **Double-click** returns it to its default. The engraved pointer and the small dot on the scale show where it's set.
- 2 **Value window.** The backlit window under each knob shows its exact value with its unit.
- 3 **Silkscreen label.** The control's name, as it appears in your DAW's automation list.

- 4 **Push button.** Click to switch on; the lamp lights and the cap sits lower in its bezel. Click again to switch off.
- 5 **Readout.** Live numbers update ten times a second so you can read them while the meters move. A value over 0 dBFS shows as a warning.

Tooltips: hover over any control or display for a short explanation. On displays, the tooltip depends on where you point.

Automation: every knob and button is a host parameter, so you can automate it in your DAW and control it from a MIDI controller or control surface that your DAW maps.

Units: VEIRA never shows a bare number. **dBFS** is level against digital full scale (0 dBFS is the loudest a digital signal can be); **dB** is a change in gain; **LUFS** is loudness as streaming services and broadcasters measure it; **LU** is a difference in loudness (1 LU = 1 dB).

On VEIRA Black Synth's panel the parts look a little different from the drawing above:

- **Knobs show their name, and their value when you touch them.** There is no value window: the caption under each knob shows its name, and changes to its exact value (2.00 kHz, -12.0 dB, 35 %) while the mouse is over the knob or dragging it. A white arc around each knob shows how far it is turned.
- **Type a value:** right-click a knob (Control-click on a Mac) and choose *Type a value…*. A field opens over it; type the number and press Return (2.5k or 2500 for 2.5 kHz). Press Escape to leave it unchanged.
- **Buttons are switches:** a switched-on button (OSC A, SUB, SYNC, MONO…) fills with white with dark lettering; a switched-off one is a dark outline.
- **Menus** (Harmonic Sweep, Low 24, Sine…) open a list when you click them.
- **Blue means modulation.** Every **+** handle and every modulation ring is drawn in a pale blue. In print, the rings are the second, lighter arc around a knob.
- **Resize the window:** drag its bottom-right corner. It scales from 75 % to 200 % of its normal size (1400 × 920 points) and keeps its proportions. Your DAW saves the size, and the page you were on, with the session.

How a wavetable synthesizer works

If you already know synthesizers, skip to *What happens inside VEIRA Black Synth*.

A synthesizer builds a sound from scratch. An **oscillator** repeats one cycle of a wave over and over, as many times a second as the note's pitch: 440 times for the A above middle C. The shape of that one cycle decides the tone: a smooth sine is pure and round, a saw is bright and buzzy, a square is hollow. A **filter** then takes some of the tone away (usually the top), an **envelope** shapes how each note starts, holds and dies away, and **LFOs** (low-frequency oscillators, too slow to hear as a pitch) move things over time.

Wavetables

A **wavetable** is a whole series of single cycles, called frames, lined up one after another. VEIRA Black Synth's tables have 32 frames each. POSITION chooses where in the series the oscillator plays, and blends smoothly between neighbouring frames, so turning it (or modulating it) morphs the tone continuously: from dark to bright, from one vowel to another, from a sine to a square.

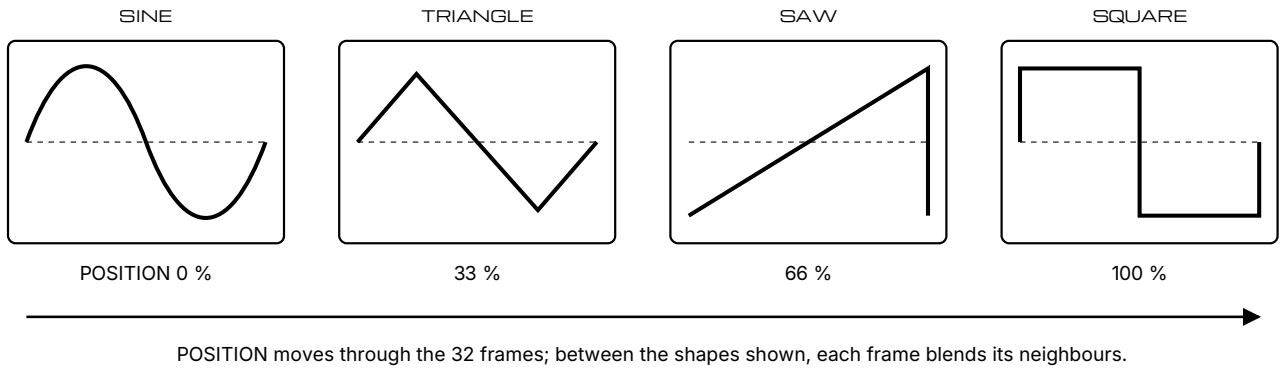


FIGURE 6 The *Basic Shapes* table: a sine, a triangle, a saw and a square, with every step between them across its 32 frames. The 3D view on the panel stacks all 32 frames one behind another and draws the one playing bright.

The twelve tables:

Table	What it sounds like
Basic Shapes	Sine, triangle, saw, square and everything between. The all-rounder (*Init* plays it at 50 %, between a triangle and a saw).
Pulse Width	A square narrowing to a thin pulse (50 % down to 3 %): hollow to nasal.
Harmonic Sweep	More and more harmonics added: dark to bright.
Formant Vowels	Vocal shapes, moving through the vowels.
Digital Steps	Stepped, bit-reduced shapes: crisp and digital.
FM Bells	Frequency-modulation tones with a rising index: from soft to clangy.
Sync Sweep	The sound of a hard-synced oscillator sweeping up.

Table	What it sounds like
Odd and Even	From odd harmonics only (hollow) to all of them (full).
Organ Bars	Drawbar organ registrations.
Metal Bell	Inharmonic, metallic partials.
Growl	Dense, vocal growls for basses.
Glass	Bright, glassy partials for pads and bells.

What happens inside VEIRA Black Synth

Each note you play gets its own **voice**: its own two oscillators, sub, noise, filter, envelopes and LFOs. The voices are added together, then go through the effects and VOLUME.

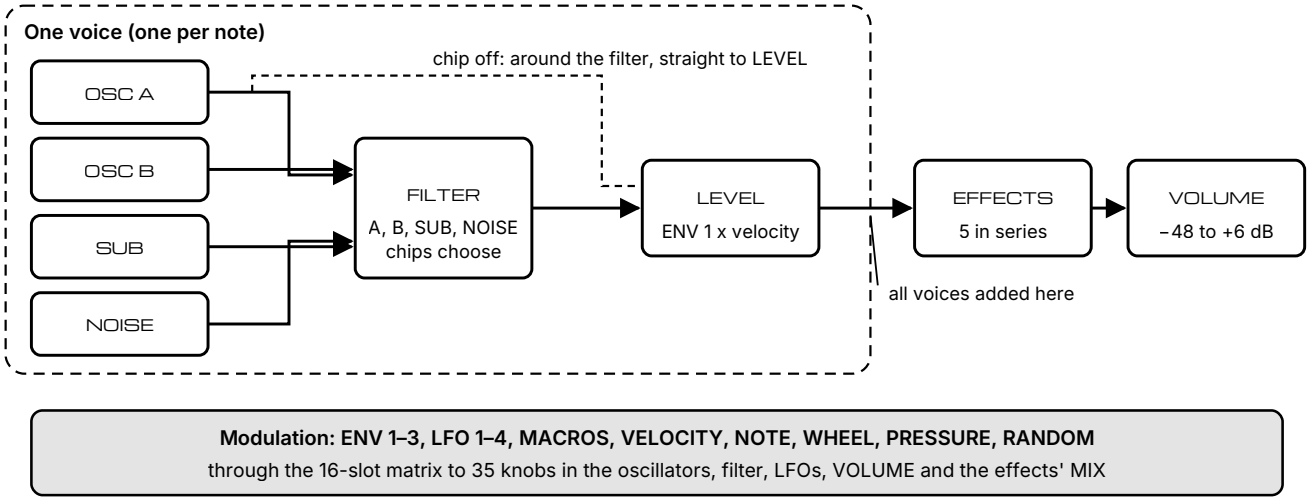


FIGURE 7 The signal flow. Each part of the voice can go through the filter or around it (the chips under the filter). The effects work on all the voices together.

Envelopes, LFOs and the matrix update every 32 samples (about every 0.7 ms at 48 kHz) and glide smoothly in between, so modulation is fast and never steps audibly. VEIRA Black Synth adds no latency.

Oscillators

Oscillators A and B are identical. A is on in *Init*; switch B on with its OSC B button.



FIGURE 8 Oscillator A: 1 the TABLE menu, 2 the WARP menu, 3 the 3D table view and 4 a modulated knob, with its blue ring.

Control	Range	Default	What it does
OSC A / OSC B	on, off	A on, B off	Switches the oscillator on.
TABLE (menu)	12 tables	Basic Shapes	The wavetable it plays.
POSITION	0–100 %	50 % A, 0 % B	Where in the table it plays.
WARP (menu)	Off, Bend +, Bend −, Squeeze, Sync, Mirror, FM	Off	How the wave is bent.
WARP (knob)	0–100 %	0 %	How much it is bent.
LEVEL	0–100 %	75 %	The oscillator's level.
PAN	−100 to +100	0 (centre)	Its place in the stereo field.
SEMI	−12 to +12 semitones	0	Transposes it in semitones.
OCT	−4 to +4 octaves	0	Transposes it in octaves.
FINE	−100 to +100 cents	0	Fine tuning (100 cents = one semitone).
UNISON	1–16	1	How many voices it plays per note.

Control	Range	Default	What it does
DETUNE	0–100 %	25 %	How far the unison voices spread in pitch.
BLEND	0–100 %	75 %	The outer unison voices against the centre one.
WIDTH	0–100 %	100 %	How far the unison voices spread across the stereo field.
PHASE	0–360°	0°	Where in the cycle each note starts.
RAND	0–100 %	100 %	How much that start point is randomised.

The table view

The view above each oscillator draws all 32 frames of its table one behind another, like a stack of cards, with the frame now playing drawn bright in front. The name of the table and the position (HARMONIC SWEEP 50 %) are printed in its top-left corner. When something modulates POSITION, the bright frame moves through the stack as you play, so you can see what you hear.

WARP: bending the wave

WARP changes how the oscillator reads its table, before the filter, so it reshapes any table. Choose the kind with the menu and the amount with the knob; at 0 % every kind sounds the same as Off.

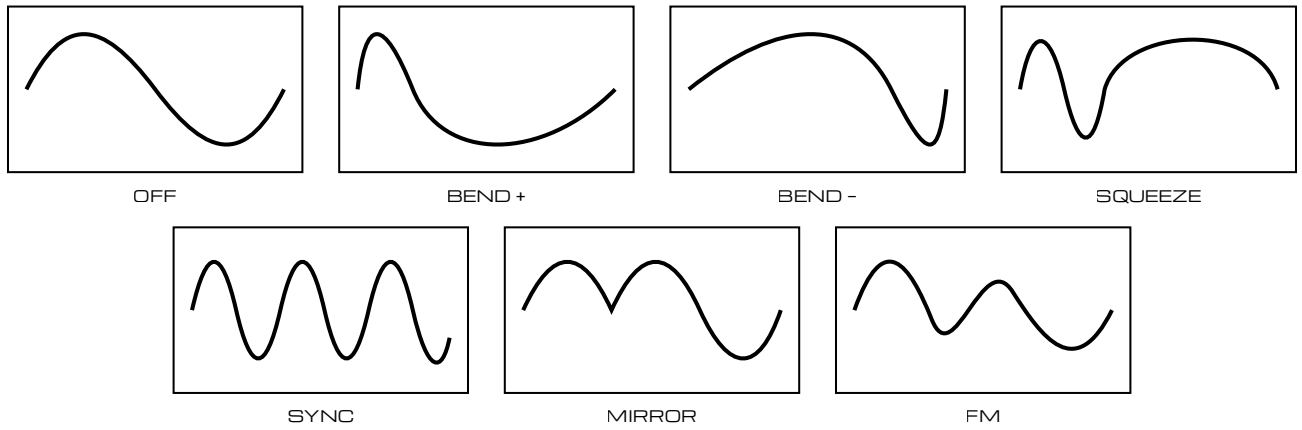


FIGURE 9 What each WARP does to one cycle of a sine, at a high amount. Bend pushes the cycle's energy to the start (+) or the end (–); Squeeze narrows its first half; Sync plays the cycle several times over (up to 8) and restarts; Mirror plays it forwards then backwards; FM lets oscillator B wobble A's reading (or A wobble B's).

- **Bend + and Bend –** push the wave's shape towards the start or the end of the cycle. Gentle settings brighten; high settings add a sharp, nasal edge.
- **Squeeze** narrows the first half of the cycle and stretches the second, like pulse width for any table: from hollow to thin and reedy.
- **Sync** plays the cycle up to eight times over before it restarts, as a hard-synced oscillator does: the classic tearing, vocal sweep when you modulate it. VEIRA Black Synth fades each restart in and out, so it never clicks.

- **Mirror** plays the cycle forwards and then backwards: a smoother, more symmetrical tone with fewer even harmonics.
- **FM** uses the other oscillator's output to move this oscillator's reading point: metallic, bell-like and growling tones. Oscillator B does not need to be audible for this; turn its LEVEL down if you only want it as a modulator. A higher amount gives a brighter, harsher sound.

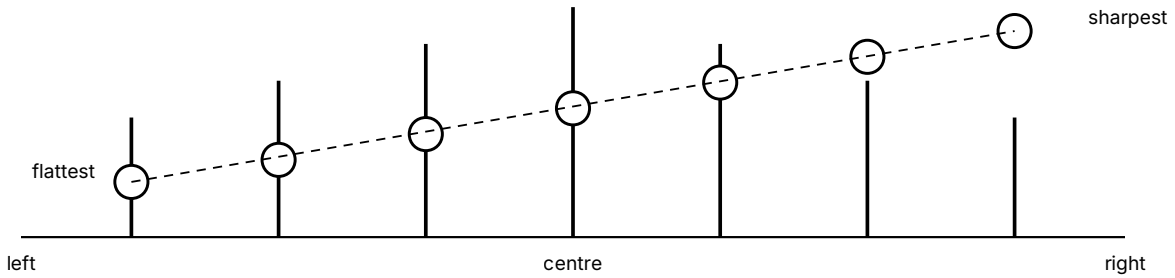
Pitch: OCT, SEMI, FINE and the sub

OCT, SEMI and FINE add up, and the pitch-bend wheel adds to them (up to the BEND range in the VOICE section). A fifth above (SEMI +7) on oscillator B is a classic way to thicken a lead; a few cents of FINE against A makes the two oscillators beat gently against each other.

Unison: UNISON, DETUNE, BLEND and WIDTH

UNISON stacks several copies of the oscillator on every note, each slightly out of tune and placed at its own point in the stereo field. Seven voices is the classic "supersaw"; 2 or 3 thicken a bass without smearing it.

UNISON 7: pitch (up) against place in the stereo field (across)



Bar height: each voice's level (BLEND sets the outer ones against the centre). Dots: its pitch (DETUNE sets the spread).

FIGURE 10 Seven unison voices. DETUNE spreads their pitch (at 100 % the outermost voices are a full semitone either side, and the spread grows more gently at low settings); WIDTH spreads them from the centre to the edges; BLEND sets how loud the outer voices are against the centre one.

- DETUNE at 10–25 % is lush; past 50 % it becomes deliberately sour, for effects and big basses.
- BLEND at 0 % leaves mostly the centre voice (focused, with a little shimmer); at 100 % all voices are equally loud (widest, most chorus-like).
- WIDTH at 0 % keeps every voice in the centre (mono-compatible); 100 % spreads them across the whole stereo field. With 7 voices at 100 %, the side carries about −7 dB against the whole: wide, but still solid in mono.
- **The level stays the same** whatever UNISON is set to: adding voices thickens the sound without making it louder.

PHASE and RAND

PHASE sets where in the cycle each new note starts. With RAND at 100 % (the default) every note, and every unison voice, starts at a random point: natural and alive, as analog oscillators are. Lower RAND towards 0 % for a consistent attack on every note, which suits punchy basses and plucks; then PHASE chooses that start point (0° starts at the beginning of the cycle).

Sub, noise and the filter

SUB and NOISE

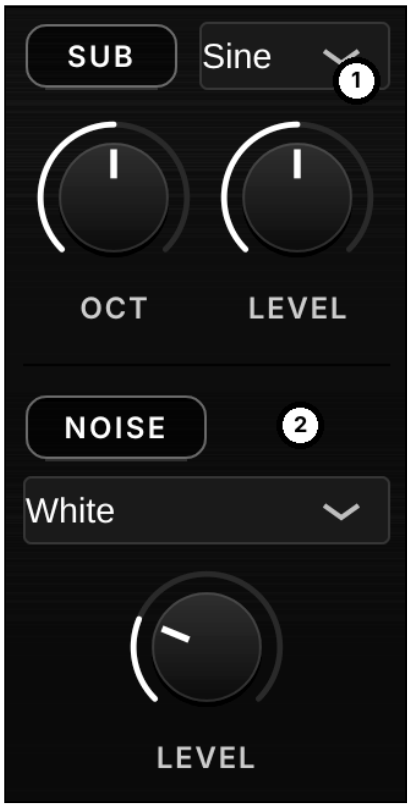


FIGURE 11 1 SUB, with its shape menu, OCT and LEVEL; 2 NOISE, with its colour menu and LEVEL.

Control	Range	Default	What it does
SUB	on, off	off	Switches the sub oscillator on.
Shape (menu)	Sine, Triangle, Saw, Square	Sine	Its wave.
OCT	−2 to 0 octaves	−1	How far under the note it plays.
LEVEL	0–100 %	50 %	Its level.
NOISE	on, off	off	Switches the noise on.
Colour (menu)	White, Pink, Brown, Crackle	White	Its colour.
LEVEL	0–100 %	25 %	Its level.

The **sub** is a simple oscillator that follows the note an octave (or two) below, for weight under a bass or a lead. A sine sub is felt more than heard; a square is audible on small speakers. It ignores the oscillators' OCT, SEMI and FINE, but follows pitch bend and glide.

Noise adds breath and texture: **White** is bright hiss, **Pink** is softer and more even across the octaves, **Brown** is a dark rumble, and **Crackle** is sparse random clicks, like dust on a record. A little noise on the attack of a pluck or under a pad makes it sound more real; modulate its LEVEL with an envelope for a breathy start.

FILTER

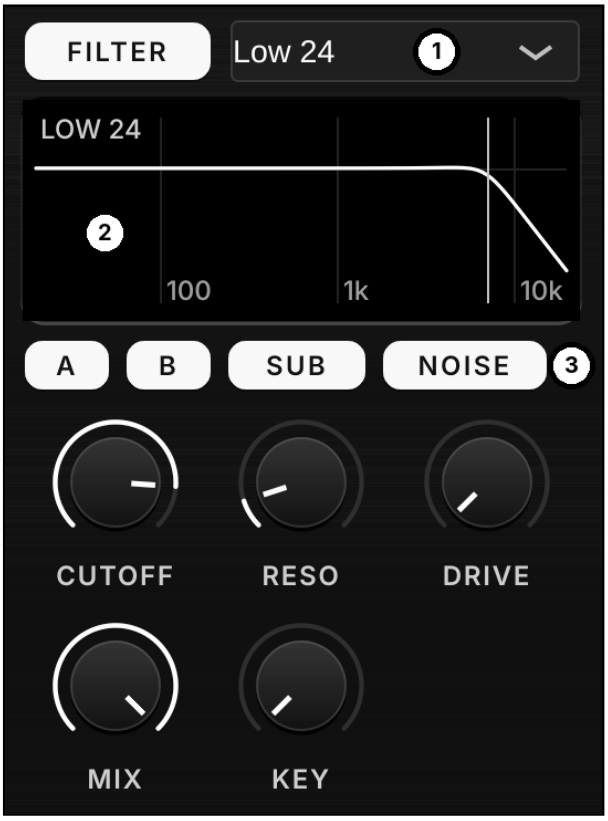


FIGURE 12 The filter: 1 the type menu, 2 the response drawing (the thin blue line marks the cutoff), 3 the routing chips A, B, SUB and NOISE.

Control	Range	Default	What it does
FILTER	on, off	on	Switches the filter on.
Type (menu)	Low 12, Low 24, High 12, High 24, Band, Notch, Ladder, Comb	Low 24	The kind of filter.
CUTOFF	20 Hz – 20 kHz	20 kHz (open)	Where it starts to work.
RESO	0–100 %	10 %	Resonance: a peak at the cutoff.
DRIVE	0–100 %	0 %	Saturates the signal going into the filter.
MIX	0–100 %	100 %	Filtered against unfiltered.
KEY	0–100 %	0 %	How far the cutoff follows the note.

Control	Range	Default	What it does
A B SUB NOISE	on, off	all on	Which parts go through the filter.

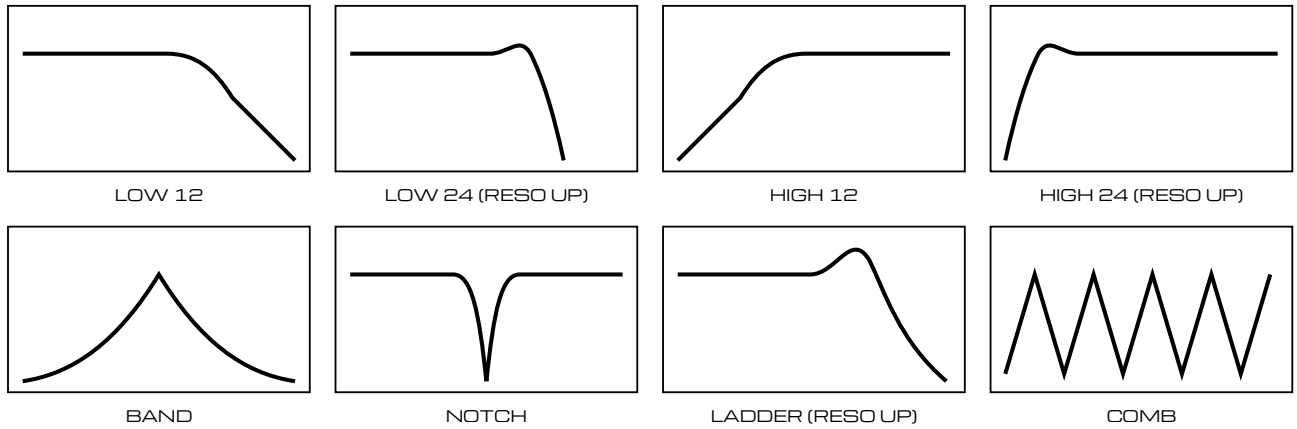


FIGURE 13 The eight filter types, level (up) against frequency (across, low to high). The 24 dB types cut twice as steeply as the 12 dB ones. Ladder is a 24 dB low-pass that grows a strong, singing peak and saturates as it resonates. Comb adds an echo one cycle of the cutoff long, giving a row of peaks: metallic, flanged tones that follow the note when KEY is up.

- **Low-pass** (Low 12, Low 24, Ladder) keeps everything under CUTOFF and darkens the sound above it: the most-used filter on a synth. Low 24 is steeper and smoother; Ladder is thicker and more aggressive, especially with RESO and DRIVE up.
- **High-pass** (High 12, High 24) keeps the top and thins the bottom: for airy pads, or to clear the low end out of a layer.
- **Band** keeps a band around CUTOFF (telephone and talking sounds); **Notch** removes one (a hollow, phasey sound when it moves).
- **Comb** is tuned to CUTOFF; with KEY at 100 % it follows the note, so its peaks stay in tune with what you play.

RESO adds a peak at the cutoff; at high settings it whistles, and it is what makes a filter sweep "talk". DRIVE pushes the signal into the filter harder for a thicker, saturated tone (the level is roughly held, so it changes the colour more than the loudness). MIX lets some unfiltered sound through: useful with Comb and Notch. KEY makes the cutoff follow the note: at 100 % it moves one octave for every octave you play, measured from C4, so high notes stay as bright as low ones.

The routing chips. A, B, SUB and NOISE choose which parts go through the filter. A part whose chip is off goes straight past it, so you can filter a pad while its sub stays full, or keep the noise bright while the oscillators are dark.

The response drawing shows the filter's shape at the current settings, from 20 Hz to 20 kHz, with a thin blue vertical line at the cutoff. When something modulates CUTOFF, the drawing follows the newest note as it plays.

Envelopes and LFOs

ENV 1, ENV 2 and ENV 3



FIGURE 14 The envelopes: 1 the ENV 1 ENV 2 ENV 3 tabs, 2 a source's + handle (here ENV 2's), 3 the shape of the envelope shown, its name and what it drives in the top-right corner.

Control	Range	Default (ENV 1 / ENV 2 and 3)	What it does
ATTACK	0.5 ms – 20 s	2 ms / 2 ms	How long it takes to rise to the top.
HOLD	0.5 ms – 20 s	0.5 ms / 0.5 ms	How long it stays at the top.
DECAY	1 ms – 20 s	1 s / 500 ms	How long it takes to fall to the sustain level.
SUSTAIN	0–100 %	100 % / 30 %	The level it holds while the key is down.
RELEASE	1 ms – 20 s	150 ms / 300 ms	How long it takes to die away after the key is let go.

Click a tab to show that envelope's knobs and drawing. **ENV 1 is the level** of every note: it always shapes the volume, so its tab has no handle. **ENV 2 and ENV 3** do nothing until you route them with their **+** handles; ENV 2 on CUTOFF is the classic filter envelope.

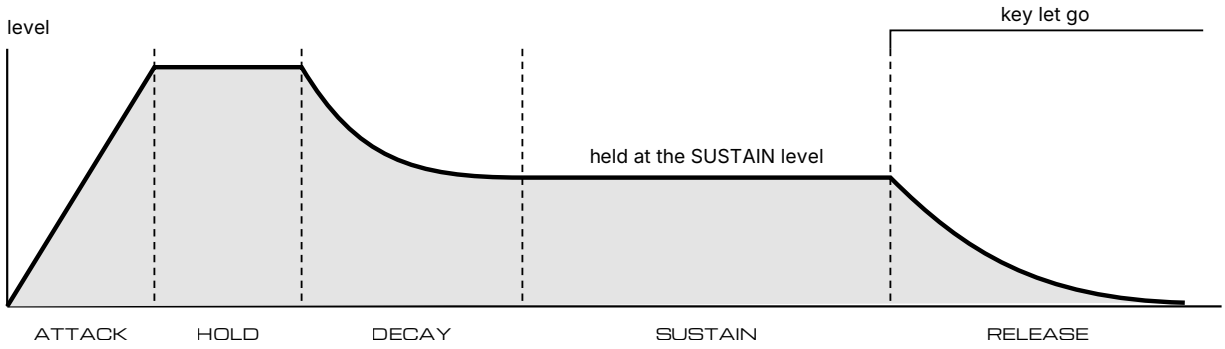


FIGURE 15 An envelope's five stages. The decay and release fall on natural, exponential curves, as in analog synthesizers; the attack rises in a straight line.

- **Plucks and basses:** a short [ATTACK], [DECAY] 150–400 ms, [SUSTAIN] 0 %.
- **Pads:** a slow [ATTACK] (0.5–2 s) and a long [RELEASE] (1–3 s), [SUSTAIN] near 100 %.
- **Organ:** [ATTACK] and [RELEASE] short, [SUSTAIN] 100 %.

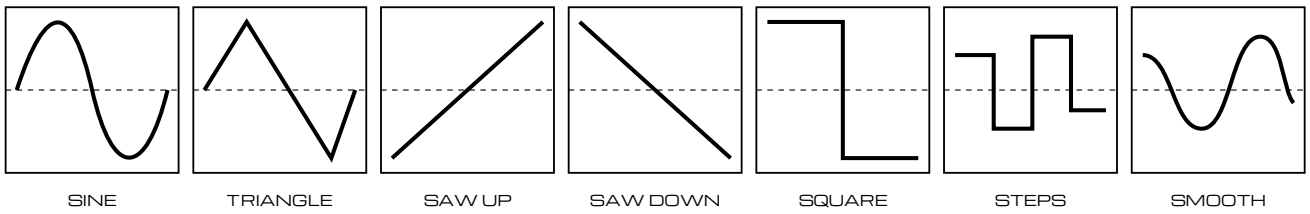
LFO 1 to LFO 4



FIGURE 16 LFO 1: 1 its shape, with a dot riding it at its current position, 2 the shape menu, 3 the mode menu, 4 the note value used with [SYNC]. [RATE], [RISE] and [PHASE] are under them.

Control	Range	Default	What it does
Shape (menu)	Sine, Triangle, Saw Up, Saw Down, Square, Steps, Smooth	Sine	The LFO's wave.
Mode (menu)	Trigger, Free, Envelope	Trigger	How it starts and runs.
[SYNC]	on, off	on	Locks the rate to your song's tempo.
Note value (menu)	8 bars to 1/64, with dotted (D) and triplet (T) values	1/4	The length of one cycle with [SYNC] on.
[RATE]	0.01–50 Hz	2 Hz	Cycles per second with [SYNC] off (dimmed while [SYNC] is on).

Control	Range	Default	What it does
RISE	0–5 s	0	Fades the LFO in after each note starts.
PHASE	0–360°	0°	Where in the cycle it starts.



Steps jumps to a new random value each cycle; Smooth glides from one random value to the next.

FIGURE 17 The seven LFO shapes. Every LFO swings both ways, above and below the knob it moves.

The three modes.

- **Trigger** restarts the LFO from PHASE with every note: each note gets the same movement. Use it for vibrato, wobbles that start on the beat of each note, and plucks.
- **Free** runs on regardless of the notes. It follows your song's position (with SYNC on, in bars and beats; with SYNC off, in seconds), so a two-bar filter sweep lands on the same beat every time you play the song back from the same place. Use it for movement that should flow across notes: slow drifts, pumping chords.
- **Envelope** runs one cycle when a note starts and stops at the end: an extra envelope with any shape (a Saw Down on a fast rate is a quick ramp down).

RISE fades the LFO in over the time you set after each note starts: the classic delayed vibrato (*Lead* ▸ *Square Lead* uses 300 ms).

Macros, voice and the keyboard



FIGURE 18 1 The four MACROS, each with its handle; 2 the VOICE section; 3 the MIDI sources' handles.

MACROS

The four macro knobs (0–100 %, all at 0 % by default) do nothing on their own. Drag a macro's **+** handle onto one knob or several, and the macro becomes one big control for all of them: *Bass* ▸ *Reese Bass* opens its filter with Macro 1, and *Chords* ▸ *Vowel Chords* walks both oscillators through the vowels with it. Macros are host parameters, so they are the easiest thing to automate in your DAW or to map to a hardware knob.

VOICE

Control	Range	Default	What it does
VOICES	1–32	16	How many notes can play at once.
MONO	on, off	off	One note at a time.
LEGATO	on, off	off	In mono, a note played while another is held glides to it without restarting the envelopes.
GLIDE	0–2 s	0	How long the pitch takes to slide to the new note.
BEND	0–24 semitones	2	The pitch-bend wheel's range, up and down.
VELOCITY	0–100 %	0 %	How much velocity sets the level (0 %: every note at full level).
VOLUME	−48 to +6 dB	−12 dB	The instrument's output level.

- VOICES limits polyphony. When you play more notes than it allows, the oldest note (preferring one already released) fades out in 5 ms to make room.

- MONO plays one note at a time; let go of a note while holding another and it returns to the one still held. With LEGATO on, overlapping notes slide without restarting the attack: for basses and leads. GLIDE works in mono and in poly.
- VELOCITY at 0 % plays every note at full level, like many classic synths; raise it for an expressive, dynamic part. Velocity can also move anything else through its handle.
- VOLUME starts at −12 dB so that chords have room before 0 dBFS. It can be modulated (for a tremolo or a sidechain-style pump from an LFO).

The keyboard

The keyboard along the bottom plays C2 to C7 on screen; the arrows at its ends scroll to the rest of the range (A0 to C8). Middle C is **C4**. Click a key to play it; the keys you or your DAW are playing light up in blue. The VOICES PLAYING read-out at the top right counts the notes sounding, including their releases.

MIDI. VEIRA Black Synth responds to notes and velocity, pitch bend (up to the BEND range), the mod wheel (CC 1), the sustain pedal (CC 64), aftertouch (channel or polyphonic), *All Notes Off* (CC 123: releases every note) and *All Sound Off* (CC 120: silences everything at once, effects' tails included).

Modulation

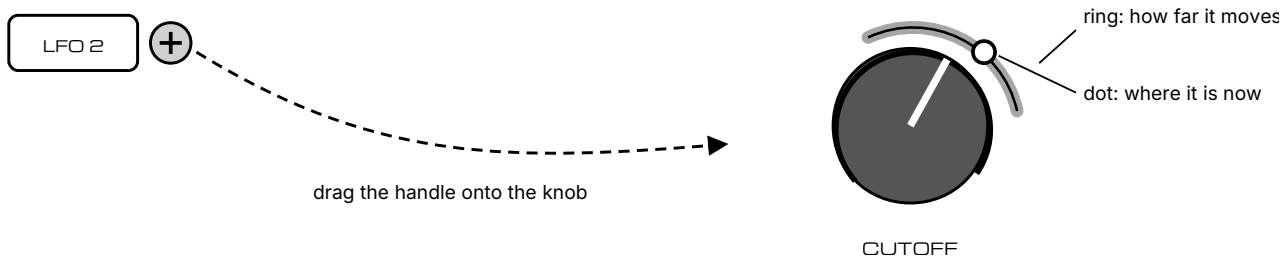
Modulation is what makes a synth sound alive: something moving a knob for you, note by note or over time.

Drag and drop

Every source has a small blue **+** handle: next to the ENV 2 and ENV 3 tabs, next to each LFO tab, above each macro, and beside VELOCITY, NOTE, WHEEL, PRESSURE and RANDOM. To modulate a knob:

1. **Drag** the source's handle onto the knob. The knob under the pointer lights up if it can be modulated; knobs that can't refuse the drop.
2. **Drop** it. The connection takes the first free slot of the matrix at **50 %**, and a blue ring appears around the knob.
3. **Adjust:** right-click the knob. Under *Type a value…* each source moving it is listed with its amount; choose a new amount (from +100 % to −100 %) or *Remove*. For any other amount, use the MATRIX page.

Dropping the same source onto the same knob again doesn't add a second slot; it sets that slot back to 50 %.



The knob's own pointer stays where you set it; the modulation moves around it.

FIGURE 19 A modulated knob. The ring (blue on screen, the light band here) spans the range the sources can move it over; the dot rides inside it, showing the value on the newest note right now.

How far a source moves a knob

The amount is a share of the knob's own travel, as you see it on the panel: 50 % on CUTOFF moves it half way round the knob, whatever the frequencies. That makes amounts easy to judge by eye, on any control.

- **LFOs and NOTE swing both ways:** an LFO at 30 % moves the knob up to 30 % above and 30 % below where you set it. NOTE is centred on C4: higher notes push up, lower notes down.
- **Everything else moves one way:** envelopes, velocity, the wheel, pressure, the macros and RANDOM run from 0 to 1, so they add to the knob (or take away, with a negative amount). For a filter envelope, set CUTOFF low and route ENV 2 with a positive amount: the filter opens on each note and closes to the sustain.
- **Several sources add up** on one knob, and the result stops at the ends of the knob's range.

- **Per note.** Each note has its own envelopes, LFOs (in Trigger mode), velocity and random value, so modulation is worked out note by note: in a chord, every note can move differently. The effects' MIX and VOLUME serve all notes together, so they follow the newest note.

RANDOM, NOTE, WHEEL and PRESSURE

- **RANDOM** picks a new value for each note: slight differences in tone from note to note (*Arp* ▸ *Sync Arp* puts it on WARP).
- **NOTE** follows the key you play; on CUTOFF it works like KEY, but on any knob.
- **WHEEL** is the mod wheel (CC 1); **PRESSURE** is aftertouch, from keyboards that send it.

The MATRIX page

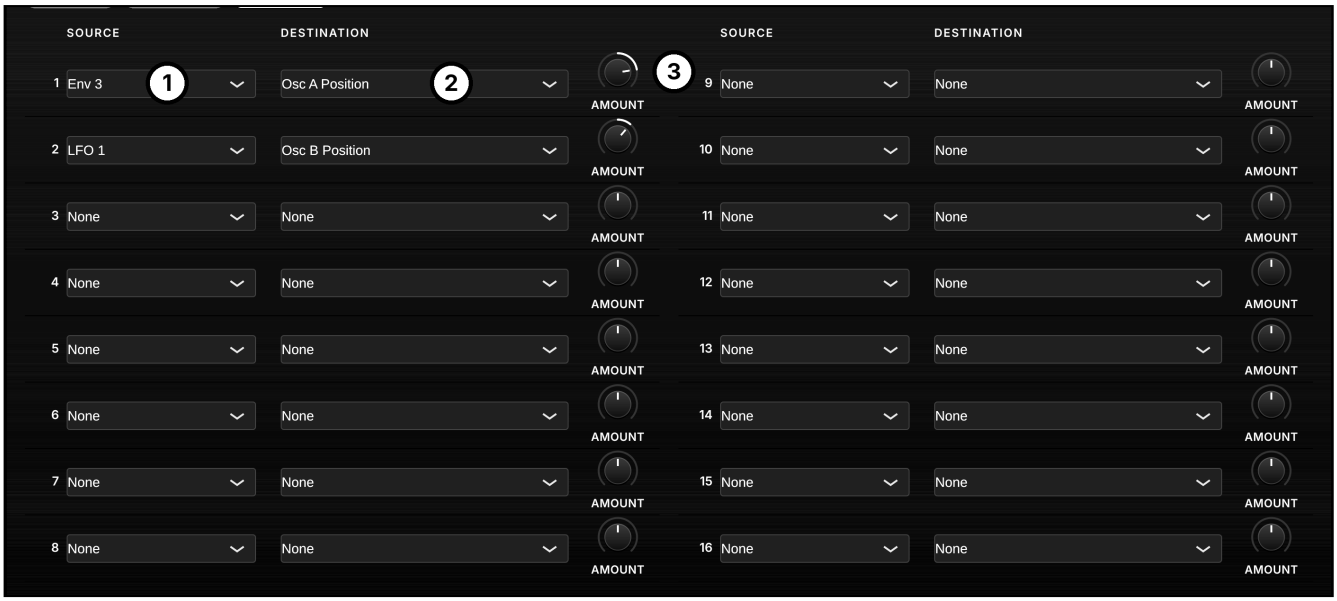


FIGURE 20 The MATRIX page with *Evolving Pad*: slot 1 sends Env 3 to oscillator A's position at +60 %, slot 2 sends LFO 1 to oscillator B's at +30 %. 1 SOURCE, 2 DESTINATION, 3 AMOUNT.

The MATRIX page lists all 16 slots, eight in each column. Each has a SOURCE menu, a DESTINATION menu and an AMOUNT knob (−100 to +100 %). Everything you drag and drop appears here, and you can also build connections directly: pick a source and a destination, then set the amount. Set a slot's SOURCE to *None* to switch it off. The sources here also include **ENV 1**, the level envelope, which has no handle of its own.

The 35 destinations: for each oscillator, POSITION, SEMI, FINE, DETUNE, BLEND, WIDTH, the WARP amount, LEVEL and PAN; the SUB and NOISE levels; the filter's CUTOFF, RESO, DRIVE, MIX and KEY; the four LFO rates; VOLUME; the distortion's DRIVE; and the MIX of the distortion, chorus, delay and reverb. Switches and menus can't be modulated.

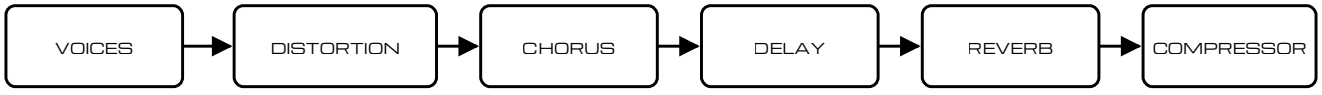
> **Tip:** an LFO can modulate another LFO's rate (LFO 2 on LFO 1's RATE) for movement that speeds up and slows down. On a synced LFO the rate is a multiple of the note value.

Effects



FIGURE 21 The EFFECTS page: 1 DISTORTION, 2 CHORUS, 3 DELAY, 4 REVERB, 5 COMPRESSOR. *Evolving Pad* uses the delay and a long reverb.

The effects work on all the voices together, in a fixed order: distortion, chorus, delay, reverb, compressor. Each has its own switch (the button with its name), and all are off in *Init*.



Then VOLUME. A switched-off effect is skipped completely.

FIGURE 22 The effects chain.

DISTORTION

Control	Range	Default	What it does
Type (menu)	Tube, Hard, Fold, Crush	Tube	The kind of distortion.
DRIVE	0–100 %	30 %	How hard it is pushed.
TONE	500 Hz – 20 kHz	20 kHz	A low-pass after it, to tame the fizz.
MIX	0–100 %	100 %	Distorted against clean.

Tube rounds the peaks off softly (warm, thick); **Hard** clips them flat (buzzy, aggressive); **Fold** folds the wave back on itself as it is pushed, adding bright, complex harmonics that change as DRIVE moves (great modulated); **Crush** reduces the bit depth and sample rate (lo-fi, digital grit). The curves are calculated so that they add far less aliasing than a plain clipper.

CHORUS

RATE (0.05–10 Hz, default 0.8 Hz), DEPTH (0–100 %, 40 %) and MIX (0–100 %, 40 %). Three slowly moving copies per side, different on the left and the right: it widens and softens, the classic way to thicken pads, keys and strings (*Keys* ▸ *Drawbar Organ* uses it as a rotary speaker).

DELAY

Control	Range	Default	What it does
SYNC	on, off	on	Sets the time as a note value at your song's tempo.
Note value (menu)	8 bars to 1/64	1/8 D (dotted eighth)	The time with SYNC on.
TIME	1 ms – 2 s	375 ms	The time with SYNC off.
PING-PONG	on, off	on	Echoes bounce between left and right.
FEEDBACK	0–95 %	35 %	How many echoes, and how long they last.
HIGH CUT	1–20 kHz	8 kHz	Darkens each repeat, like a tape or analog delay.
MIX	0–100 %	25 %	Echoes against the dry sound.

Changing the delay time while it plays glides to the new time instead of clicking (with a pitch bend on the echoes, as on tape).

REVERB

SIZE (0–100 %, 60 %), DECAY (0.3–20 s, 2.5 s), DAMPING (0–100 %, 40 %: how quickly the high frequencies die away), WIDTH (0–100 %, 100 %) and MIX (0–100 %, 20 %). A dense, smooth reverb tuned for synths: short and small for keys and plucks, long and wide for pads and drones. DECAY is the time the reverb takes to fall by 60 dB.

COMPRESSOR

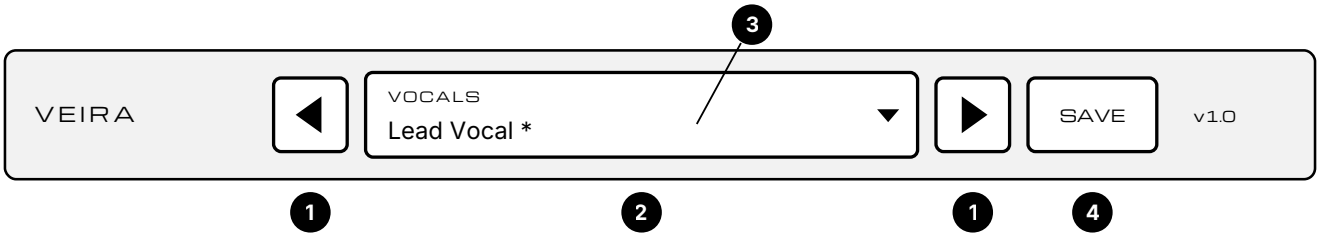
THRESHOLD (−40 to 0 dB, −12 dB), RATIO (1:1 to 20:1, 4:1), ATTACK (0.1–100 ms, 10 ms), RELEASE (10 ms – 1 s, 120 ms), GAIN (0–24 dB, 0 dB) and MIX (0–100 %, 100 %). At the end of the chain it evens out the level of everything before it: glue for chords, punch for basses, and a steadier level when resonance or distortion jump out.

Presets

VEIRA Black Synth comes with **41 factory presets** in ten folders. Each one is a starting point made for a real job. Load one close to what you need, then adjust the first control its note mentions.

The preset browser

The preset browser sits in the header, at the top of the window.



The header: logo and plugin name, then the preset browser, then the version.

FIGURE 23 The preset browser.

- 1 ◀ ▶ step to the previous or next preset, through every folder in order.
- 2 **The display** shows the folder (small, above) and the preset's name. Click it to open the preset menu. Hover over it to read the preset's note: what it's for and what to adjust first.
- 3 **An asterisk (*)** after the name means you've changed something since the preset loaded.
- 4 SAVE stores your current settings as a user preset.

The preset menu

Clicking the display opens a menu with:

- one submenu per **factory folder**, in the order shown below;
- **User Presets**, with your own presets in their folders;
- **Save...**, **Delete** (only for user presets: factory presets can't be deleted), **Rescan** (re-reads the user folder, if you copied presets in by hand) and **Show User Preset Folder** (opens it in Finder or Explorer).

Saving your own presets

1. Set VEIRA Black Synth the way you like it.
2. Press SAVE. A dialog opens inside the plugin window.
3. Type a name, choose a folder or type a new folder name, and confirm.

Each user preset is one small .veirapreset file:

	Folder
macOS	~/Library/Audio/Presets/VEIRA/VEIRA Black Synth/<Folder>/
Windows	%APPDATA%\VEIRA\VEIRA Black Synth\Presets\<Folder>\

Copy these files to move your presets to another computer, or to back them up. Presets keep loading in future versions: any control added later simply starts at its default.

Presets in your DAW

The factory presets also appear in your DAW's own preset or program menu, named *Folder: Name* (for example *Vocals: Lead Vocal*). Whatever preset is selected is saved with your session and comes back when you reopen it, including the asterisk if you'd changed it.

The **Default ▸ Init** preset equals a fresh instance of the plugin: every control at its default.

The factory folders

Folder	Presets
Default	Init
Bass	Sub Bass, Reese Bass, Growl Bass, Pluck Bass, Wobble Bass, 808 Glide
Lead	Supersaw Lead, Sync Lead, Square Lead, Vowel Lead, Screamer
Pad	Warm Pad, Glass Pad, Vowel Pad, Wide Strings, Evolving Pad
Pluck	Classic Pluck, Bell Pluck, Digital Pluck, Muted Pluck
Keys	Tine Piano, Drawbar Organ, Soft Keys, Funky Keys
Bells	Glass Bells, FM Bells, Metal Chime, Music Box
Arp	Gated Arp, Bouncy Arp, Sync Arp, Filter Arp
Chords	Stab Chords, House Chords, Lush Chords, Vowel Chords
FX	Riser, Noise Sweep, Laser Drop, Dark Drone

Each preset's note (shown when you hover over it in the browser) says what it is and which control to reach for first.

> **Levels.** Every preset's VOLUME was set so that it plays a typical part for its folder (a bass line, a lead line, held chords, sixteenth notes, a held note) at about the same loudness, with its peaks at least 3 dB under 0 dBFS; short, percussive sounds come out a little quieter so their attacks keep the same headroom. Pad, Chords, Keys, Bells and Pluck also keep a five-note chord under 0 dBFS. Bass, Lead, Arp and FX presets are levelled for single lines: stacked into big chords they can go over 0 dBFS, so lower VOLUME (or the track's fader) if you play them that way.

Recipes

Step-by-step starting points.

A filter-envelope bass

1. Load **Default ▸ Init**. Set oscillator A's POSITION to 66 % (a saw).
2. Switch on MONO and LEGATO; set GLIDE to 40 ms (with LEGATO, it glides only between overlapping notes).
3. Set the filter type to Low 24, CUTOFF to 200 Hz and RESO to 30 %.
4. Drag ENV 2's handle onto CUTOFF, then right-click CUTOFF and set ENV 2 to +50 %. On the ENV 2 tab set DECAY to 250 ms and SUSTAIN to 0 %.
5. Switch on SUB (Sine, OCT −1) for weight. Lower RAND on oscillator A to 0 % for the same punch on every note.

A wide supersaw lead

1. Start from **Lead ▸ Supersaw Lead**, or from *Init* with a saw.
2. UNISON 7, DETUNE 20–30 %, BLEND 75 %, WIDTH 100 %.
3. Switch on oscillator B one octave up (OCT +1) at a lower LEVEL for brightness.
4. On the EFFECTS page, add CHORUS and a synced DELAY (1/8 D, MIX 20 %).

A pad that evolves

1. Load **Pad ▸ Evolving Pad** and hold a chord: Env 3 sweeps oscillator A's table over four seconds.
2. Change oscillator A's table (try Glass or Formant Vowels) and watch the bright frame move through it.
3. Drag LFO 2's handle onto CUTOFF; set LFO 2 to SYNC off, RATE 0.1 Hz, mode Free, for a slow breath across the chord.
4. Raise the reverb's DECAY for more space.

A wobble on the beat

1. Load **Bass ▸ Wobble Bass**. LFO 1 moves the ladder's CUTOFF in quarter-note triplets.
2. Change LFO 1's note value to 1/8 or 1/16 for faster wobbles, or automate it in your DAW for rhythmic changes.
3. Map Macro 1 to DRIVE on the FILTER and to the distortion's MIX for a control that makes it growl.

Expressive keys

1. Load **Keys ▸ Soft Keys** or **Keys ▸ Tine Piano**.
2. Raise VELOCITY in the VOICE section for more dynamics.
3. Drag VELOCITY's handle onto CUTOFF (+20 % to +30 %): harder notes become brighter, as on a real piano.
4. Use the sustain pedal; the release still follows ENV 1's RELEASE.

A riser for a transition

1. Load **FX ▸ Riser** and hold one note: Env 3 lifts the pitch, the filter and the noise over four seconds.
2. Set Env 3's [ATTACK] to the length of your build (8 s for four bars at 120 BPM).
3. Raise the delay's [FEEDBACK] and the reverb's [MIX] for a bigger tail.

Specifications

Type	Polyphonic wavetable synthesizer (instrument)
Outputs	Stereo (or mono); MIDI in; no audio input
Latency	None
Polyphony	1–32 notes ([VOICES], default 16); mono and legato with glide
Oscillators	2 wavetable oscillators: 12 tables of 32 frames, band-limited one copy per octave; [UNISON] 1–16; 7 [WARP] modes; [OCT] ±4, [SEMI] ±12, [FINE] ±100 cents
Sub	Sine, Triangle, Saw, Square; 0, −1 or −2 octaves
Noise	White, Pink, Brown, Crackle
Filter	Low 12, Low 24, High 12, High 24, Band, Notch, Ladder (24 dB), Comb; [CUTOFF] 20 Hz – 20 kHz, [RESO], [DRIVE], [MIX], [KEY]; per-part routing
Envelopes	3 (ENV 1 on the level): attack, hold, decay, sustain, release; 0.5 ms – 20 s
LFOs	4: 7 shapes; Trigger, Free, Envelope; 0.01–50 Hz or synced 8 bars to 1/64; [RISE] 0–5 s
Macros	4
Modulation	16 slots; 17 sources; 35 destinations; drag and drop
Effects	Distortion (Tube, Hard, Fold, Crush), chorus, delay (sync, ping-pong, up to 2 s), reverb (up to 20 s), compressor
Output	[VOLUME] −48 to +6 dB (default −12 dB)
MIDI	Notes, velocity, pitch bend (up to ±24 semitones), mod wheel (CC 1), sustain (CC 64), aftertouch, CC 120, CC 123
Presets	41 factory presets in 10 folders, plus your own
Window	1400 × 920 points, resizable from 75 % to 200 %
Formats	VST3 and Audio Units (macOS, universal), VST3 (Windows, 64-bit), standalone; AAX once signed
Plugin ID	Manufacturer [Veir], plugin [Vbsy]

Troubleshooting and questions

Every 30 seconds the sound drops out for a moment. VEIRA Black Synth is not activated on this computer, or its licence has expired. The strip along the bottom of the window says which. Open VEIRA Manager and sign in (or open it while online to renew). See *Activation and the licence*.

I can't find VEIRA Black Synth in my DAW, or it won't load on my track. It is an instrument: look in your DAW's instrument list, not its effects, and load it on an instrument or MIDI track. Make sure VEIRA Manager shows SHOW (installed) for it, then rescan plugins. In Logic Pro it is under *AU Instruments* ▸ *VEIRA*.

I play notes but hear nothing. Check that the track is armed or selected for MIDI input in your DAW and that VOICES PLAYING changes when you play. If it does, check VOLUME, ENV 1's SUSTAIN and ATTACK (a very long attack on a short note never gets loud), the filter's CUTOFF (a low-pass at 20 Hz is silent), and that at least one oscillator, the sub or the noise is on, with its LEVEL up.

The sound clips or distorts when I play chords. Many notes add up. Lower VOLUME (it starts at −12 dB for this reason), or the track's fader. Bass, Lead, Arp and FX presets are levelled for single lines.

Notes cut each other off. MONO is on, or VOICES is set low. Raise VOICES (up to 32), or switch MONO off.

Glide doesn't happen. GLIDE is at 0, or you are playing notes that don't overlap with LEGATO on (legato glides only between overlapping notes). Turn LEGATO off to glide on every note.

A knob won't take a modulation. Switches, menus and the time-based controls (envelope times, the effects' times) can't be modulated; the knob refuses the drop. Every matrix slot may also be in use: free one on the MATRIX page.

The LFO doesn't stay in time with my song. Turn its SYNC on and set its mode to Free; it then follows the song position, so it lands on the same beats every time you play from the same place. In Trigger mode it restarts with each note instead.

The sound is different every time I play the same note. That is RAND (each note starts at a random point in the wave), the RANDOM source, Free LFOs or the noise. For an identical attack on every note, set RAND to 0 % on both oscillators.

It uses a lot of CPU. Unison is the biggest cost: each unison voice is a whole oscillator, for every note. Lower UNISON, lower VOICES, or shorten long RELEASE times (released notes keep playing until they have faded). A typical patch (8 notes, two oscillators at 7 unison voices each, sub, noise, the ladder filter and three effects) uses about 10 % of one processor core.

Does VEIRA Black Synth add latency? No.

How do I type an exact value? Right-click the knob (Control-click on a Mac), choose *Type a value…*, type the number and press Return.

Do my sessions keep my settings? Yes. Every control, the whole modulation matrix, the selected preset, the page shown and the window size are saved with your session.

Contact: support@veiraaudio.com. Mention your computer (Mac or Windows and its version), your DAW and version, and what you see.



VEIRA Black Synth · User Manual · Version 0.1.0

Support: **support@veiraaudio.com** · Web: **veiraaudio.com**

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