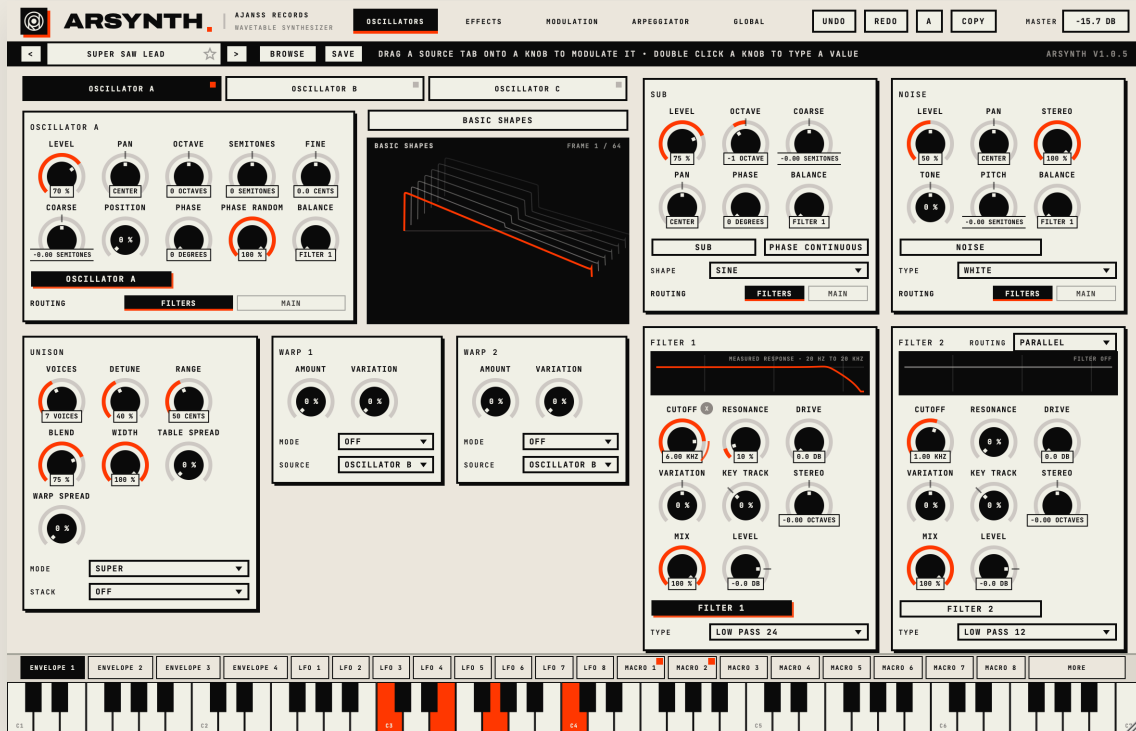


AJANSS RECORDS

ARSYNTH

WAVETABLE SYNTHESIZER



VERSION

1.0.5

FORMATS

AU • VST3

PLATFORMS

macOS • WINDOWS

DOCUMENT

USER GUIDE

01 WHAT IT DOES

ARSYNTH is a polyphonic wavetable synthesizer. Three **wavetable oscillators**, a sub oscillator and a noise source feed **two filters** with twenty-two types. Four envelopes, eight LFOs, eight macros and a sixty-four slot **modulation matrix** drive everything: every continuous control in the synth and in the effect rack is a modulation target – drag a source tab onto a knob and the depth shows as an arc around it. A rack of **twelve effects** in the order you drag them, an **arpeggiator** locked to the host clock, MPE, and one thousand and four factory presets in fifteen categories.

Each oscillator reads a table of up to 256 frames, 2048 samples per frame. Twenty-six factory tables ship with the plugin; your own load from WAV and export back as 32-bit float, and the **wavetable editor** draws frames by hand, edits harmonics one by one, and fills a spectral morph between two frames. Two **WARP** slots per oscillator offer twenty-four modes: phase warps, read warps, shapers and cross modulation from another oscillator. Unison runs up to sixteen voices with five detune modes.

What it promises it measures: alias products **115 dB down**, pitch within **0.000011 cents**, the same output at **every buffer size**, **exact silence** after the last note, every warp **bit identical** to no warp at AMOUNT 0. The numbers are on pages 18 and 19.

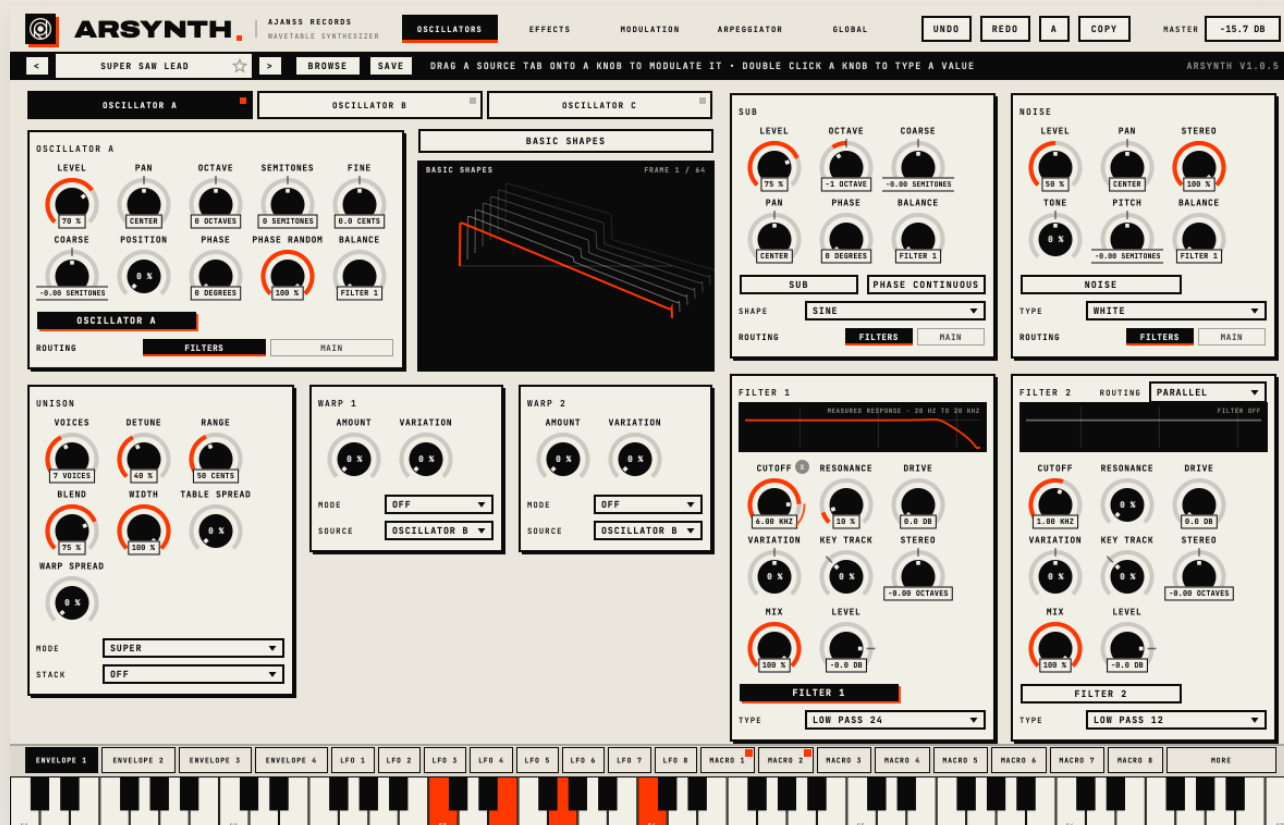
02 INSTALLING

macOS – run ARSYNTH Installer.pkg and follow the steps; choose the formats and whether to install for every user or only yourself. The package is signed and notarised by Apple, so it opens normally.

Windows – run ARSYNTH Installer.exe; the plugin goes to the shared VST3 folder. The installer is not codesigned yet, so SmartScreen may warn you: click More info, then Run anyway. Only needed once.

After installing – rescan the plugin list in your DAW; ARSYNTH appears under Ajanss Records > ARSYNTH in the instrument list. macOS 10.13 or newer, Intel or Apple Silicon (universal binary); Windows 10 or newer, 64-bit. Audio Unit and VST3 on macOS, VST3 on Windows.

03 THE WINDOW



The **top bar** holds the five pages – OSCILLATORS, EFFECTS, MODULATION, ARPEGGIATOR, GLOBAL – then UNDO, REDO, A (switch between the A and B states), COPY (copy the current state to the other slot) and MASTER, a level field you drag or double-click to type. UNDO and REDO also answer to COMMAND-Z and COMMAND-SHIFT-Z on macOS, CONTROL-Z and CONTROL-SHIFT-Z on Windows, from anywhere in the window; while you are typing in a text field that field does its own undo instead. The black strip below it is the **preset bar**: previous, the preset name, next, BROWSE and SAVE, and to the right of them a **hint** for whatever the mouse is over. Clicking the preset name opens the browser too.

The **source strip** above the keyboard is on every page: ENVELOPE 1-4, LFO 1-8, MACRO 1-8 and MORE (velocity, aftertouch, the wheels, key, MPE). Drag a tab onto a knob to modulate it; click one to open its editor on the MODULATION page; right-click one to see everywhere it is used and to remove all of it at once. A small square on a tab means that source is in use. The **keyboard** plays the synth – click or drag – and lights the notes the engine is holding.

Knobs: drag to change, double-click to type a value, ALT-drag to change the depth of the last modulation on that knob. Modulated knobs show one arc per source around them and a small round **X badge** at the top right; click it to remove the last modulation on that knob, and when there is more than one the count is written beside it. Right-click the knob for the list of slots. Values that do not fit under the knob are written on a small tag inside the arc. Selection rows and drop-down lists never abbreviate. **Window size**: drag the corner; the window scales from 75 to 150 percent and keeps its proportions.

04 OSCILLATORS

The OSCILLATORS page shows one oscillator at a time (the A / B / C tabs) with UNISON and the two WARP slots under it, and SUB, NOISE, FILTER 1 and FILTER 2 on the right. The dark panel draws the **table**: the frame the oscillator is reading in orange, with the neighbouring frames stacked behind it.

Tables

The button above the wave view chooses a table: twenty-six factory tables (BASIC SHAPES, PULSE WIDTH, HARMONIC BUILD, ODD HARMONICS, VOWELS, FM RATIO 1-3, HARD SYNC, PHASE DISTORTION, WAVEFOLDER, DIGITAL STEPS, ORGAN, RANDOM SPECTRA, METALLIC, SINE, FORMANT SWEEP, CHOIR VOICES, BRASS, BOWED STRINGS, REEDS, TINE, PULSE SAW, RESONANT SWEEP, GLASS, IMPULSE TRAIN), IMPORT WAV FILE, EXPORT WAV FILE and EDIT TABLE. A WAV of any bit depth loads; if it carries a clm frame marker the frame length is read from it, otherwise the file is cut into 2048-sample frames (a single-cycle file becomes one frame). Frames are resampled to 2048 samples when needed. A user table can play with CROSSFADE (frames as drawn, a linear blend between neighbours) or SPECTRAL interpolation, which generates in-between frames when the table loads so that two opposite-phase frames no longer dip in level between them.

POSITION is where in the table the oscillator reads; modulate it for movement. OCTAVE, SEMITONES, FINE and COARSE tune it; PHASE sets the start phase and PHASE RANDOM how much of it is randomised per note. ROUTING sends the oscillator to the FILTERS or straight to MAIN, and the FILTER 1 / FILTER 2 balance knob splits it between the two filters.

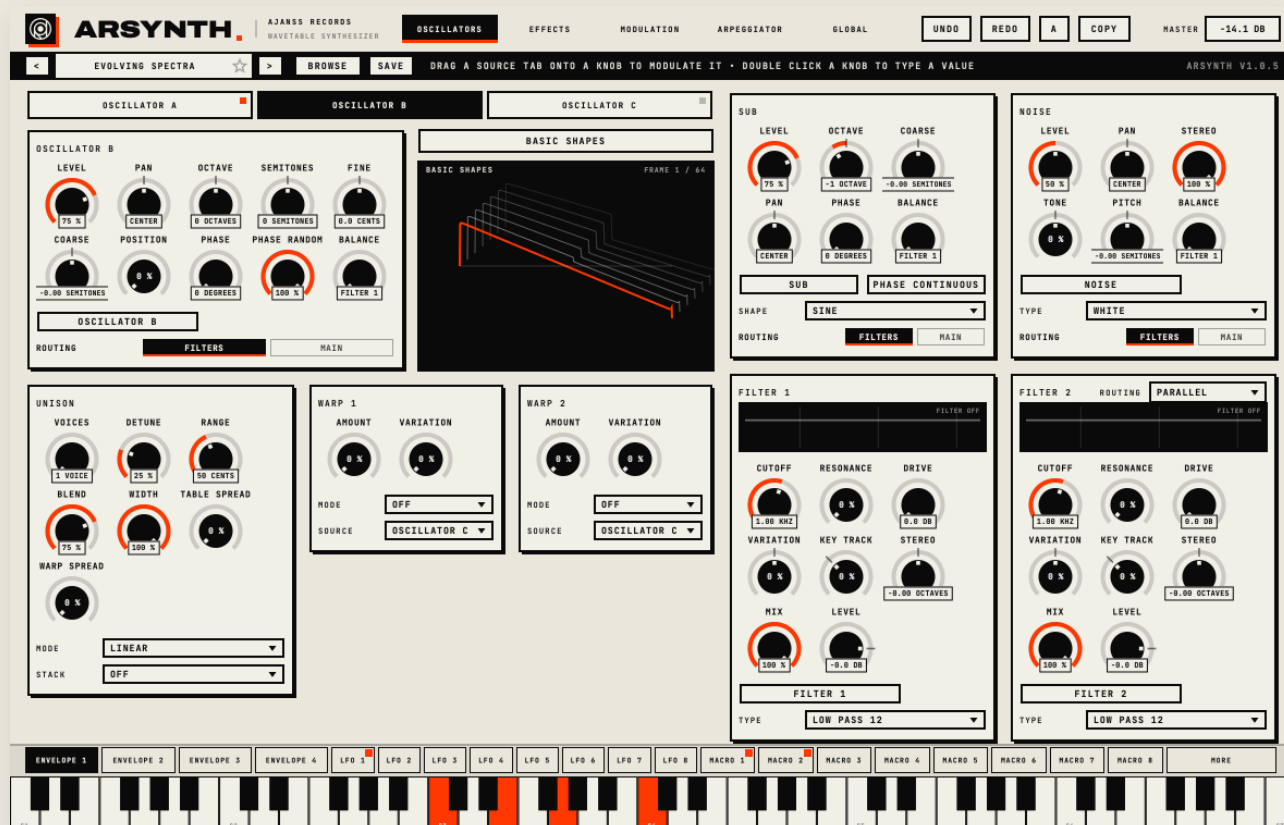
Unison

VOICES 1-16. DETUNE is the amount and RANGE the widest spread; MODE shapes the spread (LINEAR, SUPER, EXPONENTIAL, INVERSE, RANDOM); STACK adds octaves (OCTAVE, OCTAVE AND FIFTH, CENTER DOWN ONE OCTAVE, CENTER DOWN TWO OCTAVES). BLEND is the level of the outer voices against the centre, WIDTH their stereo spread, TABLE SPREAD spreads the voices across the table and WARP SPREAD gives each voice its own warp amount. The level is power-normalised: one to sixteen voices stay within 0.04 dB of each other.

Warp

Two slots, each with a MODE, AMOUNT and VARIATION. **Phase warps** read the table differently: BEND UP, BEND DOWN, SQUEEZE OUT, SQUEEZE IN, PULSE WIDTH, SYNC (VARIATION softens the window), MIRROR. **Read warps** change what is read: FLIP, LOW PASS, HIGH PASS, ODD, EVEN. **Shapers** bend the amplitude: SOFT CLIP, HARD CLIP, SINE FOLD, LINEAR FOLD, SINE SHAPER, RECTIFY, ASYMMETRIC, BIT CRUSH. **Cross modulation** uses another oscillator or the sub as the modulator (the SOURCE row): FREQUENCY MODULATION, PHASE MODULATION, AMPLITUDE MODULATION, RING MODULATION. When one slot is a cross mode the other slot is off. Every warp is band limited: at AMOUNT 0 it is bit identical to no warp, and the alias figures are on page 18.

05 FILTERS



Two filters, each with its own switch, TYPE, CUTOFF, RESONANCE, DRIVE, VARIATION, KEY TRACK, STEREO (an octave offset between the left and right cutoffs), MIX and LEVEL. The dark strip above the knobs is the filter's **measured response**: the engine's own filter is fed an impulse with the current settings and the result is drawn from 20 Hz to 20 kHz. ROUTING in the FILTER 2 title chooses SERIAL (FILTER 1 feeds FILTER 2) or PARALLEL (both from the sources, mixed by each source's balance knob).

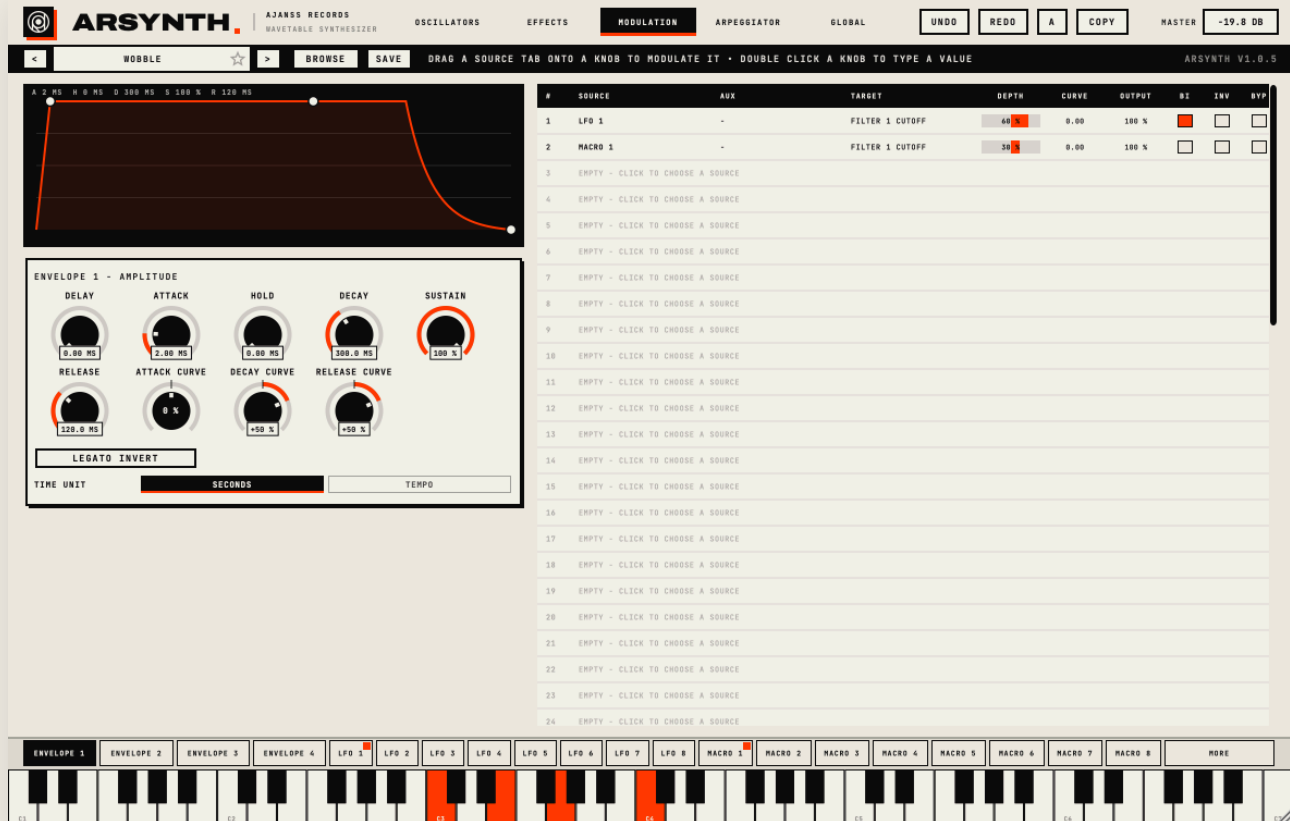
Types: LOW PASS 12 and 24, HIGH PASS 12 and 24, BAND PASS 12 and 24, NOTCH, PEAK, LADDER 24 and 12 (a four-pole ladder that self-oscillates at full RESONANCE, tuned within 0.03 cents), DIODE 18, MORPH (VARIATION sweeps low pass to band pass to high pass), DUAL BAND, COMB POSITIVE and COMB NEGATIVE (VARIATION is the damping), PHASER, FORMANT (VARIATION moves between the vowels), LOW SHELF, HIGH SHELF and BELL (RESONANCE sets the gain), RING MODULATOR and DOWNSAMPLE.

KEY TRACK moves the cutoff with the note: at 100 percent the filter follows the keyboard exactly (measured at -3.010 dB on the note from C2 to C7). **DRIVE** pushes the input into the filter's non-linearity; at 0 dB the filter is exactly linear.

Sub and noise

SUB: SINE, ROUNDED, TRIANGLE, SAW, SQUARE or PULSE, OCTAVE, COARSE, PHASE, PAN, LEVEL; PHASE CONTINUOUS keeps its phase running between notes. **NOISE:** WHITE, PINK, BROWN, BLUE, STEPPED (a pitched sample-and-hold) or CRACKLE (random impulses), with TONE, PITCH, STEREO, PAN and LEVEL. Both route to the filters or to MAIN like an oscillator.

06 MODULATION

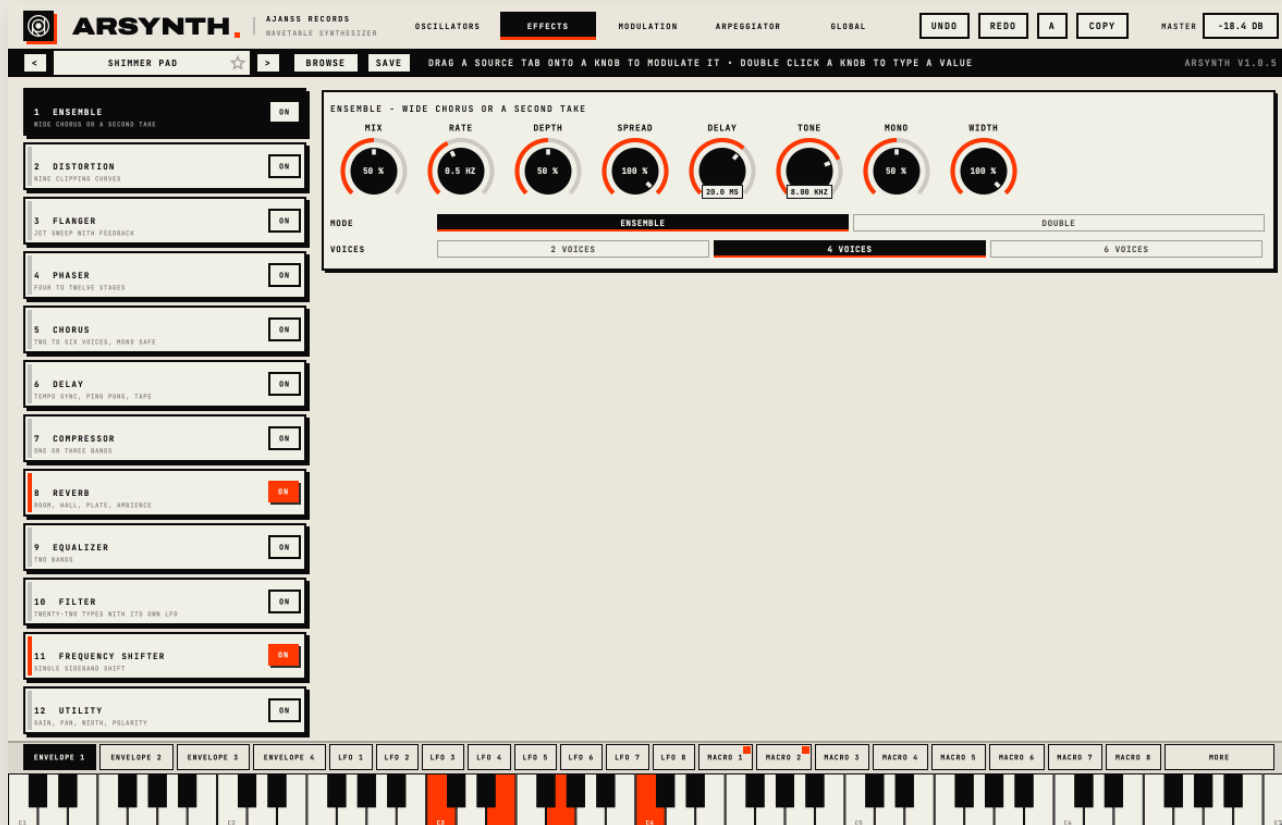


Drag and drop: drop a tab from the source strip on a knob; a slot is created and the knob draws an arc for it. ALT-drag the knob to change the depth. To take it off: the round X badge at the top right of the knob removes the last slot; right-click the knob to BYPASS, REMOVE or MAKE BIPOLAR a slot, or REMOVE ALL MODULATIONS on that knob. To clear a **source**, right-click its tab: the menu lists every slot it drives, with target and depth, and REMOVE ALL MODULATIONS FROM takes them all off. The MODULATION page shows the selected source's editor on the left and the whole **matrix** on the right: sixty-four rows with SOURCE, AUX (a second source that scales the first), TARGET, DEPTH, CURVE, OUTPUT, BI (bipolar), INV (invert the auxiliary), BYP and X, which clears the row. Every continuous control of the synth and of the effect rack is a target – 259 of them.

Envelopes ENVELOPE 1-4 (ENVELOPE 1 is the amplitude): DELAY, ATTACK, HOLD, DECAY, SUSTAIN, RELEASE, a curve for the attack, decay and release, and TIME UNIT in SECONDS or in TEMPO divisions. Drag the handles on the graph – the end of the attack, the end of the decay (its height is SUSTAIN) and the end of the release. LEGATO INVERT restarts the envelope from the top on a legato note.

LF0s LFO 1-8: TYPE is SHAPE (drawn), RANDOM HOLD, RANDOM SMOOTH or CHAOS (a Lorenz attractor); MODE is FREE, RETRIGGER or ONE SHOT; POLYPHONIC gives every voice its own LFO. RATE in hertz or, with TEMPO SYNC, in divisions locked to the host's position. DELAY and RISE fade the LFO in, SMOOTH rounds the shape, PHASE sets where it starts. In the shape editor drag a point, double-click to add or remove one, and drag between two points to bend the segment. **Macros** MACRO 1-8 are knobs with no sound of their own; assign them to anything and automate them from the host.

07 EFFECTS



Twelve modules on the left, in the order the signal runs; drag a tile to reorder, press ON to switch it on. Click a tile to open its controls on the right. A module that is off costs nothing and passes the signal through bit for bit; switching one on or off crossfades over 5 ms. Every knob in the rack is a modulation target. MASTER is applied after the rack.

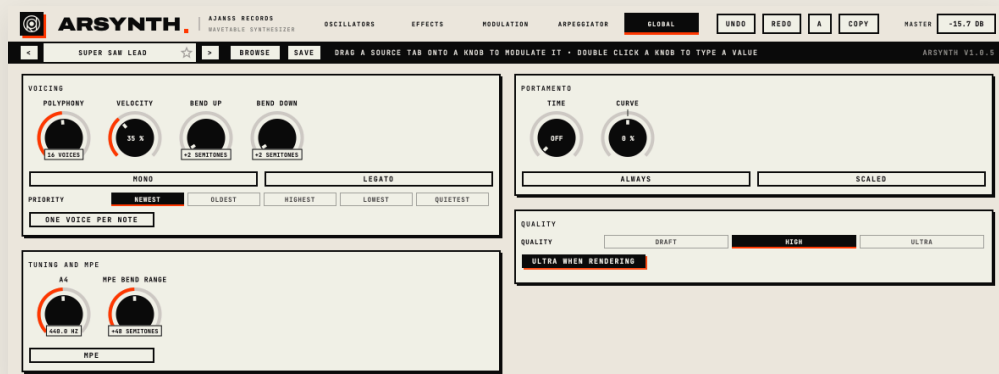
ENSEMBLE a wide chorus or a doubled take (ENSEMBLE or DOUBLE mode, two to six voices). **DISTORTION** nine clipping curves from SOFT CLIP to SQUARE FUZZ, with TONE, a HIGH PASS in front and OUTPUT. **FLANGER** a short modulated delay with FEEDBACK. **PHASER** four to twelve stages around a CENTER frequency. **CHORUS** two to six voices, mono safe. **DELAY** tempo synced or free, STEREO, PING PONG or MID SIDE, with a CLEAN, TAPE, BUCKET BRIGADE or LOW FIDELITY character and low and high cuts on the repeats. **COMPRESSOR** one or three bands, CLEAN, PUNCH, GLUE or VINTAGE character, KNEE, AUTO GAIN, per-band gain and a LOOKAHEAD that is reported to the host as latency. **REVERB** ROOM, HALL, PLATE or AMBIENCE with SIZE, DECAY, PREDELAY, DAMPING, EARLY REFLECTIONS and WIDTH. **EQUALIZER** two bands, each LOW SHELF, BELL or HIGH SHELF. **FILTER** the same twenty-two types as the voice filters, with its own LFO. **FREQUENCY SHIFTER** a single-sideband shift of ± 2000 Hz with FEEDBACK. **UTILITY** GAIN, PAN, WIDTH, MONO BELOW, LOW PASS, HIGH PASS, POLARITY FLIP and a DC FILTER.

08 ARPEGGIATOR



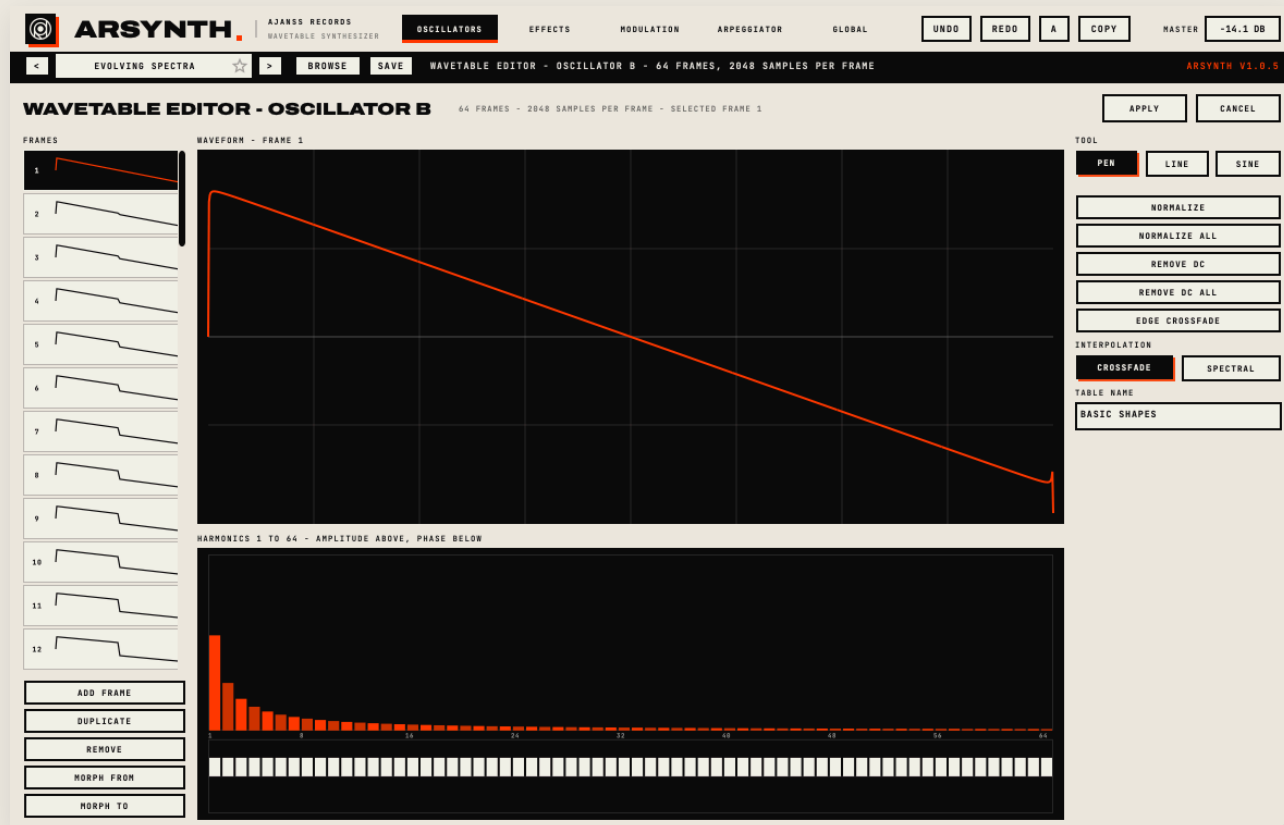
Switch it on and hold a chord. **SHAPE**: UP, DOWN, UP-DOWN, DOWN-UP, CONVERGE, DIVERGE, AS PLAYED, RANDOM or CHORD (the whole chord repeated). **RATE** from 8/1 to 1/64 with dotted and triplet values, locked to the host's position – the steps land on the grid even after a rewind, and when the transport is stopped the arpeggiator runs on its own clock at the host's tempo. **OCTAVES** repeats the pattern one to four octaves up. **GATE** is the note length, **SWING** delays every second step, **CHANCE** skips steps at random (the same pattern every time the song plays), **LATCH** keeps the chord running after you let go. **VELOCITY**: AS PLAYED, FIXED (the FIXED VELOCITY knob) or ACCENT (the first step of each cycle louder). The sustain pedal holds the chord.

09 GLOBAL



VOICING: POLYPHONY 1-32, **VELOCITY** (how much velocity sets the level: at 0 every note is equally loud, at 100 half velocity is half as loud), MONO, LEGATO (a new note while another is held does not retrigger the envelopes), PRIORITY when the voices run out (NEWEST, OLDEST, HIGHEST, LOWEST, QUIETEST – the name is the note that *keeps* its voice; the other one is cut), ONE VOICE PER NOTE, BEND UP and BEND DOWN ranges. **VELOCITY** multiplies the amplitude envelope, so it applies to the whole voice; **VELOCITY** is also a modulation source if you want it on a cutoff or a wavetable position instead. **PORTAMENTO**: TIME, CURVE, ALWAYS (glide on every note, not only on overlapping ones) and SCALED (the time is per octave, so a small interval glides faster). **TUNING AND MPE**: A4 from 415 to 466 Hz; MPE reads per-note pitch bend (MPE BEND RANGE), slide and pressure from an MPE controller. **QUALITY**: DRAFT, HIGH or ULTRA sets the internal rate; ULTRA WHEN RENDERING switches up for offline bounces.

10 WAVETABLE EDITOR



Choose EDIT TABLE from the table button. The editor opens over the page with a copy of the current table – a factory table too, so any of the twenty-six is a starting point. Nothing reaches the oscillator until you press APPLY; CANCEL or ESC closes without a change. APPLY is one undo step.

Frames on the left: click to select, up and down arrows to step. ADD FRAME inserts an empty frame after the selected one, DUPLICATE a copy, REMOVE deletes it. MORPH FROM marks the selected frame; select another and press MORPH TO, and every frame between them is rewritten as a spectral morph from one to the other.

Waveform: PEN draws freehand, LINE draws a straight line between two points, SINE draws one cycle over the range you drag, its amplitude set by how far down or up you drag. **Harmonics** below it: sixty-four bars of amplitude, a strip of phase under them; drag across either to write. On the right, NORMALIZE scales the frame (or all frames) to a peak of 1.0, REMOVE DC removes the offset, EDGE CROSSFADE spreads the wrap-around step of the frame over its first and last sixty-four samples so the table plays without a click. INTERPOLATION chooses CROSSFADE or SPECTRAL playback, and TABLE NAME is what the table button will show.

Tables made for instruments. The last ten factory tables, and what POSITION walks through in each: FORMANT SWEEP moves one vowel formant from 250 Hz to 3 kHz; CHOIR VOICES sings bass, tenor, alto and soprano vowels; BRASS opens from dark to bright; BOWED STRINGS goes cello, viola, violin; REEDS goes clarinet, oboe, saxophone, accordion; TINE, GLASS and IMPULSE TRAIN are bell, glass and buzz spectra; PULSE SAW narrows a saw towards a pulse; RESONANT SWEEP carries a resonant low pass sweep inside the table.

11 PRESETS

One thousand and four factory presets in fifteen categories: INIT, BASS, LEAD, PAD, PLUCK, KEYS, CHORD, ARP and FX, and the instrument families BRASS, STRINGS, VOCAL, WORLD, TEXTURE and DRUMS – one thousand sounds plus four INIT patches. Every factory preset was played through the plugin, its peak measured, and its MASTER set so the peak of a three note chord is -12 dBFS; a preset whose free running LFO moves its level was measured at fifteen moments over two minutes and set by the loudest. Switching presets does not change the level, and a seven note chord still has headroom. The 704 added in version 1.0.4 were each compared with the whole bank on spectrum and envelope; a sound too close to one already there was rebuilt or left out.

Two macros on the sounds. MACRO 1 is **TONE** and MACRO 2 is **SPACE**. At 0 a preset sounds exactly as measured; turning them up only opens it. TONE opens a filter in 475 presets and moves the warp amount, the wavetable position, the drive or the comb filter in the rest that have it; SPACE raises the reverb or the delay. 887 of the 1000 sound presets carry TONE and 842 carry SPACE – the others have nothing that knob could open; the four INIT patches carry neither.

The preset bar: the arrows step through the list visible in the browser (all presets, one category, your favorites or a search), so they can walk through the basses alone. BROWSE opens the browser: categories on the left, a search box, the list; click a preset to load it, use the up and down keys to move. SAVE stores the sound as a user preset under the name you type; RENAME and DELETE work on user presets – files in **Documents / ARSYNTH Presets**, one .arsynth each; copy them to another computer and they appear under USER. A preset is the complete state: every parameter, the tables (a user table is embedded once, by content), the matrix, the LFO shapes and the effect order; the DAW session stores the same.

Favorites: the star at the right end of the preset name, or beside any preset in the browser, marks it; click it again or press F to unmark it. **FAVORITES**, above USER, shows only those; they are kept in favorites.txt in the same folder.

CATEGORY	PRESETS
INIT	INIT, INIT SINE, INIT SAW, INIT SQUARE
BASS	SUB HEAVY, REESE, ACID LADDER, FM BASS, WOBBLE, GROWL, DEEP PLUCK BASS, SQUARE BASS, DISTORTED BASS, EIGHT OH EIGHT, METALLIC BASS, SYNC BASS, RUBBER BASS, BRASS EDGE BASS, WIDE STACK BASS, ROLLING SUB, TECHNO RUMBLE BASS, DUB BASS, FUNKY PLUCK BASS, HOUSE ORGAN BASS, NEURO GRIND, MOVING REESE, EIGHTIES OCTAVE BASS, ACID SQUARE, SOFT ROUND BASS, FINGERED BASS, WOODEN UPRIGHT, WAVEFOLD BASS, PHASE DISTORTION BASS, GLIDE SUB, PIXEL BASS, TALKING BASS, PUNCH BASS, DEEP DRONE BASS, HOLLOW BASS, ROUND LADDER BASS, TWO STEP WOBBLE, PLUCKY HOUSE BASS, PSY ROLLING BASS, JUMP UP BASS, RIDDIM BASS, NEURO FM BASS, DONK BASS, LOG DRUM BASS, YOI BASS, DUBSTEP GROWL, TEAROUT BASS, VOWEL WOBBLE BASS, LIQUID SUB BASS, TECH HOUSE BASS, MINIMAL CLICK BASS, GARAGE SUB, SLAP SYNTH BASS, REVERSE OFFBEAT BASS, TRANCE OFFBEAT BASS, OUTRUN BASS, SOLID FM BASS, BRASSY BASS, WOODY BASS, MONSTER VOICE BASS, NEURO REESE, DISTORTED BOOM BASS, SUB PRESSURE, BUZZ BASS, GLIDING ACID BASS, ALTERNATING BASS, VELOCITY GROWL BASS, MIRROR BASS, BENT SQUARE BASS, EVEN HARMONIC BASS, RECTIFIED BASS, AMPLITUDE MOD BASS, PHASE MOD BASS, DUAL FILTER BASS, MORPH FILTER BASS, DUAL BAND BASS, CENTER DOWN STACK BASS, EXPONENTIAL UNISON BASS, KEYTRACKED FM BASS, SCALED SLIDE BASS, SQUARE SUB BASS, ROUNDED SUB BASS, PULSE SUB BASS, BELL BASS, DOWNSAMPLE BASS, SQUEEZE BASS, FRETLESS BASS

11 PRESETS, CONTINUED

CATEGORY PRESETS

LEAD

SUPER SAW LEAD, PWM LEAD, SYNC LEAD, PHASE DISTORTION LEAD, FM BELL LEAD, SCREAMING FOLD, VOWEL LEAD, ORGAN LEAD, DIGITAL STEPS LEAD, SOFT SINE LEAD, RING MOD LEAD, HARMONIC BUILD LEAD, BRIGHT REED LEAD, HOLLOW HORN LEAD, BREATHY FLUTE LEAD, UPLIFTING SAW LEAD, EIGHT BIT LEAD, WHISTLE LEAD, GLIDE SAW LEAD, ACID LEAD, SQUARE FUNK LEAD, FUZZ LEAD, SYNTH BRASS LEAD, NASAL REED LEAD, GHOST SINE LEAD, SAW OCTAVES LEAD, SCREAMING SYNC, FM DIGITAL LEAD, VOCAL CHOP LEAD, HARD DANCE LEAD, MELLOW SQUARE LEAD, METALLIC LEAD, SUPER PULSE LEAD, DUSTY TAPE LEAD, NIGHT DRIVE LEAD, FORMANT SAW LEAD, PRESSURE LEAD, RAVE SWOOP LEAD, SUPERSAW ANTHEM LEAD, SCREECH LEAD, POP SCOOP LEAD, BRASSY SYNC LEAD, CLARINET LEAD, OBOE LEAD, SAX LEAD, SQUARE HERO LEAD, FUNK WHINE LEAD, SYNC SWEEP LEAD, SOPRANO SYNTH LEAD, BLAZING BRASS LEAD, PICCOLO LEAD, PSY ACID LEAD, FM SQUEAL LEAD, WOBBLY TAPE SINE, HOLLOW SQUARE DUO, CRYSTAL BELL LEAD, PULSE SAW SOLO, WAH LEAD, BELL TINE LEAD, ROCK OCTAVE LEAD, BUZZ LEAD, FESTIVAL LEAD, DUB SIREN LEAD, GOSPEL ORGAN LEAD, FAT MONO LEAD, ALTERNATING PAN LEAD, BEND UP LEAD, MIRROR LEAD, FLIP LEAD, ODD WARP LEAD, HIGH PASS WARP LEAD, PHASE MOD LEAD, AMPLITUDE MOD LEAD, SQUEEZE OUT LEAD, DUAL BAND LEAD, PEAK FILTER LEAD, ASYMMETRIC LEAD, RECTIFY LEAD, LINEAR FOLD LEAD, SINE SHAPER LEAD, SOFT CLIP LEAD, FIFTH STACK LEAD, INVERSE UNISON LEAD, VOICE SPREAD LEAD, RANDOM PAN LEAD, GLASS FM LEAD, DOWNSAMPLED LEAD

PAD

WARM PAD, VOWEL PAD, GLASS PAD, DARK DRONE, STRINGS, EVOLVING SPECTRA, BREATH PAD, CHOIR, SHIMMER PAD, PULSE PAD, SLOW SYNC PAD, ORGAN PAD, MIRRORING BLOOM, HOLLOW SWEEP PAD, JET FLANGE PAD, SLOW SAW PAD, AMBIENT WASH, CRYSTAL PAD, WARM TAPE PAD, TIDAL PAD, DARK CINEMATIC PAD, BRIGHT SUPERSAW PAD, POLY SWEEP PAD, ETHEREAL VOICES, FROZEN PAD, TRANCE GATE PAD, WORN VINYL PAD, SPACE DRIFT PAD, SLOW MOTION PAD, HALL AIR PAD, PHASER PAD, STRING MACHINE, BELL PAD, SUB BLOOM PAD, WIND CHOIR, DREAM PAD, RESONANT COMB PAD, CHOIR PAD, GLASS HARMONICS PAD, TINE WASH PAD, SLOW BOW PAD, SWEEPING RESONANCE PAD, PULSE SAW PAD, FORMANT DRIFT PAD, IMPULSE HAZE PAD, SIDECHAIN PUMP PAD, VELVET PAD, CHOIR SHIMMER PAD, REED ORGAN PAD, FM MIST PAD, CASSETTE PAD, HORIZON PAD, DREAD PAD, AIR PAD, STUTTER PAD, HOLLOW OCTAVE PAD, WHISPER PAD, DIGITAL PAD, IRON PAD, FOLDING PAD, RESONANT PHASE PAD, DEEP FLOOR PAD, HARMONIC BLOOM PAD, FROZEN SPECTRA PAD, EIGHTIES POLY PAD, MORPH FILTER PAD, DUAL BAND PAD, PEAK SWEEP PAD, BELL EQ PAD, LOW SHELF WARM PAD, OCTAVE STACK PAD, CENTER DOWN PAD, RANDOM UNISON PAD, EVEN WARP PAD, FLIP PAD, BEND PAD, AMPLITUDE MOD PAD, PHASE MOD PAD, VELOCITY BRIGHT PAD, MOD WHEEL SWELL PAD, AFTERTOUCH BLOOM PAD, DELAYED VIBRATO PAD, CHAOS PAD, SMOOTH RANDOM PAD, SQUEEZE PAD, TABLE SPREAD PAD, WARP SPREAD PAD

PLUCK

BRIGHT PLUCK, GLASS PLUCK, PIZZICATO, FM PLUCK, SQUARE PLUCK, KALIMBA, SYNC PLUCK, VOWEL PLUCK, STEPPED PLUCK, SOFT PLUCK, RESONANT PLUCK, HARP, HOLLOW BELL PLUCK, THIN WIRE PLUCK, AUTO WAH PLUCK, HOUSE PLUCK, ISLAND PLUCK, WIDE SAW PLUCK, SILK STRING PLUCK, NYLON PLUCK, STEEL STRING PLUCK, BLIP, WATER DROP, STACCATO SAW, WOOD BLOCK PLUCK, SQUARE CHIRP, DUB ECHO PLUCK, TAPE PLUCK, PHASE PLUCK, WAVEFOLD PLUCK, SHIFTING PLUCK, BAROQUE PLUCK, NEON PLUCK, SOFT BELL PLUCK, RESONANT BAND PLUCK, SNAPPY PLUCK, MUTED PLUCK, POP PLUCK, FUTURE BASS PLUCK, KOTO PLUCK, BANJO PLUCK, TRANCE PLUCK, GLASS BELL PLUCK, RESONANT SWEEP PLUCK, TINE PLUCK, DEEP HOUSE PLUCK, TROPICAL MARIMBA PLUCK, ACID PLUCK, REVERSE PLUCK, NOISE PLUCK, STACKED CHORD PLUCK, MUTED GUITAR PLUCK, CLEAN GUITAR PLUCK, OVERDRIVEN GUITAR PLUCK, FM CHIME PLUCK, DIGITAL HARP PLUCK, BRASS PLUCK, CHOIR PLUCK, REED PLUCK, IMPULSE ZITHER PLUCK, PULSE PLUCK, RESONANT BELL PLUCK, SUB PLUCK, FLIP PLUCK, BEND PLUCK, EVEN PLUCK, LOW PASS WARP PLUCK, PHASE MOD PLUCK, AMPLITUDE MOD PLUCK, RING PLUCK, MORPH FILTER PLUCK, DUAL BAND PLUCK, PEAK PLUCK, DOWNSAMPLE PLUCK, OCTAVE STACK PLUCK, ALTERNATE PLUCK, RANDOM COLOR PLUCK, VELOCITY LENGTH PLUCK, KEYTRACK DECAY PLUCK, RECTIFY PLUCK, SOFT CLIP PLUCK, ASYMMETRIC PLUCK, SQUEEZE PLUCK

11 PRESETS, CONTINUED

CATEGORY PRESETS

KEYS

ELECTRIC PIANO, TINE KEYS, PLUCKED KEYS, ORGAN KEYS, BELL KEYS, MARIMBA, REED PIANO, MUSIC BOX, HOUSE PIANO, VIBRAPHONE, CELESTA, DIGITAL KEYS, CHIME PIANO, CLAVICHORD, TOY PIANO, BRIGHT ELECTRIC PIANO, TREMOLO ELECTRIC PIANO, GRITTY ELECTRIC PIANO, FUNK KEYS, SYNTH GRAND, DUSTY PIANO, ROTARY ORGAN, PERCUSSIVE ORGAN, PIPE ORGAN, HARPSICHORD, STEEL DRUM, XYLOPHONE, GLOCKENSPIEL, TUBULAR BELLS, MELLOW KEYS, FM PIANO, HOUSE ORGAN, SOFT FELT PIANO, NEO SOUL KEYS, HONKY TONK PIANO, CELESTIAL KEYS, WOODEN MALLETS, TINE ELECTRIC PIANO, TINE VIBES, BARKING REED PIANO, TONEWHEEL DRAWBARS, CATHEDRAL PLENUM, ACCORDION, HARMONIUM, GLASS PIANO, SUITCASE TINE PIANO, STAGE TINE PIANO, COMBO ORGAN, ELECTRIC HARPSICHORD, SOFT Mallet MARIMBA, BRIGHT GLOCK, GOSPEL DRAWBARS, CHAMBER ORGAN, CALLIOPE, FM TINE PIANO, LOFI KEYS, PERCUSSIVE CLAV, TREMOLO VIBES, Mallet KEYS, DIGITAL GRAND, WARM ELECTRIC ORGAN, VELOCITY LAYER PIANO, PHASE MOD PIANO, AMPLITUDE MOD ORGAN, PEAK EQ PIANO, DUAL BAND ORGAN, CENTER DOWN ORGAN, STACKED ORGAN, SINE SHAPER KEYS, LINEAR FOLD KEYS, EVEN KEYS, MIRROR KEYS, FLIP KEYS, KEYTRACK BRIGHT PIANO, POLY PRESSURE KEYS, DETUNED UPRIGHT, DOWNSAMPLE KEYS, RELEASE CLICK KEYS, GLASS EP

CHORD

STACK CHORD, MINOR SEVENTH, MAJOR STAB, SUS CHORD PAD, FIFTHS POWER, HOUSE STAB, OCTAVE ORGAN, DETUNED NINTH, PLUCKED TRIAD, SYNC CHORD, DARK MINOR, BELL CHORD, GLOWING SIXTH, OPEN FOURTHS, GLUED CHORD STAB, HOUSE ORGAN CHORD, DEEP HOUSE CHORD, DUB TECHNO CHORD, MAJOR SEVENTH, SUS FOUR STAB, RAVE STAB, SUPERSAW MINOR, LOFI CHORD, ADD NINE, DIMINISHED STAB, AUGMENTED SWELL, QUARTAL STACK, ORGAN SEVENTH, BRASS STAB CHORD, OPEN STRING CHORD, BELL MINOR, GLITCH CHORD, NEON CHORD, MINOR ELEVENTH, GARAGE ORGAN CHORD, HOLLOW FIFTHS, MIDNIGHT STRINGS CHORD, FUTURE BASS CHORD, HOLLOW MINOR NINE, GOSPEL ORGAN CHORD, CHOIR CHORD, GLASS CHORD, NEO SOUL CHORD, RAVE PULSE CHORD, RESONANT SWEEP STAB, STRING MACHINE CHORD, HOUSE PIANO CHORD, TECHNO MINOR STAB, ACID CHORD STAB, TRANCE CHORD STAB, ORCHESTRA HIT, SEVENTH SWELL, SUS TWO CHORD, DISTORTED POWER CHORD, MINOR SIX CHORD, ACCORDION CHORD, BELL MAJOR NINE, PULSE STAB, DETUNED ORGAN CHORD, LOFI MAJOR SEVENTH, CLUSTER CHORD, HALF DIMINISHED, DOMINANT NINE, MAJOR SIX NINE, MINOR MAJOR SEVENTH, SEVEN SHARP NINE, QUARTAL PAD, OCTAVE STAB, SEVENTH STAB, SUS TWO PAD CHORD, ADD ELEVEN, MINOR ELEVEN PLUCK, AUGMENTED STAB, MAJOR NINE PAD, MINOR NINE PLUCK, DIMINISHED PAD, POWER FIFTH STAB, PHASE MOD CHORD, MORPH FILTER CHORD

ARP

SAW ARP UP, PLUCK ARP, SQUARE SEQUENCE, BELL ARP, TRIPLET GATE, CONVERGE ARP, SWING ARP, CHORD ARP, OCTAVE RUNNER, VOWEL ARP, DOWN STAIRS, LATCHED PULSE, SWEEPING HOLLOW PULSE, CRUSHED DIGITAL CASCADE, GATED FILTER ARP, TRANCE GATE ARP, BERLIN SCHOOL SEQUENCE, PLUCK DELAY ARP, RANDOM CHANCE ARP, TRIPLET RUNNER, NEON RUNNER, ACID ARP, LOFI ARP, EIGHT BIT ARP, GLASS DOWN-UP, OCTAVE BOUNCE, DIVERGE STRINGS, PUMPING CHORD ARP, HALF TIME ARP, SPARKLE ARP, FM ARP, WOBBLE ARP, SWUNG HOUSE ARP, MINIMAL CLICK ARP, HARMONIC RUNNER, RESONANT DOWN ARP, FLOWING PAD ARP, PSYCHEDELIC ARP, KAWAII SQUARE ARP, GLASS ARP, FORMANT ARP, TINE ARP, CHOIR ARP, HARP ARPEGGIO, RESONANT ACID ARP, SYNTHWAVE BASS ARP, BRIGHT PLUCK ARP, BELL CASCADE, RANDOM GLASS ARP, TINE RIPPLE, BRASS ARP, STRING ARP, HARP GLISSANDO ARP, TRIPLET BELLS, ACID RUNNER, DOWNWARD SPIRAL, CHORD PULSE ARP, MINIMAL BLIP ARP, SWING PLUCK ARP, REED ARP, FORMANT RUNNER, SUB ARP, DUB DELAY ARP, CONVERGE GLASS ARP, DIVERGE PLUCK ARP, DOWN-UP TINE ARP, QUARTER NOTE ARP, DOTTED EIGHTH ARP, SIXTEENTH TRIPLET ARP, THIRTY-SECOND TRIPLET ARP, FOUR OCTAVE RUN, SHORT GATE ARP, LEGATO GATE ARP, FIXED VELOCITY ARP, LATCHED BELLS, CHANCE BLIPS, CHORD STRUM ARP, SWUNG TRIPLET ARP, BASSLINE ARP, SHIMMER ARP, DRUNKEN ARP, OCTAVE PULSE ARP, WIDE STEREO ARP

11 PRESETS, CONTINUED

CATEGORY PRESETS

FX	RISER, IMPACT, CRACKLE TEXTURE, SHIFTED DRONE, CHAOS LFO, STEPPED GLITCH, WIND, SIREN, LASER, REVERSE SWELL, METALLIC HIT, BIT CRUSHED, FOLDED METAL SWEEP, BREATHING GLASS SWELL, TAPE STOP FALL, DOWNLIFTER, PITCH RISER, SUB DROP, CINEMATIC BOOM, WHOOSH, ALARM, COMPUTER BLEEPs, BUBBLES, STATIC RADIO, GLITCH STUTTER, HYPERDRIVE, ZAP, THUNDER, RAIN, REVERSE CYMBAL, TAPE REWIND, DARK ATMOSPHERE, SWEEPING COMB, BUZZING SWARM, DIGITAL DEBRIS, ROBOT TALK, CHOPPED NOISE, LONG RISER, REVERSE CHOIR, RADIO TUNING, SCIENCE FICTION DOOR, GLITCH VOICES, UNDERWATER SONAR, ALIEN TALK, POWER DOWN, EXPLOSION, NOISE SWEEP UP, FILTER RISER, SUB BOOM, METAL SCRAPE, GLASS SHATTER, HEARTBEAT, TELEPORT, WIND GUST, ELECTRIC ZAP, MORSE CODE, UFO, DRONE HIT, ENDLESS RISE, DIGITAL GLITCH BURST, VINYL BRAKE, RISING SIREN, LASER BATTLE, COIN PICKUP, JUMP, POWER UP, GAME OVER, ROBOT WALK, TAPE FLUTTER, REVERSE REVERB SWELL, METAL IMPACT, WHOOSH DOWN, SPACE DEBRIS, RADAR PING, ELECTRIC SPARK, PASSING CAR, RAIN STICK, GLITCH RISER, DEEP IMPACT TAIL
BRASS	BRASS SECTION, SOLO TRUMPET, TROMBONE, FRENCH HORN, TUBA, MUTED TRUMPET, EIGHTIES SYNTH BRASS, BRASS HIT STAB, CRESCENDO BRASS, FANFARE, BIG BAND SECTION, SFORZANDO BRASS, HORN ENSEMBLE PAD, FM BRASS, POLYSYNTH BRASS, GRITTY BRASS, FLUGELHORN, BRASS OCTAVES, BRASS RIP, EPIC HORNS, SKA HORNS, BRASS SWELL PAD, RESONANT BRASS, VIBRATO TRUMPETS, TRUMPET FALL, SOFT HORN SWELL, STABBY SYNTH HORNS, BRASS FORTE, CORNET, EUPHONIUM, BUGLE CALL, DISTANT HORNS, BRASS CLUSTER, SOFT FLUGEL PAD, PHASER BRASS, SAX SECTION, ALTO SAX, TENOR SAX, BARITONE SAX, SOPRANO SAX, WAH MUTE TRUMPET, BASS TROMBONE, TROMBONE SECTION, BRASS DOIT, STACCATO BRASS, MARCHING BAND, AUTO WAH BRASS, ALPHORN, LOW BRASS DRONE, TRUMPET SHAKE
STRINGS	STRING SECTION, LEGATO VIOLIN, SOLO CELLO, SOLO VIOLA, SECTION PIZZICATO, TREMOLO STRINGS, SPICCATO STRINGS, PONTICELLO STRINGS, VINTAGE STRING ENSEMBLE, ORCHESTRAL SWELL, LOW STRINGS, HIGH STRINGS, STRING HARMONICS, LUSH STRINGS, STACCATO SECTION, MARCATO STRINGS, CHAMBER STRINGS, SYNTH STRING PAD, CONTRABASS, OSTINATO STRINGS, TENSION STRINGS, OCTAVE STRINGS, FROZEN STRINGS, ROMANTIC VIOLINS, SOLO VIOLIN SPICCATO, CELLO PIZZICATO, DOUBLE BASS PIZZICATO, HARMONICS SHIMMER, LOW TREMOLO STRINGS, ORCHESTRA TUTTI, FIDDLE, STRING QUARTET, COL LEGNO, DISTANT STRINGS, SUSPENSE STRINGS, AIRY VIOLINS, SUL TASTO STRINGS, TRILL STRINGS, GLISSANDO VIOLIN, CELLOS AND BASSES, VIOLA SECTION, SORDINO STRINGS, STRING FALL, STRING CLUSTER, SNAP PIZZICATO, BOWED BASS DRONE, ELEGY STRINGS, ELECTRIC VIOLIN, MEASURED TREMOLO, ALEATORIC STRINGS
VOCAL	CHOIR AAH, CHOIR OOH, MALE CHOIR, FEMALE CHOIR, TENOR SOLO, SOPRANO SOLO, VOCAL CHOPS, WHISPER, ROBOT CHOIR, TALKBOX LEAD, VOWEL MORPH, ANGELIC VOICES, MONK CHANT, VOCODER SYNTH, BREATHY VOICE, GOSPEL CHOIR, HUMMING VOICE, VOCAL STAB, SCAT VOICE, CHOIR SWELL, ETHEREAL AAH, OOH PAD, CHOIR MM, BOYS CHOIR, GREGORIAN CHANT, POP VOCAL CHOP, VOCAL BASS, SHOUT BREATH, CHOIR STACCATO, SPACE CHOIR, OPERA SOPRANO, BARBERSHOP CHORD, VOCODER CHORD, OOH LEAD, ALTO CHOIR, BASSO PROFUNDO, EE VOWEL PAD, OVERTONE SINGING, THROAT SINGING, YODEL LEAD, SIGHING VOICE, DISTANT CHOIR, WHISPERED VOWELS, VOWEL BASS, STUTTER VOICE, RADIO VOICE, CHOIR CLUSTER, WORDLESS LEAD

11 PRESETS, CONTINUED

CATEGORY PRESETS

WORLD	SITAR, KOTO, SHAMISEN, MBIRA, GAMELAN, BALAFON, PAN FLUTE, SHAKUHACHI, NEY FLUTE, DUDUK, HIGHLAND PIPES, INDIAN HARMONIUM, TABLA TONE, DIDGERIDOO, OUD, HAMMERED DULCIMER, MANDOLIN, LYRE, TONGUE DRUM, HANDPAN, ERHU, OCARINA, GUZHENG, TANPURA DRONE, SLIDE GUITAR, ANGKLUNG, SAZ, KANUN, KEMENCE, ZURNA, KAVAIL, BALALAIKA, CHARANGO, JAW HARP, HULUSI, KORA, GONG, SANTUR, TIN WHISTLE, PIPA, CURA, TULUM, DARBUKA, DAF, MEY, KABAK KEMANE, BANSURI, SARANGI, SHEHNAI, VEENA, BOUZOUKI, UKULELE, HARMONICA, BANDONEON, UDU, BERIMBAU, SHO, DIZI
TEXTURE	DEEP SPACE DRONE, CRYSTAL CAVE, RUSTY MACHINE, OCEAN DEPTHS, GRAIN CLOUD, FROZEN TIME, TENSION DRONE, NIGHT AMBIENCE, RADIO VOID, BREATHING DRONE, SUBMERGED, POWER LINE HUM, DARK MATTER, AURORA, DUST STORM, GLASS RAIN, PULSING NEBULA, METAL RESONANCE, WIND CHIMES, HAUNTED CHOIR, MACHINE ROOM, SLOW TIDES, ALIEN FOREST, ICE SHEET, VOLCANIC, SINGING BOWL, EVOLVING TINES, STRATOSPHERE, CLOCKWORK, BAMBOO FOREST, SNOWFALL, ABYSS, SOLAR WIND, SHORTWAVE, LIGHTHOUSE, RAINFOREST, STATIC FIELD, TIME STRETCH, SPECTRAL SWARM, CATHEDRAL AIR, MAGNETIC FIELD, DIGITAL OCEAN, GLACIER, CANYON WIND, UNDERGROUND RIVER, SATELLITE, ORBITAL DECAY, MEMORY LOSS, DISTANT THUNDER, RAIN ON ROOF, TELEMETRY, BURNING EMBERS, WIND TUNNEL, SUNRISE DRONE, INFINITE HALL, SONAR FIELD, HEARTBEAT ROOM, PHASING HORIZON
DRUMS	SYNTH KICK, BOOMING KICK, PUNCH KICK, DISTORTED KICK, SYNTH SNARE, SYNTH CLAP, CLOSED HAT, OPEN HAT, METALLIC HAT, SYNTH TOM, LASER TOM, RIMSHOT, COWBELL, CLAVE, SHAKER, CRASH CYMBAL, RIDE CYMBAL, FM PERCUSSION, GLITCH PERCUSSION, TIMBALE, CONGA, BONGO, WOODBLOCK, ORCHESTRAL TRIANGLE, TAMBOURINE, ZAP PERCUSSION, NOISE SNARE, SUB KICK, CHIP DRUM, REVERSE SNARE, TAIKO DRUM, FINGER SNAP, ROUND KICK, DEEP HOUSE KICK, TECHNO RUMBLE KICK, TRAP KICK, LOFI KICK, BRUSH SNARE, RIM CLICK, TRAP SNARE, LOFI SNARE, ROOM CLAP, PEDAL HAT, SIZZLE HAT, CHINA CYMBAL, SPLASH CYMBAL, AGOGO, GUIRO, CABASA, MUTED TRIANGLE, SLAP TOM, TIMPANI, HARDSTYLE KICK, GABBER KICK, ACOUSTIC KICK, GLIDE KICK, TIGHT SNARE, ACOUSTIC SNARE, PICCOLO SNARE, SNARE ROLL, LAYERED CLAP, FLOOR TOM, HIGH TOM, CAJON, CASTANETS, SLEIGH BELLS, HALF OPEN HAT, BELL RIDE, CYMBAL SWELL, TRASH SNARE, BEATBOX KICK, WHIP CRACK

12 PARAMETERS

Oscillators B and C repeat the A rows; envelopes 2-4 repeat ENVELOPE 1; LFOs 2-8 repeat LFO 1. 422 parameters in all.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
OSCILLATOR A	on / off	on (B, C off)	The oscillator plays.
OCTAVE / SEMITONES / FINE	±4 / ±12 / ±100 cents	0	Tuning steps.
COARSE	±48 semitones	0	Continuous pitch, the modulation target for pitch.
POSITION	0 ... 100 %	0 %	Where in the table the oscillator reads.
LEVEL / PAN	0 ... 100 % / L ... R	75 % / CENTER	Level and position.
PHASE / PHASE RANDOM	0 ... 360° / 0 ... 100 %	0° / 100 %	Start phase and how much of it is randomised per note.
ROUTING / BALANCE	FILTERS, MAIN / F1 ... F2	FILTERS / F1	Into the filters or straight out; split between the filters.
UNISON VOICES	1 ... 16	1	Voices per note.
DETUNE / RANGE	0 ... 100 % / 0 ... 1200 cents	25 % / 50 cents	Spread amount and its widest reach.
BLEND / WIDTH	0 ... 100 %	75 % / 100 %	Outer voices against the centre; stereo spread.
TABLE SPREAD / WARP SPREAD	0 ... 100 %	0 %	Each voice at its own table position; its own warp amount.
MODE / STACK	5 modes / 5 stacks	LINEAR / OFF	Shape of the detune spread; octave stacking.
WARP 1, 2 MODE	OFF + 24 modes	OFF	See page 4.
AMOUNT / VARIATION	0 ... 100 %	0 %	Depth; the mode's second control.
SOURCE	A, B, C, SUB	the next oscillator	Modulator for the cross modulation modes.
SUB	6 shapes, ±4 oct, ±12 st	SINE, -1 octave	SHAPE, OCTAVE, COARSE, PHASE, PHASE CONTINUOUS, PAN, LEVEL 75 %.
NOISE	6 types	WHITE, 50 %	TYPE, LEVEL, PAN, STEREO, TONE ±100 %, PITCH ±24 semitones.
FILTER 1, 2	on / off, 22 types	off, LOW PASS 12	See page 5.
CUTOFF / RESONANCE	20 Hz ... 20 kHz / 0 ... 100 %	1 kHz / 0 %	Frequency and peak.
DRIVE / VARIATION	0 ... +24 dB / ±100 %	0 dB / 0 %	Input drive; the type's second control.

12 PARAMETERS, CONTINUED

CONTROL	RANGE	DEFAULT	WHAT IT DOES
KEY TRACK / STEREO	-100 ... +200 % / ± 1 octave	0	Cutoff follows the note; left-right cutoff offset.
MIX / LEVEL	0 ... 100 % / -inf ... +12 dB	100 % / 0 dB	Dry to filtered; output level.
ROUTING	PARALLEL / SERIAL	PARALLEL	How the two filters connect.
ENV DELAY / HOLD	0 ... 10 s	0	Wait before the attack; hold at the top.
ATTACK / DECAY	0 ... 20 s	1 ms / 1 s	ENVELOPE 1 SUSTAIN 100 %; ENVELOPE 2-4 SUSTAIN 0 %.
RELEASE / CURVES	0 ... 30 s / ± 100 %	20 ms / 0, +50, +50	Release; attack, decay and release curve.
TIME UNIT / DIVISIONS	SECONDS, TEMPO	SECONDS	In TEMPO each stage picks a division (DELAY and HOLD may be OFF).
LFO TYPE / MODE	4 types / 3 modes	SHAPE / RETRIGGER	See page 6.
RATE / DIVISION	0.01 ... 100 Hz / 8/1 ... 1/64	2 Hz / 1/4	Speed, free or with TEMPO SYNC on.
DELAY / RISE / SMOOTH	0 ... 10 s / 10 s / 1 s	0	Fade-in wait, fade-in time, shape smoothing.
PHASE / VOICING	0 ... 100 % / POLY, MONO	0 % / POLYPHONIC	Start point; one LFO per voice or one for all.
MACRO 1 ... 8	0 ... 100 %	0 %	Assignable knobs.
MASTER	-inf ... +6 dB	0 dB	Output level, after the effect rack.
POLYPHONY	1 ... 32 voices	16	Voices before stealing starts.
VELOCITY	0 ... 100 %	0 %	How much the playing velocity sets the level. Factory presets set it per category: 85 % on KEYS, 80 % on PLUCK, 0 % on FX.
MONO / LEGATO	on / off	off	One voice; no retrigger on overlapping notes.
PRIORITY / ONE VOICE PER NOTE	5 rules / on, off	NEWEST / off	Which note keeps its voice when all are busy – the other one is cut; retrigger the same voice on a repeated note.
PORTAMENTO TIME / CURVE	/OFF ... 10 s / ± 100 %	OFF / 0 %	Glide time and its shape; ALWAYS and SCALED switches.
BEND UP / DOWN	0 ... 48 semitones	2	Pitch wheel range.
A4	415 ... 466 Hz	440 Hz	Master tune.
MPE / MPE BEND RANGE	on, off / 1 ... 96 semitones	off / 48	Per-note expression from an MPE controller.
QUALITY / ULTRA WHEN RENDERING	DRAFT, HIGH, ULTRA	HIGH / on	Internal rate; switch up for offline bounces.

12 PARAMETERS, ARPEGGIATOR AND EFFECTS

Each effect module has an ON switch and a MIX (the dry to wet balance; UTILITY has none). Values in brackets are defaults.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
ARPEGGIATOR	on / off, 9 shapes, 30 rates	off, UP, 1/16	OCTAVES 1-4, GATE (80 %), SWING (0 %), CHANCE (100 %), LATCH, VELOCITY mode, FIXED VELOCITY (80 %).
ENSEMBLE	MIX 50 %		MODE ENSEMBLE / DOUBLE, RATE 0-10 Hz (0.5), DEPTH 50 %, VOICES 2 / 4 / 6, SPREAD 100 %, DELAY 1-45 ms (20), TONE 500 Hz-20 kHz (8 kHz), MONO 50 %, WIDTH 100 %.
DISTORTION	MIX 100 %		TYPE SOFT CLIP, DIODE, WARM, CRUNCH, SATURATE, HARD CLIP, FUZZ, HEAVY FUZZ, SQUARE FUZZ; DRIVE 30 %, TONE 50 %, HIGH PASS 20 Hz-1 kHz (80), OUTPUT ± 24 dB.
FLANGER	MIX 50 %		RATE 0-10 Hz (0.3), DEPTH 50 %, DELAY 0.5-20 ms (3), FEEDBACK 50 %, TONE 8 kHz, MONO 50 %, WIDTH 100 %.
PHASER	MIX 50 %		RATE 0-10 Hz (0.4), DEPTH 60 %, CENTER 100 Hz-10 kHz (1 kHz), FEEDBACK 40 %, STAGES 4 / 6 / 8 / 12.
CHORUS	MIX 50 %		RATE 0.5 Hz, DEPTH 50 %, VOICES 2 / 4 / 6, SPREAD 100 %, DELAY 1-45 ms (12), TONE 8 kHz, MONO 0 %, WIDTH 100 %.
DELAY	MIX 30 %		SYNC on, DIVISION 1/8, TIME 1 ms-4 s (250), FEEDBACK 35 %, STEREO / PING PONG / MID SIDE, CHARACTER CLEAN / TAPE / BUCKET BRIGADE / LOW FIDELITY, LOW CUT 100 Hz, HIGH CUT 8 kHz, WIDTH 100 %.
COMPRESSOR	MIX 100 %		ONE / THREE BANDS, crossovers 200 Hz and 3 kHz, THRESHOLD -18 dB, RATIO 1:3 (to LIMIT), ATTACK 10 ms, RELEASE 120 ms, KNEE 6 dB, GAIN, AUTO GAIN, CHARACTER CLEAN / PUNCH / GLUE / VINTAGE, LOOKAHEAD 0-5 ms, band gains ± 12 dB.
REVERB	MIX 25 %		SPACE ROOM / HALL / PLATE / AMBIENCE (HALL), SIZE 50-150 %, DECAY 0.1-30 s (2), PREDELAY 0-200 ms (10), DAMPING 6 kHz, LOW CUT 120 Hz, HIGH CUT 12 kHz, WIDTH 0-120 %, EARLY REFLECTIONS 22 %.
EQUALIZER	MIX 100 %		Two bands: TYPE LOW SHELF / BELL / HIGH SHELF, FREQUENCY 20 Hz-20 kHz (200 Hz, 4 kHz), GAIN ± 24 dB, Q 0.5-10.
FILTER	MIX 100 %		The 22 voice filter types, CUTOFF 1 kHz, RESONANCE 20 %, DRIVE, VARIATION, LFO RATE 0-20 Hz (0.5), LFO DEPTH 0 %.
FREQUENCY SHIFTER	MIX 50 %		AMOUNT ± 2000 Hz (0), FEEDBACK 0-100 %.
UTILITY			GAIN ± 24 dB, PAN ± 100 %, WIDTH 0-200 %, MONO BELOW 0-500 Hz, LOW PASS 1-20 kHz, HIGH PASS 20 Hz-1 kHz, POLARITY FLIP, DC FILTER.

13 MEASURED

Every number below comes from the plugin's own test suite, run on the shipped build at 48 kHz and HIGH quality unless stated. They are not targets; they are what came out.

ALIASING	A sawtooth swept from C0 to C8 in four-semitone steps: the strongest non-harmonic component is -115.2 dB below the loudest harmonic at HIGH, -121.2 dB at ULTRA, -109.4 dB at DRAFT (the same at 44.1 and 96 kHz).
PITCH	Every third MIDI note from 0 to 127: at most 0.000011 cents from the ideal. A4 at 432, 440 and 452 Hz lands within 0.0001 Hz; the pitch wheel at ± 2 and ± 12 semitones within 0.000 cents.
SAMPLE ACCURATE	A note moved by 1, 7, 16 or 333 samples gives the same output moved by the same amount: difference 0.
ANY BUFFER SIZE	1, 7, 64, 100 and 1024 samples and a buffer that changes size every block against 512: difference 0 – polyphonic, mono legato, filters in series, a modulated warp, a sixteen-slot matrix, and the effect rack.
LATENCY	41 samples at 48 kHz (0.85 ms), 60 at 44.1 kHz, 26 at 96 kHz, reported to the host and measured the same. The COMPRESSOR's LOOKAHEAD is added when it is on: 2 ms set, 96 samples reported, 96 measured.
UNISON	1, 3, 7 and 16 voices, with BLEND at 30 and 100 percent: level within 0.04 dB of a single voice.
WARP	At AMOUNT 0 all twenty-four modes in both slots are bit identical to no warp. Phase and read warps, C3 to C8, AMOUNT 0.5 and 1: alias products at or below -91.0 dB (44.1 kHz) and -101.1 dB (ULTRA). Shapers: -105 to -161 dB. Cross modulation, 52 cells: at or below -101.5 dB.
FILTERS	LOW PASS and HIGH PASS 12 and 24: -3.010 dB at the cutoff at 100 Hz, 1 kHz and 8 kHz; 24 dB types -24.1 dB one octave out. LADDER 24 self-oscillates within 0.03 cents of the cutoff. FORMANT A: peaks at 730 and 1090 Hz. BELL at +12 and -12 dB: +12.000 and -12.000. KEY TRACK 100 %: -3.010 dB on the note from C2 to C7.
ENVELOPES	A 100 ms linear attack reaches 90 percent at 90.000 ms; the decay passes its midpoint at 0.75000; retriggering during a release never dips.

13 MEASURED, CONTINUED

LFO	3 Hz over 10 s: 30.000000000 cycles. 1/4 at 120 BPM: 2.000000 Hz; 1/8 TRIPLET: 6.000000 Hz. SMOOTH 10 ms: the step settles at exactly e^{-1} after one time constant.
NOISE	Octave bands from 100 Hz to 12.8 kHz: WHITE +0.03 dB per octave, PINK -2.94, BROWN -5.93, BLUE +3.00 (ideal 0, -3.01, -6.02, +3.01).
ARPEGGIATOR	UP at 1/16 and 120 BPM fires every 6000 samples exactly; identical at buffer sizes 1, 7, 64, 13 and 1024; back on the grid after a rewind; GATE 50 % closes at +3000 samples; SWING 50 % gives 7500 / 4500.
EFFECTS	Every module off: the rack passes the synth through bit for bit. Each module at MIX 0: bit identical. Sixteen-sample against mixed buffers: difference 0 in all twelve. ENSEMBLE, FLANGER and CHORUS at MONO 0: mono residue -147 dB.
SILENCE	After the last note is released the output reaches exact zero 21 ms later and stays there. Two thousand notes in one buffer stay finite and are at exact zero 0.30 s after release.
HOSTILE HOSTS	A block of NaN on a parameter is caught and the next note plays; a stopped transport, a zero tempo, a NaN or jumping playhead change nothing; two instances do not disturb each other (difference 0); an unprepared call is safe; 44.1 to 96 kHz re-preparation works.
PRESETS	1003 of the 1004 change the state (INIT is the default state, so it cannot differ from it), 1004 distinct states, every peak set to -12.0 dBFS on a three note chord. All 2110 on-screen values read back exactly as written.
PROCESSOR	Eight notes of two oscillators at seven unison voices, sub and pink noise: 8.4 % of one core; with eight matrix slots: 8.9 %; with LADDER 24 into LOW PASS 12 in series: 11.6 %. The extreme case – 32 notes of three oscillators at 16 unison voices, sub and noise – 102 %, slightly more than one core (Apple Silicon, 48 kHz). Every factory preset on a four note chord: median 1.7 %, the heaviest 19.2 %. A shaper warp whose AMOUNT moves costs several times a still one – two shapers on three unison voices, four notes: 15.9 % still, 118.6 % with an LFO on both amounts, 4.8 % at DRAFT. Measured by Tests/Cpu on the shipped build.

14 STARTING POINTS

Start from a preset

Press **BROWSE**, pick a category, walk the list with the arrow keys while you play. Every preset is at the same peak, so what you hear is the sound, not the level. Then change one thing: the filter **CUTOFF**, the wavetable **POSITION**, a warp **AMOUNT**.

A moving pad

Load **INIT**, choose the **VOWELS** or **RANDOM SPECTRA** table, and drag **LFO 1** onto **POSITION**. Set **LFO 1** to 0.1 Hz. Set **ENVELOPE 1**'s **ATTACK** to 800 ms and **RELEASE** to 1.5 s, switch **UNISON** to 5 voices with **DETUNE 30**, and turn on **REVERB** in the rack. Add a second **LFO** on **FILTER 1 CUTOFF** with a small depth.

A bass that stays in tune

SUB on, **SINE**, one octave down, with **OSCILLATOR A** on **BASIC SHAPES** at the saw frame. **FILTER 1 LADDER 24** at 300 Hz with **ENVELOPE 2** on **CUTOFF** at 40 percent depth and a 250 ms **DECAY**. **MONO**, **LEGATO**, **PORTAMENTO 60** ms. The **UNISON WIDTH** at 0 keeps it in the centre.

Cross modulation

On **OSCILLATOR A**, set **WARP 1** to **FREQUENCY MODULATION** with **SOURCE OSCILLATOR B**; turn **OSCILLATOR B** on with its **LEVEL** at 0 so only its modulation is heard, and tune **B** in whole ratios (**OCTAVE +1**, or **+7 semitones**). **AMOUNT** is the index; put **ENVELOPE 2** on it for a bell that softens as it decays. **PHASE MODULATION** does the same with a cleaner low end.

Your own table

EDIT TABLE, **ADD FRAME**, draw with **PEN** or **SINE**, **DUPLICATE** it, change the copy, then **MORPH FROM** the first and **MORPH TO** the last: the frames between fill themselves. **NORMALIZE ALL**, **EDGE CROSSFADE** if a frame clicks at the wrap, **APPLY**. **EXPORT WAV FILE** saves it with a **clm** marker so it loads back with the right frame count.

When it sounds wrong

A filter that seems to do nothing is usually off (the **FILTER 1** button) or the source is routed to **MAIN**. A thin sound in mono: check **UNISON WIDTH** and the **ENSEMBLE** or **CHORUS MONO** knob. If the DAW reports extra latency, the **COMPRESSOR**'s **LOOKAHEAD** is on. If the CPU climbs, lower **UNISON VOICES** or **QUALITY**.

15 SUPPORT

Instagram @ajanssrecords – Ajanss Records. Include your operating system, DAW and version, the plugin format and the version at the right of the preset bar.

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