DOTMATRIX / LIGHTWEIGHT AUDIO PLUGINS

BASEMENT

A morphing synthesiser for techno, laser and experimental sound, with 275 factory presets.



USER GUIDE | VERSION 3.4.0 | AU | VST3 | CLAP | STANDALONE | macOS 11+ | INTEL + APPLE SILICON

Two oscillators. XY pad. Ladder filter. LFO. Step sequencer. Chorus. Flanger. Phaser. Delay. Reverb.

DOTMATRIX

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— ABOUT THIS GUIDE

This guide covers every control in Basement, how the sound travels from the oscillators to the output, how the effects behave, and how the 275 factory presets are organised. Each section lists its controls with the **range** and **default** as the plugin shows them, then explains how they behave and how to use them. The interface uses two accent colours: **cyan** for sources and movement (oscillator, XY pad, LFO, envelope, modulation, play mode) and **magenta** for shaping and finish (filter, amp, the arpeggiator and step grid, and all the effects). This guide follows the same rule.

— QUICK FACTS

Type	Stereo morphing synthesiser instrument. Audio Unit, VST3 and CLAP plugin, plus a Standalone app.
Formats	Audio Unit, VST3, CLAP and Standalone. Universal: Apple Silicon and Intel, macOS 11 or later. A separate build for macOS 10.14 and 10.15 (Audio Unit, VST3 and Standalone) is available for older Intel Macs.
Oscillator	Two band-limited wave sources (39 to choose from, including your own drawn wave) with a bar between them, five ways to combine them, Sym, Spread, Sub and Noise
Play mode	Poly, Mono, Legato or Arp, with a 24-way Unison Mode that includes 17 chord types
Filter	Eight types: 24 dB ladder, 12 and 24 dB low-pass, high-pass and band-pass, and notch; plus a separate 12 dB high-pass
Oversampling	A switchable 4x mode for the voices keeps hard drive, distortion and FM free of aliasing
Modulation	One LFO, one free envelope, an eight-slot table with 18 sources and 22 destinations, an XY pad that records and replays your moves
Sequencing	An arpeggiator with a 16-step grid (on, tie, slide, pitch, velocity, chord and a free modulation lane)
Effects	Chorus with Double, Flanger, Phaser (1 to 4 poles), synced Delay with ping-pong, Reverb with 8 types
Presets	275 factory presets in nine categories, balanced to a common loudness
Identity	com.dotmatrix.basement - manufacturer Dotm, plugin code Bsm1

— NEW IN VERSION 3.4

Light mode	The new LIGHT key switches to a light panel with light grey dials and keys, and back. Every window of the plug-in remembers your choice.
Darker panel	A deeper charcoal chassis with crisper outlines, and stronger, more saturated cyan and magenta on the lights, dials, graphs and sequencer.
Same sound	Only the look has changed: Basement sounds exactly as before, and your sessions and presets load unchanged.

— NEW IN VERSION 3.3

4x oversampling	The new **4X OS** switch in the Amp card runs the voices (oscillators, filter, drive and distortion) at four times the sample rate. Hard-driven and FM sounds keep their bite but lose the harsh, out-of-tune aliasing. See the Amp section.
New look	The Dotmatrix hardware panel: a slate chassis, raised keys, domed dials with lit scale dots, cyan and magenta lights, and a backlit read-out. The graphs are drawn in the modulation gradient.
CLAP	Basement now also comes as CLAP, for Bitwig, Reaper and other CLAP hosts. Sessions and presets from 3.2 load unchanged.

— NEW IN VERSION 3.2

Presets	Three new families built around the favourites: slow sequences like **Ghost Transmission** (the fast sequences are gone), dub-techno chords like **Vinyl Dub Stab**, and pumping low textures like **Cryo Pump**. Each category now opens with its model preset. In 3.2.1 the library was cut from 340 to 275 presets: the ones you did not want to keep were removed.
Smoother modulation	Square, saw and sample-and-hold LFO edges, and the sequencer's FREE and velocity lanes, now change over a few milliseconds instead of jumping. This removed the small clicks in **Sonar Ping Field** and protects every preset that sends a stepped LFO to Volume, Pan, pitch or the filter.
This guide	Rewritten with every control listed with its range and default, a signal-flow diagram, recipes for the three favourite sounds, and the full preset index.

SECTION 01

Getting started

Load it as an instrument, pick a preset, and play.

— INSTALLING

Place **Basement.component** in **~/Library/Audio/Plug-Ins/Components** (for you alone) or **/Library/Audio/Plug-Ins/Components** (for every user), then restart your host. The VST3 goes in **~/Library/Audio/Plug-Ins/VST3** and the CLAP in **~/Library/Audio/Plug-Ins/CLAP**; copy **Basement.app** into Applications to play it without a host. The release is not yet signed through Apple's developer program, so macOS needs one Terminal line first: **READ ME FIRST.txt** in the download has it. Logic Pro validates a new Audio Unit the first time it launches, which can take a moment. In your host, Basement appears under the **Dotmatrix** manufacturer, as an instrument.

— YOUR FIRST SOUND

1	**Create an instrument track**	Insert Basement into the instrument slot of a software-instrument track and play it from a MIDI keyboard or a MIDI region.
2	**Pick a preset**	Click the preset name to open the browser, or use the arrows beside it. The category box underneath steps between categories. Try **Ghost Transmission** (Seq), **Vinyl Dub Stab** (Stab) and **Cryo Pump** (Texture) first: they are the three sounds the newest presets are built around.
3	**Move the filter**	Play low notes and sweep the big **Cutoff** dial. It opens fully at about 60 % of its travel, so there is no dead zone at the start. Raise **Q** for a resonant edge and **Env** for more movement on every note.
4	**Move the bar**	Drag the handle between **Wave A** and **Wave B** in the Oscillator card and listen to the two sources blend. Change **Mode** to Ring or FM for harder, metallic tones.
5	**Add an effect**	Switch on Delay, Reverb, Phaser, Flanger or Chorus with the **ON** pill in its card. Every preset already has at least three effects running: look at what they do, then turn them off one at a time.

— MIDI AND THE HOST

Notes and velocity	Velocity can open the filter (Vel in the Filter card), set the loudness (Vel>Vol in the Amp card) and is a source in the modulation table.
Pitch bend	Moves all voices by up to Bend Up and Bend Down (0 to 24 semitones, 2 by default).
Mod wheel (CC 1)	Sets how far the cutoff moves (the Mod Wheel dial in the Filter card) and is a source in the modulation table. Breath (CC 2), expression (CC 11), aftertouch and pitch bend are sources too.
Sustain (CC 64)	Holds notes. CC 120 (all sound off) and CC 123 (all notes off) release every voice.
MIDI learn	Right-click any dial or slider, choose MIDI learn, then move a controller. The Settings page lists the mappings.
Tempo	The synced delay, LFO, free envelope, XY pad and arpeggiator follow the host tempo when **Host Sync** is on, otherwise the tempo set in Settings.
Window size	Settings offers Automatic (fits your screen) or fixed scales, and you can drag the window corner.

SECTION 02

The interface

One page. Cyan cards make and move sound; magenta cards shape and finish it.



1 Preset
Name box with arrows, category box, MANAGER, SAVE, INIT, ORIG, HELP and SETTINGS.

2 Read-out
The backlit LCD: name, value and a one-line description of whatever you touch. VOICES beside it counts the voices sounding.

3 Oscillator
Wave A, Wave B, the bar, Mode, Sym, Spread, Sub, Noise.

4 XY Pad
Performance pad: routes, record, play, shaping, Draw Osc.

5 Filter
Filter type, the big Cutoff dial, Q, Drive, Env, Vel, Key Trk, Mod Wheel.

6 Filter Envelope
Attack, decay, sustain, release as a graph.

7 High Pass Filter
A separate 12 dB high-pass: Freq, Q, Key Trk.

8 Play Mode
Poly, Mono, Legato, Arp; Port; Unison Mode; Drift, Exp Env, Analog; pitch wheel.

9 Amp
Distort and its Type, 4X OS, Pan, Vel>Vol, Volume, amp envelope.

10 LFO
Wave, mode, Speed or Sync, Fade.

11 Envelope
The free ADSR, with Fade and Sync.

12 Modulation
Eight source, destination and amount slots, on two pages.

13 Arpeggiator / Sequencer
Mode, speed, steps, the 16-step grid and its commands.

14 Chorus
Length, Width, Speed, Double, LP, HP, Mix, and BYPASS ALL.

15 Flanger / Phaser
Two tabs. The phaser has a Poles box.

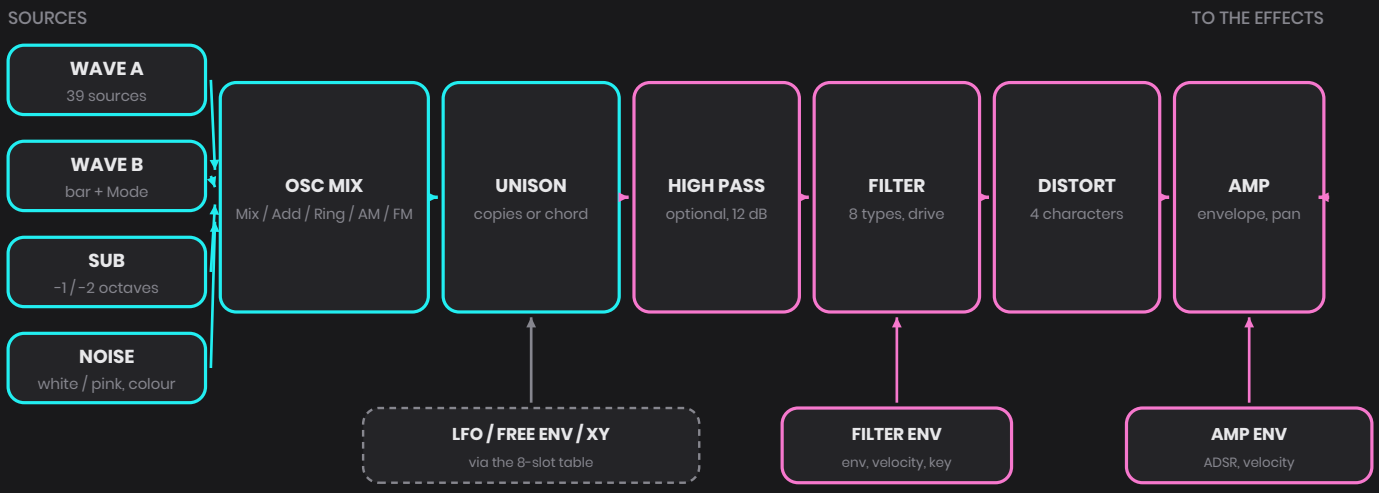
16 Delay / Reverb
Two tabs. Delay is synced with ping-pong; Reverb has 8 types.

— BASIC HANDLING

Dials	Drag up or down. Double-click returns a dial to its default. Right-click starts MIDI learn. Controls that do not apply right now are dimmed.
ORIG / HELP	ORIG compares with the original: while lit you hear the preset as loaded; switching it off returns you to your edits. HELP turns the descriptions in the read-out on and off.
SAVE / INIT	SAVE stores your sound as a user preset. INIT loads a clean starting sound.

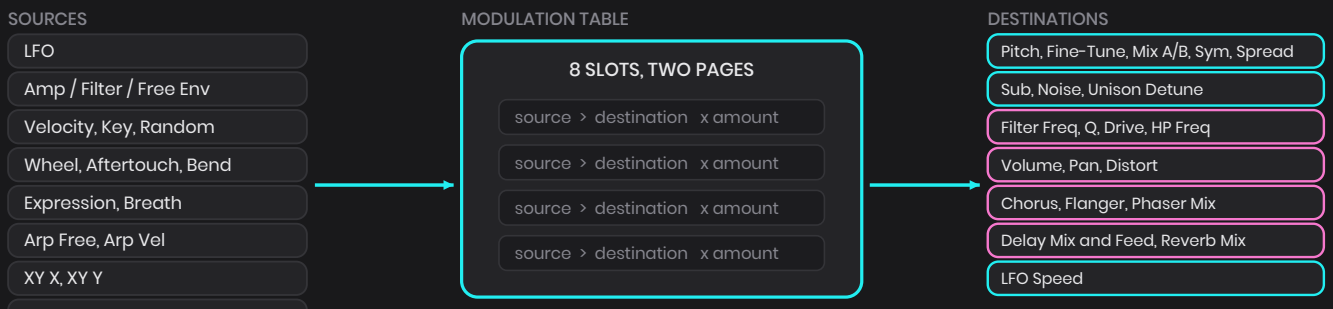
SECTION 03

Signal flow



The bar and Osc Mode combine Wave A and B, then Sub and Noise are added. **Unison** stacks copies or a chord; **High Pass** and **Filter** shape it; **Distort** adds one of four characters; the **Amp** sets level, pan and envelope. With **Analog** on, every voice also gets its own slight tuning and cutoff, and the output a gentle glue compressor.

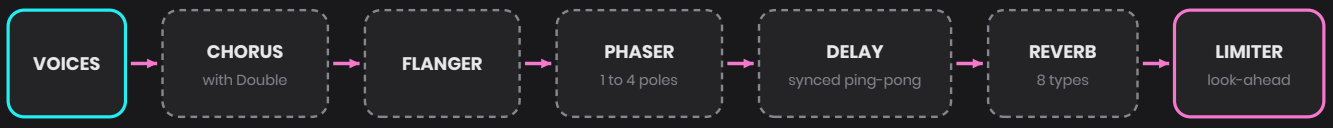
— MODULATION ROUTING



Amount runs from -100 to +100 %. The effect destinations and LFO Speed follow only non-per-note sources.

Anything on the left can be sent to anything on the right, scaled from -100 % to +100 %. The effect destinations and LFO Speed are shared by all voices, so they follow only sources that are not per note: a Mono or Key Trig LFO, wheel, aftertouch, bend, expression, breath, Arp Free, Arp Vel, the XY pad and Constant.

— EFFECTS CHAIN



Dashed = switch on when you want it. Switching an effect on or off crossfades, so tails ring out instead of cutting dead.

The effects process the sum of all voices. The delay sits before the reverb so its repeats are washed out by it.

SECTION 04

Oscillator and XY pad

Two sources, one bar between them, and a pad that can record what you do.

— OSCILLATOR

Wave A is the top source and **Wave B** the bottom one. The vertical **bar** between them blends the two: at the top you hear only Wave A, at the bottom only Wave B. The bar is the control the modulation table calls *Osc Mix A/B*. All sources are band-limited, so high notes stay clean. There are 39: eight basic shapes (Sine, Triangle, Saw, Square, Pulse 25, Pulse 12, Soft Saw, Tri-Saw), voice-like and organ spectra (Hollow, Reed, Organ, Organ Full, Vowel A to U, Choir, Strings), metallic and glassy ones (Bell, Glass, Metal, three FM sources, Fold, Half Sine, Stepped), bright spectral sets (Spec 8, 16, 32, Buzz, Comb Saw, Digital), two resonant spectra, **Draw** (your own wave) and two noise sources (W. Noise and P. Noise).



Sine | Triangle | Saw | Square | Pulse 25 | Pulse 12 | Soft Saw | Tri-Saw

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Wave A / B	39 sources	Saw / Square	The two sources. The bar blends between them.
Mix A/B (bar)	A to B	A	The cross-fade. The default is all Wave A.
Mode	Mix, Add, Ring, AM, FM	Mix	How the bar combines the two. **Mix** cross-fades. **Add** sums them, so the middle of the bar is louder and denser. **Ring** and **AM** multiply A by B; **FM** lets B modulate the phase of A. For Ring, AM and FM the top of the bar is plain Wave A and the further down you go the more of the product you hear.
X-Morph / Y-Morph	-100 to +100 %	0 %	How far the XY pad's X axis moves the bar, and its Y axis moves Sym. Negative runs the other way.
Sym	-100 to +100 %	0 %	Bends the wave: pulse width on a square, a bent ramp on a saw.
S-Mod / S-Speed	0 to 100 %, 0.05 to 20 Hz	0 %, 1.50 Hz	A sine LFO that sweeps Sym, and its speed.
Spread	0 to 100 %	0 %	Detuned, phase-shifted, panned copies inside every unison layer: width and thickness without extra voices.
Sub / Sub Octave	0 to 100 %, -1 or -2 oct	0 %, -1 oct	A sine one or two octaves below.
Noise / Colour	0 to 100 %, -100 to +100 %	0 %, 0 %	Adds a noise source; Colour tilts it dark (negative) to bright (positive).
Oct	-3 to +3	0	Octave shift.
Phase	Free, Retrig	Free	Free starts each note at a random phase; Retrig starts at zero for a consistent attack.

— XY PAD

The big pad is a performance surface. Drag the dot and two things move at once. Four **routes** sit beside it: **X Route 1 and 2** follow the horizontal position, **Y Route 1 and 2** the vertical one. Each has a destination (the same list as the modulation table) and a bipolar amount. The centre of the pad does nothing; moving away pushes the destination up or down by the amount you set. X and Y are also sources in the modulation table.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
X Route 1, 2 / Y Route 1, 2	22 destinations, -100 to +100 %	Filter Freq +50 % / Osc Mix A/B +50 %	The four routes. A route set to "-" does nothing.
LIVE / REC / PLAY	three buttons	LIVE	**LIVE**: the pad follows your mouse and nothing is stored. **REC**: records continuously, once per loop pass, whether or not you are touching the pad. **PLAY**: the recorded path replays. Presets and sessions never load in REC (they come back in PLAY, with the path intact).
Speed	0.25x to 4x	1.00x	Replay speed.
Mode	Poly, Global	Poly	**Poly**: every note replays the move from its beginning. **Global**: one shared loop that keeps running.
Loop	Off, Loop, <>	Loop	Off plays once; Loop repeats; <> goes back and forth.
Sync To	8/1 to 1/32	1/1	Locks the length of the path to a note value so the move fits the bar.
Points	16 to 512	128	The replay is drawn as this many straight segments: fewer is more angular.
Space	Off, Low, Mid, High	Off	Smooths the corners of the replayed path.
Time	Off, 2 to 32	Off	Quantises the timing into steps; Off is free movement.

— DRAW OSC AND COMMAND

DRAW OSC turns the pad into a wave editor: drag across it to draw one cycle of your own wave (128 points). The result becomes the **Draw** source. If neither Wave A nor Wave B is Draw when you switch it on, Wave B is set to Draw so you hear the edit. **COMMAND** offers Clear, Sine, Saw, Square, Triangle, Random, Smooth, Copy Wave A, Copy Wave B and Mirror as starting points, and *Clear recorded path*.

SECTION 05

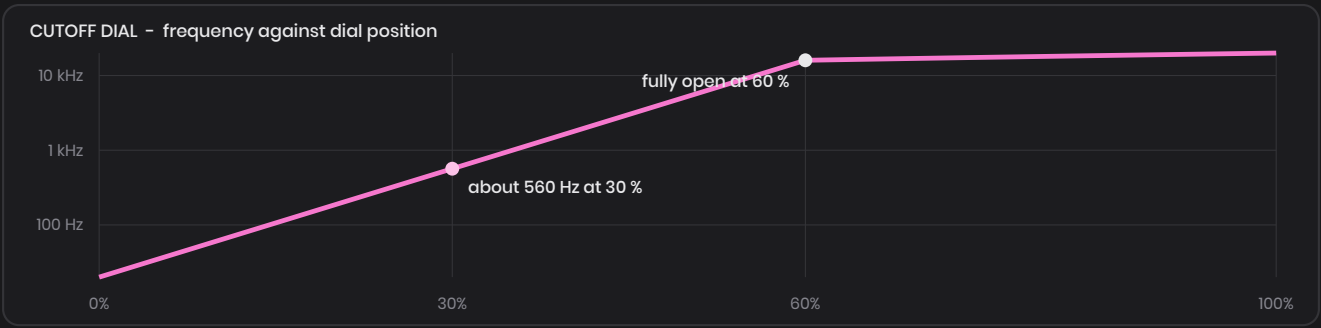
Filter, high pass and amp

Where the sound is carved, driven and brought to level.

— FILTER

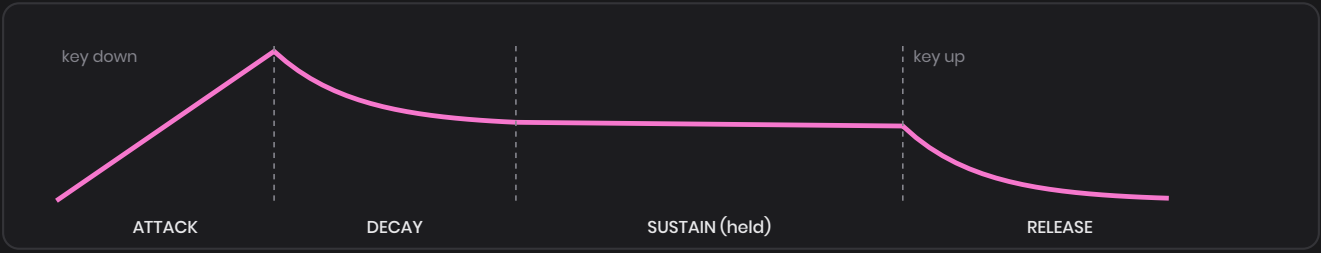
The big **Cutoff** dial has a card to itself because it is the one you will play with most. A drop-down above it chooses the type: the **24dB Ladder LP** (the classic resonant, self-oscillating sound, with the low end kept as resonance goes up), 12dB and 24dB low-pass, 12dB and 24dB high-pass, 12dB and 24dB band-pass, and **Notch**.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Type	8 types	24dB Ladder LP	Ladder, 12/24 dB LP, 12/24 dB HP, 12/24 dB BP, Notch.
Cutoff	20 Hz to 20 kHz	3.50 kHz	The frequency the filter works at. See the taper below.
Q	0 to 100 %	20 %	Resonance. At the top the ladder self-oscillates into a pure tone.
Drive	0 to 100 %	20 %	Saturation into the filter, for harder, brighter harmonics.
Env	-100 to +100 %	+35 %	How far the Filter Envelope opens the cutoff, up to five octaves. Negative closes it.
Vel	-100 to +100 %	+20 %	How much velocity moves the cutoff.
Key Trk	-100 to +200 %	+50 %	Key tracking. 100 % means the cutoff follows the pitch exactly.
Mod Wheel	-100 to +100 %	0 %	How far CC 1 moves the cutoff.



The dial is steep at the bottom: it runs from 20 Hz to 16 kHz over its first 60 %, so there is no silent stretch at the start, and the last 40 % only adds the final 16 to 20 kHz.

— FILTER ENVELOPE



CONTROL	RANGE	DEFAULT	WHAT IT DOES
Attack	0.5 ms to 12 s	2.0 ms	Time for the filter to open after the key goes down.
Decay	1 ms to 20 s	400 ms	Time to fall from the peak to the sustain level.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Sustain	0 to 100 %	30 %	The level the filter rests at while the key is held. 0 % makes a pluck.
Release	1 ms to 20 s	300 ms	How long the filter takes to close after the key is released.

— HIGH PASS FILTER

CONTROL	RANGE	DEFAULT	WHAT IT DOES
ON	on / off	off	Switches the separate 12 dB high-pass in front of the main filter. The quickest way to keep a pad out of the bass.
Freq	20 Hz to 8 kHz	40 Hz	The corner frequency.
Q	0 to 100 %	10 %	Resonance at the corner.
Key Trk	on / off	off	Makes the corner follow the pitch.

— AMP

Distort is a saturation after the filter, with four characters chosen in the box beside the Amp title: **Warm** (soft, round, adds body), **Tube** (a biased, valve-like squash with even harmonics), **Industrial** (a wavefolder into a hard clip: harsh and metallic) and **Bitcrush** (fewer bits and a held, lower sample rate: digital grit). The dial is the amount for all four, and changing the type crossfades so it does not click.

4X OS, beside the type box, runs every voice (oscillators, filter, drive and distortion) at four times the sample rate and filters it back down before the effects. Driven, distorted and FM sounds alias far less: in a test with a hard-driven saw, the aliasing fell from -21 dB to -35 dB at the same level. It costs about four times the voice CPU and 61 samples of latency at 48 kHz, which Basement reports to the host. Switching it uses the same click-free fade as loading a preset. It is a global setting like Master Tune: presets never change it. Bitcrush is meant to alias, so it sounds the same either way.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Distort	0 to 100 %	0 %	Amount of saturation.
Distort Type	Warm, Tube, Industrial, Bitcrush	Warm	The character of the saturation.
4X OS	on / off	off	Runs the voices at four times the sample rate for cleaner drive, distortion and FM. Global: presets leave it as it is.
Pan	-100 to +100 %	C	Places the voice in the stereo field.
Vel>Vol	0 to 100 %	50 %	How much velocity changes the loudness.
Volume	0 to 100 %	75 %	The master level, before the effects.
Attack / Decay / Sustain / Release	0.5 ms to 12 s / 1 ms to 20 s / 0 to 100 % / 1 ms to 20 s	2 ms / 600 ms / 70 % / 250 ms	The amp envelope, drawn as a graph. Drag its nodes or use the dials. A new note starts its attack from wherever the level is, so fast repeated notes do not click.

SECTION 06

Play mode, LFO and modulation

How notes are played, and everything that moves.

— PLAY MODE

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Play Mode	Poly, Mono, Legato (and Arp)	Poly	Poly plays several notes at once. Mono plays one note, retriggered. Legato plays one note and glides between overlapping notes without retriggering. The box shows Arp while the arpeggiator is on; choosing Arp there switches the arpeggiator's ON pill for you.
Port Mode	Off, Always, Legato	Off	When glide applies: always, or only when notes overlap.
Port	0 to 5 s	0.12 s	Glide time.
Unison Mode	24 modes	Off	Off; 2, 3, 4 stacked copies; 2 Octaves, 3 Octaves, 2 Special (the note plus one an octave down); and 17 chords: Major, Fifth, Major Sus4, Major Sus2, Major Add9, Major 6, Major 7, Minor, Minor Add9, Minor 6, Minor b6, Minor 7, Minor 7b5, Dominant 7, 7 Sus 4, Diminished, Diminish 7. In a chord mode one key plays the whole chord, built upward from the key. The mode glides when you change it, so you can change chord with the mouse while holding a note.
Detune	0 to 100 %	30 %	Thickens the stack.
Spread (unison)	0 to 100 %	70 %	Places the copies across the stereo field.
Drift	on / off	on	Slow, analogue-style pitch wander per copy.
Exp Env	on / off	on	Exponential envelope curves. Off gives straight lines.
Analog	on / off	on	Gives every voice its own slight tuning and cutoff (about +–4 cents and a fraction of a semitone, wandering slowly), a warm tube-like saturation before the filter, and a gentle glue compressor across the output. Off is the plain, clinical engine. It is saved with each preset so you can A/B it.
Bend Down / Bend Up	0 to 24 semitones	2 / 2	The pitch wheel range.

— LFO

There is one LFO. **Mode** chooses how it is shared: **Poly** gives every note its own LFO that starts with the note; **Mono** is one LFO shared by all notes, free-running (with Sync on and a host playing, it locks to the host's beat position); **Key Trig** is one shared LFO restarted each time you press a key on an empty keyboard.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Mode	Poly, Mono, Key Trig	Poly	See above.
Wave	Sine, Triangle, Saw Up, Saw Down, Square, S & H, Smooth Rnd	Sine	The shape. Square, Saw and S & H have their sharp edges smoothed over a few milliseconds (see Technical notes).
Speed	0.02 to 40 Hz	2.00 Hz	Free-running speed.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Sync / division	on / off, 8/1 to 1/32	off, 1/4	Locks the LFO to the tempo.
Fade	0 to 5 s	0 s	Ramps the LFO in after it restarts (Poly and Key Trig).

— FREE ENVELOPE

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Attack / Decay / Sustain / Release	0.5 ms to 12 s / 1 ms to 20 s / 0 to 100 % / 1 ms to 20 s	10 ms / 500 ms / 50 % / 400 ms	A free ADSR that you can send anywhere through the modulation table.
Fade	0 to 20 s	0 s	While you hold the note the sustain level slowly falls to zero over this time. 0 holds forever.
Sync	on / off	off	Scales its times with the tempo.

— MODULATION TABLE

Eight slots on two pages (use the **1-4 / 5-8** tabs). Each slot is **Source** to **Destination** scaled by **Amount** (-100 to +100 %). A vibrato, for example, is **LFO to Osc Pitch** at a small amount; a filter that opens with each step of the sequencer is **Arp Free to Filter Freq**.

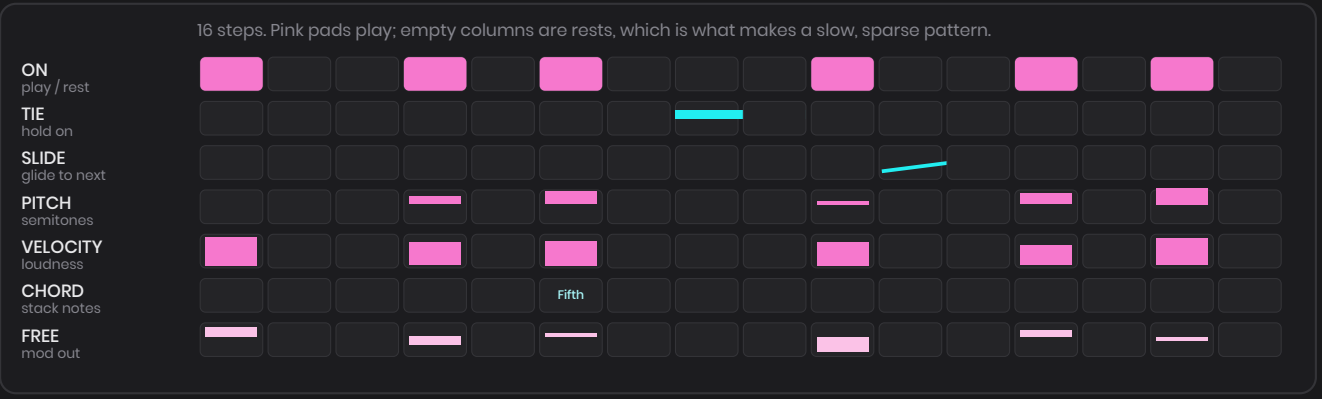
Sources	LFO, Amp Env, Filter Env, Free Env, Velocity, Key, Mod Wheel, Aftertouch, Pitch Bend, Expression (CC 11), Breath (CC 2), Random (one fresh value per note), Arp Free (the FREE lane of the step grid), Arp Vel, XY X, XY Y and Constant.
Destinations	Osc Pitch, Osc Fine-Tune, Osc Mix A/B, Osc Sym, Osc Spread, Sub Level, Noise Level, Filter Freq, Filter Q, HP Freq, Filter Drive, Volume, Pan, Unison Detune, LFO Speed, Distort, Chorus Mix, Flanger Mix, Phaser Mix, Delay Mix, Delay Feed, Reverb Mix.
What +100 % means	Pitch +−2 octaves (with a gentle curve so the first half of the amount is fine control), Filter Freq and HP Freq +−5 octaves, LFO Speed +−3 octaves, Delay Feed +−50 %, everything else the full range of the destination.

SECTION 07

Arpeggiator and step sequencer

Eight patterns, sixteen steps, and a lane that moves other controls in time with the notes.

Switch the arpeggiator on with its **ON** pill (or choose **Arp** in Play Mode). In **Sequencer** mode the grid plays its own tune from the lowest key you hold, so the pattern transposes as you move your hand. The factory Seq presets all use it, with sparse patterns and long rests.



CONTROL	RANGE	DEFAULT	WHAT IT DOES
Mode	Up, Down, Up/Down, Down/Up, Played, Random, Chord, Sequencer	Up	The order notes play in.
Speed	1/2 to 1/32, with triplets	1/16	The step length. The slow Seq presets use 1/8, 1/4 and 1/8T.
Steps	1 to 16	16	How many columns the pattern uses. Odd lengths (7, 9, 12) make patterns that drift against the bar.
Octave	1 to 4	1	Spreads the pattern over octaves. Not used in Chord or Sequencer mode.
Tied Mode	Retrig, Merge	Retrig	What a tied step does. Retrig plays the next note again; Merge lets a tied note that comes round again on the same pitch carry on as one longer note.
Gate	5 to 100 %	55 %	Note length. It has no knob on the panel; it is stored in presets and can be automated from the host. Short gates (25 to 30 %) leave the space that makes a slow pattern breathe.
Swing	0 to 75 %	0 %	Delays the off-beat steps.
Slide	10 to 500 ms	60 ms	The glide time for slid steps.
Vel/Key	0 to 100 %	0 %	Makes velocity follow the key.
Host Sync	on / off	on	Locks the arpeggiator to the host tempo and position. It is also the master choice for every tempo-synced thing: with it on they follow the host, with it off the Settings tempo.
Latch / Lock Arp	on / off	off / off	Latch keeps playing after you let go. Lock Arp keeps the pattern's place between key presses instead of restarting from step 1.

— THE STEP GRID

ON	Play or rest. Click a numbered pad to switch the step on or off; drag across several to paint them. A magenta pad plays, a hollow pad rests, and a resting column dims entirely.
TIE	A lit bar that runs into the next step: the note keeps sounding with no gap.
SLIDE	A rising line: the pitch glides into the next step.
PITCH	Semitones from -24 to +24. A bar up from the centre line is higher, down is lower. Drag to set; double-click for zero.
VELOCITY	0 to 127. A bar rising from the floor; velocity 0 shows "rest".
CHORD	Stacks notes on the step: Oct, Fifth, Fifth+Oct, Minor, Major, Sus4, Min 7, Maj 7, Dom 7, Min 9, Maj 9. Click to step through, right-click to go back.
FREE	-100 to +100 %. A bar up or down from the centre line that becomes the **Arp Free** source in the modulation table: send it to Pan, Filter Freq, Reverb Mix, Delay Mix, Phaser Mix or Osc Mix A/B and every step gets its own value. This is how the slow presets drift.

— KEY ENTRY AND COMMANDS

KEY ENTRY writes every key you strike into the next step: a quick way to enter a pattern. **COMMANDS** offers Clear (all rests), Reset to default pattern, Randomise, Shift left, Shift right, Copy first half to second half, and All steps on.

> **SLOW SEQUENCE** Start with Ghost Transmission. Six notes in sixteen steps at 1/8, a 30 % gate, velocity accents, and a FREE lane sent to Pan, Filter and Reverb Mix. Then change **Steps** to 12 or 9 and hear the pattern shift against the beat.

SECTION 08

Effects

Five effects, always in the same order, each with its own ON pill.

BYPASS ALL (top of the Chorus card) switches every effect off at once with a short crossfade, so you can hear the dry sound. Each effect also has its own **ON** pill, and its dials are dimmed until it is on.

— CHORUS

The chorus doubles the outgoing sound: besides the usual swirling taps it adds a second, duplicated copy, and **Double** sets how far that duplicate is offset in time, from a few milliseconds (thickens) to about 70 ms (a wide, slap-like double).

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Len	1 to 30 ms	9.0 ms	Base delay time.
Width	0 to 100 %	50 %	Depth of the modulation.
Speed	0.05 to 6 Hz	0.70 Hz	Modulation rate.
Double	0 to 100 %	35 %	Offset of the duplicated copy.
LP / HP	800 Hz to 20 kHz / 20 Hz to 1.5 kHz	12 kHz / 60 Hz	Filters on the wet signal only.
Mix	0 to 100 %	40 %	Wet amount.

— FLANGER AND PHASER

A tabbed card. The **Flanger** is a short, swept, fed-back delay. The **Phaser** has a **Poles** box (1 to 4): each pole is a notch in the sound, so 1 Pole is a gentle sweep and 4 Pole is deep and intense. Its sweep reaches up to three octaves either side of Pitch at full Width, and Feed is bipolar: positive rings and resonates, negative goes hollow and nasal. **Pan Mod** swings the effect from left to right at the effect's own speed.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Flanger Len	0.3 to 15 ms	2.5 ms	The base delay: shorter is brighter and more metallic.
Flanger Width / Speed	0 to 100 % / 0.02 to 8 Hz	60 % / 0.30 Hz	Sweep depth and rate.
Flanger Feed	0 to 95 %	30 %	Feedback: more rings the comb.
Phaser Pitch	100 Hz to 4 kHz	700 Hz	The centre of the sweep.
Phaser Poles	1 to 4	4 Pole	Number of notches.
Phaser Feed	-97 to +97 %	50 %	Resonance. Negative values are hollow and nasal.
Phaser Width / Speed	0 to 100 % / 0.02 to 8 Hz	60 % / 0.30 Hz	Sweep depth and rate.
Pan Mod (both)	0 to 100 %	30 %	Left-right swing.
Mix (both)	0 to 100 %	40 %	Wet amount.

— DELAY

A stereo delay. Switch **SYNC** on and each side takes a note division (including dotted and triplets); off, each takes a time in milliseconds. LP and HP filters sit inside the feedback loop, so every repeat is darker and thinner than the one before. **PING** bounces the repeats between the speakers.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Sync	on / off	on	Tempo-synced or free time.
Left / Right	1 to 2000 ms (free), 8/1 to 1/32 (sync)	1/8. / 1/8	The delay time of each side. Free times show greyed when Sync is on.
Feed	0 to 95 %	35 %	Feedback.
LP / HP	800 Hz to 20 kHz / 20 Hz to 1.5 kHz	7 kHz / 120 Hz	Filters inside the feedback loop. Dark delays (LP around 2 to 3.5 kHz, HP 220 to 300 Hz) are the sound of the dub stabs.
Ping	on / off	off	Ping-pong.
Mix	0 to 100 %	30 %	Wet amount.

— REVERB

There is no Length dial: every reverb is a long one, and the **Type** chooses its character.

Hall
Big and even. About 18 s.

Plate
Dense and bright. About 10 s.

Room
The shortest and tightest. About 5 s.

Cathedral
Huge and slow. About 30 s.

Dark
Heavily damped. About 22 s.

Bright
Open top end. About 16 s.

Shimmer
A hall with an octave-up layer. About 20 s.

Void
Enormous and metallic; the tail barely decays.

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Mix	0 to 100 %	30 %	Wet amount.
Type	8 types	Hall	See above.
Size	0 to 100 %	50 %	Room size.
Shimmer	0 to 100 %	0 %	A pitch-shifted-up layer in the tail.
Pre	0 to 250 ms	0 ms	Pre-delay: a gap before the reverb starts, which keeps the attack clear.
Damp	0 to 90 %	35 %	High-frequency damping of the tail.

SECTION 09

Factory presets

275 presets in nine categories, all written for one sound: techno, laser, futuristic and experimental.

There are no imitations of traditional instruments. Every preset sits low and thick (a sub oscillator, drive and the Analog switch on), moves from the first second, and has at least three effects switched on. They are balanced to a common loudness per category, so you can step through them without turning anything down.

— THE THREE FAVOURITE FAMILIES

Version 3.2 grew three families around the sounds that sounded best, each with a hand-picked first preset and siblings that keep its recipe and change the details (after the cull: 19 Seq, 16 Stab and 21 Texture presets in the three families).

—

Seq: Ghost Transmission

Slow sequences. Six or so notes in sixteen steps, long rests, a short gate and a drifting FREE lane. Loop lengths of 16, 12, 9, 8 and 7 steps, minor, phrygian, whole-tone and diminished scales, and long ping-pong echoes into a Void or Cathedral reverb. No fast patterns.

—

Stab: Vinyl Dub Stab

Dub-techno chords. A chord unison, a 450 to 850 Hz filter, a 2 ms attack, a hush of vinyl noise and dark synced delays. Minor 7, Major 7, Add9, Sus, Dominant 7 and more, with ping-pong, phaser, flanger and tape-wobble variations.

—

Texture: Cryo Pump

Pumping, breathing low textures. A dark stack with a strong sub, a ladder filter around 240 to 450 Hz, and a Key Trig LFO that pumps the filter and the volume together. Rates from 1/1 to 1/8., with Saw, Square, Triangle and Smooth Random shapes.

— CATEGORIES

CATEGORY	COUNT	WHAT IS IN IT	EXAMPLES
Bass	29	Mono and poly basses: reeses, growls, acid, FM and ring-modulated subs, wobblers and drops.	Rolling Sub Cannon, Void Reese, Acid Hydra
Lead	30	Solo and ensemble leads with a futuristic edge: lasers, sweeps, sync tones, vocoder-like voices and rave stacks.	Photon Whip, Aurora Crown, Hyperlight Supersaw
Pad	31	Slow, evolving beds with recorded XY movement: fog, shimmer, drones and washes.	Ion Cloud, Void Shimmer, Terraform
Pluck	21	Short, percussive sounds: zaps, blips, pings, drips and darts.	Dub Chord Drip, Snapback Arp, Comb Ping Lattice
Chords	24	Chord machines: one key plays a stacked chord, ready for techno and electro progressions.	Chord Reactor, Neon Monolith, Night Grid
Seq	28	Presets that run their own step pattern. 19 slow sequences in the Ghost Transmission style, followed by nine more slow patterns.	Ghost Transmission, Numbers Station, Kick Ghost
Stab	41	The techno chord hit: 16 Vinyl Dub Stab family presets first, then 25 harder stabs for peak-time, acid and industrial.	Vinyl Dub Stab, Hard Techno Stab, Void Reese Stab
Texture	49	Evolving sound-beds. 21 Cryo Pump siblings first, then noise, glitch and ambient textures.	Cryo Pump, Sonar Ping Field, Black Box Drone
FX	22	Risers, drops, impacts, sweeps, glitches and transmissions.	Plasma Riser, Hyperspace Jump, Tape Stop Brake

— FINDING AND LOADING PRESETS

Browser	Click the preset name (or MANAGER). It has a **search** field, **category** chips and a **banks** list (All banks, Factory, User, plus any folders you add). Click a preset to load it; double-click to load it and close.
Arrows	The arrows beside the name step to the previous or next preset; the lower box with its own arrows steps through categories and loads the first preset of the neighbouring one.
Saving	**SAVE** stores the current sound as a user preset (a small .bsmpreset file, with the drawn wave and the recorded XY path inside). Delete removes a user preset; Show user folder opens the folder: ~/Library/Application Support/Dotmatrix/Basement/Presets on a Mac. Sub-folders appear as banks.
Changing preset	Built not to click: the output fades down in about 6 ms, every parameter is rewritten, the effects are cleared while it is silent, and the sound fades back in over about 2 ms. A key you are still holding is struck again under the new settings.
Loudness	Each preset carries its own output trim, measured by rendering it, so categories sit at a common loudness (the more a category is used for chords or pads, the lower it sits).

SECTION 10

Preset index

Every factory preset, by category, in the order the arrows step through them.

— BASS - 29 PRESETS

01 Rolling Sub Cannon
02 Void Reese
03 Acid Hydra
04 Bitcrush Tremor
05 Hoover Collapse
06 Dub Chamber Sub
07 Laser Drop Bass
08 Gravity Slide
09 Kick Bass Detonator
10 Reactor Core Pulse
11 Concrete Rumble
12 Ring Siren Sub
13 AM Thunder
14 Spectral Fracture
15 Serrator Comb
16 Resonant Tube Bass
17 Digital Gator
18 Duck Pump Sub
19 Hollow Piston Engine
20 Octave Stack Hammer
21 Fifth Power Drone
22 Offbeat Strobe Roller
23 Skank Sub Pressure
24 Glitch Tick Bass
25 Pressure Drop
26 Tectonic Shift
27 Warp Drive Bass
28 Mono Lancer
29 Black Ice Reese

— LEAD - 30 PRESETS

01 Chrome Banshee
02 Ladder Ghoul
03 Photon Whip
04 Strobe Railgun
05 Zap Cascade
06 Cyclotron
07 Ion Dagger
08 Dread Hoover
09 Rave Reactor
10 Warp Siren
11 Sync Comet
12 Hyperdrive Sweep
13 Solar Flare Sweep
14 Gravity Skid
15 Slipstream
16 Comet Tail
17 Event Horizon Lead
18 Pixel Riot
19 Arcade Ghost
20 Formant Android
21 Alien Transmission
22 Ring Specter
23 Future Rave Wall
24 Hyperlight Supersaw
25 Aurora Crown
26 Cobalt Razor
27 Digital Hornet
28 Spectral Needle
29 Vapor Trail
30 Fold Reactor

— PAD - 31 PRESETS

01 Ion Cloud
02 Warehouse Fog
03 Void Shimmer
04 Phase Sweep Cloud
05 Glass FM Bed
06 Spec Bloom
07 Ring Wash
08 Mothership Swell
09 Wander Matrix
10 Low Tide Filter
11 Reactor Dawn
12 Chrome Horizon
13 Dead Signal
14 Cathode Bloom
15 Neon Undertow
16 Static Aurora
17 Orbital Drift
18 Subzero Haze
19 Hollow Engine
20 Quantum Fog
21 Deep Space Relay
22 Dust Storm Pad
23 Data Ocean
24 Laser Fog
25 Obsidian Tide
26 Pulse Nebula
27 Cold Fusion
28 Plasma Mist
29 Grid Lock Bed
30 Moonbase Hum
31 Terraform

— PLUCK - 21 PRESETS

01 Ring Blip Array
02 Dub Chord Drip
03 Snapback Arp
04 Glitch Tick Cloud
05 Rave Saw Stack Pluck
06 Comb Ping Lattice
07 Spectral Tine Burst
08 Strobe Tick
09 Fold Spark
10 Digital Drip
11 Thump Dart
12 AM Zip
13 Octave Sparks
14 Fifth Cannon
15 Nebula Add9 Drip
16 Ghost Echo Plink
17 Neon Rain
18 Phase Dart
19 Flange Zap
20 Sub Pluck Missile
21 Void Ping

— CHORDS - 24 PRESETS

01 Chord Reactor
02 Neon Monolith
03 Quantum Diminish
04 Hypercube Seventh
05 Prism Wall
06 Hardstyle Cathedral
07 Glass Reactor
08 Crystal Circuit
09 Lattice Bloom
10 Frostbite Chord
11 Basement Fog
12 Concrete Drift
13 Sub Zero Wash
14 Tape Ghost Chord
15 Deep Signal Minor
16 Night Grid
17 Outrun Array
18 Laser Boulevard
19 Chrome Meridian
20 Neon Rain Chord
21 Ringmod Nebula
22 Foundry Chord
23 Acid Minor Machine
24 Digital Cloud

— SEQ - 28 PRESETS

01 Ghost Transmission
02 Numbers Station
03 Cold Telemetry
04 Obsidian Beacon
05 Dead Channel
06 Lunar Relay
07 Sleepwalker Signal
08 Hollow Orbit
09 Pale Carrier
10 Static Cathedral
11 Drowned Antenna
12 Void Courier
13 Glass Seance
14 Phantom Beacon
15 Frozen Uplink
16 Wraith Protocol
17 Night Ferry
18 Echo Chamber Zero
19 Moth Radar
20 Kick Ghost
21 Event Horizon Run
22 Fog Signal
23 Chrome Hydra
24 Monolith Minimal
25 Phase Orbit
26 Neon Cruise
27 Sample Hold Bloom
28 Cyber Triplet

— STAB - 41 PRESETS

01 Vinyl Dub Stab
02 Smoke Ring Maj7
03 Cassette Weather
04 Hollow Skank
05 Bell Tower Dub
06 Frosted Glass Pad Stab
07 Detroit Rain Fifth
08 Velvet Undertow
09 Moonlit Phaser Chord
10 Tape Ghost Flange
11 Basement Sub Chord
12 Long Dusk Cathedral
13 Rusted Sunbeam 7sus4
14 Dominant Fog
15 Sus2 Lantern
16 Opaline Echo Chamber
17 Detroit Minor 9
18 Hard Techno Stab
19 Dub Chord Echo
20 Acid Fifth Stab
21 Minimal Octave Pluck
22 Warehouse Slam Stab
23 Peak Time Stab
24 Industrial Ring Stab
25 Sub Chord Hit
26 Rave Chord Bounce
27 Night Drive Stab
28 Birmingham Pressure
29 Concrete Minor Six
30 Ghost Frequency
31 Basement Dub Wash
32 Tape Fog Chord
33 Rave Alarm Chord
34 Void Reese Stab
35 Crush Chord
36 Data Rot Stab
37 Pump Chord Gate
38 Duck Machine
39 Gate Runner
40 Needle Octave Stab
41 Click Octave Dub

— TEXTURE - 49 PRESETS

01 Cryo Pump
02 Glacier Compressor
03 Bunker Lung
04 Ballast Tank
05 Coolant Heave
06 Pressure Hull
07 Cold Storage Breath
08 Cryostat Drone
09 Airlock Sigh
10 Submersible Hum
11 Liquid Nitrogen Fan
12 Steel Diaphragm
13 Drowned Reactor
14 Hibernation Pulse
15 Frozen Piston Array
16 Trench Compressor
17 Vault Seal
18 Thermal Exchanger
19 Dead Pressure Valve
20 Slush Engine
21 Permafrost Heartbeat
22 Turbine Hall
23 Fault Line
24 Granular Glitter
25 Alien Chatter
26 Noise Sweep Rise
27 Static Wind
28 Bitcrush Dust
29 Formant Robot
30 Reactor Core
31 Radio Interference
32 Gate Glitch
33 Sonar Ping Field
34 Plasma Hiss
35 Black Box Drone
36 Voxel Rain
37 Wormhole Wash
38 Aurora Static
39 Datastream Swarm
40 Event Horizon
41 Spark Gap
42 Mainframe Murmur
43 Hyperspace Shimmer
44 Drone Lathe
45 Comms Dropout
46 Singularity Throb
47 Scanner Sweep
48 Fractal Ice
49 Tachyon Gate

— FX - 22 PRESETS

01 Plasma Riser
02 Turbine Spool
03 Hyperspace Jump
04 Reverse Swell Bloom
05 Sub Collapse
06 Concrete Slam
07 Bass Drop Warp
08 White Noise Sweep
09 Whoosh Transition
10 Downlifter Fall
11 Phase Shock Jet
12 Computer Chatter
13 Data Burst
14 Xeno Transmission
15 Signal Interference
16 Engine Rumble
17 Reactor Hum
18 Glitch Burst
19 Stutter Cut
20 Tape Stop Brake
21 Vinyl Wind Down
22 Plasma Rain

SECTION 11

Recipes and glossary

Starting points. Treat the numbers as a first step, then trust your ears.

01	**Slow ghost sequence**	Play Mode Arp, arpeggiator On, Mode Sequencer, Speed 1/8, Steps 16, Gate 30 %. Switch on about six steps and leave the rest as rests; give them different velocities and Pitch values. Wave A Resonant 2, Wave B Spec 8, bar near the middle. Put a value in the FREE lane and route **Arp Free** to Pan (+55 %), Filter Freq (+25 %) and Reverb Mix (+15 %) in the modulation table. Add a Phaser (3 Pole, Feed negative), a ping-pong Delay (1/4. and 1/2, Feed 62 %) and a Void reverb with 40 ms of Pre.
02	**Vinyl dub stab**	Wave A Pulse 25, Wave B Saw, Unison Mode Major 7, Detune 20 %. Cutoff about 560 Hz, Drive 35 %, Env +50 %, a 2 ms Amp Attack and a 400 ms decay with low Sustain. Noise 3 % with Colour at -30 % for the vinyl. A slow Chorus, then Delay 1/4 against 1/4 with Feed 58 %, LP 2.2 kHz, HP 260 Hz, Mix 34 %, and a Hall reverb at 28 %.
03	**Cryo pump**	Wave A Triangle, Wave B Pulse 25, Sub 40 %. Ladder filter at 320 Hz, Q 45 %, Drive 50 %. LFO: Saw Down, Key Trig, Sync to 1/2. In the modulation table send **LFO to Filter Freq** (+40 %) and **LFO to Volume** (+25 %). Tube distortion at about 16 %, a slow 2-pole Phaser with negative Feed, a dark 1/4 Delay (LP 1.8 kHz) and a Dark reverb at 26 %.
04	**Reese bass**	Mono play mode, Wave A and B both Saw, Unison Mode 2, Detune 30 %. Ladder filter around 300 Hz with Q 30 %. Chorus with Double at 50 % thickens it further, and a little Industrial distortion adds bite.
05	**Laser zap**	Wave A Sine, Wave B Saw. Send the **Filter Env** to **Osc Pitch** at a positive amount with a very short Filter Decay so every note falls in pitch, and a 1/8 synced Delay with ping-pong.
06	**Wide chord pad**	Unison Mode Minor 7, Detune 35 %, Spread 90 %. Slow Amp Attack of 500 to 800 ms, Sustain 90 %. Cathedral reverb at 35 % with Pre 40 ms. Send a Smooth Rnd LFO to Pan and Filter Freq at small amounts.
07	**Hands-on movement**	Set X Route 1 to Filter Freq and Y Route 1 to Delay Mix, press REC, play for a few bars while dragging the pad, then PLAY. Use Mode Poly so every note replays the same gesture, or Global for one shared loop.
08	**Your own wave**	Press DRAW OSC, choose COMMAND and Copy Wave A, then edit the shape with the mouse. Set Wave B to Draw and put the bar at the bottom to hear it alone. Try Ring or FM mode with a Sine on top.

— GLOSSARY

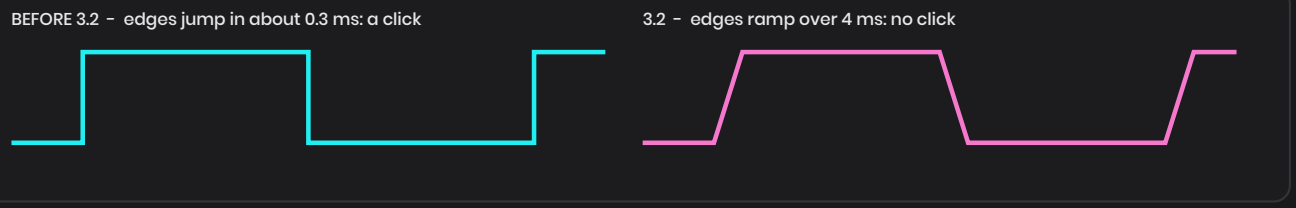
Bar	The vertical slider between Wave A and Wave B in the Oscillator card.
Free (lane)	The bottom row of the step grid. It is a modulation source called Arp Free.
Key Trig	An LFO mode: one shared LFO restarted when you press a key on an empty keyboard.
Unison Mode	Stacked copies of each note, or a whole chord from one key.
Sym	Symmetry: bends the wave, for example the pulse width of a square.
Poles	How many notches the phaser has; more poles, a deeper effect.
Double	The chorus control that offsets a duplicate copy of the sound.
Pre-delay	A gap between the dry sound and the start of the reverb.
Ping-pong	Delay repeats that alternate between left and right.
LUFS	A loudness measure that follows how loud the ear hears something.

SECTION 12

Reference and troubleshooting

— TECHNICAL NOTES

Oscillators	All 39 sources are band-limited so high notes do not alias. Combining modes (Ring, AM, FM) run after the band-limiting.
Filter	The ladder has a saturation stage in the loop so it stays well behaved at high Q. The cutoff dial is tapered (see the Filter section).
LFO and sequence smoothing	Square, Saw Up, Saw Down and S & H LFO shapes change level over 4 ms at their edges instead of jumping, and the Arp Free and Arp Vel sources are smoothed over about 5 ms. Without this, a square LFO sent to Volume or Pan produced a tiny click at every edge (found in Sonar Ping Field in 3.1). Pitch, filter and mix destinations get the same protection.
Analog	Per-voice tuning and cutoff variation, a warm saturation before the filter and a glue compressor on the output. Each is subtle; together they thicken and settle the sound. Saved per preset.
Phaser	Eight all-pass stages always run; the Poles box chooses where the output is taken (2, 4, 6 or 8 stages), so changing poles does not click. The feedback path is limited so even extreme Feed values cannot ring forever.
Limiter	Look-ahead, 1.5 ms (reported as latency), ceiling about -1 dBFS. Its gain is held for 50 ms before an 80 ms release, so it settles on a steady value for low bass notes instead of following the waveform.
Sessions	The host saves every parameter, the drawn wave, the recorded XY path, the MIDI map, the loaded tuning and the preset name; reopening the project restores them exactly.



— TROUBLESHOOTING

No sound	Basement is an instrument: it needs a MIDI or software-instrument track. Check that Volume is up, that the preset is not in Arp mode with no notes held, and that the amp Sustain is not at 0 % with a short Decay.
It does not appear in my host	Restart the host. In Logic Pro, allow it to validate the new Audio Unit when it launches. Look under instruments, manufacturer Dotmatrix.
The sequence does not move	Hold a key. Arp and Seq presets play from the keys you hold; Latch keeps them playing. Check Host Sync: with it on the pattern waits for the host to play.
The delay or arp is out of time	They follow the host tempo. With Host Sync off they follow the Settings tempo (120 by default).
Notes ring on	A long Amp Release or the delay and reverb tails. Shorten the release or switch BYPASS ALL on to hear the dry sound.
A piercing whistle	Q near the top makes the ladder filter self-oscillate. Lower it, or close the Cutoff.
My old presets sound different	Version 3.2 smooths LFO edges and sequence steps, so a sharp square-wave tremolo is slightly softer than before. User presets and sessions from 3.1 load unchanged.

Basement by Dotmatrix
Lightweight audio plugins. Documentation for version 3.4.0.