DOTMATRIX

DOTMATRIX / LIGHTWEIGHT AUDIO PLUGINS

AETHERKAIDŌ

A parallel mid-side mastering equaliser:
four bands side by side, each anywhere in the stereo field.



AetherKaidō by Dotmatrix

USER GUIDE | VERSION 1.1.3 | AU | VST3 | CLAP | macOS 10.14+ | INTEL + APPLE SILICON

Aether, the air and the space; Kaidō, an orbit. Four bands on their own trajectories, summed like a passive network.

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— ABOUT AETHERKAIDŌ

AetherKaidō is a stereo mastering equaliser from Dotmatrix. Its four bands (LOW, CONTOUR, MID and HIGH) run side by side and are summed, as the arms of a classic passive EQ are, so boosts blend instead of stacking, and the curves keep their analogue shape all the way to the top of the audio range. Each band can work on the whole signal, on the centre or on the sides, and can sit at a different frequency on each, up to two octaves apart. An input transformer that saturates the lows first, a drive stage whose TILT chooses what saturates first, shelf-type filters, a bass-to-mono control and a width control complete it, with two VU needles, correlation lights, twenty tolerance units and solo and delta monitoring. AU, VST3 and CLAP for macOS, universal.

— QUICK FACTS

Type	A stereo mastering equaliser with transformer and drive colour, Mid / Side per band, and a bass-to-mono and width section.
Formats	Audio Unit, VST3 and CLAP effects. Universal: Apple Silicon and Intel, macOS 10.14 Mojave or later on Intel, macOS 11 or later on Apple Silicon.
Heritage	Classic passive equalisers: bands that sit side by side and are summed, Pultec-style boost and cut networks read from their schematics, and a transformer core that saturates the lows first.
Clean	Oversampling AUTO by default: 4x at 44.1 and 48 kHz, 2x at 88.2 and 96 kHz, 1x above. The drive and transformer stay free of aliasing, and the top octave keeps its shape.
Presets	21 factory presets: start, mix bus, mastering, drum bus and vocals. Your own are saved in ~/Music/AetherKaido Presets.
Identity	Manufacturer Dotmatrix (Dtmx). AU code: AtKd. Files and folders use the plain spelling AetherKaido.

SECTION 01

Getting started

Put it on the master or a bus, then shape it one band at a time.

— NEW IN VERSION 1.1.3

1.1.3	Clicking the LCD changes its view again, and scrolling or pinching a band point steps BANDWIDTH by the right amount. Dragging a band point is now one move in your host's undo and automation.
1.1.2	Steadier under load: when the plug-in's delay changes (for example with oversampling), it now tells your host from the main thread, so the audio thread never reserves memory. The sound is unchanged.
1.1.1	Steadier under load: the plug-in no longer reserves memory while it processes audio, so a busy session is less likely to click or drop out.
1.1	Drag the band points on the glass. Across sets FREQ, up and down sets GAIN, and dragging below the 0 dB line switches CUT on. Scroll or pinch over a point for BANDWIDTH, hold Shift for fine moves, double-click to reset the band. The knobs follow the drag, and hosts record it as automation. While you hover or drag, the band's curve brightens and a label shows its values.
1.0	The first release: LOW, CONTOUR, MID and HIGH in parallel, each with MID / SIDE and OFFSET; XFORMER, DRIVE with TILT, shelf-type HPF and LPF with SMOOTH and STEEP; MONO, WIDTH, TOLERANCE units; SOLO M, SOLO S and DELTA; two VU needles and correlation lights; dark and light panel; 21 factory presets.

— INSTALLING

Copy each plug-in from the download's **Plug-Ins** folder into its folder: **~/Library/Audio/Plug-Ins/Components** (Audio Unit), **~/Library/Audio/Plug-Ins/VST3** and **~/Library/Audio/Plug-Ins/CLAP**. The release is not yet signed through Apple's developer program, so macOS needs one Terminal line before it will load it; **READ ME FIRST.txt** in the download has the exact steps. Logic Pro checks new Audio Units the first time it starts; AetherKaidō appears under **AU Effects › Dotmatrix**.

— FIRST STEPS

1	**Insert it**	Put AetherKaidō on your mix bus or master (in Logic: Audio FX > Dotmatrix > AetherKaido).
2	**Start flat**	It opens on **Flat**: every band at 0, DRIVE 25 % (clean at normal levels), XFORMER out. Set **INPUT** so the VU needles sit around 0 VU (-18 dBFS) on the loud parts.
3	**Shape the tone**	Turn a band's big **GAIN** knob, then find the spot with **FREQ** and set the width with **BANDWIDTH**. Press **CUT** to make the same knob cut instead. Watch the curve on the glass.
4	**Place it in the stereo field**	Turn **MID / SIDE** to send a band to the centre or the sides, and **OFFSET** to put the centre and the sides on different frequencies. The glass draws the Mid solid and the Side dashed.
5	**Add the colour**	Bring in **XFORMER** for low-end density and **DRIVE** for harmonics; **TILT** decides whether the highs or the lows saturate first. Check what you are adding with **DELTA**, then match levels with OUTPUT.

— BASIC HANDLING

Dials	Drag up or down. Double-click to reset. Click the value under a dial to type one (frequencies take "k", e.g. 2.4k).
Glowing dials	XFORMER (jade), DRIVE (gold) and OUTPUT (ice) have a light ring that grows around the knob with the value.
Keys	CUT, STEEP and BYPASS light when on. The monitor keys light the one in use; press a lit one again to go back to STEREO.
The glass	Draws the response as set: each band's own curve tinted underneath, the Mid as a solid line and the Side dashed when they differ, the filter and MONO corners dashed. Each band has a point at its frequency and gain.
Band points	Drag a point across for FREQ and up or down for GAIN; below the 0 dB line it cuts (CONTOUR stops at 0). Scroll or pinch over it for BANDWIDTH, hold Shift for fine, double-click to reset that band. The knobs follow, and the band's curve and a value label light up while you work.
VU needles	Real VU ballistics, 0 VU = −18 dBFS. VU OUT / IN / M-S switches between the output, the input after INPUT, and the output's Mid and Side. MAX holds the highest reading.
Lights	OVER lights at 0 dBFS and holds a second. CORRELATION lights from the centre to the reading: green when the channels agree, red when they work against each other.
LCD	The output peak in dBFS, held for a second. Click it for the correlation.
Help line	Hover over any control and the strip at the bottom of the panel says what it does.
Light and size	LIGHT switches to the light panel and back; every window remembers it. Drag the window's corner for any size from 60 to 200 %.

SECTION 02

The panel

The meter bridge across the top, then the bays left to right: input, the four bands, output and stereo.



Header	LIGHT, the preset name with its arrows, SAVE, and the LCD (output peak, or click for the correlation).
Response	The curve glass, two VU needles, the OVER and CORRELATION lights, the status (oversampling, latency, MONO lift) and the VU key.
Input	INPUT, XFORMER, and the HPF with its STEEP key.
Low, Contour, Mid, High	Each band: GAIN, FREQ, BANDWIDTH, MID / SIDE, OFFSET, and CUT (not on CONTOUR).
Output	The LPF with its STEEP key, TILT, DRIVE and OUTPUT.
Stereo	MONO, WIDTH, TOLERANCE and its UNIT, the four monitor keys, BYPASS and oversampling.

SECTION 03

Dark or light

The same panel, lit two ways. LIGHT switches it; drag the window's corner for any size from 60 to 200 %.

— LIGHT

A light panel with light grey dials and keys, for bright rooms. The glass, the VU meters, the LCD, the lights and the glowing rings stay lit the same way.



SECTION 04

Where it comes from

AetherKaidō is our own design, built on ideas from classic passive equalisers: tuned inductor-and-capacitor arms, bands that work side by side, and transformers and cores that colour the sound as they are pushed. No code or internals of any plug-in were used.

— PARALLEL BANDS, LIKE A PASSIVE NETWORK

In a parallel passive equaliser the bands sit side by side between the input and the summing point, so bands boosting at the same frequency don't add up their dB. AetherKaidō works the same way: each boost is an arm that adds a filtered copy of the signal to the dry one. Two bands boosting 12 dB at 1 kHz give about 13.5 dB. Overlapping bands blend into one smooth shape instead of piling up.

— CUTS THAT CANNOT NULL

The Pultec EQP-1A and MEQ-5 cut by shunting the line to ground through a tuned arm (an inductor and a capacitor, through the cut pot). The schematics are in the Gyraf and RecPro redraws. A cut built that way can only take away so much and never flips the phase. Every cut in AetherKaidō, including the CONTOUR dip and the end filters, is a section of that kind.

— SHELVES WITH A BANDWIDTH

Here a shelf is rated by its half-way point, and its BANDWIDTH knob turns a plain shelf into one with a dip beside it, the effect the Pultec trick is famous for. On LOW and HIGH, FREQ is the half-way point. With BANDWIDTH wide, the shelf is a plain 6 dB-per-octave passive shelf, like the Pultec's low boost (one capacitor into the boost pot). Tightened, it becomes a resonant shelf: at full turn a 12 dB LOW boost dips 5.5 dB just above its corner.

— THE COLOUR

XFORMER is a transformer core: its flux follows the integral of the signal, so the lows saturate first. At 50 %, a -18 dBFS tone at 20 Hz reaches 1 % distortion, and at 100 Hz it is a hundred times cleaner. DRIVE sits between a tilt and its exact inverse, so TILT changes what saturates first and never the response. Big boosts also round off very slightly in their own arms, as inductor cores do.

SECTION 05

Input

The first bay: level, the transformer and the high-pass.

— CONTROLS

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Input	-24 to +12 dB	0 dB	The level into the unit. Hotter drives the transformer and the DRIVE stage harder.
Xformer	0 to 100 %	out	How hard the signal drives the input transformer. 0 is out of circuit. The lows saturate before the highs.
HPF	OFF, 20 to 250 Hz	OFF	Fully left is OFF. The value is the -3 dB corner. A shelf that sounds like a filter: it has a floor rather than an endless slope, so it shifts less phase against the bands.
Steep	on / off	off	Off (SMOOTH): 6 dB per octave to a -24 dB floor. On: 12 dB per octave to -40 dB with a firmer corner. Switching is click-free.

WEIGHT WITHOUT BOOM XFORMER 30 to 50 % thickens the low end without touching the EQ: it adds harmonics, mostly to the bass.

SECTION 06

The four bands

LOW, CONTOUR, MID and HIGH work in parallel and are summed. Each has the same set of controls.

— EVERY BAND

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Gain	0 to 12 dB	0	The big knob. Boost, or with CUT lit, up to 15 dB of cut at full turn.
Freq	per band	per band	Where the band acts. On the shelves, the half-way point.
Bandwidth	per band	per band	Higher is tighter. On the shelves it sets how resonant the corner is.
Mid / Side	-100 to +100 %	M+S	Left towards the centre only, right towards the sides only; the centre acts on both.
Offset	-2 to +2 oct	0	Splits the frequency: clockwise moves the sides up and the centre down, up to two octaves apart.
Cut	on / off	off	The knob cuts instead of boosting. It glides through flat, so it is click-free during playback.

— EACH BAND'S SHAPE

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Low	20 to 200 Hz, BW 0.3 to 1.0	58 Hz, 0.71	A low shelf. Wide is the plain passive shelf; tight adds the dip above the corner.
Contour	300 Hz to 2 kHz, BW 0.3 to 1.0	1.2 kHz, 0.61	Revoices the mids: a dip at the centre with a lift either side, level-compensated, so it changes the character, not the loudness. Boost only.
Mid	200 Hz to 5 kHz, BW 0.3 to 2.0	640 Hz, 0.5	A bell. A boost overshoots a touch below flat at its edges (about 0.3 dB at 12 dB). The cut narrows as it deepens.
High	800 Hz to 22 kHz, BW 0.3 to 1.0	15 kHz, 0.71	A high shelf that keeps its shape to the top of the range. The cut is broader than the boost.

AIR ON THE SIDES HIGH +2 to +3 dB at 12 to 18 kHz with MID / SIDE towards SIDE opens the top without making the vocal brighter.

THE PULTEC TRICK IN ONE BAND LOW boost at 50 to 60 Hz with BANDWIDTH at 1.0: the lift and the dip above it come from the same shelf.

DIVERGING STEREO MID +2 dB at 3 kHz with OFFSET +1: the centre lifts at 1.5 kHz, the sides at 6 kHz.

SECTION 07

Output

The low-pass, the drive and the level.

— CONTROLS

CONTROL	RANGE	DEFAULT	WHAT IT DOES
LPF	OFF, 20 kHz to 700 Hz	OFF	Fully right is OFF. The value is the -3 dB corner. A shelf, like the HPF.
Steep	on / off	off	As on the HPF: SMOOTH 6 dB/oct to -24 dB, STEEP 12 dB/oct to -40 dB.
Tilt	-100 to +100 %	+50 %	Which part of the spectrum DRIVE saturates first. Right holds the lows back so the upper mids and highs saturate first; left pushes the lows in. It never changes the response.
Drive	0 to 100 %	25 %	Harmonic saturation after the EQ, more with a hotter INPUT. At -18 dBFS: about 0.08 % at 25 %, 2 % at 100 %. 0 is completely clean.
Output	-24 to +12 dB	0 dB	The output level.

DENSITY DRIVE 50 to 70 % with TILT around +50 adds edge to the top without fuzzing the bass. For a warmer drive, turn TILT left.

SECTION 08

Stereo and monitoring

The last bay.

— CONTROLS

CONTROL	RANGE	DEFAULT	WHAT IT DOES
Mono	OFF, 20 to 250 Hz	OFF	Sums the low end to mono below the frequency. The sides roll off gently, and the centre gets back the low end they gave up (up to 3 dB), so the bass keeps its weight in mono.
Width	-100 to +100 %	0	Left narrows: the sides come down and the centre up a little (fully left is mono). Right lifts the sides up to 6 dB; the centre stays.
Tolerance	0 to 100 %	100 %	How far the unit's parts stray from the ideal: a few % on each band's frequency, Q and gain, and small differences between the channels' transformer and drive. 0 % is the ideal unit.
Unit	1 to 20	01 02	Which unit, shown as its pair of channels. Each sounds very slightly different, as two analogue units do.
Stereo / Solo M / Solo S / Delta	keys	Stereo	What you hear: normal, the centre only, the sides only (both on both speakers), or only the difference the unit is making. Switch back to STEREO before you bounce.
Bypass	on / off	off	Bypasses everything, latency-matched and click-free.
Oversampling	Auto, 1x, 2x, 4x, 8x	Auto	AUTO is 4x at 44.1 and 48 kHz, 2x at 88.2 and 96, 1x above.

VINYL MONO at 100 to 150 Hz keeps the cutter happy with wide bass; the centre lift keeps the low end from thinning out.

CHECK YOUR MOVES DELTA plays only what AetherKaidō is adding or removing. If DELTA sounds harsh, so does the change.

SECTION 09

Presets

Twenty-one factory presets. Start has Flat and a colour-only setting; Mix Bus, Mastering, Drum Bus and Vocals are starting points for those jobs. Mastering uses the stereo controls. SAVE stores your own in ~/Music/AetherKaido Presets; they appear in the menu under User presets.

CATEGORY	22 PRESETS
Start	Flat, Through the Iron
Mix Bus	Mix Bus Polish, Pultec Bottom, Air and Weight, Mud Out, Analogue Glue
Mastering	Master Wide Air, Centre Focus, Offset Spread, Vinyl Safe Lows, Loud and Dense, Revoice Mids
Drum Bus	Drum Bus Thump, Snare Crack, Room Boxy Out, Overheads Sheen
Vocals	Vocal Presence, Vocal De-Box, Vocal Silk, Vocal Warm Close
Yours	Every preset you save, listed under User presets

— RECIPES

01	**Mix bus polish**	**Mix Bus Polish**: a little weight at 45 Hz, air at 14 kHz, CONTOUR at 900 Hz, the HPF just clearing the subsonics, a touch of XFORMER.
02	**Pultec bottom**	**Pultec Bottom**: LOW +4 at 55 Hz with BANDWIDTH 1.0 and a gentle MID cut at 220 Hz.
03	**Wide air, mono bass**	**Master Wide Air**: HIGH towards the sides, LOW on the centre only, MONO at 110 Hz.
04	**Offset spread**	**Offset Spread**: HIGH with OFFSET +1 (sides higher), MID with OFFSET -0.8.
05	**Revoice the mids**	**Revoice Mids**: CONTOUR 6 dB at 1.1 kHz, wide. The level stays where it was.

SECTION 10

Reference and troubleshooting

— TECHNICAL NOTES

Signal flow	INPUT, then (oversampled) the transformer on left and right, Mid / Side, the EQ on each (parallel boosts, then the cuts, HPF, LPF and MONO), WIDTH, back to left and right, DRIVE between TILT and its inverse, then monitoring, OUTPUT and the latency-matched bypass.
The curves	Every band is built from first- and second-order analogue sections and digitised with state-variable filters that stay smooth while you turn the knobs. The engine matches the curves on the glass to within 0.1 dB.
Clean by design	A linear-phase half-band oversampler. With DRIVE and XFORMER at 100 % and a hot 5 kHz tone, aliasing measures -92 dBc at 4x.
Latency	The oversampling filters only: 105 samples at 4x. AetherKaidō reports it to the host, which compensates. 1x has no latency.
CPU	About 5 % of one core for a stereo instance at 4x (48 kHz, Apple Silicon); about 1 % at 1x.
Sessions	A project stores every parameter, the preset, the LCD and VU views and the window size. Presets are small XML files.
Compatibility	Universal (Apple Silicon and Intel). VST2 is not available: Steinberg no longer licenses it. CLAP is built with the open-source clap-juce-extensions.
Trademarks	All product names are trademarks of their respective owners and are used only to identify the products studied. Dotmatrix is not affiliated with or endorsed by any of them.

— TROUBLESHOOTING

It sounds louder, not better	Boosts add level. Use DELTA to hear the change, and OUTPUT (or CONTOUR, which is level-compensated) to match loudness before you judge.
The low end disappeared	MONO is set high and the bass was wide, or the HPF is on. Check the dashed corners on the glass.
A band does nothing	Its MID / SIDE is turned fully to one side and the material has little there (e.g. SIDE on a mono source).
My bounce is in mono or silent	SOLO M, SOLO S or DELTA is still on. Press STEREO.
It does not appear in Logic	Run the Terminal lines in READ ME FIRST.txt, then restart Logic. In Logic > Settings > Plug-in Manager, select it and click Reset & Rescan Selection.
My presets are missing	They live in ~/Music/AetherKaido Presets. Copy the .xml files there on another Mac.



AetherKaidō by Dotmatrix

Lightweight audio plugins. Documentation for version 1.1.3.