MAGNETIC DRUM ECHO

Kodama

木霊

木霊　the echo that answers from the trees

Kodama is a magnetic drum echo: four playback heads around a turning drum, or a loop of tape past them, a mixer-channel drive in front, a spring reverb beside it, and the small imperfections that make a repeat feel alive.



CONTENTS

Kodama, from the first sound to the last setting.

壱	Welcome	03
弐	The panel	04
参	The drum and its heads	07
肆	Drive, output and your host	09
伍	Age and mechanics	11
陸	The spring and the tape	12
漆	The display	14
捌	Your controller	15
玖	Factory programs	17
拾	Programs and your presets	19
拾壱	Installing and unlocking	20
拾弐	Technical	23
拾参	Notices	24

Call into the forest and it answers.

This manual walks round the panel, then through the drum and its heads, the drive and output, the drum's age and mechanics, the spring reverb and the tape, and the display. The last pages cover presets, installing and unlocking.

Welcome

Kodama is a magnetic drum echo: four playback heads around a turning drum, a mixer channel's drive in front of it, and the small imperfections that make a repeat feel alive.

A record head writes the sound onto the drum. As the drum turns, four playback heads read it back, at a quarter, a half, three quarters and the whole of the way round to the last head, so their delays run 1:2:3:4. Switch in any heads you like: one for a single repeat, two or three for a gallop, all four for a wash. Feed them back and the repeats carry on, a little softer, a little older each time.

In front of the drum sits a preamp that leans into its rails as you push it, and inside the loop a harder stage that decides how the repeats break up when the feedback climbs. Around them, one motor turns the drum for both channels, with the wow, flutter and drift of a real one: change the speed and every repeat glides in pitch.

Five minutes with Kodama

1. Put Kodama on an audio track, or on a return with its **Mix** at 100 %. It opens on Soaring Lead.
2. Play a short phrase with gaps in it. Turn **Speed**: the delay of head 4 shows under the knob and in the middle of the drum, and the other heads' delays beside them.
3. Switch heads in and out with the **Head** keys, or click a head on the drum itself. The repeats display shows where each repeat will land.
4. Raise **Feedback** for more repeats. Near the top the loop gains instead of fading: the display turns red and reads Runaway. Turn it back down to let it settle.
5. Turn **Drive** for crunch, then **Age** and **Wear** for an older machine.
6. Choose **Swell** with all four heads in, for repeats that bloom into a wash.

> TIP
>
> On a return, set Mix to 100 % so the return carries only the repeats. On a track, the first half of Mix's travel brings the repeats in under a full-level dry sound; at 50 % both are at full level.

The panel



Kodama on Soaring Lead, the program it opens with: heads 3 and 4 in, and the pattern of repeats they make.

1	**Program**	The program's number and name. Click the name for the program menu; the arrows at the window's ends step through the sounds.
2	**Size and key**	The window's size, and below it the licence key.
3	**The drum**	The drum turning, with its record head, four playback heads and erase head; on tape, the tape loop and its heads. Each head shows its delay; click one to switch it in or out.
4	**The repeats**	The repeats a single click would leave with these settings: where each lands, and how loud.
5	**Input and loop**	How hard the preamp is driven, and the level of the repeats going round the loop.
6	**Speed** 600 ms to 150 ms	The drum's speed, shown as the delay of head 4. Head 1 is a quarter of it.
7	**Feedback** 0 to 100	How much of the repeats goes back onto the drum. With one head at its usual level, the loop reaches unity near 88; above 90 it climbs fast, and at 100 the echo screams by itself.

8 **Tone** 0 to 100, 50 flat	The feedback's tone: down, each pass darkens; up, each pass thins.
9 **Echo, Repeat, Swell**	The mode: single repeats, repeats fed back, or a wash from every head.
10 **Tempo sync** 1/16 to 1/1	Locks head 4 to a note value at the host's tempo. The box beside it chooses the note.
11 **Heads** Four, each with Level and Tone	A switch for each head, its level, and its own tone.
12 **Drive** 0 to 100	How hard the preamp is pushed, from clean to a soft, uneven clip.
13 **Color** 0 to 100, 50 flat	Which end of the spectrum meets the clip first: the bass, or the treble.
14 **Crunch** 0 to 100	How hard the loop's own stage clips, when the feedback pushes it.
15 **Drum and age** Bias, Noise, Age	The record bias, the hiss and hum, and the years on the machine. On tape it reads Tape & age.
16 **Mechanics** Wow, Flutter, Wear, Motor	The motor and the heads: slow and fast wobble, worn heads, and how steady the motor runs.
17 **Mix** 0 to 100 %	Dry to wet. Both are at full level at 50 %.
18 **Output** −24 dB to +12 dB	The level of everything Kodama sends out.
19 **HQ 8x** On or off	Runs the drive stages at eight times the sample rate instead of four.
20 **Spring** 0 to 100	How much of the spring reverb sounds, beside the echo. At 0, as Kodama starts, there is none.
21 **Dwell** 0 to 100	How hard the springs are driven, from clean to a twanging crash.
22 **Decay** 1.2 s to 5 s	How long the springs ring.
23 **Tone** 0 to 100, 50 middle	How the springs are driven: from dark and muddy to bright.

24	**Drum, Tape**	What carries the echo: the spinning drum, or a loop of tape.

KNOBS

Double-click any knob to return it to where Kodama starts. Drag up and down, or side to side, to turn it.

The drum and its heads

Speed

Speed sets how fast the drum turns, and with it every head's delay. The knob reads the delay of head 4, the last: 600 ms at the slowest, 300 ms in the middle (where Kodama starts), and 150 ms at the fastest. The knob runs evenly in pitch, so each step of its travel is the same musical step. Across the four heads, delays reach from 37.5 ms on head 1 at the top of the knob to 600 ms on head 4 at the bottom.

The drum has the weight of a real one. Turn Speed and the motor takes a moment to get there, and the repeats already on the drum glide in pitch as it does: down as you slow it, up as you speed it. In your host's own parameter view, Speed can be typed as a time, such as 250 ms or 0.4 s.

The heads

HEAD	ITS DELAY	AT SPEED 300 MS
HEAD 1	A quarter of head 4's delay	75 ms at Speed's middle
HEAD 2	A half	150 ms
HEAD 3	Three quarters	225 ms
HEAD 4	The whole	300 ms

Each head has a key that switches it in, a **Level** and a **Tone**. Level runs from 0 to 100 and starts at 70; it is tapered like an audio pot, so the top half does most of the work. Tone starts at 50, the head as it comes, from 40 Hz to its own top end. Below 50 the top closes, down to 1.5 kHz at 0; above 50 the bottom thins, up to 600 Hz at 100. A dark head 4 under a bright head 1 is a quick way to make a long trail sit behind a short one.

Kodama starts with head 4 alone. Heads 1 and 3 make the classic gallop; heads 2 and 4, a steady pulse with a long tail; all four, a dense pattern that blurs.

Echo, Repeat and Swell

Echo	One repeat from each head that is in, and nothing fed back. Feedback has no effect.
Repeat	The heads that are in feed back onto the drum: repeats of repeats, as many as Feedback allows. Kodama starts here.
Swell	As Repeat, and every head, in or out, adds a little of itself to the sound and to the loop. The repeats fill in between each other and bloom into a wash, close to a reverb.

Feedback and its tone

Feedback sets how much of the repeats goes back onto the drum. It starts at 35. With one head at its usual level the loop reaches unity near 88: below that the repeats fade, above it they climb until the loop's own stage holds them, and the echo runs away into a sustained, singing roar. Over the last tenth of the knob the loop's gain climbs steeply, to two and a half times unity at 100: there it builds from anything, even its own hiss, and within a couple of seconds screams into the preamp and the drum. Bring the knob back below 88 and the roar dies away. With several heads in, Feedback means much the same as with one, though the extra heads make the repeats build a little faster. Turn a head's Level down and its share of the loop falls with it.

The **Tone** beside Feedback shapes the loop, so its effect grows with every pass. At 50 it is flat. Below 50 the highs above about 700 Hz fall, by up to 12 dB at 0, and the lows rise a little: each repeat darker than the last. Above 50 the lows fall, by up to 8 dB at 100, and the highs rise a little: repeats that thin away to a whisper.

Tempo sync

Press **Tempo sync** and head 4 lands on a note value at your host's tempo; heads 1 to 3 fall on its quarters. With a quarter note on head 4 the heads play sixteenths; with a dotted quarter, head 2 lands on a dotted eighth. Choose the note in the box beside the key:

STRAIGHT	1/16, 1/8, 1/4, 1/2, 1/1
DOTTED	1/8 D, 1/4 D, 1/2 D
TRIPLET	1/8 T, 1/4 T, 1/2 T

While synced, the Speed knob dims and stands aside, and the drum reaches further than the knob can: 60 ms to 1.2 s on head 4. A note that falls outside that at your tempo is halved or doubled until it fits, so it stays in time. When the tempo changes, the drum glides to meet it, and the repeats bend in pitch as a real drum's would. The display's heading names the note while sync is on.

Drive, output and your host

Before the drum, the sound passes through a preamp after a mixer channel's: an op-amp that, pushed hard, runs into its supply rails. Inside the loop sits a second, harder stage that the repeats meet every time they go round.

Drive

Drive sets the gain into the preamp's clip, from −6 dB at 0 to +30 dB at 100. It starts at 25. The clip is soft and a little uneven: as the level rises the preamp's balance leans further, adding even harmonics and a touch of sag. Kodama takes back most of the gain it adds, so turning Drive up changes the colour far more than the loudness, though a harder drive is somewhat louder, as turning up a mixer channel's gain is.

The drive is on the dry sound as well as the echo: what you hear dry is the sound after the preamp.

Color

Color tilts the sound around 1.2 kHz on its way into the clip. Towards 100 the treble meets the clip first, for a brighter, biting edge; towards 0 the bass does, for a darker, rounder push. Most of the tilt is taken back out after the clip, so what changes is the character of the drive more than the balance of the sound. At 50 it is flat.

Crunch

Crunch is the loop's own stage, which the repeats pass through each time they go back onto the drum. At 0 it is soft and round; at 100 it is close to a hard clip. It matters most when Feedback is high: Crunch decides whether a runaway loop swells into a warm roar or breaks into grit. It starts at 30.

HQ 8x

Both stages run at four times the sample rate, so the drive stays smooth at the top of the spectrum. **HQ 8x** runs them at eight times, for the cleanest drive at a little more processor. The latency is the same either way. HQ stays as you set it when you change program.

The input and loop meters

Input reads how hard the preamp is driven, as a mixer channel's meter would: 0 VU is 6 dB below its rail. Past 0 VU the bar turns amber, and the lamp at its end lights as the preamp reaches its rail. **Loop** reads the level of the repeats on their way back to the drum, in decibels; past −8 dB it turns red, and its lamp lights when the loop is driving its stage hard, which is when it is close to running away.

Mix and Output

Mix sets the balance of dry and wet. Up to the middle the dry sound stays at full level while the repeats come in under it; at 50 % both are at full level; past the middle the dry sound fades, until at 100 % only the repeats are left. It starts at 35 %. **Output** sets the level of everything Kodama sends out, from −24 dB to +12 dB. Some programs set it below 0 dB to keep a loud loop in check.

Channels

Kodama works in mono, mono in and stereo out, or stereo. In stereo each side has its own drum, turned by the one motor, so the stereo image is kept. A mono input feeds both drums.

Bypass, latency and automation

Kodama has no bypass switch of its own: use your host's. Bypassed, the dry sound passes in time with everything else, and when Kodama comes back the drum starts clean rather than replaying what it held before.

The drive stages delay the whole output by 42 samples, under a millisecond, the same with HQ on or off. Kodama tells your host, which keeps it in time with your other tracks. Inside the loop the stage's delay is taken out, so the repeats keep their exact spacing.

Every control can be automated, including the head switches, the mode and Tempo sync, and each can be learned from a knob or fader on your MIDI controller: see Your controller.

Age and mechanics

A drum echo is a machine, and machines wear. These controls set how old, how worn and how steady yours is. At their starting values Kodama is a well-kept machine with a little life in it.

Drum and age

Bias 0 to 100, 50 clean	The drum's record bias. At 50 the drum is clean up to its own saturation, and the knob reads plainly. Below 45 it reads under: the repeats turn gritty and thin, losing their bottom end. Above 55 it reads over: the repeats turn soft and dull, losing their top.
Noise 0 to 100	The hiss on the heads and the hum of the mains. At 0 there is none. Starts at 10.
Age 0 to 100	The years on the machine. Age adds hiss and hum, lets each head pick up a trace of its neighbours, leaves a ghost of the last turn that the erase head missed, deepens the wow and flutter, and dulls the top. Starts at 20.

Mechanics

Wow 0 to 100	A slow wobble in the drum's speed, with the drum's own once-a-turn wobble in it. At 100 it swings the speed by up to 0.8 %, and Age deepens it further. Starts at 15.
Flutter 0 to 100	A fast, fine wobble, the motor's and the bearings'. Starts at 15.
Wear 0 to 100	Worn heads. They lose their top end, and now and then one drops out for a moment or crackles. More Age makes the dropouts come more often. Starts at 15.
Motor 0 to 100	How steadily the motor holds its speed. At 100 it holds firm; turn it down and the speed drifts, slowly and at random, further the lower it goes. Starts at 85.

One motor turns one drum for both channels, so the wow, flutter and drift move both sides together, and each head reads what was recorded when its spot of the drum passed the record head. A wobble bends every repeat alike, as on a real drum, and the heads keep their spacing. For an old machine that still works, keep Motor high and raise Age and Wear; for one on its way out, bring Motor down and raise Wow.

The spring and the tape

Two more parts of the machine: a spring reverb beside the echo, and a choice of what carries the echo, the drum or a loop of tape. Kodama starts with the drum and the spring at 0, as it always has.



Kodama on tape, with the spring: the tape loop on the display, its heads under the run.

The spring reverb

A spring reverb is a small tank of springs, with a driver at one end and a pickup at the other. Kodama's springs hear the preamp's sound and the echo together, and their sound joins the echo's, so Mix sets both against the dry sound. The springs never feed the drum: however long they ring, the loop is the heads' alone.

Spring 0 to 100	How much of the springs' sound you hear. At 0 there is none, and the springs rest. Starts at 0.
Dwell 0 to 100	How hard the driver is pushed. Low, the springs are clean and soft; turned up, they twang, and a sharp attack crashes into the driver's saturation. Starts at 40.
Decay 1.2 s to 5 s	The damper: how long the springs take to fall by 60 dB. The knob reads the time. Starts at 2.4 s.

Tone 0 to 100, 50 middle	How the driver is fed. Towards 0 its coil starves the top, and the springs sound dark and muddy; towards 100 the driver keeps up with the top, and they sound bright and splashy. The springs themselves carry little above about 4.4 kHz. Starts at 50.

Every sound that reaches the springs comes back as a chirp: within the springs' band the high notes travel more slowly than the low, so a click returns as a falling boing, and a drum hit as a splash. Each tank has two springs a little different in length, summed at the pickup, and each channel has its own tank, so the reverb is wide in stereo.

Drum or tape

Drum, where Kodama starts, is the magnetic drum this manual describes. **Tape** carries the echo on a loop of tape instead, past the same heads at the same delays, and every control does what it did. What changes is the medium:

WOW AND FLUTTER	Twice as deep on tape, whose speed is less steady than a drum's. The slow wobble comes once a loop rather than once a turn, and the flutter is the capstan's and the scrape of tape on the heads.
TOP END	Tape takes more treble on every pass, so its repeats darken faster.
HEAD BUMP	Each pass gains a little bass, so the repeats thicken as they darken.
SATURATION	Tape saturates and compresses sooner than the drum.
HISS	More: about 7 dB more at the same Noise.
WEAR	Worn tape crinkles and sheds, so the dropouts come more often.
THE SPLICE	Once a loop the splice passes the record head, and each head hears a small dip as it goes by. It is faint, and grows with Wear and Age.

The panel follows the medium: the display draws the tape loop, with the erase and record heads and the four playback heads under its straight run, and the sections read The tape and Tape & age. Click a head under the tape to switch it in or out, as on the drum.

The display



Kodama on Swell Cathedral: every head lit, and the repeats building into a wash.

The drum

The left of the display is the drum. The record head, at the lower left, glows amber with the input; the erase head sits at the bottom. Between them are the four playback heads, each lit while it is in and labelled with its number and its delay. The middle of the drum shows the delay of head 4. Click a head to switch it in or out: it is the same as its key below.

The marks on the drum turn while sound plays, at the drum's own speed. When nothing sounds, the drum and the display rest. On tape the display draws the tape loop instead: see The spring and the tape.

The repeats

To the right, The repeats draws what a single click would leave: a line for each repeat, where it lands and how loud, from 0 dB at the top to −48 dB at the floor, over eight times head 4's delay. It follows the heads, their levels, the mode and the feedback, but not the tone, the drive or the mechanics. The heading names the mode, and the note while Tempo sync is on. When the loop gains instead of fading, the repeats turn red and the heading reads Runaway.

Below are the input and loop meters: see Drive, output and your host.

Your controller

MIDI learn

The knobs, keys and menus on Kodama's panel can be moved by a knob or fader on your MIDI controller. Right-click it (Control-click on a Mac), choose Learn MIDI control, and move the hardware. While Kodama waits, a thin outline breathes round the control (on a knob, its value reads MOVE A CONTROL); once learned, the controller's number shows there for a moment.

Learn MIDI control	Waits for the next controller (CC) to arrive, on any channel. While it waits, the menu reads Waiting for a MIDI control… (click to stop).
Forget CC 74	Shown when the control has one: lets that controller go.
Knob	Shown when the control has one: what kind of knob it is, as learning found it (ticked). Choose another if it guessed wrong: Ordinary knob, or one of three kinds of Endless knob.
Use these for every new Kodama	Keeps the controllers learned now as the starting set for every Kodama you add from now on. Projects keep their own. Choose it with none learned to start new ones with none again.
Forget every MIDI control	Lets every learned controller go, on every control.

A controller moves one control, and a control answers one controller: learning a controller already in use moves it to the new control. Its whole travel, 0 to 127, sweeps the control's whole travel, as the mouse does; a switch turns on from the middle up, and a choice steps evenly through its choices. The moves reach your host as the mouse's do, so it writes them as automation and undo takes them back.

Controls never jump. An ordinary knob sends where it is, so when it and the control disagree (a project just opened, a new program, the mouse moved the control) the control waits until the knob reaches it, then follows; meanwhile its value reads TURN UP or TURN DOWN, with a steady outline round it. An endless knob, one that turns round and round, sends only a little up or a little down, so the control moves on from wherever it is. Learning tells the two apart from the first few turns, so turn the knob a little way after it is learned before you judge it.

The controllers learned are kept with the project; a project saved before Kodama had MIDI learn opens with none. Notes, pitch bend, aftertouch, bank select and the like are never learned.

The starting set is a small file, `%APPDATA%\Denki Digital\Kodama\midi-map.json` on Windows and `~/Library/Application Support/Denki Digital/Kodama/midi-map.json` on a Mac.

Every knob and key, and the Sync Division menu, can learn a controller; the heads on the display switch with a click, as ever, and their **Head** keys learn them.

Kodama is an effect, so your controller has to be sent to it. In Live, add a MIDI track, set its MIDI To to Kodama's track and choose Kodama in the menu below it, then arm the MIDI track or set it to monitor. In the standalone, choose Options, then Audio/MIDI Settings..., and tick your controller among the MIDI inputs. Kodama only reads the MIDI it is sent: notes pass by unheard, and the echo sounds the same with MIDI as without.

In Logic Pro, Kodama's Audio Unit is the audio effect it has always been and takes no MIDI, so it has no Learn MIDI control there: move its controls with Logic's own controller assignments instead (choose a control, then Learn in Logic's Controller Assignments).

> HOSTS
>
> A knob your host has kept for itself (Live's MIDI Map) stays your host's: free it there, or learn another.

Factory programs

Eleven starting points, from a slapback to a loop that never stops. Delays are for head 4 unless a head is named.

01 Soaring Lead

Heads 3 and 4, at 213 and 284 ms, fed back with a light drive and a steady drum: a singing echo for a lead line.

02 Broken Drum

An old drum on its way out. Heads 1 and 3 just short of running away, heavy Age and Wear, under-biased, and a motor that wanders.

03 Drum Crush

The preamp almost flat out, the loop's stage hard, and head 1 alone at 43 ms: the drum as a saturator.

04 Dub Space

Slow, dark and deep: heads 2 and 4, at 187 and 374 ms, under a long feedback with its tone turned well down.

05 Slapback

One quick repeat from head 1 at 55 ms, in Echo: nothing fed back.

06 Swell Cathedral

All four heads in Swell at 308 ms: the repeats blur into a room.

07 Galloping Heads

Heads 1 and 3, at 67 and 201 ms: the uneven gallop against the beat.

08 Runaway

Heads 2 and 4 with the feedback past unity: the loop builds into the saturation and holds there. Output is down 12 dB for it.

09 Faded Heads

Heads 2 and 3, over-biased, with worn heads and a tired motor: soft, dull repeats like an old recording.

10 Thin Grit

Heads 1 and 2, at 64 and 127 ms, under-biased, with the heads and the loop thinned: gritty, thin repeats that bite.

11 Init

Kodama as it starts: head 4 alone at 300 ms, in Repeat.

Every factory program uses the drum, with the spring at 0. Programs leave **HQ 8x** and **Tempo sync** as you set them, so a synced echo stays synced as you try them.

Ways to start

VOCALS	Slapback for a close double; Soaring Lead, with Mix lower, for a line that answers itself.
GUITAR	Galloping Heads with Tempo sync on a dotted note; Slapback for a short, bright double.
SYNTHS AND KEYS	Swell Cathedral for a wash; Dub Space with Tempo sync for a long, dark trail.
DRUMS	Drum Crush on a bus for weight and grit; Echo mode with head 1 for a short room.

SOUND DESIGN	Runaway, then ride Speed and Feedback by hand while the loop sings. Broken Drum for something that falls apart.

Programs and your presets

Kodama keeps two kinds of sound: the factory programs it ships with, which never change, and your own presets, which are plain text files you can keep, copy and share.

Click the program's name, at the top of the panel, to open the program menu. The arrows at the window's ends step through every sound in turn. The number reads USR for one of your own, and a * after the name means the sound has changed since it was loaded or saved.

The program menu

Factory programs	In the Factory submenu. Choosing one replaces the current sound; your changes are kept with the project until you choose another.
User	Your own presets, grouped by the category you gave them.
Designer	Banks of presets from other sound designers, if you have added any. They load like your own, but can't be overwritten: save a changed one under a new name.
Save	Saves the current sound over your own preset of the same name. Only offered while one of your own is loaded.
Save As...	Saves the current sound as a new preset, with a name, a category and an author.
Rename...	Renames your own preset, and its file with it.
Delete...	Deletes your own preset. Its file goes, so this can't be undone.
Import Preset...	Adds a preset file someone has sent you to your own.
Export Preset...	Saves a copy of your own preset wherever you choose, ready to send.
Open Preset Folder	Shows the folder in File Explorer, or in the Finder on a Mac.

Where they live

Your presets are in `Documents/Denki Digital/Kodama/Presets`, one `.txt` file each, in your Documents folder on Windows and on a Mac alike. Designer banks go beside them, in `Documents/Denki Digital/Kodama/Banks`, one folder per bank. The files are readable text, so a preset can be sent in an email as easily as attached. Back the folder up with your music.

Your host saves the whole sound with every project as well, so a project always opens as you left it, whether or not the preset is still in the folder.

Installing and unlocking

Installing on Windows

1. **Close your music software.** Windows can't replace a plugin that is in use.
2. Run `Kodama-1.0.0-Windows.exe`. Windows asks whether to allow it to make changes; the publisher should read Denki Digital Limited. If it says Unknown publisher, don't run it, and write to **hello@denkidigital.com**.
3. **If Windows shows "Windows protected your PC",** choose More info, check the publisher, then Run anyway. Windows says this about new releases while it learns to recognise them.
4. **Choose what to install.** The VST3 plugin always installs; the standalone application is ticked too.
5. **Open your music software.** Kodama is under Denki Digital, listed as Kodama Echo. If it isn't there, ask your host to rescan its plugins.

PLUGIN	`C:\Program Files\Common Files\VST3\Kodama.vst3`
STANDALONE	`C:\Program Files\Denki Digital\Kodama`, and in the Start menu under Denki Digital
THIS MANUAL	`Kodama Manual.pdf` beside the standalone, and in the Start menu under Denki Digital Manuals
YOUR PRESETS	`Documents/Denki Digital/Kodama`
LICENCES	`Documents/Denki Digital/Licences`

Installing on a Mac

Kodama runs on macOS 12 or later, Apple silicon or Intel.

1. **Close your music software.**
2. Open `Kodama-1.0.0-Mac.pkg`. It is signed by Denki Digital Limited and notarised by Apple, so it opens without a warning. If your Mac says it can't check it for malicious software, don't open it, and write to **hello@denkidigital.com**.
3. **Agree to the licence, and choose what to install.** The VST3 plugin, the Audio Unit and the standalone application are all ticked; Customise leaves any out. Your Mac asks for your password, as it does for any plugin installed for everyone on the computer.
4. **Open your music software.** Kodama is under Denki Digital, listed as Kodama Echo: Logic Pro and GarageBand find the Audio Unit as they start, and other hosts may need to rescan their plugins.

VST3 PLUGIN	`/Library/Audio/Plug-Ins/VST3/Kodama.vst3`
AUDIO UNIT	`/Library/Audio/Plug-Ins/Components/Kodama.component`
STANDALONE	`/Applications/Denki Digital/Kodama/Kodama.app`
THIS MANUAL	`Kodama Manual.pdf` beside the standalone, whichever parts you install, and on www.denkidigital.com, from Kodama's page
YOUR PRESETS	`Documents/Denki Digital/Kodama`
LICENCES	`Documents/Denki Digital/Licences`

Unlocking

Your licence comes with your order, in the email and on the order page: a few lines of text that begin Denki Digital licence and end with a signature. It carries your name, and nothing in it needs the internet: no account and no activation, now or later.

1. **Copy all of it,** from Denki Digital licence to the end of the signature line. Then click the small key under the window-size control, at the right-hand end of the nameboard and choose Paste licence from the clipboard.
2. **Or keep it as a file:** paste it into a plain text file (ending `.txt` or `.denkilicence`) and drop that onto the panel, or choose Load licence file... from the same key.
3. **That's all.** The key's menu now reads Licensed to your name, and every instrument the licence covers unlocks at once, in every open project.

Before it is unlocked, Kodama works fully, with no time limit, and rests for two seconds once a minute: the sound fades out and back. A small Demo notice on the panel says so, with Buy and Load licence; its cross closes it until the panel is next opened. The key's menu also shows the licences folder, and the notices for the fonts and code inside.

The window

The window-size control, the square of corner marks at the right-hand end of the nameboard, sets the window's size, from 60 % to 160 % of its natural size, with Fit to screen for the largest that fits. You can also drag the window's corner. The size is kept with your project, and the window never opens bigger than the screen it is on. In the standalone application, Full screen in the same menu, or the F11 key (Control-Cmd-F on a Mac), fills the whole screen with the panel; the same key or Esc brings the window back.

On a Mac: where this manual says Ctrl, press Cmd; where it says Alt, press Option; and a right-click is a Control-click, or a two-finger click on a trackpad.

Ableton Live on Windows: if the window looks soft, right-click the title of Kodama's device in Live's Device View, untick Auto-Scale Plug-In Window, then open the window again. Kodama scales itself to your screen and stays sharp at any size; Live's auto-scaling stretches a smaller picture instead.

Updating and moving

Run a newer installer over the old one; your presets, licence and projects are left as they are. On a new computer, Windows or Mac, install, then copy `Documents/Denki Digital` across: your licences and presets come with it. To uninstall on Windows, open Windows Settings, then Apps, then Installed apps, and choose Kodama. On a Mac, drag the plugin files and the standalone's folder, where the table above shows them, to the Bin. Either way, your files in Documents stay where they are.

The full guide, with each host's rescan menu, is at **www.denkidigital.com/support/install**.

Technical

TYPE	Magnetic drum or tape echo, with preamp drive and spring reverb
HEADS	Four, spaced 1:2:3:4, each with level and tone
TIME	37.5 to 600 ms across the heads; 60 ms to 1.2 s when synced
MODES	Echo, Repeat, Swell
MEDIUM	Drum or tape
SPRING REVERB	Two springs a channel: Spring, Dwell, Decay (1.2 to 5 s), Tone
CHARACTER	Wow, Flutter, Motor Stability, Head Wear, Age, Noise, Bias
DRIVE	Drive, Color and Crunch, on the input and in the loop
OVERSAMPLING	4x, or 8x in HQ
FACTORY PROGRAMS	11, plus a library for your own
LATENCY	42 samples
CPU	About 2% of one core, 3% in HQ; with the spring, about 4% and 5% (stereo, 48 kHz)
CHANNELS	Mono, mono to stereo, stereo
MIDI	Controllers (CC) on any channel, for MIDI learn on the panel's controls: in the VST3 plugin and the standalone; the Audio Unit takes none
FORMAT	VST3 plugin and standalone application; on a Mac also an Audio Unit
SYSTEM	Windows 10 or 11, 64-bit; or macOS 12 or later, Apple silicon or Intel
VERSION	1.0.0

Notices

Kodama is © 2026 Denki Digital Limited. Its sounds, programs, panel and this manual are the studio's own.

Using Kodama is governed by Denki Digital's end-user licence agreement, which the installer shows before it installs, and which is at **www.denkidigital.com/licence**. In short: use it on any of your own computers, for any music; what you make with it is yours; keep your licence file to yourself; every update is free.

Its panel is set in Rajdhani and Inter, both under the SIL Open Font License 1.1, and it carries code from the open-source projects listed in its notices: choose Third-party notices… from the key's menu, or open `THIRD-PARTY-NOTICES.txt` in the `Licences` folder beside the standalone.

VST is a trademark of Steinberg Media Technologies GmbH, registered in Europe and other countries. Windows is a trademark of the Microsoft group of companies. Apple, Mac, macOS, Finder, Logic Pro, MainStage and GarageBand are trademarks of Apple Inc., registered in the U.S. and other countries. Other names of music software in this manual belong to their owners and are used only to say what Kodama works with.

木霊

電 DENKI DIGITAL

Inspired by Tokyo. Built in Aberdeen.

東京に着想を得て、アバディーンで作る。

www.denkidigital.com · hello@denkidigital.com

Denki Digital Limited, registered in England and Wales, number 17280402

167–169 Great Portland Street, London W1W 5PF

© 2026 Denki Digital Limited. Kodama 1.0.0.