



KASET

HIGH SPEED DUBBING SYSTEM



MODEL KS-83

OWNER'S MANUAL

SUBVERSE-LAB

1. INTRODUCTION

KS-83

KASET is a double cassette deck, modelled as generations rather than a single "tape" effect. Each generation is one more trip onto tape and back — record pre-emphasis, saturation, playback de-emphasis, head bump, gap loss, wow and flutter, hiss, and worn-oxide dropouts — run again on top of the last: the way a mixtape dubbed from a dub of a dub actually sounded.

The unit ships as VST3 and AU on macOS (Apple Silicon), and as VST3 on Windows (64-bit).

GENERATIONS

- **Master** — one trip onto tape.
- **1st Dub** through **4th Dub** — two to five trips, each one a copy of the one before. Top end falls and hiss builds with every generation; speed error (wow/flutter) is heaviest through the second dub and then levels off, the way a real dubbing chain does.

Every "random" element in the engine — drift, hiss, dropout timing — comes from a seeded generator: identical input and settings give identical output, bit for bit.

2. INSTALLATION

MACOS & WINDOWS

KASET installs as an Audio Unit (AU) and a VST3 plug-in on macOS (Apple Silicon); on Windows (64-bit) it installs as a VST3 plug-in.

MACOS — STEPS

- Copy the .component (AU) into ~/Library/Audio/Plug-Ins/Components/ or the .vst3 into ~/Library/Audio/Plug-Ins/VST3/.
- Restart your DAW, or force it to rescan its plug-in list.

MACOS — FIRST LAUNCH, UNSIGNED BUILD

This build is not yet code-signed or notarised. macOS Gatekeeper will refuse to open it on a first double-click. To get past that one time only: in Finder, right-click (or Control-click) the plug-in and choose **Open**, then confirm **Open** in the dialog that follows. macOS remembers this choice for the file.

WINDOWS — STEPS

- Copy the .vst3 folder to C:\Program Files\Common Files\VST3\.
- Rescan plug-ins in your DAW.
- If Windows blocks the downloaded files: right-click the zip, choose **Properties**, tick **Unblock**, then extract.

Licences are stored at %APPDATA%\SubverseLab\Licenses on Windows.

3. PANEL TOUR

KS-83

Laid out as a double deck: transport and dub-generation controls along the top strip, the knob row across the middle, and the two cassette wells — record side (A) and dub side (B) — across the bottom, with the tape counter and record-level ladder between them.



- 1 TAPE / BYPASS** — piano keys under the "SIGNAL PATH" bracket. TAPE runs the signal through the engine; BYPASS is a complete, bit-exact dry bypass.
- 2 AUTO GAIN** — piano key, toggles automatic level compensation.
- 3 DUB / COPIES dial** — the generation selector: Master, 1st, 2nd, 3rd, 4th Dub, shown as a tuner-style scale with a pointer.
- 4 TAPE SELECTOR** — three buttons: Normal, Chrome, Metal.
- 5 RECORD group** — Input, Saturation.
- 6 TRANSPORT group** — Wow, Flutter.
- 7 TAPE group** — Hiss, Wear.
- 8 OUTPUT group** — Mix, Output.
- 9 Deck A** (record/play back, gold badge) and **Deck B** (play back, teal badge) — cassette wells showing the tape type and hub position.
- 10 TAPE COUNTER** — a three-drum mechanical counter; click to zero it.
- 11 REC LEVEL** — a segmented L/R level ladder, 0 at -18 dBFS RMS.

SUBVERSELAB — MEASURED, NOT GUESSED.

KASET · KS-83

4. CONTROLS

FULL REFERENCE

CONTROL	RANGE / DEFAULT	WHAT IT DOES
Generation	Master–4th Dub · 2nd Dub	How many trips onto tape and back the signal takes. Each generation runs the full chain again on top of the last, so top end, hiss and speed error accumulate.

Tape	Normal/Chrome/Metal · Normal	Normal is Type I. Chrome and Metal hold more top end and headroom before the tape compresses, and run quieter hiss (see §6).
Input	−12 to +12 dB · 0 dB	Gain into the tape path only; the dry path underneath is unaffected.
Saturation	0–100 % · 55 %	How hard the tape is driven — a soft, slightly asymmetric curve, like real oxide. Reduced automatically past the 2nd dub so it doesn't keep piling up.
Wow	0–100 % · 50 %	Slow speed drift, up to 0.35 % of head travel per pass at 0.55–0.8 Hz. Heaviest through the 2nd dub, then eases off.
Flutter	0–100 % · 50 %	Fast speed wobble, up to 0.12 % of head travel per pass at 6.5–9.5 Hz.
Hiss	0–100 % · 50 %	Band-shaped tape noise, roughly 900 Hz–7.5 kHz, added once per generation.
Wear	0–100 % · 25 %	Worn-oxide dropouts: brief level sags of 20–90 ms, at random (seeded) intervals that scale with this control.
Mix	0–100 % · 100 %	Dry/wet balance. Also scaled by the TAPE/BYPASS transport state.
Output	−12 to +12 dB · 0 dB	Final output trim, after the mix and after Auto Gain. Bypassed entirely in BYPASS.
Auto Gain	On/off · on	Matches the tape path's loudness to the input over about 1.5 s, within a ±12 dB range; holds level within ±0.1 dB in tests. Tracks average loudness, not peaks.
TAPE / BYPASS	Default: TAPE	TAPE runs the engine. BYPASS is a complete bypass — every knob including Output is out of the path, signal leaves bit-exact and latency-aligned. Fades over about 20 ms; latency stays fixed either way.

In BYPASS the knobs dim and the DUB / COPIES dial reads "BYPASS — tape is out of the signal path." Knobs still move and update while dimmed — they simply have no audible effect until TAPE is pressed again.

TROUBLESHOOTING

- **I turn knobs and hear nothing** — check that TAPE is lit. In BYPASS the tape path (and every knob on it, Output included) is out of circuit by design.

5. RECIPES

STARTING POINTS

MIX-BUS WARMTH (STARTING POINT)

Generation: 2nd Dub · Tape: Normal · Auto Gain: on · Mix: 15–25 % · Saturation: 40–55 %

The suggested default for gluing a mix bus: enough generation loss to feel like tape, Auto Gain keeping the level honest so you can judge the effect by ear, not by a level jump.

LO-FI VOCAL DUB

Generation: 4th Dub · Tape: Normal · Wow: 70 % · Flutter: 60 % · Hiss: 60 % · Mix: 100 %

Heavy top-end loss (down toward 4.4 kHz) and audible hiss for a deliberately worn, dubbed-cassette vocal texture.

CLEAN CHROME PASS

Generation: 1st Dub · Tape: Chrome · Saturation: 35 % · Wear: 0 % · Auto Gain: on

Chrome's extra headroom and quieter hiss keep this pass close to the source — useful when you want tape colour without much degradation.

A/B AGAINST DRY

Set TAPE / BYPASS to BYPASS to check the untouched dry signal at matched level — BYPASS is bit-exact and plug-in latency does not change, so the comparison stays time-aligned.

6. SPECIFICATIONS

MEASURED

ITEM	VALUE
Formats / Platform	macOS (Apple Silicon): VST3, AU · Windows (64-bit): VST3
Channel layouts	Mono → Stereo, Stereo → Stereo
Latency	Fixed 720 samples at 48 kHz, the same for every generation
Code signing	macOS build not yet signed or notarised — see §2, Installation
Licence storage (Windows)	%APPDATA%\SubverseLab\Licenses

GENERATION TOP END (TAPE: NORMAL, MEASURED BY WHITE-NOISE RESPONSE, −3 DB POINT)

GENERATION	TOP END (APPROX.)
Master	≈ 10 kHz
1st Dub	≈ 8.4 kHz
2nd Dub	≈ 6.4 kHz
4th Dub	≈ 4.4 kHz

TAPE TYPES

TYPE	TOP END	HISS	HEADROOM
Normal (Type I)	baseline	baseline	baseline
Chrome (Type II)	× 1.18	−4 dB	more
Metal (Type IV)	× 1.3	−6 dB	most

TRANSPORT AND NOISE

- Wow: up to 0.35 % of head travel per pass, at 0.55–0.8 Hz.
- Flutter: up to 0.12 % of head travel per pass, at 6.5–9.5 Hz.
- Wear: dropouts of 20–90 ms, at random (seeded) intervals.
- Hiss: band-shaped noise, roughly 900 Hz – 7.5 kHz.
- Auto Gain: ±12 dB range; holds level within ±0.1 dB in tests.
- Bypass: bit-exact dry.