



DIGITAL VIDEO EFFECTS

Q5K

The late-1970s DVE desk, recreated as a native macOS instrument.

NEW YORK
1978

BY MESCALINA — 2026



CHAPTER 1

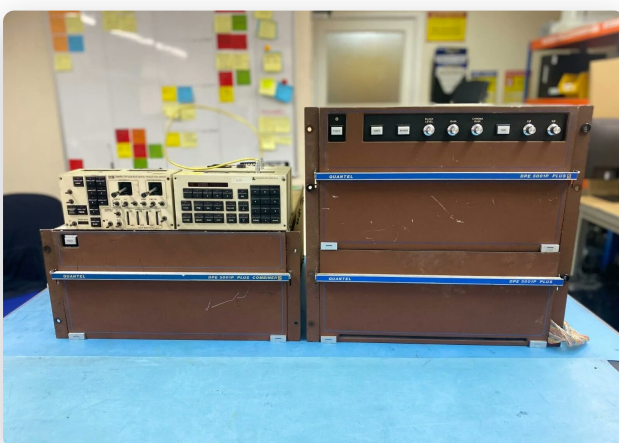
The legend — the Quantel DPE 5000

In the late 1970s, an English machine changed television forever: the Quantel DPE 5000, the first fully digital real-time video effects system.

Its heart: **frame stores**, digital picture memories able to freeze and manipulate every source independently. Up to five channels combine in a **priority stack**, point by point, thanks to key signals. For the first time, a television picture shrinks, flies across the screen, turns over in mid-flight — without loss, without film, live.

Its software wrote the vocabulary of the genre: **DIGIFLIP** (flip, tumble, spin), **AUTOFLEX** and its “**OOZE**” that flows one shape into another, **AUTOSEQUENCE** that replayed sequences from a mini-floppy. Its “**Stick Box**” console, with its T-bars and joysticks, shaped the gestures of control rooms — and the aesthetics of the whole creative explosion of early-1980s post-production: bordered-inset title sequences, tipping inserts, walls of pictures.

The DPE 5000 was not a piece of software: it was a cabinet of circuits, a desk, and an operator who played the transition by hand. It is this *machine-instrument* that Q5K brings back to life.



Quantel DPE 5001P Plus: the control panel sitting on the combiner, and the main unit.



The chassis open: the row of “FRAME STORE” cards — the picture memories that changed everything.

CHAPTER 2

The recreation — Q5K

Q5K is a native macOS application (Swift + Metal) that recreates the complete desk: five channels, the console, the control panel — and the Quantel “look”.

Faithful to the machine

- **5 frame stores** that freeze independently, priority stack;
- transformations in **true perspective** (homographies solved per pixel);
- **synthetic borders** injected into the stream, as on the original;
- fade-over with **cross K coefficients**: dissolve, H/V wipes, blinds, iris;
- AUTOFLEX, OOZE, AUTOSEQUENCE, Stick Box — the names and gestures of the period.

The “Quantel look”

- period **softness** — never clinical;
- **subsampling chrominance**, a tribute to the 2-bit Y/C coding;
- **quantisation** of levels — the flat areas that sign 1980 digital video;
- **trails**: the output frame store re-injected as trails.



Q5K render: full screen + inset at 25° flip, yellow border; computed by the Metal engine at 1280×720.

CHAPTER 3

The whole desk, channel by channel

DIGIFLIP

Position, independent X/Y sizes, flip, tumble, spin — $\pm 180^\circ$ in real perspective.

Frame store

Instant freeze per channel, adjustable strobe (0–15 fps), loop playback.

Dressing

Coloured border in the stream, adjustable drop shadow, 4-side crop hugged by the border.

AUTOFLEX + OOZE

Rectangle, oval, diamond, banner masks — and continuous morphing from A to B.

Keys

Chroma key (colour + tolerance), invertible luma key — period keying.

Proc-amp

Luminance and chroma gains, hue — per-channel signal correction.

Show effects

Glint, wrap, page turn, mosaic, N×N video wall.

Stick Box

A/B memories, T-bar by mouse or fader, automatic S-curve transition, wipes.

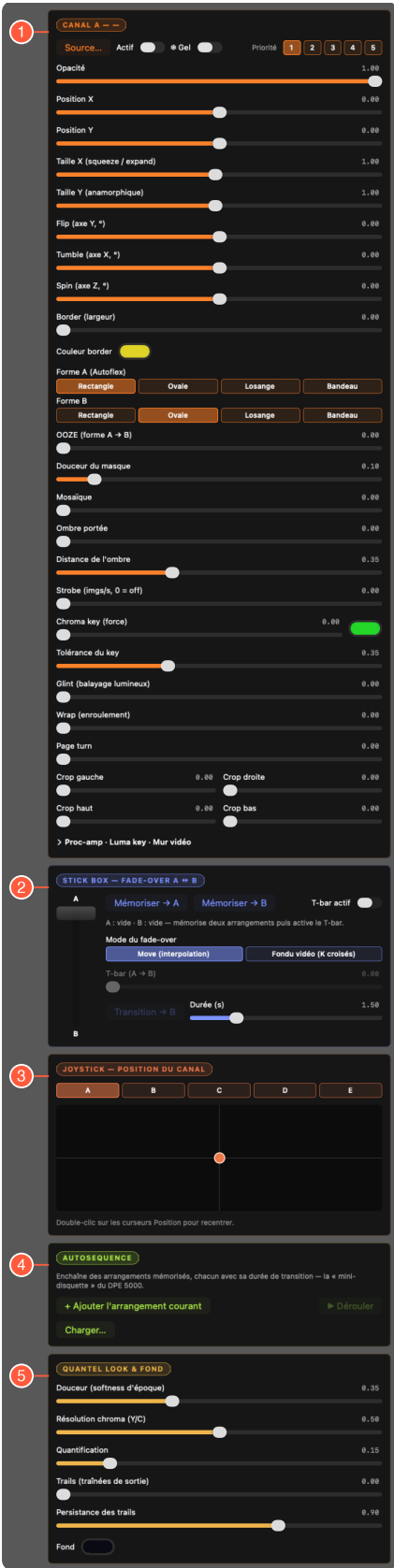
AUTOSEQUENCE

Programmed sequences, per-event durations, saved as JSON “mini-floppies”.

A desk played live

- On-screen position **joystick**, A–E channel selector;
- **MIDI**: Learn on every control, pickup mode, console philosophy (one selector + one bank of knobs for the chosen channel, actions on buttons);
- • **REC**: the composite output is recorded in real time, gestures included, with the sound of the chosen channel — unlimited duration;
- **Export** offline, frame by frame: the current state (free duration) or the complete autosequence, at 25 or 30 fps;
- **Console**: the complete state (channels, memories, sequence, sources) saves and reloads in one click.

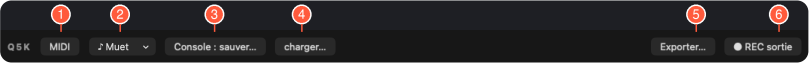
The interface — the console and the transport



On the right of the window, the **console**: a scrolling column of coloured blocks. Real capture opposite (rendered by the app's engine; interface in French):

No.	Block	Role
1	Channel A (B-E identical)	The whole frame-store chain: source, DIGIFLIP, dressing, keys, effects (details on the next page).
2	Stick Box	A ↔ B fade-over: two stored arrangements, T-bar lever, Move or Video mix (with wipes), automatic transition and duration.
3	Joystick	XY pad driving the selected channel's position (A-E segments) by gesture, like the original desk's joystick.
4	Autosequence	Programmed sequence: add the current arrangement, per-event duration, ► playback, JSON save.
5	Quantel look & background	Whole output: softness, Y/C chroma resolution, quantisation, trails and persistence, background colour.

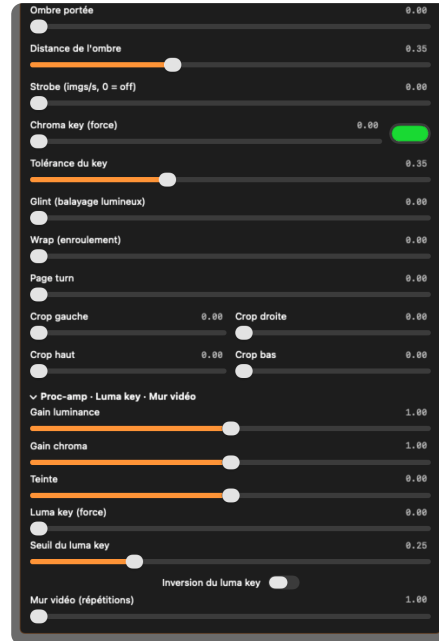
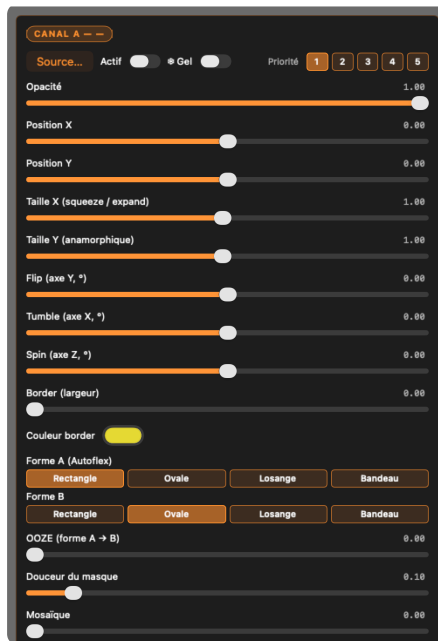
The transport bar



No.	Button (on screen)	Function
1	MIDI	MIDI configuration (Learn, pickup, assignments). A green dot signals a connected controller.
2	♪ Muet	Sound channel — monitored, then recorded by REC and export. “Muet” (mute) = no audio.
3	Console : sauver...	Save: writes the complete desk state (channels, A/B memories, sequence, look, sources) to JSON.
4	charger...	Load: restores a saved console; sources are reopened automatically.
5	Exporter...	Export: offline frame-by-frame render, current state (free duration) or autosequence, 25/30 fps. Progress and Cancel while computing.
6	• REC sortie	REC output: records the composite live (.mov, picture + ♪ channel sound), gestures included. Second click (■ Stop) finalises.

Between “charger...” and “Exporter...”, the central area shows status messages (recording in progress, export finished...).

The channel, slider by slider

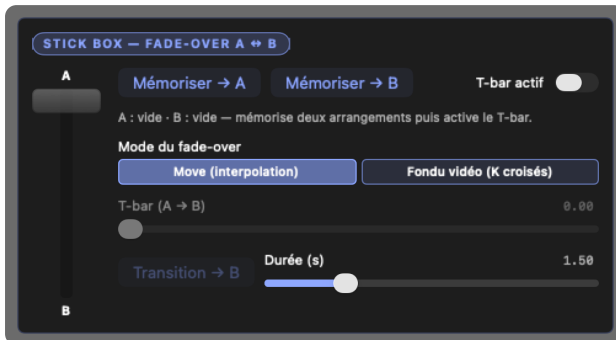


Control	Function
Source...	Loads a video (loop playback).
Active (Actif)	Inserts / removes the channel from the composite.
Freeze (Gel)	Freezes the frame store on the current frame.
Priority 1-5	Stacking order (1 = background, 5 = front).
Opacity	Overall transparency of the channel.
Position X / Y	Translation (0 = centre, ± 1 = edges).
Size X / Y	Width (squeeze/expand) and anamorphic height.
Flip	$\pm 180^\circ$ rotation around the vertical axis.
Tumble	$\pm 180^\circ$ rotation around the horizontal axis.
Spin	$\pm 180^\circ$ flat rotation, in the screen plane.
Border + colour	Coloured frame injected into the stream.
Shape A / B	Autoflex masks: rectangle, oval, diamond, banner.
OOZE	“Flows” the mask from shape A to B.
Mask softness	Hard edge (0) to very soft (1).
Mosaic	Pixelation into large squares.
Shadow + distance	Lift-off from the background, adjustable offset.

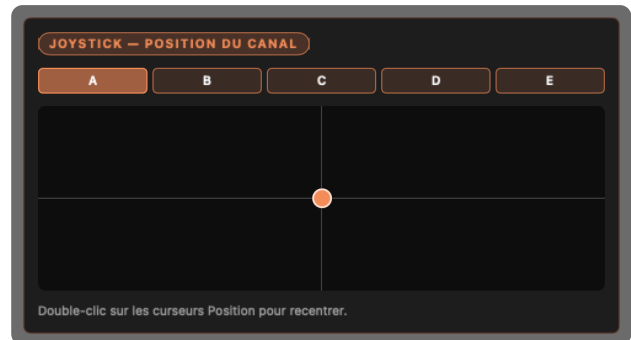
Control	Function
Strobe	Refreshes the store N times/s (0 = off).
Chroma key + colour	Makes a colour transparent (keying).
Key tolerance	Width of the removed hue range.
Glint	Diagonal light sweep.
Wrap	Wrapping: the picture repeats while curling.
Page turn	The corner of the picture rolls up and lifts.
Crop L / R / T / B	4-side reframing, hugged by the border.
“Proc-amp · Luma key · Video wall” panel	
Luminance gain	Signal exposure (1 = neutral).
Chroma gain	Saturation (0 = black & white).
Hue	Rotation of the signal's hue.
Luma key + threshold	Transparency of dark (or bright) areas.
Invert luma key	Switches dark $\leftrightarrow$ bright.
Video wall	Repeats the picture in an $N \times N$ grid (1 to 6).

Reminder: double-click a slider = neutral value; click the number = keyboard entry. Channels A to E have the same controls.

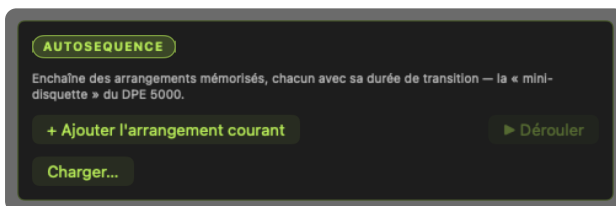
The performance panels



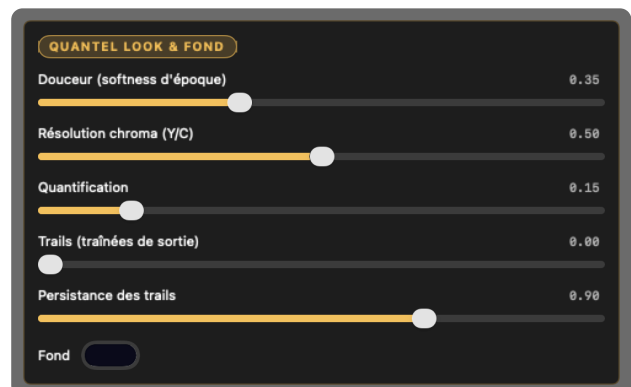
Stick Box. **Store** → **A** / → **B** (Mémoire) photograph the complete arrangement; **T-bar active** arms the lever (pulled by mouse or MIDI fader); **Fade-over mode** chooses Move (the pictures fly) or Video mix (pixel-by-pixel blend, with H/V wipes, blinds, iris); **Transition** animates the lever on its own over the chosen **Duration**.



Joystick. The **A-E** segments choose the driven channel (the same as the MIDI bank); the orange dot is dragged in the pad to move the picture live, the centre of the pad being the centre of the screen.



Autosequence. + **Add current arrangement** stacks events; each line has its transition **Duration**, **Go** (direct jump) and **X**; ▶ **Run** plays the sequence in a loop; **Save...** / **Load...** manage the JSON “mini-floppies”.



Quantel look & background. **Softness** (period blur), **Y/C chroma resolution** (the colour that “bleeds”), **Quantisation** (steps in gradients), **Trails** and their **Persistence** (output trails), and the **Background** colour visible under the channels.

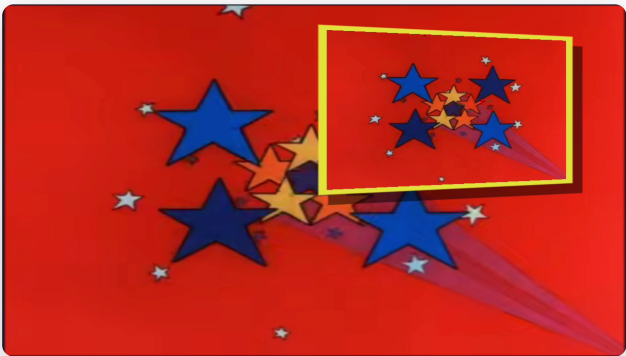
All the captures in this chapter are rendered by the app itself (built-in documentation mode) — they are the real views, pixel for pixel.

Technical sheet

Item	Detail
Platform	macOS 14+ (Apple Silicon and Intel), native application
Technologies	Swift + SwiftUI, Metal rendering (a single fragment pass), AVFoundation, CoreMIDI
Channels	5 simultaneous video sources, freezable frame stores, priority stack
Output	1280 × 720 composite, real-time preview
Recording	Real-time .mov H.264 + AAC (sound of the ♪ channel via tap), unlimited duration
Export	Deterministic offline, current state (free duration) or autosequence, 25/30 fps
Control	Mouse, keyboard (direct value entry), on-screen joystick, MIDI (Learn + pickup)
Files	Consoles, sequences and MIDI mappings as JSON, in the user folder
Documentation	13-page illustrated step-by-step tutorial (PDF)



Insert in flight over a title sequence — border and perspective.



The same arrangement on another source: everything is replayable.

Q5K accompanies **Sandin FX**, the analog video effects synthesizer By Mescalina: two instruments, two faces of 1970s-80s creative video — the psychedelic laboratory and the broadcast desk.

Visuals: real program outputs computed by the Q5K engine (built-in test mode). Q5K — By Mescalina, 2026.