

VISUAL MANUAL
FOR THE M-VAVE FM-1

Unofficial firmware. Not made or supported by M-VAVE. Install at your own risk and back up your sounds first. You can always go back to the stock firmware.

HOW TO READ THIS MANUAL

Every page of GR!MM is shown as it looks on the FM-1's screen, with a table of what its four knobs do. The four tiles at the bottom of the screen always belong to KNOB 1-4, left to right.

- **Tap** a button: open its page. Tap again: its next page. The page changes when you let go.
- **Hold** a button: its second function (written as *held*).
- **A + B**: hold A, then press B.
- **F3 ... G5**: the 27 keys from left to right. White keys F3-F4 and black keys F#3-A#4 are used for shortcuts.
- **T1-T4**: the four tracks. Turn ALGORITHM to pick one; most pages show the selected track.
- NEW marks what is new in V2.0.

01

Getting around

GR!MM has four tracks that play at the same time and share six voices. ALGORITHM picks the track you are editing, PRESETS loads a sound into it, and the buttons open the pages. These controls work on every page.

Every page

No button needed

Control	On screen	What it does	Range / options	Default
ALGORITHM	T1-T4 in the header	Selects the track (no wrap).	T1-T4	T1
except SEQ's: PRESETS	header: the sound's name	Loads the next / previous sound of the track's category (factory first, then yours; past the end, the next category).	44 factory + 64 user sounds	
MASTER knob		Output volume.		
OCT- / OCT+	header OCTAVE -1 / +1	Keyboard octave (OCT- lit below 0, OCT+ above).	-2 … +2	0
OCT- + OCT+ together	header CPU PEAK RESET	Resets SYSTEM 2's CPU PEAK and USB REC DROPS.		
keys F3-G5 (27)		Play the selected track (snapped to SCALE; chord mode: its chord; ARP on: arpeggiated).		
LATCH ON: keys		A key starts its note, the same key again stops it.		
REC on: keys		Stopped: write the note into the cursor's step, cursor on. Playing: onto the nearest step (ARP on: the arp's notes).		
PLAY: tap	PLAY lit	Starts / stops all four sequences (a song with MODE on; following a clock: at the next pulse).		
REC: tap	REC lit	Record on/off. On the SONG page: arms song record (playing: from now) or ends it.		
REC: hold ~1 s NEW	header T1 CLEARED	Clears the selected track's pattern (undoable); REC goes back to what it was.		
EDIT held + OCT- / OCT+	header UNDO / REDO / NOTHING TO UNDO / NOTHING TO REDO	Undo / redo the last edit (one level).		
SEL held + OCT+ NEW	header LATCH ON / LATCH OFF	The selected track's LATCH on/off from any page.		

Buttons: tap and hold

What each button opens

Control	On screen	What it does	Range / options	Default
EDIT: tap	EDIT	Opens SOUND, then the next page each tap (FM: SOUND, FM ALGO, FM OP, SOURCE; PHASE: SOUND, SOURCE, LINE 2, PHASE ENV; others: SOUND, SOURCE). Page changes on release.		
SEL: tap	SEL	SCALE, then CHORD. Page changes on release.		
SEL: hold ~0.6 s, let go	header CHORD ON / CHORD OFF	The selected track's chord mode on/off (no page change; not if a knob or OCT was used while held).	OFF / ON	OFF
GLO: tap	GLO	Opens SONG. Page changes on release.		
HOME: tap	HOME	HOME, MIXER 1, MIXER 2. Page changes on release. On a SYSTEM page: SYSTEM, SYSTEM 2, SYSTEM 3, SYSTEM.		
HOME: hold ~0.6 s	SYSTEM	Opens SYSTEM.		
SAVE: tap	SAVE	SOUNDS, then PROJECTS. Page changes on release.		
ARP: tap	ARP	Opens ARP. Page changes on release.		
ARP: hold ~0.6 s	header ARP ON / ARP OFF	The selected track's arp on/off (no page change).	OFF / ON	OFF
SEQ: tap	SEQ	GRID, then PATTERN SETTINGS. Page changes on release.		
FX: tap	FX	TAPE, GRAIN, DELAY, SPACE, MASTER, DRIVE. Page changes on release.		
FX: hold ~0.3 s	PERFORM	Shows PERFORM while held; let go: back to the page you were on.		
PLAY: tap	PLAY lit	Starts / stops all four sequences (a song with MODE on; following a clock: at the next pulse).		
REC: tap	REC lit	Record on/off. On the SONG page: arms song record (playing: from now) or ends it.		
ENV, LFO: tap	ENV / LFO	Open their page (on press: no hold function).		

02

Home and the mixer

HOME shows the four tracks with their candles and levels. Tap HOME again for MIXER 1 (level and effect sends) and MIXER 2 (pan and the track filter). Hold GLO to mute and solo.

HOME

Tap HOME



Control	On screen	What it does	Range / options	Default
KNOB 1	VOLUME (slabs show T1-T4 LEVEL)	The selected track's LEVEL (header says T1 VOL 079).	0-100 %	79 % (100)
KNOB 2	CUTOFF	The track filter's cutoff (MIXER 2's TYPE; open = bypassed). Closed: a small red CUT under the track's name on HOME.	LP 30 Hz ... OPEN	OPEN
KNOB 3	RESONANCE	The track filter's resonance.	0-100 %	0 %
KNOB 4	FX	Scales all five of the track's sends (DLY, REV, TAPE, GRAIN, DRIVE) together. At 0 the track gets no effects: with a send still up, a small red DRY shows under its name on HOME and its send tiles on MIXER 1 dim and show FX0.	0-200 %	100 %
SELECT	header > 120	The tempo (not while following a MIDI clock: header EXT).	20-300 BPM	120

> A small red CUT under a track's name: its filter is closed. DRY: its FX is at 0, so it gets no effects.

MIXER 1

Tap HOME twice



Control	On screen	What it does	Range / options	Default
SELECT NEW	tile outline	Picks the tile KNOB 1 sets.	LEVEL, DELAY, REVERB, TAPE, GRAIN, DRIVE	LEVEL
KNOB 1 (tile LEVEL)	LEVEL	The track's level (the bar is a live meter; a notch marks the setting).	0-100 %	79 % (100)
KNOB 1 (tile DELAY)	DELAY	Send to DELAY.	0-100 %	0 %
KNOB 1 (tile REVERB)	REVERB	Send to SPACE.	0-100 %	79 % (100)
KNOB 1 (tile TAPE) NEW	TAPE	How much of this track goes through the tape (the TAPE page's WOW, SAT, TONE). 0 = untouched. The tape sits first on the track, so its sends hear the taped sound.	0-100 %	0 %
KNOB 1 (tile GRAIN)	GRAIN	Send to GRAIN.	0-100 %	0 %
KNOB 1 (tile DRIVE) NEW	DRIVE	Send through a drive of its own (DRIVE page's TYPE, TONE), back in the middle.	0-100 %	0 %
KNOB 2-4 NEW		Nothing.		

> With the track's FX at 0 on HOME, its send tiles dim and show FX0.

MIXER 2

Tap HOME three times



Control	On screen	What it does	Range / options	Default
KNOB 1	PAN	The track's pan.	L64 … C … R63	C
KNOB 2 NEW	TYPE	The track filter's type.	LP / HP / BP	LP
KNOB 3 NEW	POS	PRE: the sends hear the filtered sound; POST: only the dry sound is filtered.	PRE / POST	PRE

Mute and solo

Hold GLO + white keys



Control	On screen	What it does	Range / options	Default
+ white keys F3, G3, A3, B3		Mute / unmute T1-T4 (no page change).	on / off	off
+ white keys C4, D4, E4, F4		Solo / unsolo T1-T4.	on / off	off

03

Sound: the seven sources

Each track plays one of seven sources. EDIT opens the SOUND page of the selected track's source; tap EDIT again for SOURCE, where you pick the source, LATCH, the choir TYPE and GLIDE. FM tracks get two extra pages (FM ALGO, FM OP), PHASE tracks get LINE 2 and PHASE ENV.

SOUND - VA: virtual analog

Tap EDIT



Control	On screen	What it does	Range / options	Default
KNOB 1	WAVE	Oscillator shape.	SAW / SQR / SUPER (supersaw)	SAW
KNOB 2	DTUNE	Detune between the oscillators (supersaw: its spread).	0-100 % (0-127)	8 % (10)
KNOB 3	CUTOFF	The VA source's own low-pass filter.	0-100 %	71 % (90)
KNOB 4	RES	That filter's resonance.	0-100 %	24 % (30)

SOUND - FM: six operators

Tap EDIT



Control	On screen	What it does	Range / options	Default
KNOB 1	PATCH	Loads a built-in patch into the track's own FM patch (undoable).	BELL / ORGAN / SOFT PAD / REED	BELL
KNOB 2	BRIGHT	Brighter or darker than the patch as made.	-64 to +63 (slab 0-100 %)	0 (slab 50 %)
KNOB 3	DEC	Shorter or longer decays than the patch as made.	-64 to +63 (slab 0-100 %)	0 (slab 50 %)
KNOB 4	DTUNE	Detunes the operators against each other.	0-127 (slab 0-100 %)	16 % (20)

SOUND - SAMPLE: your four samples

Tap EDIT



Control	On screen	What it does	Range / options	Default
KNOB 1	SLOT	Which of the four sample slots plays (its name in the picture).	1-4 (factory: URCHIN, LEAVE, NIKOLAI, M-SOFT)	1
KNOB 2	START	Where in the sample the loop starts.	0-100 %	0 %
KNOB 3	LENGTH	The loop's length.	a few ms to the whole sample, in seconds	the whole sample
KNOB 4	REV	Plays the loop backwards.	OFF / ON	OFF

SOUND - VOICE: vowels and choirs

Tap EDIT



Control	On screen	What it does	Range / options	Default
KNOB 1	VOWEL	Morphs through the vowels.	A, A-E, E ... O-U, U	A
KNOB 2	SHIFT	Formant shift; on a choir TYPE the singers' spread (-12 unison, +12 twice as wide).	-12 to +12	0
KNOB 3	BUZZ	The tone: dark and soft to open and bright.	0-100 %	50 %
KNOB 4	BREATH	Breath noise (on a choir, a whisper at the top).	0-100 %	8 %

SOUND - WHEEL: tonewheel organ

Tap EDIT



Control	On screen	What it does	Range / options	Default
KNOB 1	BARS	Drawbar registration.	FLUTE, MELLO, HOLLW, SMOOT, 3BAR, BLUES, GOSPL, ROCK, TOPS, CLARI, REED, STRNG, CHAPL, BRITE, BASS, FULL	3BAR
KNOB 2	PERC	Percussion harmonic.	OFF, 2ND, 3RD, 2SOFT, 3SOFT, 2SLOW, 3SLOW	OFF
KNOB 3	CLICK	Key click.	0-100 %	31 %
KNOB 4	DRIVE	Organ overdrive.	0-100 %	0 %

SOUND - PHYS: physical models

Tap EDIT



Control	On screen	What it does	Range / options	Default
KNOB 1	MODEL	The physical model.	MODAL / STRING / MEMB (membrane) / SYMP (sympathetic)	MODAL
KNOB 2	STRUCT (MEMBRANE: HARM; SYMPATH: CHORD)	The model's structure (MODAL: harmonic to inharmonic; STRING: buzzy to stiff; MEMBRANE: ideal to tuned head; SYMPATH: the sympathetic strings' chord).	0-100 %; SYMPATH: OCT, 5TH, 4TH, MAJ, MIN, SUS, 7TH, ROOT	50 %
KNOB 3	DAMP	How long it rings.	0-100 %	63 %
KNOB 4	BOW (MEMBRANE: BEND; SYMPATH: BUZZ)	Excitation: 0 struck/plucked, up bowed by tiny hits or noise (MEMBRANE: pitch drop; SYMPATH: bridge buzz).	0-100 % (0: STRUCK)	50 %

SOUND - PHASE: phase distortion

Tap EDIT



Control	On screen	What it does	Range / options	Default
KNOB 1	WAVE	Line 1's phase-distortion wave.	SAW, SQR, PLS, DSIN, SPLS, RSAW, RTRI, RTRP	SAW
KNOB 2	WAVE2	A second wave every other cycle.	- (none), SAW ... RTRP	-
KNOB 3	DCW	The bend: a sine at 0, the full wave at the top.	0-100 %	47 % (60)
KNOB 4	DTUNE	Brings in line 2, this many cents up (0: one line).	0-127 cents (slab 0-100 %)	0 (OFF)

SOURCE

Tap EDIT twice (FM tracks: four times)



Control	On screen	What it does	Range / options	Default
KNOB 1	SOURCE	The track's sound source; its notes fade over, each source's settings are kept.	VA, FM, SAMPLE, VOICE, WHEEL, PHYS, PHASE	VA
KNOB 2	LATCH	OFF: a note sounds while held. ON: a key starts its note, again stops it.	OFF / ON	OFF
KNOB 3 NEW	TYPE	VOICE's type: one synthesized voice, or a choir of six real singers a note.	SOLO / GREG (GREGORIAN) / NUNS / CATHED (CATHEDRAL)	SOLO
KNOB 4 NEW	GLIDE	Portamento: each note slides from the track's last note.	OFF, 10 MS - 2.5 S	OFF

> On a VOICE track KNOB 3 picks the TYPE: SOLO, or one of the three real-singer choirs (GREGORIAN, NUNS, CATHEDRAL).

FM ALGO

FM tracks: tap EDIT twice



Control	On screen	What it does	Range / options	Default
KNOB 1	ALGO	The FM algorithm (the operators' wiring, drawn).	01-32	05 (from BELL)
KNOB 2	FDBK	Operator feedback.	0-7	from the PATCH
KNOB 3	OP	Picks the operator that FINE and the FM OP page edit.	1-6	1
KNOB 4	FINE	The selected operator's fine ratio.	1.00-1.99 x the ratio	from the PATCH

FM OP

FM tracks: tap EDIT three times



Control	On screen	What it does	Range / options	Default
KNOB 1	RATIO	The selected operator's frequency ratio.	0.50-31.0	from the PATCH
KNOB 2	LEVEL	Its output level.	0-99	from the PATCH
KNOB 3	ATK	Its envelope attack.	0-99	from the PATCH
KNOB 4	DEC	Its envelope decay.	0-99	from the PATCH

LINE 2

PHASE tracks: tap EDIT three times



Control	On screen	What it does	Range / options	Default
KNOB 1 NEW	WAVE	Line 2's own wave (SAME: line 1's, WAVE2 too); brings line 2 in.	SAME, SAW, SQR, PLS, DSIN, SPLS, RSAW, RTRI, RTRP	SAME
KNOB 2 NEW	DCW	Line 2's own bend (SAME: line 1's DCW); brings line 2 in.	SAME, 1-100 %	SAME
KNOB 3 NEW	RING	Line 1 x line 2 (ring modulation) instead of their mix.	OFF / ON	OFF
KNOB 4 NEW	NOISE	Noise roughens line 2; brings line 2 in.	OFF / ON	OFF

PHASE ENV

PHASE tracks: tap EDIT four times



Control	On screen	What it does	Range / options	Default
KNOB 1 NEW	DCW (DCW ENV)	How much more bend each note starts with (decays back).	OFF, 1-100 %	OFF
KNOB 2 NEW	D DEC (DCW DECAY)	How fast the DCW envelope falls back.	10 MS - 9.7 S	10 MS
KNOB 3 NEW	PITCH (PITCH ENV)	Each note starts this many semitones away and slides back.	-64ST ... OFF ... +63ST	OFF
KNOB 4 NEW	P DEC (PITCH DECAY)	How fast the pitch envelope slides back.	10 MS - 9.7 S	10 MS

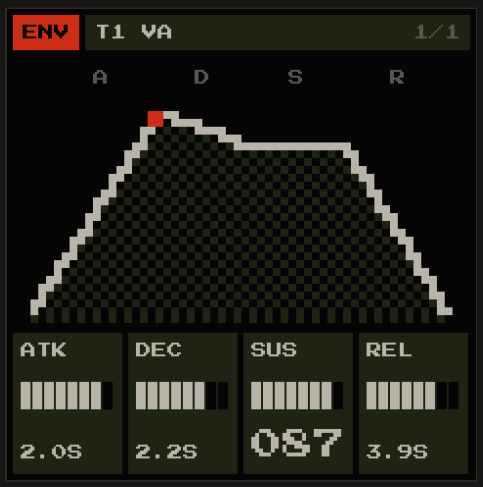
04

Envelope and LFO

ENV shapes how each note starts and fades. LFO slowly moves one setting of the track. Every track has its own ENV and LFO, and both are saved with the sound.

ENV

Tap ENV



Control	On screen	What it does	Range / options	Default
KNOB 1	ATK	Attack time.	1 MS - 9.6 S	5 MS
KNOB 2	DEC	Decay time to SUSTAIN.	10 MS - 9.7 S	1.0 S
KNOB 3	SUS	Sustain level.	0-100 %	100 %
KNOB 4	REL	Release time.	10 MS - 19 S	2.0 S

LFO

Tap LFO



Control	On screen	What it does	Range / options	Default
KNOB 1	RATE	LFO speed (free-running, never restarts).	60 S a cycle - 20.0 HZ	1.7 S
KNOB 2	DEPTH	LFO amount (0 = off).	0-100	0
KNOB 3	DEST	What it moves. On VOLUME and the sends, a knob at 0 stays silent.	PITCH, VOLUME, PAN, the source's four knobs by name, REV SEND, GRAIN SEND, TRK CUTOFF	PITCH
KNOB 4	SHAPE	LFO wave.	SIN, TRI, SAWUP, SAWDN, SQR, RND, DRIFT	SIN

05

Scales and chords

SCALE keeps every key, MIDI note and recorded step in key. With chord mode on, one key plays a whole chord.

SCALE

Tap SEL



Control	On screen	What it does	Range / options	Default
KNOB 1	ROOT	The scale's root (all tracks).	C … B	C
KNOB 2	SCALE	Keys, MIDI in and recording snap to it; GRID's NOTE steps through it.	OFF (chromatic), MINOR, MAJOR, DORIAN, PHRYG, LYDIAN, MIXO, LOCRIA, HARMIN, PHRDOM, HUNGMI, DBLHAR, MINPEN, MAJPEN	OFF

CHORD

Tap SEL twice. Hold SEL: chord mode on/off



Control	On screen	What it does	Range / options	Default
KNOB 1	CHORD (CHORD TYPE)	The chord a key plays in chord mode.	SCALE (in key), MIN, MAJ, SUS2, SUS4, FIFTH, MIN7, MAJ7, DIM, ADD9, CLUSTR	SCALE
KNOB 2	VOICNG (VOICING)	How the chord is spread.	CLOSE, OPEN, SPREAD, +OCT, DROP	CLOSE
hold ~0.6 s, let go	header CHORD ON / CHORD OFF	The selected track's chord mode on/off (no page change; not if a knob or OCT was used while held).	OFF / ON	OFF

06

Arpeggiator

Hold ARP to switch it on for the selected track, then hold a few keys or a chord.

ARP

Tap ARP. Hold ARP: on/off



Control	On screen	What it does	Range / options	Default
KNOB 1	MODE	Arp order.	UP, DOWN, UPDN, RAND, PLAYED, CHORD	UP
KNOB 2	RATE	Arp speed.	1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/4T, 1/8T, 1/16T	1/16
KNOB 3	OCTAVE (OCTAVES)	Octaves it spans.	1-4	1
KNOB 4	GATE	Note length.	10-100 %	50 %
hold ~0.6 s	header ARP ON / ARP OFF	The selected track's arp on/off (no page change).	OFF / ON	OFF

07

Sequencer

Every track has a pattern of up to 64 steps. Press REC and play to record; stopped, each key writes one step. SELECT moves the cursor, and holding SEL locks sound settings to a single step.

GRID

Tap SEQ



Control	On screen	What it does	Range / options	Default
KNOB 1	NOTE	The selected step's note (all down: OFF).	OFF, notes (in the SCALE)	OFF
KNOB 2	CHNC (CHANCE)	The step's chance to play.	0-100	100
KNOB 3	RATCH (RATCHET)	Hits within the step.	1-4	1
KNOB 4	LEN (LENGTH)	Note length in steps.	1-64	1
SELECT	STEP nn	Moves the cursor (the selected step).	1-64	1
PRESETS	BPM	The tempo (not while following a MIDI clock).	20-300 BPM	120

Step locks

On GRID: hold SEL + turn a knob



Control	On screen	What it does	Range / options	Default
KNOB 1-4	the source's four knobs (locks in the accent)	Locks that value to the selected step (a mark in the grid).	the source's ranges	no lock
+ OCT-	header LOCKS CLEARED	Clears the selected step's locks (works on every page, not only SEQ's).		

PATTERN SETTINGS

Tap SEQ twice



Control	On screen	What it does	Range / options	Default
KNOB 1	STEPS	Pattern length.	1-64	16
KNOB 2	DIV (DIVISION)	Step length.	1/4, 1/4T, 1/8, 1/8T, 1/16, 1/16T, 1/32, 1/32T	1/16
KNOB 3	SWING	Swing.	0-100 %	0
KNOB 4	PLAY (PLAY MODE)	Direction.	FWD, BWD, PONG, RND	FWD

Pattern tools

Hold SEQ + white keys (and REC held: clear)

Control	On screen	What it does	Range / options	Default
+ SELECT	STEPS	The pattern's length (no page change).	1-64	16
+ F3	header CLEARED	CLEAR the selected track's pattern (undoable).		
+ G3	header RANDOM	RANDOM the selected track's pattern (undoable).		
+ A3	header SHIFTED LEFT	SHIFT LEFT the selected track's pattern (undoable).		
+ B3	header SHIFTED RIGHT	SHIFT RIGHT the selected track's pattern (undoable).		
+ C4	header COPIED	COPY the selected track's pattern (undoable).		
+ D4	header PASTED	PASTE the selected track's pattern (undoable).		
+ E4	header DOUBLED	DOUBLE the selected track's pattern (undoable).		
+ F4	header MUTATED	MUTATE the selected track's pattern (undoable).		
hold ~1 s NEW	header T1 CLEARED	Clears the selected track's pattern (undoable); REC goes back to what it was.		

08

Effects

Six effect pages. TAPE works per track: its page holds the tape's settings, and each track's TAPE tile on MIXER 1 sets how much of it goes through the tape (0 = untouched). DELAY, SPACE, GRAIN and DRIVE get their sends on MIXER 1 too; HOME's FX knob turns all of a track's sends up or down together.

TAPE

Tap FX once



Control	On screen	What it does	Range / options	Default
KNOB 1 NEW	WOW	Random tape slips on the notes of tracks that use the tape: steady pitch, then every ~4-7 s a short jerk or sag off and back. The knob sets only how big.	0-100 % (up to ~1.3 semitones)	0 %
KNOB 2	SAT (SATURATION)	Tape saturation, for tracks that use the tape.	0-100 %	0 %
KNOB 3	TONE	Tape darkening, for tracks that use the tape.	0-100 %	0 %
KNOB 4	HISS	Tape hiss, while at least one track uses the tape.	0-100 %	0 %

GRAIN

Tap FX twice



Control	On screen	What it does	Range / options	Default
KNOB 1	SIZE	Grain size.	10 MS - 392 MS	101 MS
KNOB 2	DENS (DENSITY)	Grains a second.	1/S - 98/S	18/S
KNOB 3	SCAT (SCATTER)	Grain position spread.	0-100 %	24 %
KNOB 4	MIX	GRAIN's return level.	0-100 %	79 %

DELAY

Tap FX 3 times



Control	On screen	What it does	Range / options	Default
KNOB 1	TIME	Delay time.	20 MS - 3.5 S	717 MS
KNOB 2	FDBK (FEEDBACK)	Repeats.	0-110 %	55 %
KNOB 3	WEAR	Darker, wobblier repeats.	0-100 %	39 %
KNOB 4	MIX	DELAY's return level.	0-100 %	79 %

SPACE

Tap FX 4 times



Control	On screen	What it does	Range / options	Default
KNOB 1	SIZE	Reverb decay.	0.4 S - ~32 S, INF	6.4 S
KNOB 2	DAMP	High damping.	0-100 %	38 %
KNOB 3	MIX	SPACE's return level.	0-100 %	79 %
KNOB 4	PREDLY (PRE-DELAY)	Pre-delay.	0 MS - 250 MS	31 MS

MASTER

Tap FX 5 times



Control	On screen	What it does	Range / options	Default
KNOB 1 NEW	CUTOFF	The master filter's cutoff (stereo).	30 Hz ... OPEN	OPEN (bypassed)
KNOB 2 NEW	RES (RESONANCE)	Its resonance.	0-100 %	0 %
KNOB 3 NEW	TYPE	Its type.	LP / HP / BP	LP
KNOB 4 NEW	POS (POSITION)	Where it sits: before the effects return, after the reverb, or at the very end.	PRE / POST / END	END

DRIVE

Tap FX 6 times



Control	On screen	What it does	Range / options	Default
KNOB 1 NEW	AMT (AMOUNT)	Drive over everything after SPACE (0: off).	OFF, 1-100 %	OFF
KNOB 2 NEW	TYPE	Character (also the DRIVE sends').	SOFT / FUZZ / CLIP / FOLD	SOFT
KNOB 3 NEW	TONE	Darkens it (also the DRIVE sends').	0-100 %, OPEN	OPEN
KNOB 4 NEW	MIX	Dry/driven blend.	0-100 %	100 %

09

Perform and GENERATE

Hold FX and the keys become a performance layer: the white keys are tricks, the black keys run GENERATE, which plays a track by itself in its own SCALE.

PERFORM tricks

Hold FX + white keys



Control	On screen	What it does	Range / options	Default
KNOB 1-4 (display only)	FILT, REV, ECHO, PITCH	Show the tricks' state: filter cutoff (H: high-pass), REV and ECHO throw, TAPE STOP pitch / BACK / STUT; the knobs do nothing.		
+ F3	FREEZE	Holds GRAIN's cloud (tap on, tap off; header right FREEZE on FX pages).		off
+ G3	REV THROW	Every track's REV send full while held.		off
+ A3	ECHO THROW	Every track's DLY send full while held.		off
+ B3	TAPE STOP	The output slows to a stop (~1 s); let go: back up to speed.		off
+ C4	REVERSE	The last beat backwards, looping, while held.		off
+ D4	FILTER DOWN	A low-pass closing over ~2 s while held.		off
+ E4	FILTER UP	A high-pass opening over ~2 s while held.		off
+ F4	STUTTER	The last 1/16 looping while held.		off

GENERATE

Hold FX + black keys



Control	On screen	What it does	Range / options	Default
+ F#3 tapped NEW	header T1 GENERATE <MODE> / T1 GENERATE OFF	GENERATE on/off for T1 (switches on release; not if another key was pressed meanwhile).	on / off	off
+ G#3 tapped NEW	header T2 GENERATE <MODE> / T2 GENERATE OFF	GENERATE on/off for T2 (switches on release; not if another key was pressed meanwhile).	on / off	off
+ A#3 tapped NEW	header T3 GENERATE <MODE> / T3 GENERATE OFF	GENERATE on/off for T3 (switches on release; not if another key was pressed meanwhile).	on / off	off
+ C#4 tapped NEW	header T4 GENERATE <MODE> / T4 GENERATE OFF	GENERATE on/off for T4 (switches on release; not if another key was pressed meanwhile).	on / off	off
+ D#4 NEW	header T1 PULSE / ALL STORM	GENERATE MODE of the tracks whose black key is held (none held: all four, set to the next after the first's).	DRIFT, PULSE, STORM	DRIFT
+ F#4 / G#4 NEW	header T1 OCT -1 / ALL OCT +1	GENERATE OCTAVE down / up (held tracks, or all).	-3 … +3 (0: from C3)	0
+ A#4 NEW	header T1 RANGE 2 OCT	GENERATE RANGE (held tracks, or all).	1, 2, 3 OCT	2 OCT

Tap a track's black key to switch it on or off. Hold a track's black key + D#4, F#4, G#4 or A#4 to change only that track; those keys alone change all four. While a track generates, its own pattern pauses.

10

Saving and song mode

Your work saves itself when you stop. Save single sounds into 64 sound slots, whole set-ups into project slots A-D, and chain the slots into a song.

SOUNDS

Tap SAVE



Control	On screen	What it does	Range / options	Default
KNOB 1	SLOT	One of your 64 sound slots (in TYPE's list).	001-064	001
KNOB 2	CAT (CATEGORY)	The category a SAVE files it under.	DRONE, PAD, BELL, ORGAN, KEYS, BASS, TEXTURE, VOICE, OTHER	DRONE
KNOB 3	TYPE	Shows all slots, or only one source's sounds.	ALL, VA, FM, SAMPLE, VOICE, WHEEL, PHYS, PHASE	ALL
KNOB 4	DO (ACTION)	What OCT+ does: LOAD into the track, SAVE the track's sound, CLEAR the slot.	LOAD / SAVE / CLEAR	LOAD

PROJECTS

Tap SAVE twice



Control	On screen	What it does	Range / options	Default
KNOB 1	SLOT	Slot A-D.	A-D	A
KNOB 2-3	CAT, TYPE ('-')	Nothing.		
KNOB 4	DO (ACTION)	What OCT+ does: LOAD, SAVE, ERASE the slot, or NEW (empty tracks and patterns, the mixer back to its defaults).	LOAD / SAVE / ERASE / NEW	LOAD
OCT+ / OCT-		OCT+ does the ACTION; OCT- goes back to the page you came from.		

Slots A-D

Hold SAVE + white keys



Control	On screen	What it does	Range / options	Default
+ white keys F3, G3, A3, B3	header SLOTS A B - D	Recall slot A-D (playing: at the next bar).		
+ white keys C4, D4, E4, F4	header SAVED A / AGAIN: OVERWRITE A	Save into slot A-D (used: press again within 3 s).		

SONG

Tap GLO



Control	On screen	What it does	Range / options	Default
KNOB 1	SECT	Which chain step the other knobs edit.	01-16	01
KNOB 2	PATT	That step's slot, or the chain's END.	A, B, C, D, END	END
KNOB 3	REPEAT	How many times that step plays.	01-16	01
KNOB 4	MODE	OFF: PLAY loops the slot; SONG: the chain once; LOOP: the chain repeats.	OFF / SONG / LOOP (SONG LOOP)	OFF

11

System and MIDI

Hold HOME for SYSTEM; tap HOME again for SYSTEM 2 and SYSTEM 3. These settings are kept for everything you do.

SYSTEM

Hold HOME



Control	On screen	What it does	Range / options	Default
KNOB 1	COLOUR	The accent colour everywhere.	RED, AMBER, TEAL, VIOLET	RED
KNOB 2	MIDI (MIDI CHANNEL)	Which MIDI channels play which track (in and out).	1-4 … 13-16 (T1-T4 on 4 channels), ALL (ALL > SEL), CH1>S … CH16>S (one channel, the selected track)	1-4
KNOB 3	TUNE	Master tuning, every source.	-50 … +50 cents	+00
KNOB 4	SCREEN (SCREEN OFF)	Darkens the screen after this long untouched; the first touch only wakes it.	NVR (never), 1M, 5M, 15M, 30M	NVR

SYSTEM 2

Hold HOME, then tap HOME



Control	On screen	What it does	Range / options	Default
KNOB 1	LEARN (MIDI LEARN)	LEARN: turn a knob, then move a CC to link them (32 at most); CLEAR ALL + OCT+: every link gone.	OFF / LEARN / CLEAR	OFF
KNOB 2	SEQOUT (SEQ MIDI OUT)	Sends the sequencer's, arp's and GENERATE's notes out over USB on each track's channel.	OFF / ON	OFF
KNOB 3	SAMPLE (SAMPLES)	RESTORE + OCT+ writes the four factory samples back; OCT- keeps yours.	KEEP / RESTORE	KEEP
KNOB 4 NEW	CLOCK	Where the tempo comes from: own, own + clock out over USB, or a MIDI clock in.	INT, I+OUT (INT+OUT), USB, TRS	INT
screen NEW	USB REC DROPS, CPU NOW / PEAK	USB REC DROPS: gaps in the audio sent over USB while recording (stopping or pausing the DAW also adds to it). CPU: the load now and its peak. OCT- + OCT+ resets both.		

MIDI LEARN

SYSTEM 2, KNOB 1 to LEARN



Control	On screen	What it does	Range / options	Default
OCT- / OCT+	header LEARN CANCELLED / ALL LINKS CLEARED / NOT CLEARED	OCT- cancels LEARN or CLEAR ALL; on CLEAR ALL, OCT+ clears every link.		
OCT+ / OCT-	header RESTORING SAMPLES / SAMPLES KEPT	OCT+ restores the factory samples (stopped and silent only); OCT- keeps yours.		

SYSTEM 3

Hold HOME, then tap HOME twice



Control	On screen	What it does	Range / options	Default
KNOB 1 NEW	LATCH	SOUND: a loaded sound brings its own LATCH; OFF: a loaded sound sets LATCH off.	SOUND (FROM SOUND) / OFF (ALWAYS OFF)	SOUND
KNOB 2 NEW	VELO (VELOCITY)	ON: a MIDI note plays as loud as it was played (keys, sequencer, arp, GENERATE stay at full).	OFF / ON	OFF

MIDI in and out

USB, and the 3.5 mm TRS jack (MIDI in only)

Control	On screen	What it does	Range / options	Default
in: notes		Note-on / note-off on the tracks' channels (MIDI CHANNEL) play that track like its keys; snapped to SCALE; LATCH ON: a note-on toggles.		
in: channels		1-4 … 13-16: T1-T4 on four channels; ALL > SEL: any channel plays the selected track; CH n > SEL: only channel n, the selected track (other channels' notes and CCs ignored).		
in: velocity NEW		Ignored unless SYSTEM 3 VELOCITY ON: then volume = (velocity/127) squared.		
in: CC		Moves the parameter MIDI LEARN linked to it (any channel; CH n > SEL: that channel only).		
in: CC 120 / 123 NEW		ALL SOUND OFF / ALL NOTES OFF: notes MIDI holds let go (latched notes stay).		
in: repeated note-on NEW		A note-on again before its note-off (a DAW loop): the note goes on, the late off is passed over.		
in: clock NEW		CLOCK USB or TRS: follows F8 (24 a beat), FA START (from step 1), FB CONTINUE, FC STOP; no pulse for 0.5 s: own tempo.		
in: TRS jack NEW		3.5 mm jack = MIDI IN (TRS-to-DIN adapter); notes and CCs as USB; SysEx from the jack ignored.		
in: SysEx (USB)		The web editor's protocol (sounds, slots, settings, samples), written only while stopped and silent.		
in: our own notes echoed back		Ignored (a computer's MIDI thru).		
out: key notes		The selected track's key notes on its channel (USB only), velocity 100; ALL > SEL / CH n > SEL: channels 1-4.		
out: SEQ MIDI OUT		Steps', arps' and GENERATE's notes on their tracks' channels.		
out: clock NEW		CLOCK INT+OUT: F8 24 a beat (also stopped), FA with PLAY at the next pulse, FC on stop; USB only.		
out: other		No CC, no velocity, no program change, nothing on the TRS jack.		

12

Reference

How the sound flows, what the lights mean, and every message the header can show.

Signal chain

From key to output

1. Sources

Each track plays one source. 6 voices shared by the four tracks, shared fairly: a busy track doesn't take over the others.

2. Tape (per track)

Tracks with their TAPE tile up: WOW slips their notes, SAT and TONE crossfade in.

3. Track filter and mix

CUTOFF, RESONANCE, TYPE, POS; LEVEL and PAN; sends to DELAY, REVERB, GRAIN and DRIVE.

4. GRAIN

A grain cloud from the GRAIN sends; it also goes into SPACE.

5. DELAY

Tape echo from the DELAY sends; it also goes into SPACE.

6. SPACE

The big reverb, from the REVERB sends, GRAIN and DELAY.

7. DRIVE and HISS

DRIVE over the whole mix after SPACE; HISS while any track uses the tape.

8. MASTER filter

On the whole mix, at PRE, POST or END.

9. Out

Headroom, MASTER volume and a safety limiter, then speaker, headphones and USB.

Lights

Control	On screen	What it does	Range / options	Default
keys, normal		The selected track's notes on the keys they came from: held keys, MIDI notes by number, step notes, the arp's list (GENERATE's notes are not shown).		
keys, SEQ held		The eight tool keys F3-F4 lit (with the notes).		
keys, GLO held		Only F3-B3 lit for muted tracks, C4-F4 for soloed tracks.		
keys, SAVE held		Only F3-B3 lit for slots A-D that are used.		
keys, FX held NEW		The eight white keys and eight black keys glow; FREEZE (F3) and each trick lit while on; F#3, G#3, A#3, C#4 lit while T1-T4 generate.		
buttons		The open page's button lit; OCT- lit at octave < 0, OCT+ at > 0; PLAY lit while playing; REC lit while recording or song record is armed.		
HOME candles NEW		One candle per track: only the wick while the track is silent; the flame lights when it sounds and grows with its level (up to twice the V1.0 size), then shrinks and goes out.		

Header messages

Shown at the top of the screen

Message	When
CHORD ON / CHORD OFF	SEL held and let go
ARP ON / ARP OFF	ARP held
LATCH ON / LATCH OFF NEW	SEL held + OCT+
LOCKS CLEARED	SEL held + OCT-
STEP OFF: NO LOCK	a lock on a step with no note
UNDO / REDO / NOTHING TO UNDO / NOTHING TO REDO	EDIT held + OCT- / OCT+
OCTAVE -2 ... +2	OCT- / OCT+
CPU PEAK RESET	OCT- + OCT+
T1 CLEARED NEW	REC held ~1 s
CLEARED / RANDOM / SHIFTED LEFT / SHIFTED RIGHT / COPIED / PASTED / DOUBLED / MUTATED	SEQ held + white keys
NOTHING COPIED / 64 STEPS: FULL	PASTE with nothing copied / DOUBLE at 64 steps
SAVED A / AGAIN: OVERWRITE A / LOADED A / NEXT BAR: A / NEXT PASS: A / EMPTY	SAVE held + white keys, PROJECTS LOAD/SAVE
LOADED / SAVED / CLEARED / NOT DONE / EMPTY / SAVES ON STOP / SAVES WHEN SILENT	SOUNDS page actions
ERASED / NEW	PROJECTS ERASE / NEW
<the sound's name> / NO SOUNDS	PRESETS
T1 VOL 079 / T1 CUTOFF 2.4K / T1 RES 040 / T1 FX 140%	HOME's knobs
SAVES WHEN SILENT (2 s)	autosave waiting for a voice to end
SAVE ERROR: RETRYING	autosave failed
CPU FULL: NOTE DROPPED NEW	CPU overload
OCT+: CLEAR ALL LINKS / LEARN CANCELLED / ALL LINKS CLEARED / NOT CLEARED	MIDI LEARN
OCT+: RESTORE SAMPLES / SAMPLES KEPT / STOP AND SILENCE FIRST / RESTORING SAMPLES / SAMPLES RESTORED / RESTORE FAILED	SYSTEM 2 SAMPLES
T1 GENERATE DRIFT / T1 GENERATE OFF / T2 PULSE / ALL STORM / T1 OCT -1 / ALL RANGE 2 OCT NEW	FX held + black keys
EDITOR: SETTINGS SAVED / EDITOR: SLOT A SAVED / EDITOR: SOUND 5 SAVED / EDITOR: REFUSED	the web editor
SLOT DATA LOST: A / SOUNDS: n MOVED, n LOST / WATCHDOG RESET / LOW VOLTAGE RESET	at power-on
INSTALLING SAMPLES (boot screen)	first start, empty sample slots