

HYP-1

FIELD MANUAL VERSION 1.0.21

Hypnotic techno and acid firmware for the FM-1.
Every control numbered, every screen lettered.
Works the same on the device and in the web simulator.

rustypawz.github.io/fm1-HYP1 www.redtail.works youtube.com/@RedtailWorks

Watch it played live: youtube.com/watch?v=0UvGnZE2_VI



REDTAIL
WORKS

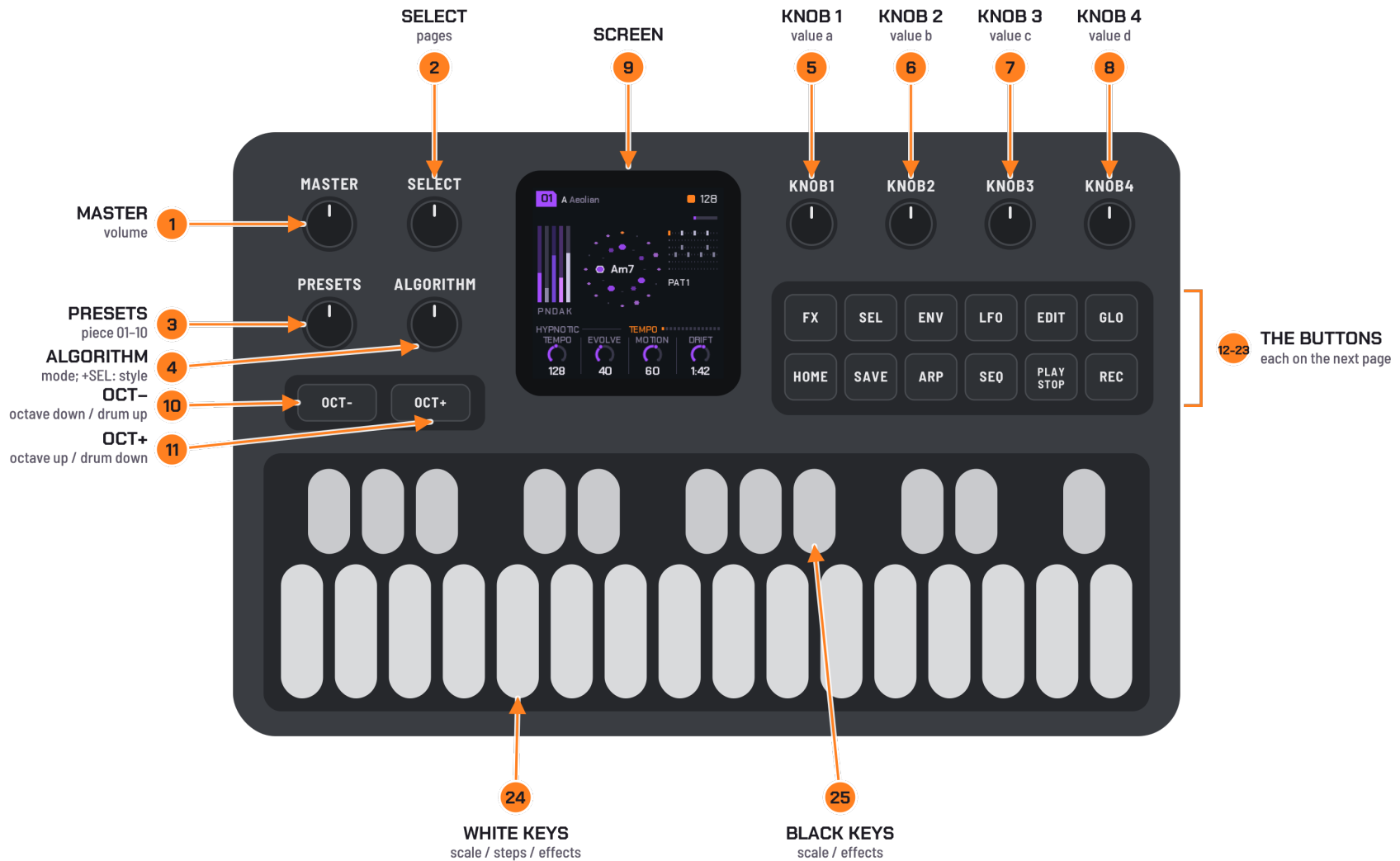


PRESENTS

Numbers (1-25) are the device's controls. Letters (a, b, c...) are things on the screen.

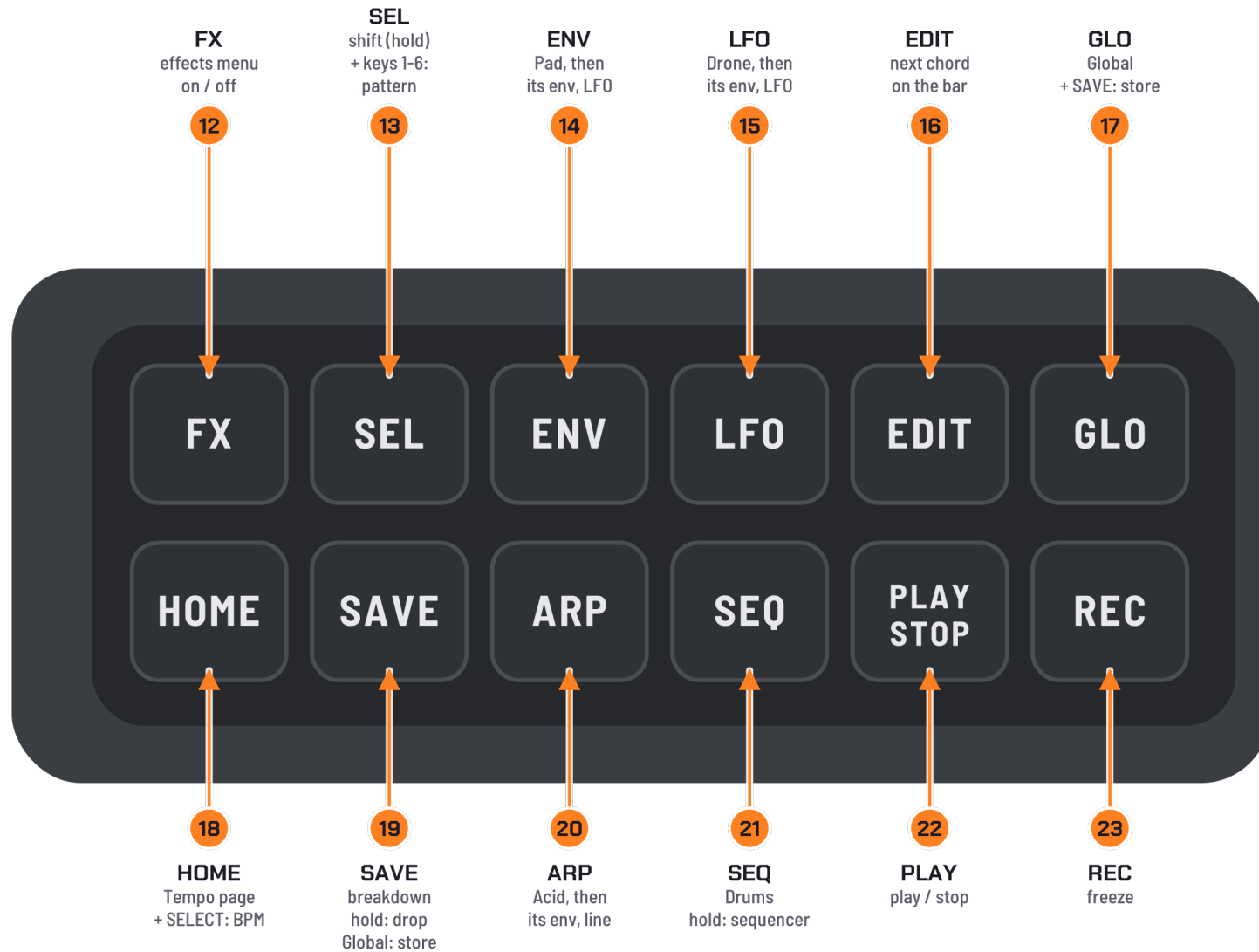
The device

NUMBERS = CONTROLS · EACH ONE IS EXPLAINED ON THE NEXT PAGES



The button panel, up close

ONE BUTTON CAN DO SEVERAL THINGS: TAP, TAP AGAIN, OR HOLD



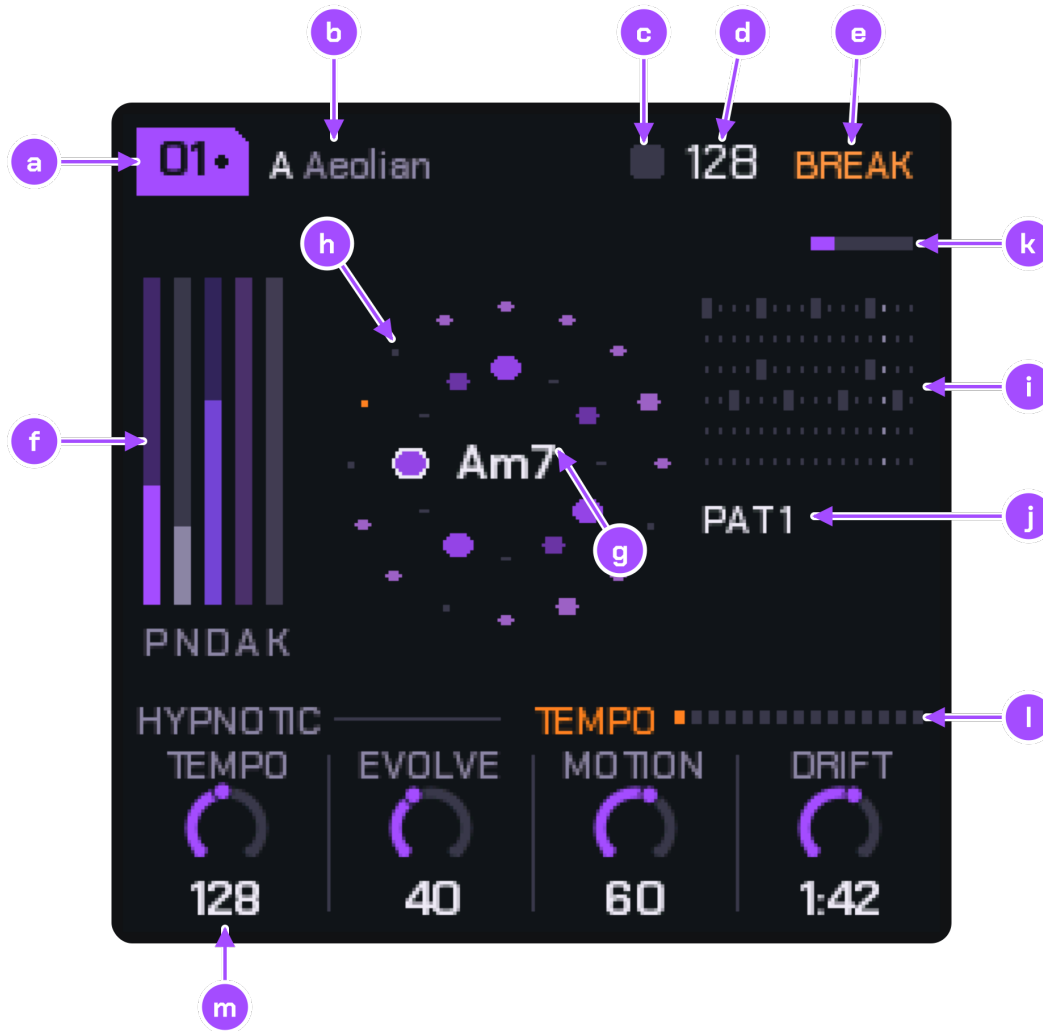
What each control does

THE NUMBERS FROM THE DEVICE PICTURES

- 1 MASTER.** Volume. Doesn't change the music, only how loud it is.
- 2 SELECT.** Steps through every page in order (Tempo > Pad > ... > Global). Hold HOME and turn it to set the tempo from any page.
- 3 PRESETS.** Chooses one of the 10 pieces, 01-10. Each has its own settings, six drum patterns and drum sounds.
- 4 ALGORITHM.** The mode of the scale: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, Pent major, Pent minor. With SEL held: the piece's style.
- 5-8 KNOB 1-4.** Change values a, b, c, d of whichever page is on screen (the four dials along the screen's bottom).
- 9 Screen.** Shows the piece, key, tempo, section, the music moving, and the page you're on. See "The screen".
- 10 OCT-.** An octave down (to -3): on a Pad, Drone or Acid page, that voice; on other pages, the whole song. Sequencer: the previous drum.
- 11 OCT+.** An octave up (to +3), the same way. In the sequencer: the next drum.
- 12 FX.** Turns the effects menu on and off. While it's on, the keys play effects.
- 13 SEL.** Shift (hold). + white keys 1-6: pattern 1-6. + PRESETS: piece on the next bar. + ALGORITHM: style. + SEQ: links on/off. + GLO: remote (the panel plays the emulator over USB). Sequencer: + black 1-6 copy, + OCT- clear lane, + OCT+ restore.
- 14 ENV.** Pad. Press again: Pad env. Again: Pad LFO.
- 15 LFO.** Drone. Press again: Drone env. Again: Drone LFO.
- 16 EDIT.** Moves to the next chord on the next bar.
- 17 GLO.** Global page: root, theme, tune, MIDI out. On this page SAVE stores the piece.
- 18 HOME.** Tempo page. Hold it and turn SELECT to change the tempo from anywhere.
- 19 SAVE.** Tap: breakdown from the next bar; tap again: 4-bar build, then the drop. Hold: the drop. In FX, held: lock mode (tap keys to lock). On Global: stores the piece (hold: factory).
- 20 ARP.** Acid. Press again: Acid env. Again: Acid line.
- 21 SEQ.** Drums, again Links. Hold: the step sequencer. Tap while in the sequencer: back to Drums.
- 22 PLAY/STOP.** Starts and stops.
- 23 REC.** Freeze: holds everything on the chord it's on, until pressed again.
- 24 White keys.** Normally: the notes of the scale (tap to add or remove; the root stays). Sequencer: the 16 steps. FX: effects.
- 25 Black keys.** Normally: notes of the scale. FX: gates, throw, crush, fill, solos.

The screen

LETTERS = WHAT'S ON THE SCREEN



- a Piece.** The piece playing, 01-10 (PRESETS). A dot in the tag: changes not yet stored.
- b Key.** Root and mode (GLO > Root; ALGORITHM).
- c Beat light.** Flashes on the beat.
- d Tempo.** BPM. A small dot to its right: a store waiting to be written (it writes when you stop).
- e Section.** BREAK, BUILD, or blinking while it waits for the bar. Blank when the groove is running normally.
- f Levels.** Meters for P pad, N noise, D drone, A acid, K kit (drums).
- g Chord.** The chord now; the dots in the ring are the scale's notes.
- h Acid loop.** The outer ring: one dot a step, bigger where the acid line plays.
- i Drum pattern.** The six lanes of the pattern playing.
- j Pattern number.** PAT1-6; shows the next one when a change is waiting for the bar.
- k Drift bar.** How far through the current chord (to the next one).
- l Page.** The page's name; one dot a page, the lit one is where you are. At the line's left: the piece's style.
- m Knob cell.** Name, ring and value of what KNOB 1-4 changes. Every page has four: a, b, c, d.

The pages

EACH PAGE HAS FOUR VALUES, a b c d — KNOBS 5, 6, 7, 8 CHANGE THEM

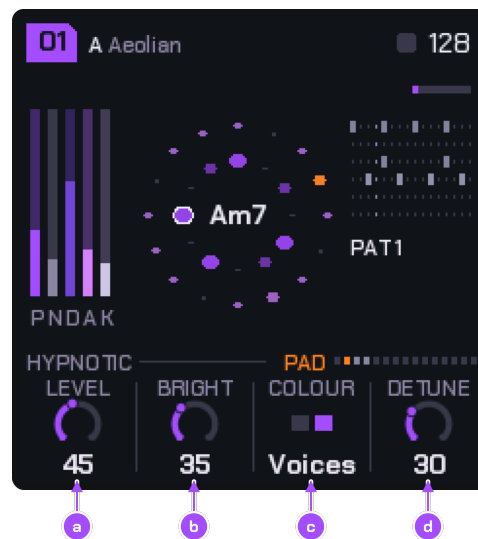
SELECT (2) steps through every page in this order. The buttons jump straight to a voice, and pressing the same button again steps through that voice's envelope and LFO. Changes stay with the piece until the power goes off. The sequencer, effects and themes follow.

Tempo REACH IT: HOME



- a** **Tempo.** 70–190 BPM. Also HOME + SELECT from any page.
- b** **Evolve.** How restless the acid line and the chords are.
- c** **Motion.** How far the slow tide swings between sparse and full.
- d** **Drift.** How long a chord lasts, 20 s to 5 min. EDIT jumps to the next chord now.

Pad REACH IT: ENV



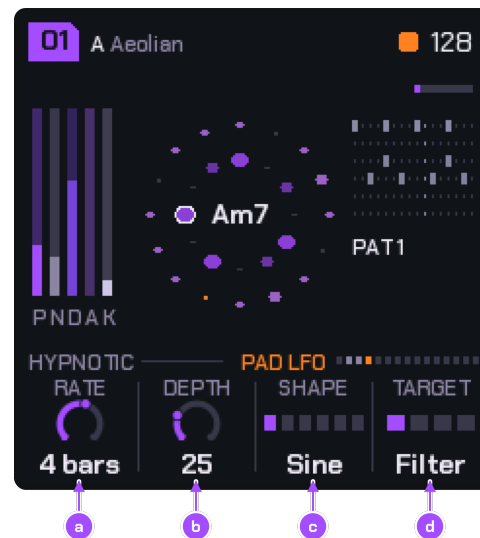
- a** **Level.** The pad's volume.
- b** **Bright.** Its filter and vowel.
- c** **Colour.** Rhodes to Voices.
- d** **Detune.** Spreads the voices apart.

Pad env REACH IT: ENV x2



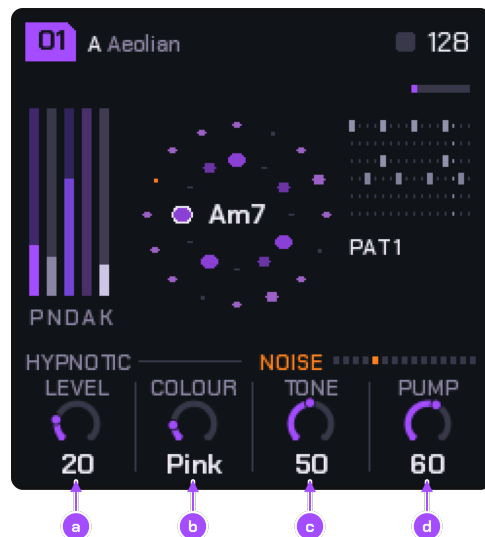
- a** **Attack.** 0.05–10 s: how slowly each voice breathes in.
- b** **Hold.** 0–8 s at full.
- c** **Release.** 0.1–12 s: the fade out.
- d** **Rest.** 0–6 s of silence before the next breath.

Pad LFO REACH IT: ENV x3



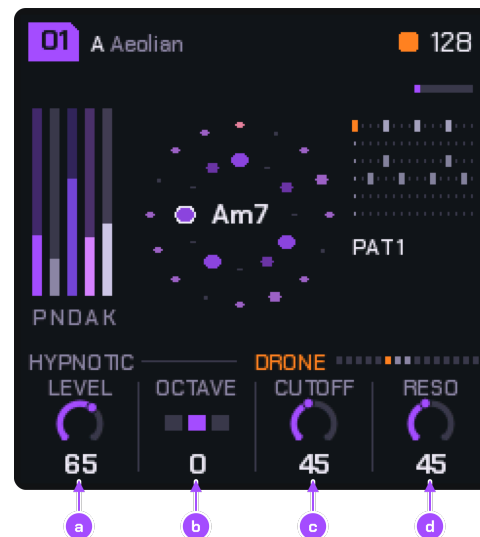
- a** **Rate.** 1/4 note to 32 bars.
- b** **Depth.** How much it moves.
- c** **Shape.** Sine, Triangle, Saw, Square, S&H, Drift.
- d** **Target.** Filter, Level, Pan or Pitch.

Noise REACH IT: SELECT



- a** **Level.** A bed of grain under everything.
- b** **Colour.** White, pink, brown, blue, violet, grey, black (crackle), yellow (radio hiss).
- c** **Tone.** A low-pass on it, 300 Hz–19 kHz.
- d** **Pump.** How hard the kick ducks it.

Drone REACH IT: LFO



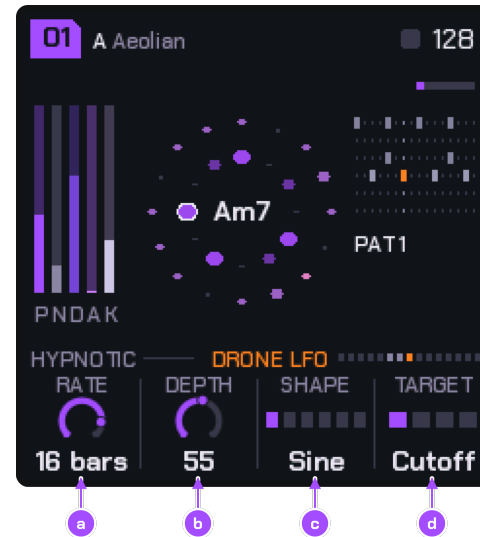
- a** **Level.** The bass drone's volume.
- b** **Octave.** Its register.
- c** **Cutoff.** Its filter.
- d** **Reso.** The filter's resonance.

Drone env REACH IT: LFO x2



- a** **Trigger.** Each chord, every 1, 2, 4 or 8 bars, or Off.
- b** **Attack.** 0.01–4 s.
- c** **Decay.** 0.05–16 s.
- d** **Amount.** How far it opens the cutoff (up to 4 octaves).

Drone LFO REACH IT: LFO x3



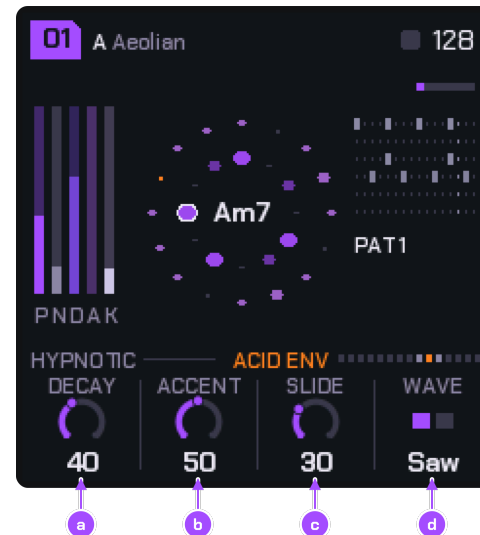
- a** **Rate.** 1/4 note to 32 bars.
- b** **Depth.** How much it moves.
- c** **Shape.** Sine, Triangle, Saw, Square, S&H, Drift.
- d** **Target.** Cutoff, Pitch, Level or Drive. Default: a 16-bar sine on the cutoff.

Acid REACH IT: ARP



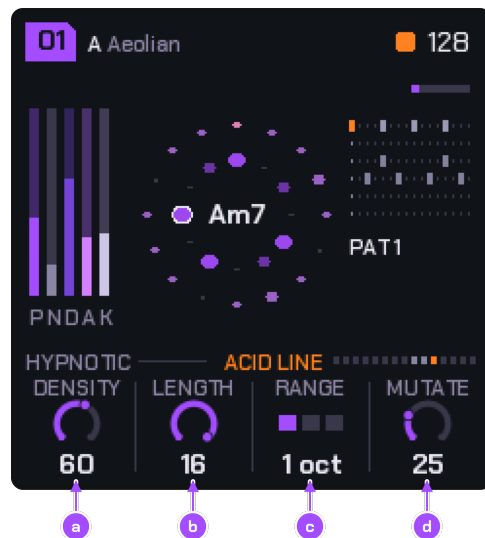
- a** **Level.** The acid line's volume.
- b** **Cutoff.** The filter.
- c** **Reso.** Squelch.
- d** **Env mod.** How far each note opens the filter.

Acid env REACH IT: ARP x2



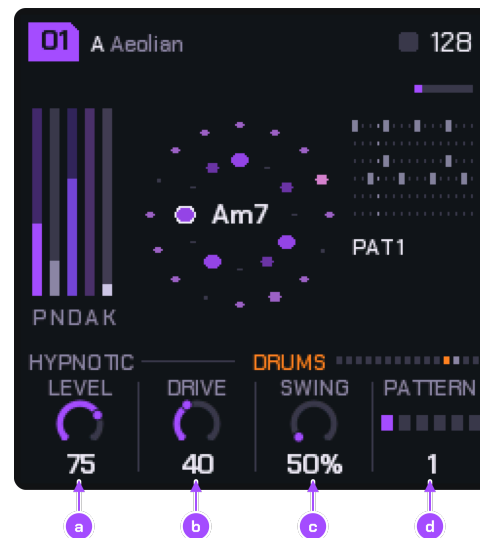
- a** **Decay.** 0.06–1.9 s.
- b** **Accent.** How hard accented steps hit.
- c** **Slide.** Glide between tied notes.
- d** **Wave.** Saw or Square.

Acid line REACH IT: ARP x3



- a** **Density.** How many steps play.
- b** **Length.** 1-16 steps; odd lengths turn against the bar.
- c** **Range.** 1-3 octaves.
- d** **Mutate.** How often steps are made anew. OCT-/+ move it an octave.

Drums REACH IT: SEQ



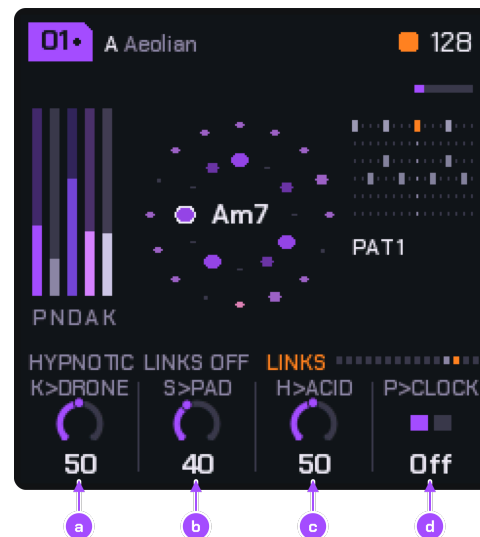
- a** **Level.** The kit's volume.
- b** **Drive.** The kick's drive.
- c** **Swing.** 50-75%: the off-sixteenths late.
- d** **Pattern.** 1-6. Waits for the end of the bar, so turning past others plays none of them.

Links REACH IT: SEQ x2



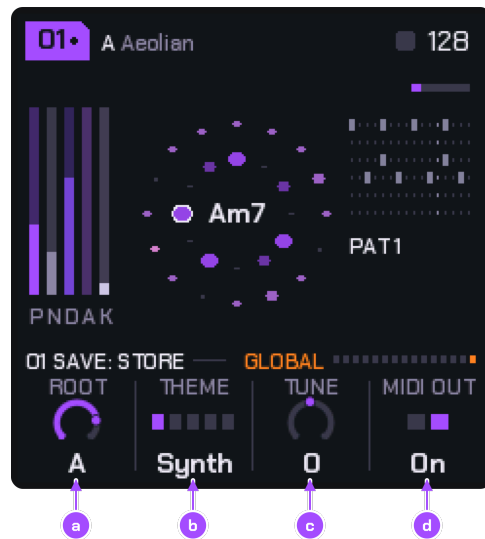
- a** **K>Drone.** Each kick opens the drone's filter: a rolling bass. Amount: how far and how long.
- b** **S>Pad.** Each snare or clap flashes the pad open and swells it.
- c** **H>Acid.** A hat on an acid note accents it.
- d** **P>Clock.** Off or Clock: the acid steps only on the perc lane's hits. SEL + SEQ: all links on / off.

Space REACH IT: SELECT



- a** **Echo.** Send to the tape echo.
- b** **Echo time.** 1/8, 3/16, 1/4, dotted 1/4, 1/2, 1 bar.
- c** **Reverb.** Send to the plate.
- d** **Size.** How long it rings, and how often the echo returns.

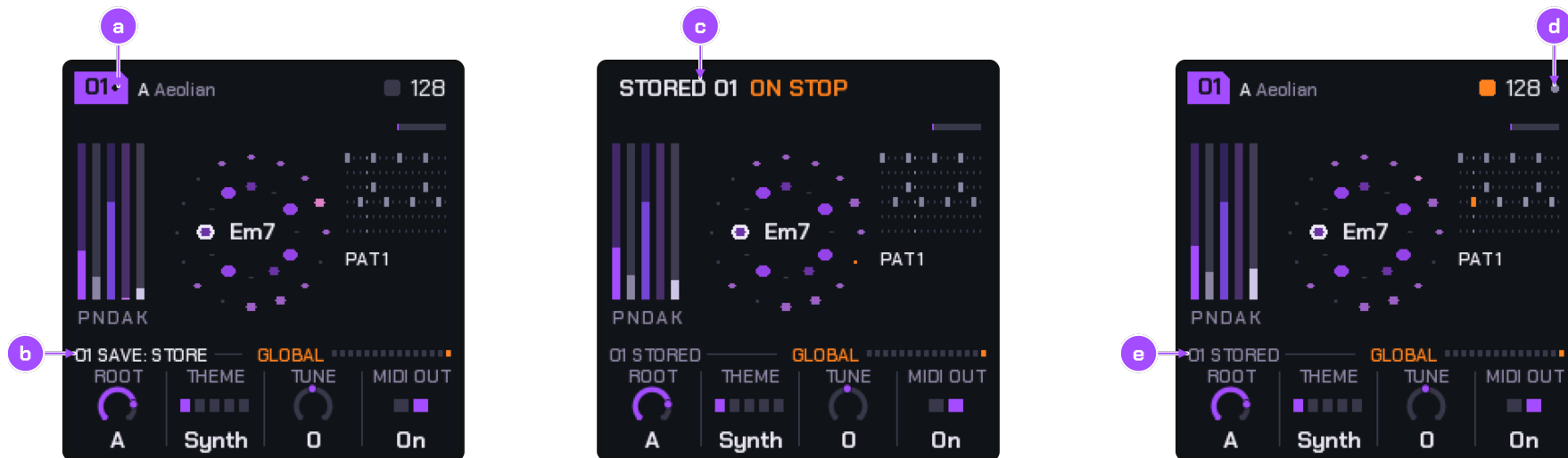
Global REACH IT: GLO



- a** **Root.** The key's root note.
- b** **Theme.** Synth, Acid, Ice, Ember, Phosphor.
- c** **Tune.** ± 50 cents.
- d** **MIDI out.** MIDI out over USB on or off.

Pieces and storing

PRESETS (3) CHOOSES · GLO (17) THEN SAVE (19) STORES · HOLD SAVE 1.5 S: FACTORY



#	Character	BPM	Key
01	Hypnotic four on the floor	128	A Aeolian
02	Deep and dubby: rims, shakers	124	D Dorian
03	Pounding: rumble kick, claps	132	E Phrygian
04	Trance: offbeat opens, rolls	138	G Aeolian
05	Acid electro: cowbells, breaks	130	A Dorian
06	Dub techno: sparse, swung	120	F Pent minor
07	Minimal glitch: threes on fours	134	B Pent major
08	Rolling, tom-like percussion	126	Bb Mixolydian
09	Warehouse: hard, rides, rumble	136	C Phrygian
10	Deep field: half time, breaks	118	Eb Aeolian

Each piece has its own settings, its own **six drum patterns** and its own drum sounds. Patterns 1-6 run roughly intro, groove, build, peak, variation, tool.

- a** **Changed.** A dot in the tag: the piece has changes that aren't stored.
- b** **SAVE: STORE.** On Global the line above the knobs says so. Press SAVE (19).
- c** **Stored.** Stored while playing: it is written to flash as soon as you stop.
- d** **Write waiting.** This dot stays until it's written. Stop before you power off.
- e** **01 STORED.** The piece is in the store; FACTORY if it isn't.

What a store holds. Everything about the piece: every page's values, the scale and mode, the six patterns and the drums' level, tune and decay. Theme, tune and MIDI out are yours across all pieces and are kept on their own.

Factory. Hold SAVE on Global for 1.5 s (the screen says HOLD: FACTORY): the piece goes back to how it shipped and leaves the store.

Why on stop? Writing to flash silences the FM-1 for a moment, so it never happens while the music plays.

Styles

HOLD SEL [13], TURN ALGORITHM [4] · STORED WITH THE PIECE

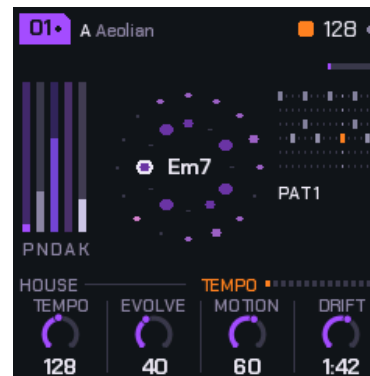
Style	BPM	What it does
Hypnotic	110-145	The sound as it always was: deep kick, 808-ish metal hats, breathing pad, smooth drone.
House	118-128	Round kick, a shuffle (swing), a wide clap, long open hats, congas. The pad stabs chords on the off-beats (Pad env Release sets the stab's length; Evolve adds a few extra). Warm, sub-heavy bass, more pump.
Techno	128-138	Hard, driven kick with a rumble tail, tight clap, metallic hats, a bell-like perc. The pad goes dark, the drone gritty.
Acid	120-132	Punchy 909-ish kit with a cowbell, a little swing. The 303 driven and up front; pad and drone pulled back.
Breakcore	160-180	Distorted, crushed kit, chopped live: ghost snares, extra kicks, 32nd rolls (Evolve: more). A dirty sub; the acid line at half time over it.

What changes. Every voice's sound and the feel: the drums' tones and decays, the swing, how the pad plays, the drone's grit, the acid's drive. Your patterns, levels and knob settings stay as they are, so a style is a lens over the piece, not a new piece.

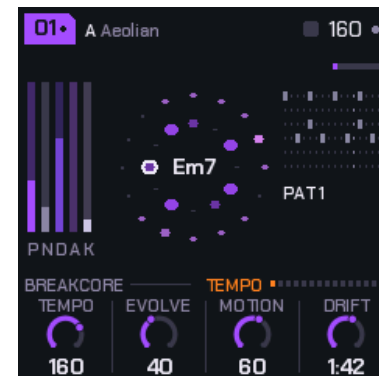
Tempo. Switching style moves the tempo into that style's range (shown above). After that, any tempo from 70 to 190 works. Turning back through the styles moves it again.

Where it shows. The left end of the line above the knobs names the style (on every page but Global). The screen says it with the tempo when you switch.

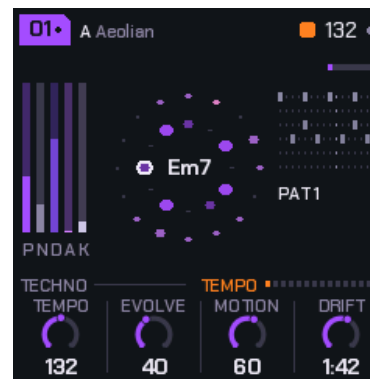
Factory pieces. 09 is Techno; the others start Hypnotic. Store a piece (Global, SAVE) to keep the style you gave it.



House



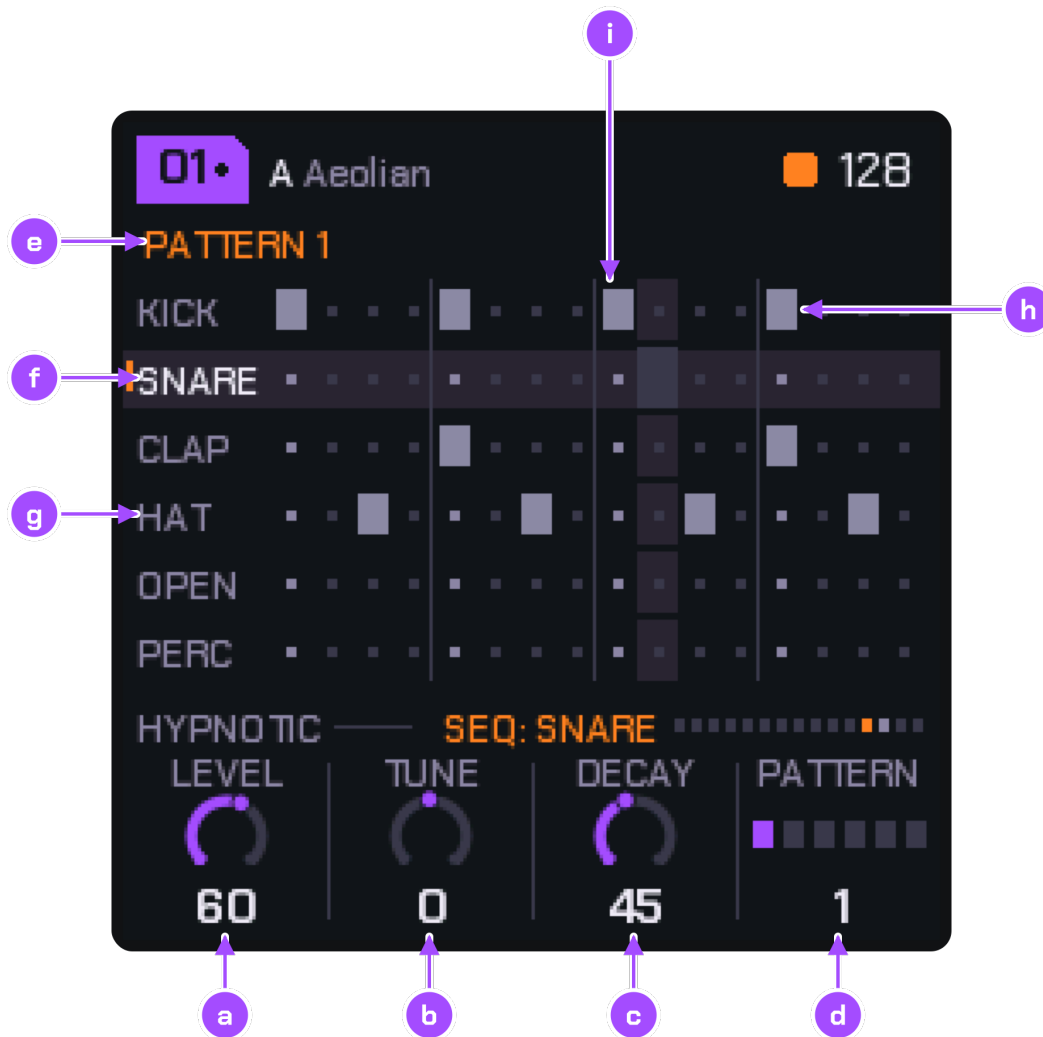
Breakcore



Techno

The step sequencer

HOLD SEQ [21] · TAP SEQ TO LEAVE



- a Level.** The selected drum's volume.
- b Tune.** Its pitch, ± 1 octave.
- c Decay.** How long it rings.
- d Pattern.** Which of the 6 patterns you're editing (even before it plays).
- e Pattern name.** The pattern on the grid.
- f Selected drum.** The highlighted lane: the one the keys edit. OCT- (10) / OCT+ (11) change it.
- g Lanes.** Kick, snare, clap, closed hat, open hat, perc.
- h A hit.** A filled square is a hit; a dot is a rest.
- i Playhead.** The column playing now.

Editing. The 16 white keys (24) are the 16 steps of the selected drum. They light where it hits, and the light running across them is the playhead. Tap a key to turn its hit on or off.

Shift (hold SEL). + black keys 1-6: copy this pattern into pattern 1-6. + OCT-: clear this drum's lane. + OCT+: put back the piece's own lane. + white keys 1-6: edit that pattern.

Keeping it. Patterns and the drums' sounds belong to the piece. Store the piece (Global, SAVE) and they come back at power-on.

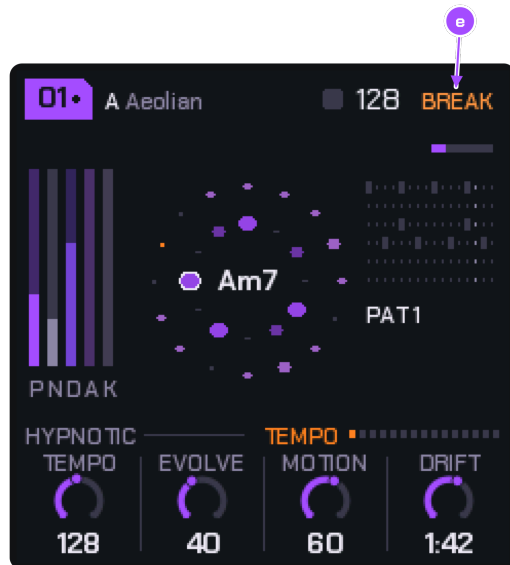
FX [12] OPENS IT · HOLD KEYS · HOLD SAVE [19] + TAP: LOCK · FX AGAIN CLOSSES

- a Status.** HOLD A KEY: effects play only while their key is held.
- b Key and effect.** Each line is a key and what it does.
- c Held.** Orange: playing now (here G3 and G4 are held).
- d Mute / solo.** M: mutes a track, S: solos it.
- e Lock mode.** SAVE held: each key tapped locks its effect, or unlocks it. Keys held as SAVE goes down lock too.
- f Locked effect.** Purple: on and locked. It stays while you play other effects. Tap its key to turn just it off; closing FX lets them all go.

Keys	Notes	Effect
White 1–6	F3 A3 B3 C4 D4 G3	Beat repeat 1/2, 1/6, 1/8, 1/16, 1/32, 1/4 — starts on the next sixteenth; the shortest held wins.
White 7–8	E4 · F4	Reverse · Tape stop.
White 9–14	G4 A4 B4 C5 D5 E5	Mute kick, hats, snare (with clap and perc), drone, acid, pad (with noise).
White 15–16	F5 · G5	Low-pass closing in · High-pass closing in.
Black 1–5	F#3 Ab3 Bb3 C#4 Eb4	Gate 1/16, gate 1/8 (a trance gate on the synths), echo throw, bit crush, drum fill.
Black 6–11	F#4 Ab4 Bb4 C#5 Eb5 F#5	Solo kick, hats, snare, drone, acid, pad — each beside its mute.

Performing

SECTIONS, FREEZE, CHORDS



Breakdown: the section shows BREAK (e).



Build: four bars, then the drop.

Breakdown – SAVE (19), tap. The breakdown starts on the next bar (the section blinks while it waits) and lasts until you tap again.

Build – tap SAVE again. A four-bar build, then the drop.

Drop – hold SAVE. Straight to the drop on the next bar. SAVE lights while a breakdown or build runs, and blinks while one waits.

Freeze – REC (23). Holds the music on its current chord; press again to let it move.

Next chord – EDIT (16). Moves on at the next bar.

Scale – the keys (24, 25). Each adds or removes its note; the root stays.

Patterns – SEL (13) + white keys 1-6. Straight to pattern 1-6, on the bar. The keys light the one chosen (the one still playing blinks).

Piece on the bar – SEL + PRESETS (3). The new piece comes in on the next bar. Plain PRESETS changes at once.

Links – SEL + SEQ (21). The drums into the voices, on and off: kick opens the drone, snares flash the pad, hats accent the acid, perc can clock it. Amounts on the Links page.

GLO (17) > THEME (b)



Acid

Ice

Ember

Phosphor

The RedtailWorks card (with its red panda), then HYP-1 (any button skips them); then a piece starts at random: as you stored it, or with small random changes to its factory settings if you never stored it. Unstored changes last until the power goes off.

Every piece you stored (Global, SAVE): written when the music is stopped, never mid-performance. The theme, tune and MIDI out: written two seconds after you change them, even while playing.

There's no song save: record the audio (or MIDI out, GLO > d) into your DAW and keep the takes you like.

Drag a knob up/down or scroll over it. Click buttons and keys. Shift-click (or right-click) a button to hold it; click again to let go — that's how to hold SEQ, SAVE or HOME. **New start** powers off and on (stored pieces stay, in that browser); **Forget stored** clears them.

Plug it in, press **Connect MIDI** on the emulator, then SEL + GLO on the FM-1: it goes quiet and its whole panel plays the emulator, lights and all (SEL + GLO again: back). Stock firmware or any controller: the keys play at once; **MIDI learn** maps the rest.

Space	PLAY
Enter	REC
Esc	HOME
V	ENV
L	LFO
P	ARP
M	SEQ (hold: sequencer)
O	GLO
C	EDIT
`	FX
B	SAVE
N	SEL
Z / X	OCT- / OCT+
Up / Down	SELECT
Q-I	White keys 1-8
A-K	White keys 9-16
1-0, -	Black keys 1-11