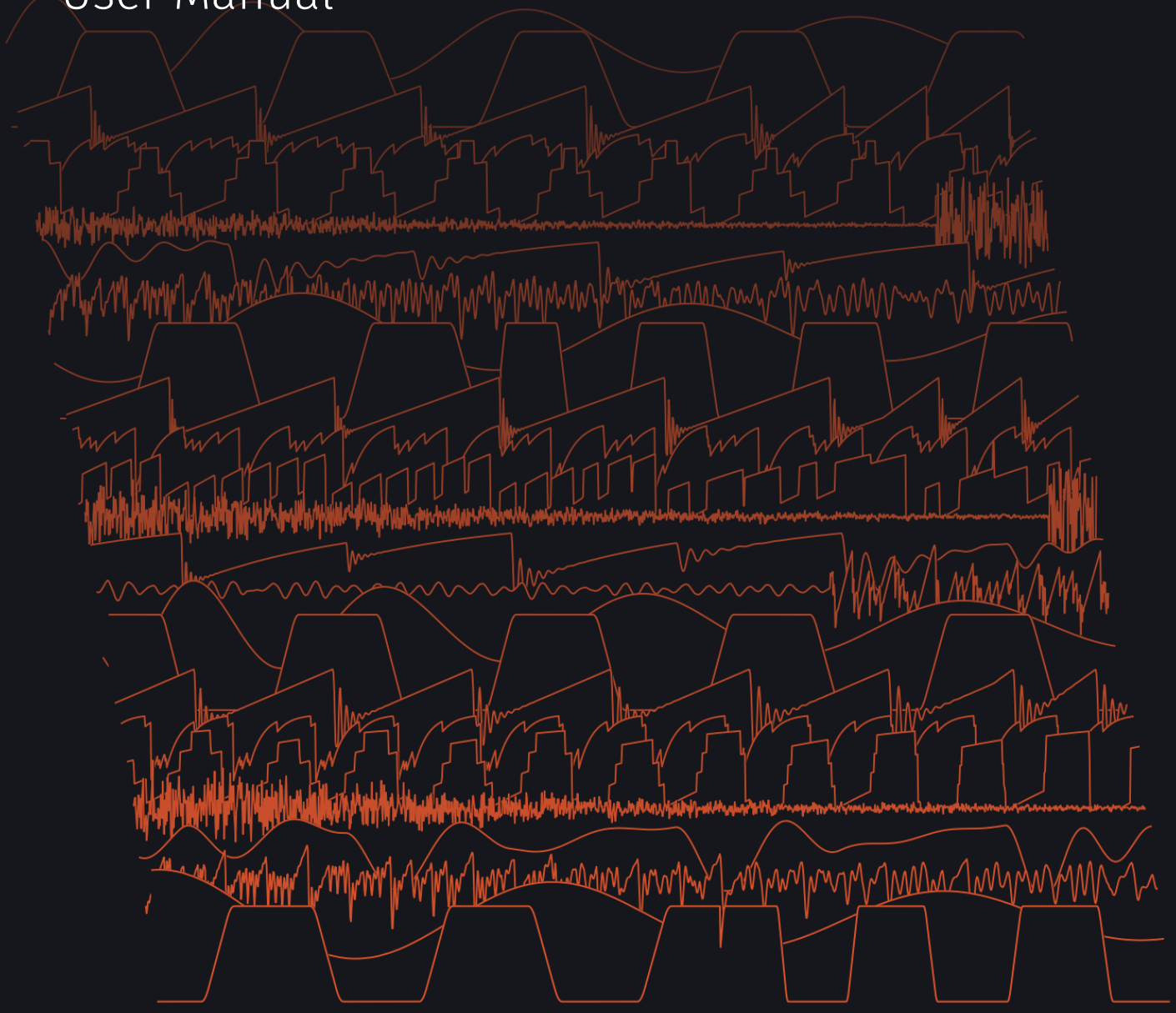
BLUE LANTERN MODULES · TECHNO DRUMS AND VOICES

TecXoX

User Manual



56 engines · 26 drums · 30 voices · ADSR, effects, clock · 96 kHz

Eurorack module · Blue Lantern Modules, Chandler, Arizona

CONTENTS

Inside this manual

1 **Welcome**
What TecXoX is, and a quick start

2 **Panel and controls**
Knobs, jacks and the display

3 **How TecXoX works**
Drums and voices, triggers, tuning, sound quality

4 **Drum engines**
KICK … PLUK, and BOOM … BELL: 26 drums

5 **Voice engines**
GRND … NOIZ, and SUPR … SIRN: 30 voices

6 **Settings menu**
ADSR envelope, quantizer, effects, META mode, calibration

7 **The MORE page**
FM jack, clock and rhythm, arpeggiator, effects, presets, favorites, display

8 **Patch ideas**
Techno starting points

9 **Quick reference**
All 56 engines at a glance

10 **Specifications**

CHAPTER 1

Welcome

TecXoX is a **techno drum and synth voice** module for Eurorack. It has 56 engines built for the dance floor: **26 drum engines** that fire from the TRIG input, and **30 voice engines** for basslines, leads, stabs, pads, drones and noise.

One encoder and a four-character display give you every engine and setting. On top of the engines, TecXoX has an internal AD or ADSR envelope, a quantizer, bit and sample-rate reduction, built-in effects (chorus, ring modulator, echo, drive and filter) and a second settings page (MORE) with an internal clock, ratchets, probability, swing, an arpeggiator, glide, vibrato, 8 presets and favorite engines.

Highlights

- **A complete drum machine**: kicks (sine, rumble, 808 boom, 909 punch), toms, congas, snare, clap, rimshot, cowbell, claves, hats, ride, crash, shaker, tambourine, marimba, bells, FM drums, zaps, blips, glitches and risers, all tunable over V/OCT.
- **Bass and lead voices**: acid, Reese, sub, wobble, supersaw, hoover, rave stabs, organ, string pad, PWM, sync, FM, vowels and dub chords.
- **Digital weirdness**: wavefolding, wrap-around smash, VOSIM, summation, cross-PM, phase-distortion resonance, bit crushing, shift registers, chip waves, crackles and a dub siren.
- **Two knobs that matter.** Every engine has a main tone control (TIMBRE) and a second dimension (COLOR). For drums, COLOR is almost always the decay.
- **A groovebox in one module.** ICLK plays the module with nothing patched; RTCH, PROB, SWNG, TRNT and the arpeggiator turn one engine into a moving pattern.
- **Clean where it counts.** Band-limited oscillators, anti-aliased folding, wrapping and sync, and pitch-aware limits keep high notes from turning to mush, unless you ask for it.
- **Full 96 kHz rendering.**

Quick start

1. Power on. After the start-up animation the display shows **KICK**, the first engine.
2. Turn the encoder to choose an engine. The change is immediate.
3. For a drum, patch a clock or trigger sequence into **TRIG**. **Drums are silent until they receive a trigger**, or turn on the internal clock: in the menu, open **MORE** and set **ICLK** to 120.
4. For a voice, patch V/OCT and turn TIMBRE and COLOR.
5. Click the encoder to open the settings menu; click again to return.

NOTE Your pitch calibration and settings are kept in the module's memory and are not affected by choosing engines.

CHAPTER 2

Panel and controls

Knobs and display

Control	Function
Encoder + display	Turn to select the engine. Click to open or close the settings menu. Hold for 1 second on special menu items (calibration, presets, logo editing, factory reset). On the engine screen, hold to mark a favorite engine.
FINE	Fine tuning.
COARSE	Coarse tuning. Its range is set by RANG in the settings menu. Use it to tune drums.
FM (attenuverter)	Amount and polarity of the FM input. In META mode it scales engine selection instead.
TIMBRE	The engine's main tone control: sweep depth, drive, cutoff, formant, chord and so on.
TIMBRE attenuverter	Amount and polarity of the TIMBRE CV input.
COLOR	The engine's second dimension. For most drums it is the decay.

Inputs and output

Jack	Function
TRIG	Fires the drums, the ACID accent, the DUB and RAVE stabs, the SYNC sweep, the HOOV scoop and the ORGN percussion. Restarts the WOB and SIRN LFOs. Restarts the waveform (hard sync) in most other voices. Fires the internal envelope (in ADSR mode TRIG is a gate) and clocks the MORE-page rhythm features.
V/OCT	1 V/octave pitch input (calibrated). Tunes the drums too.
FM	Pitch modulation, scaled by the FM attenuverter. FMDS on the MORE page sends it elsewhere; in META mode it selects the engine.
TIMBRE	CV for TIMBRE, added to the knob (0 V to +5 V spans the full range).
COLOR	CV for COLOR, added to the knob (0 V to +5 V spans the full range).
OUT	Audio output.

The display

The four-character LED display shows the current engine name (or the note or a level meter, see DISP on the MORE page). In this manual engine names appear like this:



CHAPTER 3

How TecXoX works

Drums and voices

The engine list has four parts. The first 21 engines are the original TecXoX kit (9 drums, then 12 voices), followed by 17 more drums and 18 more voices:

- **Drums** (engines 1–9, KICK to PLUK, and 22–38, BOOM to BELL) make a sound only when triggered. Each trigger restarts the sound. Between triggers the drum decays to silence.
- **Voices** (engines 10–21, GRND to NOIZ, and 39–56, SUPR to SIRN) play continuously, like an oscillator. Use a VCA, or the internal envelope with env VCA, to shape them into notes. A few voices also respond to triggers (see below); DUB and RAVE are stabs and stay silent until triggered.

Triggers

Engine	Trigger action
Drums	Strike: a new hit (RISE starts a new rise, GLCH a new random burst).
ACID	Accent: the cutoff jumps up and falls back in about 200 ms. Also hard-syncs the saw.
DUB, RAVE	Plays the chord stab. Silent without triggers (the DUB echo keeps ringing).
SYNC, HOOV	Fires the sync sweep (SYNC) or the pitch scoop (HOOV).
ORGN	Fires the percussion and the key click (the organ itself sustains).
WOB, SIRN	Restarts the internal LFO, so the wobble or the siren locks to your clock.
NOIZ, SUPR, PAD, COMB, DUST	No effect on the sound.
Other voices	Hard sync: the waveform restarts. LFSR also restarts its register.

NOTE Triggers also fire the internal envelope. As soon as any envelope amount (env FM, TIM, COL or VCA) is above zero, hard sync is switched off. Drum hits, accents, stabs, sweeps and LFO restarts still respond.

Tuning

Every engine follows V/OCT, the COARSE and FINE knobs, and the FM input, including the drums. Some drums are offset so that the same pitch CV sits in a useful range:

Engine	Offset from the played note
KICK, RMBL, BOOM, PNCH	15 semitones below (C3 at V/OCT gives a 55 Hz kick)
FMDR	1 octave below
TOM	7 semitones below
SNAR	5 semitones above
CLNG	1 octave above
COWB, RIDE, CRSH	13, 14 and 18 semitones above
HATS	2 octaves above

Engine	Offset from the played note
CLAV	31 semitones above
All others	None (filters and resonators of the noise drums follow the note too)

TIP Patch a sequencer into V/OCT on KICK for tuned kicks that follow your bassline key, or add a slight random CV on HATS for a more human groove.

Sound quality

TecXoX renders at 96 kHz. The sawtooth, square and pulse oscillators are band-limited, and so are the resets of SYNC. The wavefolder (FOLD) and the wrap-around distortion (GRND, SMSH) use antiderivative anti-aliasing. FM, additive, organ and phase-distortion engines limit their brightness on very high notes so they stay clean.
Some engines (GRND at high settings, SMSH, LFSR, BITS, CHIP, GLCH) are meant to sound harsh and digital. For even more grit, the BITS and RATE settings reduce the output resolution.

Levels

Drums hit close to full scale. Voices are mixed to a strong, consistent level, and engines that can overload use a soft clipper instead of hard clipping.

CHAPTER 4

Drum engines

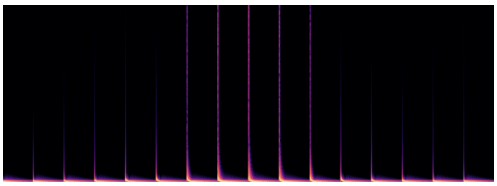
The 26 drum engines need a trigger at the TRIG input (or the internal clock, ICLK). Each trigger is a new hit. All of them can be tuned with V/OCT and the COARSE knob.

Each engine has a *sound portrait*: a picture of four bars of TecXoX playing a 128 BPM pattern while TIMBRE sweeps slowly. Time runs left to right and frequency (0–16 kHz) bottom to top.

KICK

Kick

Engine 1 · Sine kick



A pure sine body with a fast downward pitch sweep: the four-on-the-floor workhorse. The sweep takes about 40 ms, so short settings give a tight thud and deep settings give a laser-like attack. The last quarter of TIMBRE adds a noise click and drives the whole kick into a soft clipper.

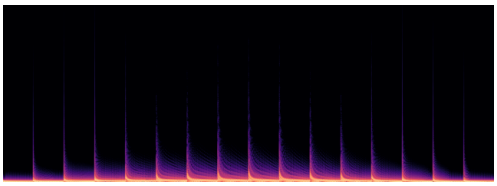
TIMBRE	0–75%: sweep depth, 0 to 4 octaves. 75–100%: full sweep plus increasing click and drive (up to 3×).
COLOR	Decay, 40 ms (tight) to 2.5 s (808-style boom)
TRIG	Strikes the kick (restarts at zero phase).
PITCH	15 semitones below the played note: C3 at V/OCT gives an A1 (55 Hz) body.

TIP For a hard techno kick: TIMBRE at about 2 o'clock, COLOR at 10 o'clock. Turn TIMBRE past 3 o'clock for distorted, clicky industrial kicks.

RMBL

Rumble

Engine 2 · Kick through a wavefolder and low-pass



The same kick body with a fixed 2-octave sweep, driven into a wavefolder and then a low-pass filter tuned to 6× the fundamental. As the kick decays, the folding fades away on its own, so each hit goes from growl to clean sub. It's the rumbling tail of modern techno in one engine.

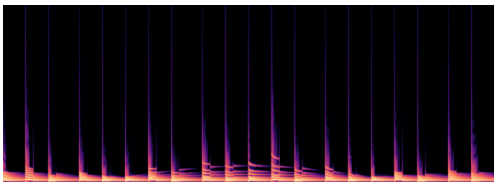
TIMBRE	Fold drive, 1× to 9×
COLOR	Decay, 100 ms to 3 s
TRIG	Strikes.
PITCH	−15 semitones, as KICK.

TIP Long COLOR and medium TIMBRE on an off-beat trigger (or under a KICK from a second module) give the classic rolling rumble bass. Put a reverb before your mixer for the full effect.

SKIN

Skin

Engine 3 · Six-partial additive drum



Six sine partials, each with its own decay: the higher a partial, the faster it fades. TIMBRE morphs the partial frequencies from a harmonic series, through the ratios of a real drum membrane, to a prime-number series. Each hit also drops 3 semitones in pitch for a natural attack.

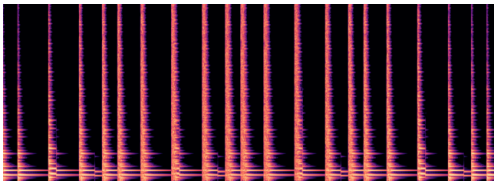
TIMBRE	Partial ratios: harmonic (0%) → membrane (50%) → prime (100%)
COLOR	Decay, 60 ms to 2 s for the lowest partial
TRIG	Strikes.
PITCH	Played note.

TIP Membrane settings (12 o'clock) give toms and congas; patch a sequencer into V/OCT for tuned tom fills. Prime settings sound like struck metal plates.

CLNG

Clang

Engine 4 · Cross-modulated phase-modulation metal



Two chains of three sine operators at inharmonic ratios. Each chain phase-modulates its own carrier, and the two carriers also modulate each other. Modulation decays faster than volume, so every hit starts bright and settles to a hum: cowbells, bells, gongs and clanking metal.

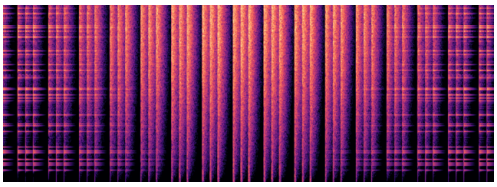
TIMBRE	Modulation index (clean → complex and noisy)
COLOR	Decay, 40 ms to 2 s
TRIG	Strikes.
PITCH	One octave above the played note.

TIP TIMBRE at 9 o'clock with a short COLOR is a cowbell. Push TIMBRE up and COLOR to 2 o'clock for an industrial metal hit.

HATS

Hats

Engine 5 · Six squares plus noise, high-passed



Six square-wave oscillators at inharmonic ratios, the recipe behind classic analog hi-hats, mixed with white noise and sent through a high-pass filter that follows the pitch. COLOR goes from a closed tick to an open, ringing hat or crash.

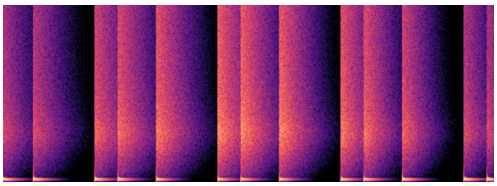
TIMBRE	Mix: metallic squares (0%) → pure noise (100%)
COLOR	Decay: closed (15 ms) → open (1.2 s)
TRIG	Strikes.
PITCH	Two octaves above the played note. The filter sits about 66 semitones above the note (about 6 kHz at C3).

TIP Sequence COLOR with a stepped CV to switch between closed and open hats from a single trigger line. Raising V/OCT makes the hats smaller and brighter.

SNAR

Snare

Engine 6 · Tuned body plus snappy noise



Two sines a ratio of 1.6 apart, with a quick 4-semitone pitch drop, form the body. Band-passed noise forms the snares. TIMBRE balances the two, and COLOR sets both decays together.

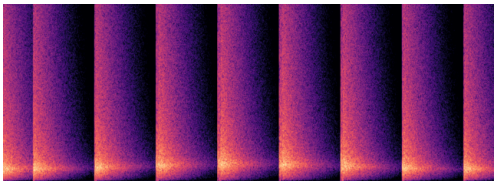
TIMBRE	Body (0%) → snappy (100%)
COLOR	Decay: body 30–250 ms, noise 50–900 ms
TRIG	Strikes.
PITCH	5 semitones above the played note (C3 gives about 175 Hz).

TIP TIMBRE at 2 o'clock with a short COLOR is a tight electronic snare. Push COLOR up for long noise washes on breakdowns.

CLAP

Clap

Engine 7 · Three bursts and a tail



Band-passed noise shaped into three quick bursts followed by a decaying tail, like a group of hands clapping almost together.

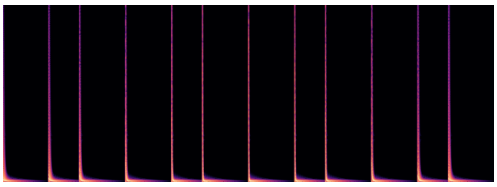
TIMBRE	Burst spacing, 5 ms (tight) to 15 ms (loose). Also raises the filter slightly.
COLOR	Tail decay, 40 ms to 0.9 s
TRIG	Starts a new clap.
PITCH	The filter sits 3 octaves above the played note (about 1 kHz at C3). V/OCT changes the clap's color.

TIP Clap on 2 and 4 with COLOR at 11 o'clock. Patch a little random CV into V/OCT so no two claps are identical.

ZAP

Zap

Engine 8 · Extreme pitch sweep



A sine whose pitch dives down from several octaves above the note in a few milliseconds, with a touch of self-modulation that follows the sweep. It covers lasers, blips, electronic toms and percussive clicks.

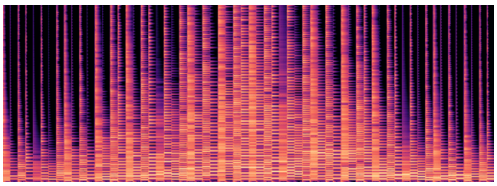
TIMBRE	Sweep depth, 2 to 8 octaves. Deeper sweeps are also faster (40 ms → 8 ms).
COLOR	Decay, 30 ms to 1.2 s
TRIG	Strikes.
PITCH	The sweep ends on the played note.

TIP Short COLOR and low TIMBRE make a punchy synth tom. Sequence V/OCT for melodic zaps.

PLUK

Pluck

Engine 9 · Karplus-Strong string



A burst of filtered noise sent into a tuned delay line with a damping filter: a physical model of a plucked string. It ranges from muted, woody plucks to long, bright tones, and from sub-bass (down to about 23 Hz) to high pings.

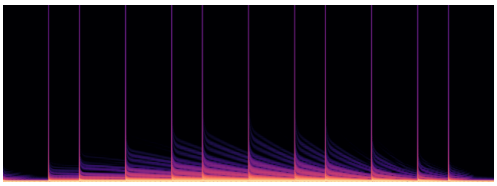
TIMBRE	Brightness of the pluck and of the string
COLOR	Decay, from muted to long ring
TRIG	Plucks the string.
PITCH	Played note.

TIP Dark (TIMBRE low) and short gives dub-techno plucks; bright and long gives metallic arpeggios.

BOOM

Boom

Engine 22 · 808-style long kick



A deep sine kick with a quick drop of 10 semitones and a slow 2-semitone “slide” that follows the decay, like the long, booming 808 bass drums of trap and techno. TIMBRE drives it into a soft saturator: clean sub at the minimum, then a warm, then a distorted, almost square boom.

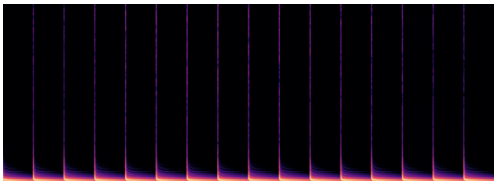
TIMBRE	Drive, clean (0%) to heavily saturated (100%)
COLOR	Decay, 200 ms to 4 s
TRIG	Strikes the kick (restarts at zero phase).
PITCH	15 semitones below the played note, as KICK.

TIP Sequence V/OCT to play the boom as a bass line: with COLOR at 2 o'clock each hit sustains into the next note. A touch of TIMBRE helps it cut through on small speakers.

PNCH

Punch

Engine 23 · 909-style punchy kick



A tight kick with a two-stage pitch drop (a very fast 30-semitone snap, then a slower 7-semitone fall) and a slightly flattened sine for a harder, punchier body. TIMBRE adds the noise click of the beater.

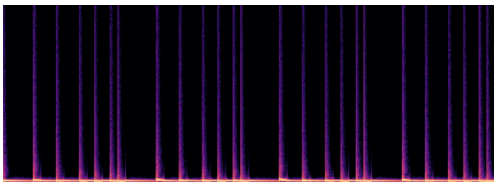
TIMBRE	Click, from none to a sharp beater attack
COLOR	Decay, 80 ms to 1.5 s
TRIG	Strikes.
PITCH	15 semitones below the played note, as KICK.

TIP COLOR at 10 o'clock and TIMBRE at 1 o'clock is a classic four-on-the-floor kick. Add DRIV on the MORE page for a harder, compressed sound.

TOM

Tom

Engine 24 · Tuned tom with a pitch drop



A sine body with a pitch drop, a second partial a fifth above that dies faster, and a short burst of band-passed noise for the stick. Toms, synth toms and tuned percussion.

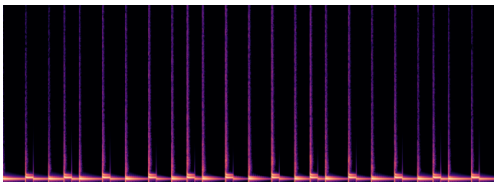
TIMBRE	Pitch drop, 2 to 14 semitones
COLOR	Decay, 80 ms to 1.5 s (the drop and the upper partial follow)
TRIG	Strikes.
PITCH	7 semitones below the played note.

TIP Sequence V/OCT down a few semitones per step for tom fills. A deep drop and a short decay make a classic electronic “pew” tom.

CONG

Conga

Engine 25 · Conga and bongo



Two membrane modes (the second at 1.59× the first), a small upward pitch kick at the attack, and a slap of band-passed noise. TIMBRE goes from an open, ringing tone to a dry slap.

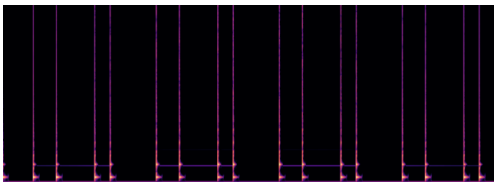
TIMBRE	Open tone (0%) → slap (100%). The slap also shortens the tone.
COLOR	Decay, 60 ms to 0.9 s
TRIG	Strikes.
PITCH	Played note: C4 to G4 gives congas, higher notes give bongos.

TIP Alternate two V/OCT values (a fifth apart) and switch TIMBRE between open and slap with a stepped CV for a Latin pattern.

RIM

Rimshot

Engine 26 · 808-style rimshot



A single impulse rings two tuned resonators, and the result is clipped, the recipe of the classic drum machine rimshot. TIMBRE balances the low and high resonators and adds a click.

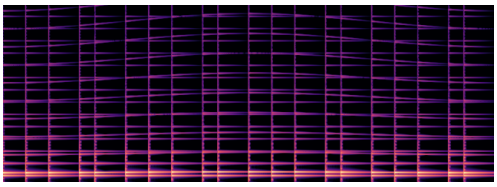
TIMBRE	Tone: low ring (0%) → high ring with click (100%)
COLOR	Ring time, 7 ms to 120 ms
TRIG	Strikes.
PITCH	Resonators 8 and 31 semitones above the played note.

TIP Keep COLOR short for the dry rimshot; longer settings turn it into wood blocks and tuned pings.

COWB

Cowbell

Engine 27 · 808-style cowbell



Two square waves through a band-pass filter, with a fast and a slow decay stage: the famous drum machine cowbell. TIMBRE changes the interval between the two squares, from dull to bright and clangy.

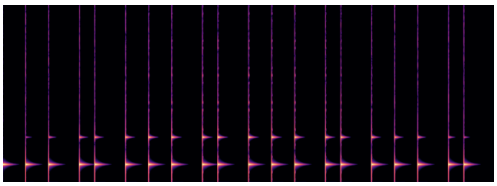
TIMBRE	Interval between the squares, 1.37× to 1.77×
COLOR	Decay, 60 ms to 0.9 s
TRIG	Strikes.
PITCH	The first square sits 13 semitones above the played note.

TIP TIMBRE at noon is the classic sound. Random CV on V/OCT gives a family of different cowbells.

CLAV

Claves

Engine 28 · Claves and woodblock



A struck hardwood bar: a high, pure tone with a tiny click. TIMBRE brings in a second mode at 2.57×, which turns the claves into a hollow woodblock.

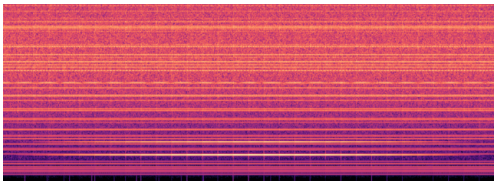
TIMBRE	Claves (pure) → woodblock (second mode)
COLOR	Decay, 15 ms to 200 ms
TRIG	Strikes.
PITCH	31 semitones above the played note (about 1.6 kHz at C4).

TIP Use it as a click track or a high percussion accent on the off-beats.

RIDE

Ride

Engine 29 · Ride cymbal with bell



Six square oscillators at inharmonic ratios and a little noise, filtered into a shimmering wash, with a bell ping on top. TIMBRE sets the level of the bell.

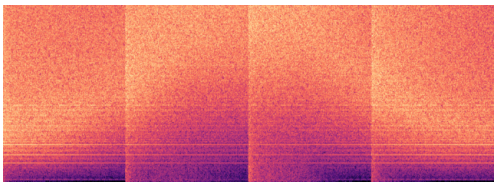
TIMBRE	Bell level, from pure wash to a strong bell
COLOR	Decay, 0.5 s to 6 s
TRIG	Strikes.
PITCH	The metal sits 14 semitones above the played note, the bell 38 semitones above.

TIP Play quarter notes with COLOR at noon and TIMBRE low, and accent the off-beats with a higher TIMBRE.

CRSH

Crash

Engine 30 · Crash cymbal



Pairs of square waves ring-modulated against each other (the trick behind analog cymbals), mixed with noise and high-passed, with a bright splash at the start and a long tail.

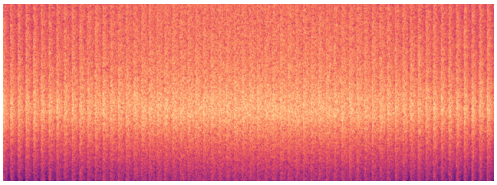
TIMBRE	Brightness (filter cutoff)
COLOR	Decay, 0.6 s to 8 s
TRIG	Strikes.
PITCH	The metal sits 18 semitones above the played note.

TIP Trigger it on the first beat of every 8 or 16 bars. With a long COLOR and a low TIMBRE it becomes a gong-like wash.

SHKR

Shaker

Engine 31 · Shaker and maraca



Random grains, like beads in a shaker, through a band-pass filter. Each hit swells up and then dies away, so it sounds shaken rather than struck.

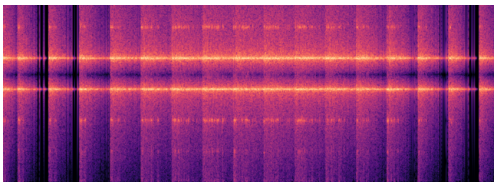
TIMBRE	Shake length: swell and tail, short (0%) to long (100%)
COLOR	Brightness (filter frequency)
TRIG	Starts a new shake.
PITCH	The filter sits 40 to 70 semitones above the played note.

TIP Trigger 16th notes and patch an accent CV into TIMBRE: long shakes on the off-beats give a natural groove.

TAMB

Tambourine

Engine 32 · Shaken jingles



Shaken beads that ring two high jingle resonators. TIMBRE sets how long the shake lasts, COLOR how long the jingles ring.

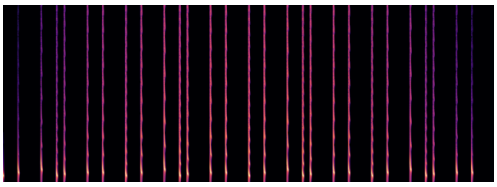
TIMBRE	Shake length, 40 ms to 0.6 s
COLOR	Jingle ring time
TRIG	Starts a new shake.
PITCH	Jingles 60 and 65 semitones above the played note.

TIP Put it on 2 and 4 together with the clap, or on every off-beat 8th for a disco feel.

BLIP

Blip

Engine 33 · Short tone with a chirp



A short, gated tone with a quick downward chirp of an octave: the bleeps of minimal techno and electro. TIMBRE morphs the wave from sine to square.

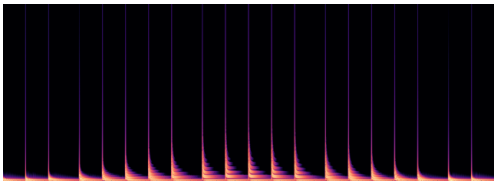
TIMBRE	Sine (0%) → square (100%)
COLOR	Length, 5 ms to 300 ms
TRIG	Plays a blip.
PITCH	Played note (the chirp starts an octave higher).

TIP Sequence V/OCT with a fast arpeggio (ARP on the MORE page) and short blips for classic bleep techno.

FMDR

FM drum

Engine 34 · Two-operator FM percussion



A two-operator FM pair with its own pitch drop and a modulation index that dies faster than the volume, so every hit starts complex and ends as a pure tone. Wood, metal, glass, toms and electronic bongos.

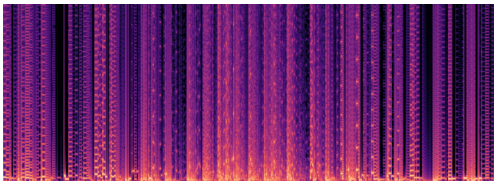
TIMBRE	Modulator ratio, 0.5 to 6 (metallic in between the whole numbers)
COLOR	Decay, 60 ms to 1.5 s
TRIG	Strikes.
PITCH	One octave below the played note.

TIP Slowly sweep TIMBRE while the pattern plays: every hit gets a new material.

GLCH

Glitch

Engine 35 · Random digital bursts



Every hit is a new burst of short random steps of square, saw, noise and crushed sine at random pitches, with random gaps. No two hits are the same: glitch, IDM and broken-machine percussion.

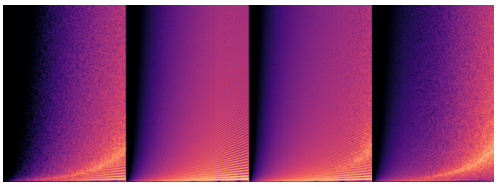
TIMBRE	Chaos: faster steps and a wider pitch range
COLOR	Decay, 30 ms to 1.2 s
TRIG	A new random burst.
PITCH	The random pitches spread around the played note.

TIP Combine with PROB and RTCH on the MORE page for stuttering, never-repeating fills.

RISE

Riser

Engine 36 · Noise and saw riser



A build-up effect: noise and a saw sweep upward and grow louder over the rise time, then cut off. TIMBRE mixes from pure noise to a rising saw.

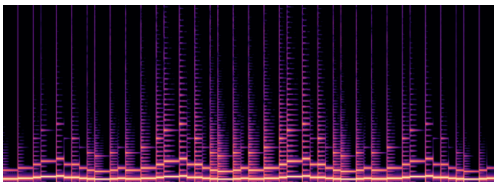
TIMBRE	Noise (0%) → saw (100%)
COLOR	Rise time, 0.25 s to 8 s
TRIG	Starts a new rise.
PITCH	The sweep starts an octave below the played note.

TIP Trigger it at the start of the last bar of a phrase, with COLOR set so that the rise lasts exactly one bar (about 1 o'clock at 128 BPM). Add ECHO for a bigger build.

MRMB

Marimba

Engine 37 · Struck bar



A struck wooden bar with three modes tuned 1 : 4 : 10, like a marimba. TIMBRE is the mallet: soft mallets give a round tone, hard mallets bring out the upper modes and a click.

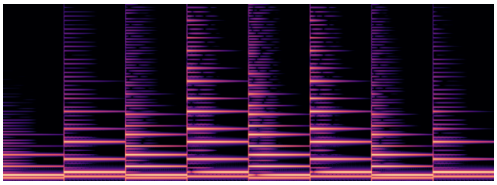
TIMBRE	Mallet hardness
COLOR	Decay, 0.2 s to 2 s
TRIG	Strikes.
PITCH	Played note.

TIP Play melodic patterns through the arpeggiator (ARP) with ICLK for instant mallet sequences.

BELL

Bell

Engine 38 · FM bell



An inharmonic FM pair (ratio 3.5) with a low hum partial an octave below. The modulation fades faster than the tone, so each bell starts bright and settles into a pure ring.

TIMBRE	Brightness (modulation index)
COLOR	Decay, 0.3 s to 8 s
TRIG	Strikes.
PITCH	Played note (the hum is an octave below).

TIP Long COLOR, sparse triggers and a slow echo give a church-bell atmosphere.

CHAPTER 5

Voice engines

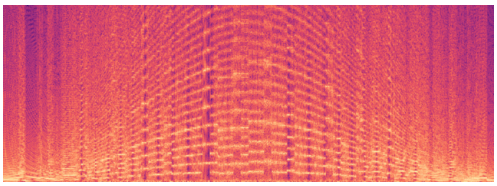
The 30 voice engines play continuously. Shape them with an external VCA and envelope, or turn on the internal envelope's VCA (env VCA) in the settings menu, with ENV on AD or ADSR.

Each engine has a *sound portrait*: a picture of four bars of TecXoX playing a 128 BPM pattern while TIMBRE sweeps slowly. Time runs left to right and frequency (0–16 kHz) bottom to top.

GRND

Grind

Engine 10 · Saw-mod supersaw with smash



Six slightly detuned sawtooth oscillators. Each reads its phase multiplied by a non-integer factor, which tears the saw into hard, buzzing edges as TIMBRE rises (“saw-mod”). COLOR then drives the result into wrap-around distortion (“smash”): instead of clipping, peaks wrap to the other side. The wrap is anti-aliased.

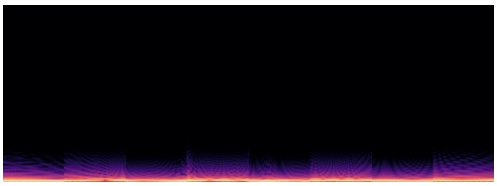
TIMBRE	Saw-mod factor, 1 (clean supersaw) to 15 (torn)
COLOR	Smash: 1× (clean) to 8× (wrapped)
TRIG	Hard sync: restarts all six saws.
PITCH	Played note.

TIP Start with both knobs at minimum for a fat supersaw, then sweep TIMBRE with an LFO. Add smash slowly: the first quarter of COLOR is the sweet spot for lead growl.

DEEP

Deep

Engine 11 · Wandering saws into a low-pass



Three sawtooth oscillators that slowly and randomly wander in pitch around the note, through a low-pass filter that tracks the keyboard. It's warm, unstable and analog-feeling: pads, chords and deep basses.

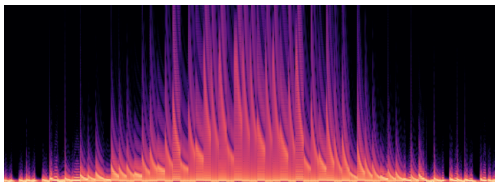
TIMBRE	Depth: amount of detune and random wander
COLOR	Filter cutoff, from an octave below the note to 6 octaves above
TRIG	Hard sync.
PITCH	Played note.

TIP COLOR around 10 o'clock and TIMBRE at noon give a deep-techno pad. Use the internal envelope (env COL) for filter plucks.

ACID

Acid

Engine 12 · Saw into a squelchy resonant low-pass



A band-limited sawtooth through two cascaded resonant filters, for a steep, squelchy slope. Each trigger fires an **accent**: the cutoff jumps up by 40 semitones and falls back over about 200 ms. The cutoff follows the keyboard by half.

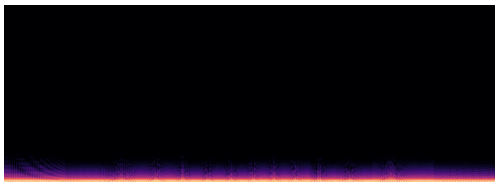
TIMBRE	Cutoff
COLOR	Resonance, from none to screaming
TRIG	Accent (filter sweep) and hard sync.
PITCH	Played note.

TIP Sequence V/OCT with a 16-step line, TIMBRE at 9 o'clock, COLOR at 2 o'clock, and a trigger on accented steps only. Slowly open TIMBRE over 32 bars.

REES

Reese

Engine 13 · Detuned saw bass with sub



Two sawtooths detuned against each other through a low-pass filter, plus a sine one octave below. The phasing between the saws is the Reese bass of drum and bass and dark techno.

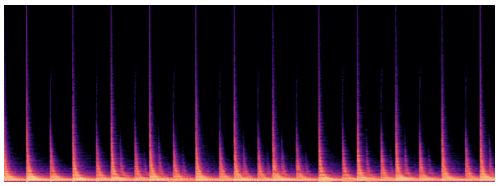
TIMBRE	Detune, from slow beating to half a semitone
COLOR	Filter cutoff
TRIG	Hard sync.
PITCH	Played note. The sub is one octave lower.

TIP Low TIMBRE and COLOR at 10 o'clock give a rolling sub-bass. Turn both up for a snarling mid-bass.

DUB

Dub

Engine 14 · Chord stab with echo



A four-note chord stab of filtered saws, with a fast filter envelope and a dark, 360 ms tape-style echo. The repeats get darker each time.

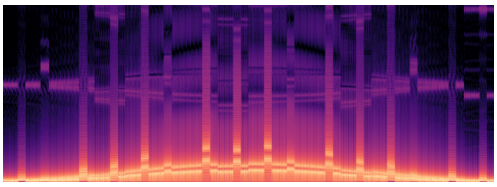
TIMBRE	Chord: m7, m9, sus4, m11, 5ths, maj7, spread minor, m7b5
COLOR	Echo amount: feedback 0–80% and wet level together (fully counter-clockwise = dry stab)
TRIG	Fires the stab. DUB is silent without triggers; the echo keeps ringing after the last stab.
PITCH	Played note = chord root.

TIP Trigger on the off-beat 16ths with COLOR at 1 o'clock for instant dub techno. Change chords with a stepped CV on TIMBRE.

VOSM

Vosim

Engine 15 · Pulse-train formants



Every cycle, two short sine bursts restart and fade out. The bursts set a pair of formants (resonances) while the restart rate sets the pitch, giving vocal, nasal and hollow tones. The formants stay below about 12 kHz.

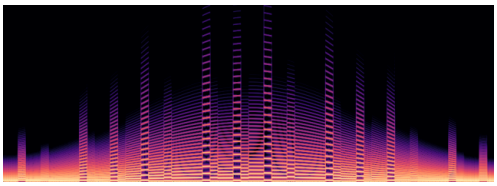
TIMBRE	Formant frequency, 1× to 16× the pitch
COLOR	Damping: buzzy (long bursts) → hollow (short bursts)
TRIG	Hard sync.
PITCH	Played note.

TIP Sweep TIMBRE with an envelope for talking basses; low notes and high TIMBRE give buzzy, insect-like textures.

SUMS

Sums

Engine 16 · Closed-form summation (endless partials)



A mathematical formula that adds up an endless series of partials at once, each spaced by a chosen ratio and each quieter than the last. At low settings it's nearly a sine; at high settings it's a dense, bright, buzzy spectrum. Brightness is limited automatically at high pitches to keep aliasing down.

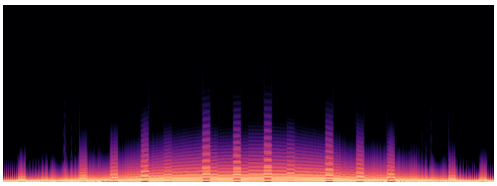
TIMBRE	Partial spacing ratio, 0.5 to 8 (integers sound harmonic; in-between values sound metallic)
COLOR	Brightness: how slowly the partials fall away
TRIG	Hard sync.
PITCH	Played note.

TIP With COLOR at 2 o'clock, sweep TIMBRE slowly: the sound moves through harmonic and bell-like regions. Great for evolving drones.

XPM

Cross PM

Engine 17 · Two sines modulating each other



Two sine oscillators phase-modulate each other, plus amplitude modulation. The return path is filtered, so high settings turn growly and chaotic instead of whistling.

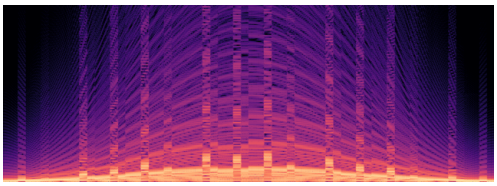
TIMBRE	Frequency ratio of the second sine, 0.5 to 4.5
COLOR	Modulation depth (also sets the AM amount)
TRIG	Hard sync.
PITCH	Played note.

TIP Ratios near 1 give phasing, chorus-like tones; non-integer ratios with high COLOR give FM noise for industrial percussion (add the internal envelope on VCA).

FOLD

Fold

Engine 18 · Endless wavefolder



A sine wave pushed through an endless triangle folder: each time the signal hits the ceiling it reflects back. More drive means more folds and more harmonics. COLOR shifts the signal before folding, which adds even harmonics. Folding is anti-aliased, and drive is limited automatically on high notes.

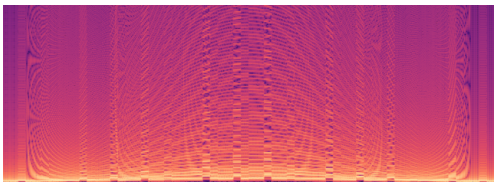
TIMBRE	Drive, 1× to 12×
COLOR	Bias: symmetry of the folds
TRIG	Hard sync.
PITCH	Played note.

TIP An envelope on TIMBRE (env TIM) gives west-coast-style plucks. Audio-rate modulation into TIMBRE gets wild quickly.

SMSH

Smash

Engine 19 · Waveform into wrap-around distortion



A waveform that morphs from sine through saw to square, multiplied and wrapped around: when the signal passes full scale it reappears on the opposite side. This is a hard, digital distortion with no analog equivalent. The wrap is anti-aliased and drive is limited on high notes, but this engine is meant to be harsh.

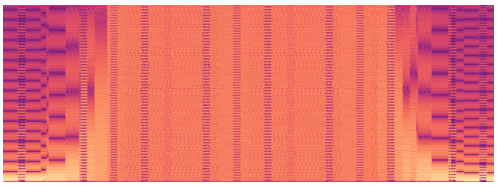
TIMBRE	Smash gain, 1× to 8×
COLOR	Waveform: sine (0%) → saw (50%) → square (100%)
TRIG	Hard sync.
PITCH	Played note.

TIP Sine plus moderate smash is a great acid-like lead without a filter. Square plus full smash is pure noise music.

LFSR

Shift register

Engine 20 · Pitched maximal-length noise



A linear-feedback shift register (the noise source of vintage game consoles), clocked so that its whole sequence repeats exactly once per cycle. Short registers sound like buzzy, chippy tones; long registers sound like pitched noise. At high pitches the register is shortened automatically.

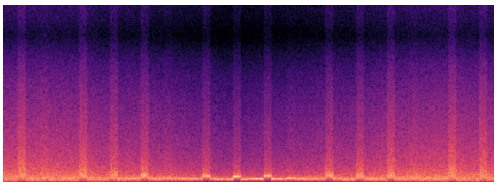
TIMBRE	Register length, 3 to 15 bits
COLOR	Output resolution, 1 to 8 bits (1 bit is pure square-like grit)
TRIG	Restarts the register (hard sync).
PITCH	Played note.

TIP Sequence TIMBRE in steps for 8-bit-style rhythmic timbre changes. Low notes and long registers give glitchy rhythmic textures.

NOIZ

Noise

Engine 21 · Clocked noise into a resonant band-pass



White noise held at a clock rate (sample-and-hold), sent through a resonant band-pass filter tuned to the played pitch. Low resonance gives a tinted noise; high resonance gives a whistling, pitched tone. The clock adds digital grain.

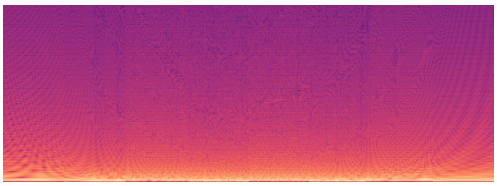
TIMBRE	Resonance: noise (0%) → whistle (100%)
COLOR	Noise clock, from the played pitch up 8 octaves; full rate at the very top
TRIG	Not used.
PITCH	Played note (filter centre).

TIP With the internal envelope on VCA this makes risers, sweeps and noise snares. Sweep V/OCT with an envelope for whooshes.

SUPR

Supersaw

Engine 39 · Seven detuned saws



Seven band-limited sawtooths spread around the note, with a high-pass at the fundamental to keep the low end clean: the giant trance and rave lead.

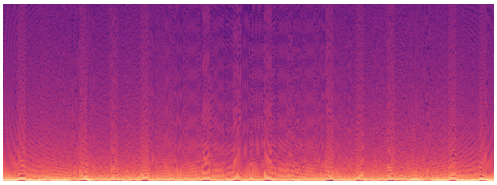
TIMBRE	Detune, from a tight chorus to a huge spread
COLOR	Level of the six side saws against the centre saw
TRIG	No effect.
PITCH	Played note.

TIP TIMBRE at noon and COLOR at 3 o'clock. Use ENV ADSR with VCA on and CHOR ENS for a full trance lead.

PWM

PWM

Engine 40 · Two pulse waves with width modulation



Two slightly detuned pulse waves whose widths are modulated in opposite directions by an internal LFO, for the lively, chorused sound of analog PWM strings and basses.

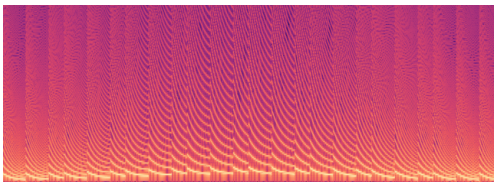
TIMBRE	Pulse width, 50% (square) to 5% (thin)
COLOR	PWM depth and speed (0 = static)
TRIG	Hard sync.
PITCH	Played note.

TIP Low TIMBRE and COLOR at 2 o'clock for strings; high TIMBRE and COLOR off for a nasal, reedy bass.

SYNC

Sync

Engine 41 · Hard-sync saw



A saw slaved to a hidden master oscillator: as the slave's ratio rises, the classic tearing sync sweep. The resets are band-limited, so the sweep stays clean. Each trigger can also fire a sweep of its own.

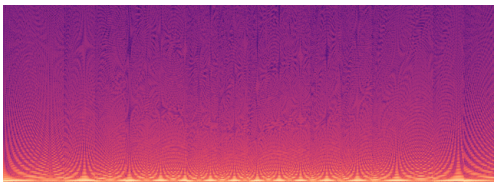
TIMBRE	Slave ratio, 1 to 8
COLOR	Sweep on TRIG: the ratio jumps up and falls back in about 150 ms
TRIG	Fires the sweep.
PITCH	Played note (the master's pitch).

TIP Put an envelope or LFO on TIMBRE for the classic sync lead, or use COLOR for a zappy attack on every note.

HOOV

Hoover

Engine 42 · Rave hoover



Three detuned pulse-saws and a sub saw an octave below, with a slowly moving pulse width and a pitch scoop up into each note: the screaming “hoover” of rave and hardcore.

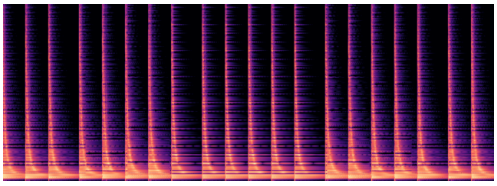
TIMBRE	Detune, up to about 47 cents
COLOR	Scoop on TRIG: the note starts up to an octave below and glides up
TRIG	Fires the scoop.
PITCH	Played note (the sub is an octave below).

TIP COLOR at 2 o'clock and GLID on the MORE page at 3 or 4: play slow, wide intervals on V/OCT.

RAVE

Rave stab

Engine 43 · Chord stab with a snapping filter



A four-note chord of saws through a resonant filter that snaps shut on every trigger: the stabs of rave, house and techno. Like DUB, it is silent until triggered.

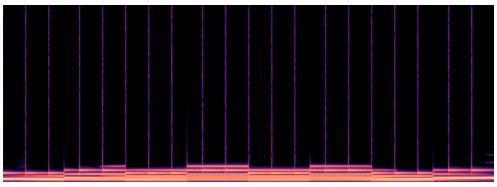
TIMBRE	Chord: minor, major, m7, fifths, sus4, maj7, m9, octaves
COLOR	Stab length, 60 ms to 1.2 s
TRIG	Plays the stab.
PITCH	Played note is the chord's root.

TIP ECHO 9 with TIME on CLK. (dotted) and a sparse trigger pattern: instant 90s rave.

ORGN

Organ

Engine 44 · Drawbar organ with percussion



Six drawbars (16', 8', 5 1/3', 4', 2 2/3', 2') with registrations that morph from a pure 8' flute to a full organ, plus a percussion on the third harmonic and a key click, both fired by TRIG.

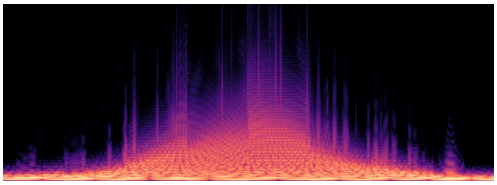
TIMBRE	Registration: 8' alone → 16' + 8' + 4' → full
COLOR	Percussion and key click amount
TRIG	Fires the percussion and the click.
PITCH	Played note (the 16' is an octave below).

TIP COLOR at 2 o'clock and a short echo for a house organ stab; TIMBRE fully up and CHOR DEEP for a rotary-like sound.

PAD

Pad

Engine 45 · String pad



Four sawtooths (two at the note and two an octave up) that slowly drift against each other, through a gentle two-stage low-pass. Warm string machine and pad sounds.

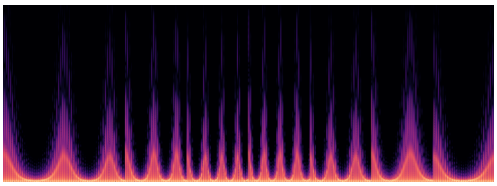
TIMBRE	Brightness (filter cutoff)
COLOR	Ensemble: amount of detune and slow motion
TRIG	No effect.
PITCH	Played note.

TIP ENV ADSR with ATT 9, SUS 12, REL 11 and VCA on, CHOR ENS, and hold chords from a quantized sequencer.

WOB

Wobble

Engine 46 · Wobble bass



A saw and a sub square through a resonant low-pass swept by an internal LFO. Each trigger restarts the LFO at the top of its sweep, so the wobble locks to your clock.

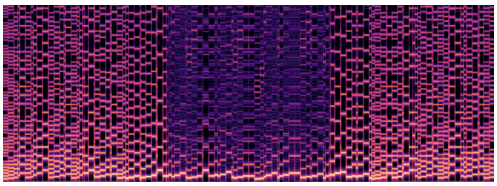
TIMBRE	LFO rate, 0.5 Hz to 16 Hz
COLOR	Wobble depth (up to 6 octaves of cutoff)
TRIG	Restarts the LFO.
PITCH	Played note (the sub is an octave below).

TIP Clock TRIG on every beat and set TIMBRE so that the wobble divides the beat: 2, 3 or 4 wobbles per beat.

CHIP

Chip

Engine 47 · 8-bit pulse and triangle



The waves of 8-bit game consoles: pulses of 12.5%, 25% and 50% and a stepped 4-bit triangle, plus a fast built-in arpeggio (major in the first half of COLOR, minor in the second).

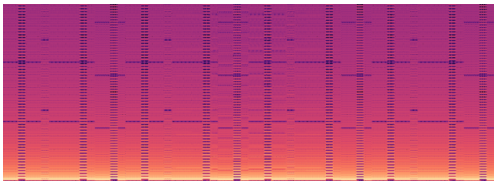
TIMBRE	12.5% / 25% / 50% pulse, triangle (four steps)
COLOR	Arpeggio: off, then faster and faster (major), then again (minor)
TRIG	Hard sync.
PITCH	Played note.

TIP COLOR a little above noon for a classic minor chip chord; the triangle with COLOR off is a perfect chip bass.

BITS

Bits

Engine 48 · Bit crusher



A saw reduced in bit depth and sampled at a multiple of its own frequency, so the crushing stays in tune and musical: from subtle grit down to a 1-bit buzz.

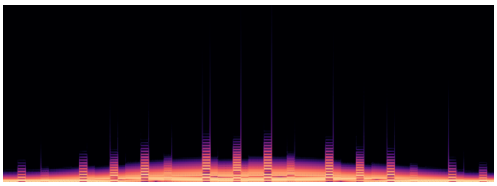
TIMBRE	Bits, 16 → 1
COLOR	Sample rate, high → 2× the pitch
TRIG	Hard sync.
PITCH	Played note.

TIP Sequence TIMBRE for gritty bass lines that change texture on every step.

FM2

FM 2-op

Engine 49 · Two-operator FM with feedback



A sine carrier phase-modulated by a sine modulator with a little feedback. The ratios are whole numbers, so everything stays harmonic: FM basses, electric pianos, brass and bells.

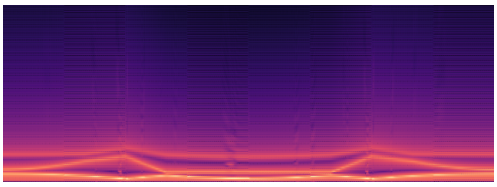
TIMBRE	Modulation index (0 to 6), reduced at high pitches to avoid aliasing
COLOR	Ratio: 0.5, 1, 2, 3, 4, 5, 7, 9
TRIG	Hard sync.
PITCH	Played note.

TIP Ratio 1 (COLOR just past 9 o'clock) and env TIM with a short decay give the classic FM bass.

VOX

Vox

Engine 50 · Formant vowels



A saw through three formant filters that morph through the vowels A, E, I, O and U. COLOR shifts all the formants up or down, from a large, deep voice to a small, bright one.

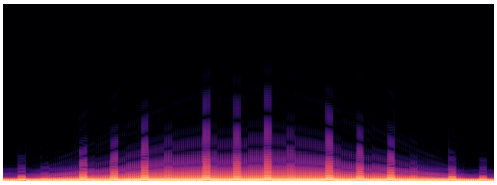
TIMBRE	Vowel: A → E → I → O → U
COLOR	Formant shift, ×0.75 to ×1.5
TRIG	Hard sync.
PITCH	Played note.

TIP A slow LFO on TIMBRE makes it talk; RNDT on the MORE page gives every note a different vowel.

SUB

Sub

Engine 51 · Sub bass



A pure sine and its sub-octave, with drive. The basic, solid sub bass that every techno track needs.

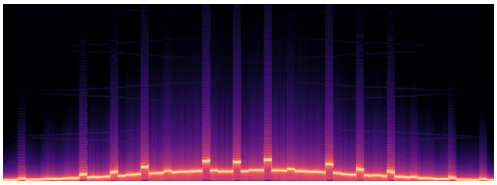
TIMBRE	Drive (adds harmonics so the bass is heard on small speakers)
COLOR	Sub-octave: none → sine → square-like
TRIG	Hard sync.
PITCH	Played note (the sub is an octave below).

TIP Keep TIMBRE low under a busy mix, and raise it for a solo bass line.

CZ

CZ

Engine 52 · Phase-distortion resonance



A windowed sine restarted on every cycle, the resonant waves of 80s phase-distortion synths. It sounds like a resonant filter sweep without a filter.

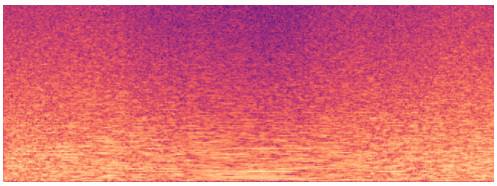
TIMBRE	Resonance (1 to 16, limited at high pitches)
COLOR	Window: saw → triangle → trapezoid
TRIG	Hard sync.
PITCH	Played note.

TIP Put env TIM on it with a short decay for squelchy, filter-like plucks.

COMB

Comb

Engine 53 · Comb drone



Filtered noise feeding a tuned comb: a sustained, string-like resonance that breathes. At low TIMBRE it is airy and hissy; at high TIMBRE it sings.

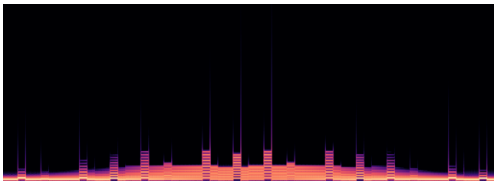
TIMBRE	Feedback, airy → singing
COLOR	Brightness
TRIG	No effect.
PITCH	Played note.

TIP Hold a low note and slowly move TIMBRE for drones and dark ambient beds.

ADD

Additive

Engine 54 · Ten harmonics



Ten sine harmonics with two controls: a spectral tilt from dark to bright, and the balance of odd and even harmonics (hollow and square-like, full and saw-like, or bright and octave-heavy).

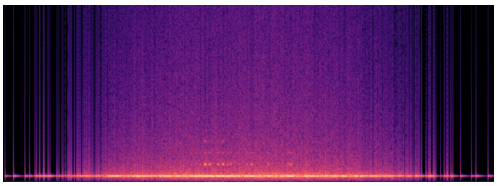
TIMBRE	Brightness (spectral tilt)
COLOR	Odd only → all → even only (plus the fundamental)
TRIG	Hard sync.
PITCH	Played note.

TIP COLOR at 9 o'clock gives a hollow, clarinet-like tone; sweep TIMBRE with an envelope for organ-like swells.

DUST

Dust

Engine 55 · Crackles and drops



Random crackles that ring a resonator tuned to the pitch: from vinyl dust and rain to dripping, pitched drops.

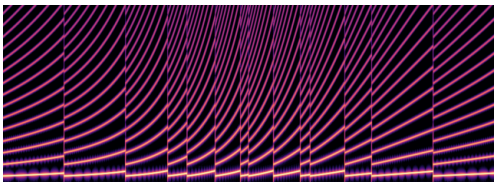
TIMBRE	Density: a few crackles a second to a dense rain
COLOR	Resonance: dry clicks → pitched drops
TRIG	No effect.
PITCH	The resonator sits an octave above the played note.

TIP Run it quietly under a whole track for a lo-fi texture, or with a high COLOR as a generative melody of drops.

SIRN

Siren

Engine 56 · Dub siren



A square wave swept by an internal LFO, the siren of dub and sound systems. In the first half of COLOR the sweep is a triangle; in the second half it becomes a rising “whoop”.

TIMBRE	LFO rate, 0.3 Hz to 10 Hz
COLOR	Triangle sweep up to an octave, then rising whoop up to two octaves
TRIG	Restarts the LFO.
PITCH	Played note is the bottom of the sweep.

TIP ECHO 12 with FDBK 11 and TIME on CLK.: press a button into TRIG to fire the siren on the beat.

CHAPTER 6

Settings menu

Click the encoder to enter the menu, turn to choose an item, and click to edit it. Turn to change the value and click again to go back to the list. Settings are saved automatically and kept when the power is off.

On the display, the envelope items start with a small envelope symbol (shown here as “env”).

Item	Values	Function
WAVE	56 engines	Engine selection (also directly on the encoder).
META	OFF / ON	When ON, the FM input selects the engine instead of modulating pitch. Rising CV steps upward through the list from the engine selected with WAVE.
BITS	2BIT … 16B	Bit depth of the output (2, 3, 4, 6, 8, 12, 16 bits). Lower values add digital crunch.
RATE	4KHZ … 96K	Output sample rate (4, 8, 16, 24, 32, 48, 96 kHz). Lower values add aliasing and a lo-fi character.
TSRC	EXT. / AUTO	Trigger source. EXT.: the TRIG jack. AUTO: also triggers automatically when the V/OCT pitch changes by more than about half a semitone.
TDLY	NONE … 4ms	Delays incoming triggers by 125 µs to 4 ms, so a V/OCT voltage arriving just after the gate is captured correctly.
ENV	AD / ADSR	Envelope type. AD: fires on each trigger. ADSR: follows the gate at TRIG.
env ATT	0 … 15	Attack time of the internal envelope.
env DEC	0 … 15	Decay time of the internal envelope.
env SUS	0 … 15	Sustain level (ADSR only).
env REL	0 … 15	Release time after the gate falls (ADSR only).
env FM	0 … 15	Envelope amount to pitch.
env TIM	0 … 15	Envelope amount to TIMBRE.
env COL	0 … 15	Envelope amount to COLOR.
env VCA	OFF / ON	When ON, the envelope also shapes the output level, so any voice becomes a complete note.
RANG	EXT. / FREE / XTND / 440	Range of the COARSE knob. EXT.: ±4 octaves around the V/OCT note. FREE: ±4 octaves around C3. XTND: wider range, without accurate V/OCT scaling. 440: locked to A = 440 Hz, for tuning.
OCTV	−2 … +2	Octave transposition.
QNTZ	OFF, SEMI, scales	Quantizes V/OCT to semitones or to one of 53 scales: church modes, blues, pentatonic, folk, Japanese, gamelan, gypsy, Arabic, flamenco, whole tone, quarter-tone scales, Indian ragas and 6 chord-tone scales (MAJ, MIN, MAJ7, MIN7, DOM7, SUS4) that only play the notes of the chord.
ROOT	C … B	Root note of the quantizer scale.

Item	Values	Function
FLAT	OFF / ON	Detunes low and high notes slightly, like the tracking imperfections of an analog VCO.
DRFT	OFF, 1, 2, 3, FULL	Random pitch drift, like an unstable analog oscillator.
SIGN	OFF, 1, 2, 3, FULL	Adds subtle waveform imperfections that are unique to your module.
CHOR	OFF, LITE, DEEP, ENS	Chorus: light, deep, or a three-voice ensemble.
RING	OFF, 30 … 1200 Hz	Ring modulator after the engine, for robotic and metallic tones.
ECHO	0 … 15	Echo level (0 = off). A BBD-style echo with darkening repeats. Not available on PLUK, DUB and COMB (see chapter 7).
TIME	125 … 1200 ms, CLK	Echo time, or locked to the clock at TRIG (or ICLK): CLK, CLK. (dotted), CLKT (triplet), CL/2, CLx2.
FDBK	0 … 15	Echo repeats.
MORE	—	Opens the MORE page (chapter 7).
BRIG	3 levels	Display brightness.
CAL.	—	Pitch calibration (see below).
CV tester	—	Bar graphs of the TIMBRE, COLOR, V/OCT and FM inputs, for checking CV ranges.
TXOX	—	Version. Click to show the start-up animation; **holding for 1 s restores all factory settings, including calibration**. (To reset only the sound, use INIT on the MORE page.)

The internal envelope

With ENV on AD, the attack–decay envelope fires on every trigger. With ENV on **ADSR**, it follows the gate at TRIG: attack, decay to the sustain level while the gate is high, and release when it goes low. Either way the envelope amounts can modulate pitch (env FM), TIMBRE (env TIM), COLOR (env COL) and the output level (env VCA). With env VCA on, any voice engine becomes a complete voice: patch only a gate and a pitch CV.

TIP ACID with env VCA on and DEC at 4 is a self-contained acid bass. On drums, env FM adds an extra pitch sweep and env TIM adds per-hit tone changes. For pads: ENV ADSR, ATT 9, SUS 12, REL 11, VCA on.

META mode

With META on, the FM input selects the engine (FMDS on the MORE page then has no effect). 0 V plays the engine chosen with WAVE, and rising voltages step upward through the list. While META is active, the display follows the engine currently playing.

TIP Set WAVE to KICK and feed a stepped sequence into FM in META mode: one trigger line then plays kick, rumble, skin, clang, hats and so on, like a drum machine with a single output.

Calibrating V/OCT

Pitch tracking is calibrated at the factory and normally never needs attention. To recalibrate:

1. Disconnect any cable from the **FM** input.
2. Connect a calibrated V/OCT source (keyboard or MIDI-to-CV converter) to **V/OCT**.
3. Set **COARSE** and **FINE** to 12 o'clock.

4. In the menu, go to **CAL.** and hold the encoder for 1 second. The display shows **>C2**.
5. Send exactly **1 V** and click the encoder. The display shows **>C4**.
6. Send exactly **3 V** and click the encoder. Calibration is saved.

TIP Calibrate on a voice engine such as SUB or REES, so you can hear the pitch while the reference voltages are sent.

NOTE Holding the encoder on the version item (**TXOX**) restores all factory settings and also erases your calibration. Only do this if you intend to recalibrate.

CHAPTER 7

The MORE page

TecXoX has a second page of settings, so the main menu stays short. In the menu, scroll to **MORE** and click: the MORE page opens. **BACK** (first and last item) returns to the main menu. Settings are edited as usual: click to edit, turn, click to return. Everything is saved with your settings, and the calibration is never touched.

TIP Every feature works on every engine. Start with ICLK (no patching needed), then add RTCH and PROB.

FM jack and randomness

Item	Values	What it does
FMDS	PTCH TIMB COLR ECHO RING FILT DRIV CRSH PRST	What the FM jack controls: pitch (default), TIMBRE, COLOR, echo level, ring frequency, filter cutoff, drive, crush (sample-rate and bit reduction), or the preset (PRST: 0–5 V picks preset 1–8).
RNDT / RNDC	0–15	Each trigger moves TIMBRE / COLOR by a random amount. On drums this gives every hit a slightly different tone or length.

Rhythm and triggers

Item	Values	What it does
RTCH	1–4	Ratchet: each note repeats 1–4 times, spread over one clock step.
PROB	6–100 %	Probability that a trigger plays.
SWNG	50–75 %	Swing: every other note is played late.
ICLK	OFF, 40–240 BPM	Internal clock (quarter notes): the module plays with nothing patched at TRIG.
GATE	13–100 %	Gate length of the notes made by ICLK and ratchets (for the ADSR).
TRNT	OFF 1OCT 2OCT	Each note jumps to a random note (in the QNTZ scale when one is set).
OCTJ	OFF 25–100 %	Chance of a random octave jump, up or down.

Arpeggiator and voice

Item	Values	What it does
ARP	OFF UP DOWN UPDN RAND UP2 CONV	Arpeggiator, stepped by each trigger (or ICLK). CONV plays from the outside in.
ACRD	OCT 5TH MAJ MIN SUS4 MAJ7 MIN7 DOM7 ADD9 DIM	The chord the arpeggiator plays.
ARNG	1–3	Arpeggiator range in octaves.
GLID	0–15	Glide between notes (up to 2.5 s).
VIB / VRAT	0–15 / 0–15	Vibrato depth (up to a semitone) and rate.

Item	Values	What it does
HARM	OFF ON	Arpeggio and random notes stay in the QNTZ scale.

Effects

The effects run after the engine, on top of CHOR, RING and ECHO in the main menu. If everything is turned on at once on the heaviest engines, TecXoX automatically lightens the chorus, drive and filter so the sound never breaks up.

Item	Values	What it does
DRIV	0–15	Drive (soft saturation).
FILT / FCUT	OFF LP HP BP / 0–31	Output filter and its cutoff.

NOTE PLUK, DUB and COMB use the echo's memory for their own sound (the string, the dub echo and the comb), so ECHO is bypassed while one of them is selected. DUB has its own echo, set with COLOR. The echo comes back as soon as you choose another engine.

Presets and workflow

A preset stores the engine and every sound setting, from both pages. With FMDS on PRST, a CV on the FM jack switches presets: a sequencer can then change the whole kit on every step.

Item	Values	What it does
SAVE	SV 1–SV 8	Choose a slot, then **hold** the encoder: the display says SAVD.
LOAD	LD 1–LD 8	Choose a slot, then **hold** the encoder: LOAD (or EMPT for an empty slot).
INIT	–	Hold the encoder: all sound settings back to default (calibration, presets and favorites stay).
FAVS	OFF ON	On the engine screen, **hold** the encoder to mark an engine as a favorite (FAV+ / FAV–). With FAVS ON, the encoder only stops on favorites.

Display

Item	Values	What it does
DISP	NAME NOTE LEVL	Engine screen: the engine name, the note being played, or a level meter.
SAVR	OFF 1MIN 5MIN 10M	Screensaver: the logo text scrolls after this long without touching the encoder.
LOGO	OFF ON	Boot logo: the logo text scrolls at power-up. **Hold** the encoder on LOGO to edit the text (turn to choose each letter, click for the next).

CHAPTER 8

Patch ideas

Patch	Engine	How
Warehouse kick	KICK	Clock on every beat. TIMBRE at 2 o'clock, COLOR at 10 o'clock. V/OCT at C3 or a little lower. For extra punch turn TIMBRE just past 3 o'clock.
808 bass line	BOOM	Sequence V/OCT with a slow bass line, COLOR at 2 o'clock so every hit rings into the next, TIMBRE at 10 o'clock. GLID 2 for slides.
Drum machine	PNCH	ICLK 128, SWNG 58 %, RTCH 2 now and then with PROB on the ratchets. RNDC 4 makes every hit a little different.
Rolling rumble	RMBL	Trigger on the off-beat 8ths, COLOR at 2 o'clock, TIMBRE at noon. Sit it under a KICK from another module.
303-style line	ACID	ICLK 130, TRNT 1OCT with QNTZ on a minor scale, GLID 3, DRIV 6. TIMBRE at 9 o'clock, COLOR at 2 o'clock; ride TIMBRE by hand.
Dub techno chords	DUB	Triggers on 16th-note off-beats, TIMBRE on m7 or m9, COLOR at 1 o'clock. Slowly change chords with a stepped CV on TIMBRE.
90s rave stab	RAVE	Sparse triggers, COLOR at 11 o'clock, ECHO 9 with TIME on CLK. (dotted) and FDBK 8. CHOR LITE.
Hoover lead	HOOV	COLOR at 2 o'clock, GLID 4, ENV ADSR with VCA on. Play slow, wide intervals; add DRIV 4.
Trance lead	SUPR	TIMBRE at noon, COLOR at 3 o'clock, ENV ADSR with VCA on, CHOR ENS, ECHO 7 on CLK.
Synced wobble	WOB	Clock TRIG every beat; set TIMBRE for 2 or 4 wobbles per beat and COLOR at 2 o'clock.
Dub siren	SIRN	COLOR at 3 o'clock (whoop), ECHO 12, FDBK 11, TIME on CLK.; a push button into TRIG.
Hat machine	HATS	16th-note clock. Patch an accent or random stepped CV into COLOR to move between closed and open hats.
Glitch fills	GLCH	ICLK 140, PROB 60 %, RTCH 3, RNDT 10. Every bar sounds different.
Build-up	RISE	Trigger it at the start of the last bar of a phrase; COLOR at about 1 o'clock at 128 BPM; ECHO 8.
Mallet arpeggio	MRMB	ICLK 110, ARP UPDN, ACRD MIN7, ARNG 2, ECHO 7 with TIME on CLK. (dotted).
One-module drum kit	KICK	META on, WAVE on KICK, a sequencer's CV into FM to select the drum, and its gate into TRIG. Tune each step with V/OCT.
Kit switching	—	Save 8 different drums or sounds as presets, set FMDS to PRST and sequence the FM jack: one module, eight instruments.

CHAPTER 9

Quick reference

#	Display	Engine	TIMBRE	COLOR	TRIG
1	KICK	Kick	Sweep / click	Decay	Strike
2	RMBL	Rumble	Fold drive	Decay	Strike
3	SKIN	Skin	Partial ratios	Decay	Strike
4	CLNG	Clang	Mod index	Decay	Strike
5	HATS	Hats	Metal / noise	Closed / open	Strike
6	SNAR	Snare	Body / snappy	Decay	Strike
7	CLAP	Clap	Burst spacing	Tail	Strike
8	ZAP	Zap	Sweep depth	Decay	Strike
9	PLUK	Pluck	Brightness	Decay	Pluck
10	GRND	Grind	Saw-mod	Smash	Sync
11	DEEP	Deep	Wander depth	Cutoff	Sync
12	ACID	Acid	Cutoff	Resonance	Accent + sync
13	REES	Reese	Detune	Cutoff	Sync
14	DUB	Dub	Chord	Echo	Stab
15	VOSM	Vosim	Formant	Damping	Sync
16	SUMS	Sums	Ratio	Brightness	Sync
17	XPM	Cross PM	Ratio	Depth	Sync
18	FOLD	Fold	Drive	Bias	Sync
19	SMSH	Smash	Smash gain	Waveform	Sync
20	LFSR	Shift register	Register bits	Output bits	Reset
21	NOIZ	Noise	Resonance	Noise clock	—
22	BOOM	Boom	Drive	Decay	Strike
23	PNCH	Punch	Click	Decay	Strike
24	TOM	Tom	Pitch drop	Decay	Strike
25	CONG	Conga	Tone / slap	Decay	Strike
26	RIM	Rimshot	Tone	Ring time	Strike
27	COWB	Cowbell	Interval	Decay	Strike
28	CLAV	Claves	Claves / block	Decay	Strike
29	RIDE	Ride	Bell	Decay	Strike
30	CRSH	Crash	Brightness	Decay	Strike
31	SHKR	Shaker	Shake length	Brightness	Shake
32	TAMB	Tambourine	Shake length	Jingle ring	Shake
33	BLIP	Blip	Sine / square	Length	Blip
34	FMDR	FM drum	Ratio	Decay	Strike

#	Display	Engine	TIMBRE	COLOR	TRIG
35	GLCH	Glitch	Chaos	Decay	New burst
36	RISE	Riser	Noise / saw	Rise time	Rise
37	MRMB	Marimba	Mallet	Decay	Strike
38	BELL	Bell	Brightness	Decay	Strike
39	SUPR	Supersaw	Detune	Side saws	—
40	PWM	PWM	Width	PWM	Sync
41	SYNC	Sync	Ratio	Sweep	Sweep
42	HOOV	Hoover	Detune	Scoop	Scoop
43	RAVE	Rave stab	Chord	Length	Stab
44	ORGN	Organ	Registration	Percussion	Percussion
45	PAD	Pad	Brightness	Ensemble	—
46	WOB	Wobble	LFO rate	Depth	LFO restart
47	CHIP	Chip	Wave	Arpeggio	Sync
48	BITS	Bits	Bits	Rate	Sync
49	FM2	FM 2-op	Index	Ratio	Sync
50	VOX	Vox	Vowel	Formant shift	Sync
51	SUB	Sub	Drive	Sub octave	Sync
52	CZ	CZ	Resonance	Window	Sync
53	COMB	Comb	Feedback	Brightness	—
54	ADD	Additive	Brightness	Odd / even	Sync
55	DUST	Dust	Density	Resonance	—
56	SIRN	Siren	LFO rate	Sweep	LFO restart

Drums: engines 1–9 and 22–38 (they need TRIG or ICLK). Voices: engines 10–21 and 39–56 (they play continuously).

CHAPTER 10

Specifications

Engines	56 (26 drums, 30 voices)
Synthesis	Sine, additive and modal drums, phase modulation and FM, Karplus-Strong, band-limited saws, squares and pulses, hard sync, state-variable filters, resonators, wavefolding, wrap-around distortion, VOSIM, closed-form summation, cross phase modulation, phase distortion, formants, bit crushing, shift registers, granular noise
Anti-aliasing	PolyBLEP oscillators and sync; antiderivative anti-aliasing on folding and wrapping; pitch-dependent drive, index, formant and brightness limits
Internal voices	Up to 7 oscillators per engine (SUPR); 4-note chords (DUB, RAVE)
Sample rate	96 kHz, with selectable reduction down to 4 kHz
Output resolution	16-bit, with selectable reduction down to 2 bits
Internal modulation	AD or ADSR envelope to pitch, TIMBRE, COLOR and level; FM jack routable to 9 destinations; random TIMBRE/COLOR per trigger
Rhythm	Internal clock 40–240 BPM, ratchets, probability, swing, random notes and octave jumps, arpeggiator (6 patterns, 10 chords, 1–3 octaves)
Effects	Chorus (3 modes), ring modulator, echo up to 1.2 s (clock sync), drive, LP/HP/BP filter; 360 ms dub echo inside DUB
Presets	8 slots, selectable from the menu or by CV; favorite engines
Pitch features	1 V/oct calibrated input, quantizer (semitones plus 53 scales), octave switch, drift, flattening, glide, vibrato
Settings storage	Non-volatile; settings, presets and calibration are retained when the power is off. Calibration is kept in its own memory area
Format	Eurorack module with a 4-character LED display
Version	TXOX

Open-source notice

TecXoX's software includes code from Braids by Émilie Gillet, Copyright 2012 Émilie Gillet, used under the MIT License: Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.