Xaoc Devices — Batumi

- Manual PDF

Batumi II & Poti II Manual (Xaoc Devices)

Using Xaoc Batumi II + Poti II to create melodic material

Batumi II is “just” a quad LFO on paper, but in practice it can be a **4-channel modulation brain** that easily produces **pitch movement, stepped note patterns, clock-related sequences, pseudo-counterpoint, and audio-rate melodic voices**. Poti II turns it into a more performance-friendly melodic tool by adding **per-channel attenuation, per-channel assignable ASGN waveform choice, and waveform-shape CV control**.

What matters musically

From the manual, the key features for melody-making are:

- **4 channels** of oscillation/modulation
- Each channel outputs simultaneously:
- **Sine**
- **ASGN** waveform
- **Rect**
- **ASGN choices**:
- triangle
- downward saw
- upward saw
- trapezoid
- stepped random
- smooth random

- Modes:
- **Free**
- **Phase**
- **Divide**
- **Mult**
- **Wide range**:
- LFO rates up to **audio rate**
- **1V/oct tracking** on CV inputs
- **Reset/sync per channel**
- In external sync mode, channels can become **clock divisions**
- With **Poti II**:
- attenuate pitch/rate CV
- attenuate sine/asgn outputs
- select **different ASGN waveform per channel**
- shape CV can modulate:
    - sine = wavefolding
    - asgn = waveform switching
    - rect = pulse width

So the module can function as:

1. **4 independent pitch CV sources**
2. **A bank of related melodic modulators**
3. **A clock-derived sequencer substitute**
4. **A harmonic oscillator bank**
5. **A canon/fugue engine** via phase offsets and synced random
6. **A melody source plus rhythmic gates** from the rect outs

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The core idea: Batumi as a melodic source

Batumi II does not quantize by itself, so for conventional tonal melody you'll usually patch it through a:

- **quantizer**
- precision adder

- sample & hold / track & hold
- sequential switch
- clock divider / trigger source
- envelope + VCA + oscillator voice

Typical melodic patch flow:

Batumi output → quantizer → oscillator 1V/oct

And often simultaneously:

Batumi rect out → envelope trigger / LPG / clock input

This is where Batumi becomes very musical: one channel can create the pitch contour, while its rect output or another channel controls when notes happen.

Best waveform choices for melody

1. Stepped random ASGN

This is the most direct route to notes.

- Patch **ASGN out** with waveform set to **step-random**
- Send to a **quantizer**
- Clock note events using:
- that same channel's **rect out**
- or an external trigger stream
- Result: evolving random melodies

Musically: - In **free mode**, each random channel is independent, so you get **multiple unrelated melodic lines** - In **phase/divide/mult**, the random outputs are related, so you get **themed variations** rather than chaos

2. Smooth random ASGN

Great for “wandering” melodies.

- Smooth random into a quantizer gives gliding voltages forced into scale notes
- Excellent for ambient or generative lead lines
- Add sample & hold after it if you want more discrete note steps

3. Triangle / saw / trapezoid

These are excellent for **repeating scalar patterns**.

When quantized: - **Triangle** = up/down melodic motion - **Upward saw** = rising ramps with sudden reset - **Downward saw** = descending ramps - **Trapezoid** = repeated held notes with quick transitions

These produce very usable sequence-like shapes once quantized.

4. Sine

Sine into a quantizer can be surprisingly musical: - smoother revisiting of nearby notes - cyclical basslines - nice for slow transposition patterns

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The four modes and how they help with melody

1. Free mode: four independent melodic sources

In **free mode**, all four channels are independent. This is ideal for:

- four separate quantized melodies
- pitch CV + gate pattern + transposition + ornament

- one module driving an entire small generative patch

Melodic uses

- **Channel A**: stepped random → quantizer → lead pitch
- **Channel B**: slow triangle → precision adder transpose input
- **Channel C**: rect out → clock a sample & hold or envelope
- **Channel D**: smooth random → filter cutoff or second voice pitch

Because Batumi tracks **1V/oct**, you can also treat a channel as an oscillator at audio rate. That opens another trick:

- Use **A** as audio oscillator
- Use **B/C/D** as slow melodic modulators affecting pitch, fold, filter, or FM depth

Strong patch idea: 4-voice generative ensemble

- Set all four channels to **step-random**
- Quantize each to the same scale
- Use each rect output as its own gate/trigger source
- Send to 4 voices or to a voice allocator / switch
- Adjust each channel speed independently

This makes Batumi feel like a compact algorithmic sequencer.

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2. Phase mode: canon, fugue, and melodic imitation

In **phase mode**, channels B/C/D follow channel A's frequency but are **phase shifted** relative to it.

This is one of the most musically special features.

Why it matters for melody

In this mode, the manual says the random waves are **copies of channel A's random sequence, delayed by phase amount**. That means you can create:

- melodic imitation
- canons
- staggered repetitions
- "same tune, different entrance point"
- tightly related counterpoint

This is gold for melodic composition.

Patch: Fugue machine

- Set ASGN to **step-random**
- Put Batumi in **phase mode**
- Quantize outputs of A/B/C/D separately
- Set phase offsets on B/C/D to different values
- Use similar or divided gate streams for note articulation

Result: - the same underlying note stream appears at different time offsets - sounds like canon/counterpoint rather than random unrelated notes

Patch: rotating arpeggio

- Use **triangle** or **saw** as the source waveform
- Quantize all channels
- Set phase offsets to 90°, 180°, 270°
- Each channel becomes a shifted version of the same contour

Use with: - one voice and a sequential switch - or multiple oscillators for interlocking harmony

Advanced note

The manual mentions **deep phase modulation** can radically deform the waveform and even act like FM at audio rates. In melodic use, that means: - a simple source contour can morph into more complex note shapes

before quantization - subtle CV on phase can create **variation without losing structure**

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3. Divide mode: rhythmic melodic hierarchy

In **divide mode**, B/C/D become integer subdivisions of A: - 1, 2, 3, 4, 5, 8, 16, 32

This is amazing for **tempo-locked melody layers**.

Melodic consequence

All channels are related to A, but slower. So you can patch:

- **A** = fast melody
- **B** = slower bassline
- **C** = even slower transposition source
- **D** = ultra-slow phrase-level movement

Patch: melody + bass + phrase transpose

- Channel A ASGN step-random → quantizer → lead
- Channel B ASGN step-random → quantizer → bass
- Channel C triangle → quantizer or precision adder transpose
- Channel D rect → reset a sequencer every long cycle

Because divide mode keeps things related, the whole patch feels coherent.

Why the random mode is useful here

The manual says divided random channels are **downsampled copies** of channel A's random sequence. So if A is a fast random note stream, B/C/D become slower extractions of that same source. Musically this creates:

- motif at different time scales
- phrase-level unity
- less "everything independent" chaos

This is ideal for generative music where you want a family resemblance across voices.

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4. Mult mode: embellishment, ornament, upper voices

In **mult mode**, B/C/D become integer multiples of A.

That means: - one base motion in A - faster related motions in the other channels

Great melodic uses

- ornament around a main line
- ratcheting note motion
- high-register companion lines
- harmonic overtone-like pitch movement if run at audio rate

Patch: lead with ornament voices

- A = slow quantized contour for main lead
- B = x2 related line
- C = x3 related line
- D = x4 or x5 related line
- Quantize them all to the same scale

Result: - upper voices move more rapidly but remain tied to the same underlying cycle

Random in mult mode

The manual says random sequences are **upsampled** relative to A, sharing values periodically. That means: - the faster channels reuse material from A - good for decorations and variations around a motif

This makes mult mode very useful for: - grace-note-like melodic behavior - dense top-line texture over a slower foundation

Poti II: why it matters for melodic control

Poti II makes Batumi much more useful as a melody tool.

1. Output attenuation

This is extremely important because quantizers respond strongly to voltage range.

With Poti II, you can reduce output amplitude for each channel: - narrow melodic range - keep notes within one octave - create voice-dependent contours

Example: - Channel A wide range = lead - Channel B attenuated = bassline with small movement - Channel C tiny range = subtle transposition CV

Without attenuation, some Batumi outputs may jump too widely for practical tonal melodies.

2. Per-channel ASGN waveform selection

This is huge.

You can choose different ASGN waveforms per channel: - A = stepped random - B = triangle - C = upward saw - D = smooth random

Now Batumi becomes a **mixed melodic ecosystem** instead of four copies of the same waveform type.

3. Shape CV inputs

The shape inputs are extremely playable for melody generation.

Per channel, shape CV can affect one selected destination:

Sine: wavefolding

If you quantize folded sine motion, you get: - more complex repeated note patterns - symmetry breaking - pseudo-arpeggiated shapes from a simple cycle

ASGN: waveform switching

This is especially strong for melodic work.

If shape CV is assigned to ASGN: - external CV can switch among waveforms - the melodic contour can jump between triangle, saw, trapezoid, random, etc.

That means one melodic line can morph between: - ordered - ramping - held - random

Great for arrangement and variation.

Rect: pulse-width modulation

This does not directly create pitch, but it changes gate timing/duty behavior, which affects note length and rhythmic phrasing if rect is used as a gate source.

Practical melodic patch recipes

Patch 1: Simple generative melody

Goal: one evolving tonal line

- Batumi in **free mode**
- Channel A ASGN set to **step-random**
- A ASGN → quantizer → oscillator pitch
- A RECT → envelope trigger
- Envelope → VCA → oscillator

Optional: - Poti II attenuate A ASGN to keep melody within a narrower range - Slow modulation into A FRQ CV for phrase speed changes

Why it works: - stepped random provides note selection - rect provides timing - quantizer keeps it musical

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Patch 2: Canon melody

Goal: related voices with delayed entrances

- Batumi in **phase mode**
- ASGN = **step-random**
- A/B/C/D ASGN → separate quantizer channels or multiple quantizer inputs
- Set B/C/D to different phase offsets
- Use rects or external triggers to articulate voices

Result: - the same sequence appears staggered in time - ideal for minimalist or contrapuntal music

This is one of the best “melodic identity” uses of Batumi II.

Patch 3: Bassline + lead from one source family

Goal: coherent two-part composition

- Batumi in **divide mode**
- A = medium-fast stepped random to lead quantizer
- B = divide by 2 or 4 to bass quantizer
- C = triangle, attenuated, to transpose the bass or lead by a few scale steps
- D RECT = phrase reset trigger somewhere else in the patch

Result: - lead and bass feel related because they derive from shared timing/material

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Patch 4: Arpeggiator from continuous waves

Goal: sequencer-like melodic loops without a sequencer

- Batumi in **phase mode** or **free mode**
- Use **triangle** or **saw** outputs
- Quantize outputs
- Clock a sample & hold from rect or external trigger if you want discrete note changes

Options: - Triangle gives pendulum-style arps - Saw gives rising or falling arps - Trapezoid gives repeated held notes

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Patch 5: Ornament engine

Goal: primary melody plus embellishment

- Batumi in **mult mode**
- A ASGN → quantizer → main pitch
- B/C ASGN → quantizer → secondary voices at x2 / x3
- D sine or rect modulates filter, LPG, or wavefolder

This can sound like: - one melody with ornamentation - clustered lines - baroque-style decorations - shimmer on top of a slower line

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Patch 6: Batumi as four VCOs for harmonic melody

Because Batumi II goes to **audio rate** and supports **1V/oct**, it can be used as a bank of oscillators.

Patch

- Put channels in **phase**, **divide**, or **mult**
- Feed pitch CV to the frq input(s)
- Take sine or asgn outputs as audio

- Mix channels

Melodic applications

- **Phase mode**: detuned/phase-shifted unison or chord-like movement
- **Divide mode**: subharmonic relationships for bass and drones
- **Mult mode**: harmonic interval / overtone-like melodic stacks

If you send a keyboard or sequencer CV to channel A: - in divide/mult, other channels become related pitch structures - not equal-tempered harmony automatically, but very rich for experimental melody

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Sync-based melodic strategies

Batumi's **reset/sync** behavior is very useful when you want melody tied to song tempo.

Reset mode

- incoming trigger resets phase
- useful for restarting melodic contours at bar lines
- good for keeping looping note curves aligned with the groove

Example: - A saw → quantizer → pitch - send a bar-reset trigger to A reset - melody restarts every measure

Sync mode

- Batumi adapts to external clock period
- sliders then select **division factors**
- in non-free modes, only channel A can sync to external tempo

This effectively lets Batumi become a **clock-relative melodic generator**.

Patch: clocked note divisions

- External clock into A sync
- A/B/C/D outputs to quantizers or modulation destinations
- Use the resulting divided cycle lengths as phrase lengths

This is excellent for: - tempo-locked ambient melodies - self-playing Berlin-school style structures - polymetric note streams

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How to get more “musical” melodies from Batumi

Use a quantizer

This is the big one. Batumi makes voltages; the quantizer makes notes.

Good scale choices: - pentatonic for instant consonance - dorian/aeolian for melodic ambient lines - chromatic for experimental lines

Limit voltage range with Poti II

Attenuation is your friend. Smaller voltage ranges mean: - fewer leaps - more motif coherence - basslines that stay in register

Combine with sample & hold

Continuous shapes become stepped note sequences when sampled.

Examples: - triangle + S&H = repeating scalar melody - smooth random + S&H = wandering but articulated line - phase-shifted channels sampled by same clock = related parallel melodies

Use rect outputs as note triggers

Every channel provides its own rect output. This can drive: - envelopes - logic - clocking - sample & hold

So one Batumi channel can generate both: - note voltage - note timing

Use channel relationships intentionally

- **Free** = independence
- **Phase** = imitation/canon
- **Divide** = structural hierarchy
- **Mult** = embellishment/density

That gives you compositional roles, not just modulation modes.

Best pairings with other Eurorack modules

These modules really shine with:

- **Quantizer**
- Intellijel Scales, Ornament & Crime, ADDAC quantizers, etc.
- **Sample & hold / T&H**
- **Precision adder**
- **Sequential switch**
- **Logic / clock divider**
- **Envelope + VCA or LPG**
- **Oscillator / voice module**
- **Mixer**
- **Comparator** for deriving extra gates from smooth shapes

Especially powerful combinations:

Batumi + quantizer + switch

Four channels become four phrase sources; the switch chooses which phrase is active.

Batumi + quantizer + precision adder

One channel makes note motion, another makes transposition, another makes phrase-length movement.

Batumi + chord oscillator / multi-voice synth

Use multiple Batumi outputs to animate root, inversion, spread, or parallel pitch lines.

Performance-oriented melodic ideas

Morph from ordered to chaotic

Using Poti II per-channel ASGN selection and shape CV: - start with triangle/saw for regular melody - morph into stepped random - then into smooth random - return to structured shapes

This feels like moving from composition to improvisation.

Bring voices in by channel role

- A = main melody
- B = delayed imitation
- C = bass
- D = ornament

Because all are on one module, this is easy to perform as a “mini ensemble.”

Use resets for phrase boundaries

Manual resets into channels create controlled re-alignments: - all voices land together - then drift through their own relationships - then rejoin

Very musical for live generative sets.

A few especially strong melodic concepts from the manual

1. Phase-mode random as delayed copies

This is probably the standout melodic feature. It enables: - canon - fugue-like structures - offset repetition - related motif streams

2. Divide/mult random as derived versions of one sequence

This gives: - coherent family resemblance - phrase hierarchy - ornament vs foundation behavior

3. Audio-rate operation with 1V/oct

Batumi can cross from modulation into sound generation, so a patch can use the same module for: - pitch CV generation - audio oscillation - internal self-modulation - rhythmic gating

That makes it unusually rich for melodic composition.

Bottom line

Batumi II + Poti II can absolutely be used as a melodic composition tool, not only as an LFO.
Its strongest melodic use cases are:

- **random quantized melodies**
- **phase-shifted canons**
- **clock-related bass/lead hierarchies**
- **ornamented multi-speed related lines**
- **audio-rate harmonic or quasi-harmonic voices**
- **self-playing patches where one module supplies pitch, timing, and phrase structure**

If I were using it specifically for melodic work, I'd think of the modes like this:

- **Free** = 4 independent composers
- **Phase** = 1 melody, 3 imitators
- **Divide** = 1 fast idea, 3 slower structural layers
- **Mult** = 1 core idea, 3 embellishers

And Poti II makes the difference between "interesting modulation" and **usable melodic control**, mainly because of attenuation and per-channel waveform assignment.
