Pittsburgh Modular — "Generator"

- Manual PDF

Manual PDF / Source

Pittsburgh Modular Generator — creative patch ideas and combo recommendations

The **Pittsburgh Modular Generator** is a compact **dual analog oscillator / FM source / modulation hub** built for unstable, aggressive, and highly animated sounds rather than precise melodic tracking. From the manual:

- **2 triangle-core oscillators**
- **Internal FM path:** Generator 1's **Index Out** internally FM's Generator 2
- **External FM routing:** one external modulation path can be directed to either osc 1 or osc 2
- **Shared shape control:** morphs the two oscillators in opposite directions
- Gen 1: square → triangle
- Gen 2: triangle → square
- **Index section:** a VCA on Generator 1's output, with CV, whose output both:
- appears at **OUT**
- acts as the **internal FM source** for Generator 2
- Not 1V/oct, not temp compensated: best approached as a **chaotic voice, percussion engine, drone core, modulation source, and texture oscillator**

In practice, Generator excels when treated as: 1. a **cross-influenced dual osc voice**
2. an **FM/noise/percussion source** 3. a **compound modulation module** 4. a **feedback instrument**

What is special about this module musically

A few things matter a lot:

1. The Index VCA is the heart of the module

Generator 1 passes through a VCA-like stage controlled by the **Index knob** and **Index CV**, and that post-VCA signal is used to FM Generator 2 internally. This means:

- envelopes into **Index CV** create **dynamic FM bursts**
- slow CV into **Index CV** creates **breathing timbre shifts**
- audio-rate CV into **Index CV** creates unstable amplitude/FM interactions

This is why the module is so strong for: - metallic percussion - tearing basses - unstable drones - game-console-ish zips and sputters

2. The shape knob is a macro timbre control

One knob simultaneously pushes the two oscillators in **opposite waveform directions**. So with one movement you're changing:

- harmonic content of the modulator
- harmonic content of the carrier
- FM response character

That makes it especially good with: - CV-addressed modulation - manual performance gestures - stepped random - joystick control

3. It loves being patched “wrong”

Because it isn’t trying to be a precision VCO, it rewards: - self-patching - extreme CV - feedback loops - offset/attenuation tricks - clocking at subaudio or audio edge zones

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Best module pairings

1. Envelope generators / function generators

Highly recommended types: - Make Noise Maths - Befaco Rampage - Intellijel Quadrax - ALM Pip Slope - Frap Tools Falistri

Why

The Generator’s **Index CV** input is begging for envelopes. This is one of the fastest ways to animate internal FM.

Results

- percussive FM plucks
- toms, metallic hits, lasers
- dynamic drones with shifting overtones
- pseudo-acoustic transient behavior

Tip

Use: - a **snappy envelope** to Index CV - a **slower envelope** to the external FM attenuverter path - then send the external FM to whichever oscillator is not already doing the most interesting thing

This gives layered movement: one contour for internal FM intensity, another for pitch/timbre bend.

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2. VCAs and modulation utilities

Recommended types: - Happy Nerding 3xVCA - Intellijel Quad VCA - Veils - Mutable Instruments Blinds / Joranalogue Select 2 / bipolar VCAs - attenuverters, offsets, mixers

Why

Generator becomes much more powerful when CV is carefully scaled. It can get wild very fast, so utilities turn “chaos” into “playable chaos.”

Best uses

- tame the output before filters/waveshapers
- scale random voltages going to Shape or Index CV
- create **voltage-controlled external FM depth**
- mix Generator outputs with other oscillators before ring mod or filtering

Especially useful

A **bipolar VCA / attenuverter** before the **External Input** lets you automate the amount and polarity of FM going into Gen 1 or Gen 2.

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3. Random / chaos / sample & hold modules

Recommended types: - Make Noise Wogglebug - Mutable Marbles - SSF Ultra-Random Analog - Joranalogue Orbit 3 - Doepfer A-118 + S&H - noise + slew combos

Why

Generator responds beautifully to irregular but bounded control voltages.

Great patch targets

- **Shape**
- **Index CV**
- **External FM input attenuverter** via manual or VC processing
- oscillator EXP inputs for unstable pitch fields

Results

- clattering, insect-like percussion
- animated drones
- semi-repeating machine chatter
- “broken console” melodies and digital-sounding analog artifacts

Trick

Use **stepped random** to one oscillator’s EXP input and **slewed random** to Index CV.
That gives: - stepped pitch regions - continuously changing FM intensity
Very effective for evolving electroacoustic textures.

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4. Filters, especially aggressive or character filters

Recommended types: - MS-20 style filters - Steiner-Parker filters - multimode state-variable filters - low-pass gates - resonant band-pass filters

Specific examples: - Bastl Ikarie - Xaoc Belgrad - Doepfer A-124 Wasp - Intellijel Polaris - Make Noise QPAS - LPGs like Optomix, LxD

Why

Generator can make very dense spectra. A good filter turns the chaos into a playable voice.

Best filter strategies

- **Band-pass** for metallic percussion
- **Low-pass gate** for woody, struck sounds
- **High resonance low-pass** for mutant bass
- **Stereo dual peak filter** for drones and moving textures

Patch idea

Take: - **2** (Generator 2 output) into a resonant filter - **Index OUT** into a different filter or LPG - pan them left/right

Now you have related but not identical timbral streams from one 10hp source.

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5. Wavefolders, distortions, and nonlinear processors

Recommended types: - wavefolder - saturator - fuzz/distortion - comparator - rectifier

Specific examples: - Intellijel Bifold - Frap Tools Fold 6 - Joranalogue Fold 6 - Schlappi Interstellar Radio - Bastl Timber - various analog distortion modules

Why

Generator already produces rich, unstable tones. Folding or distortion can push it into: - industrial leads - exploding drums - harsh drones - sputtering machine textures

Best combo

Patch **Generator 2** into a wavefolder while using **Index OUT** separately as modulation or submix content.
Because Generator 2 is being internally FM'd, folded results can become extremely vocal or metallic.

Bonus idea

Use a **comparator** on one of the outputs to derive a dirty gate/clock from the oscillator. That can drive envelopes that come back into Index CV for self-related rhythmic behavior.

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6. Ring modulators and balanced modulators

Recommended types: - Doepfer A-114 - Intellijel uMod II - ring mod / four-quadrant multiplier - bipolar VCA

Why

You already have two related oscillators. Ring modulation with a third oscillator or one of Generator's own outputs produces very complex sidebands.

Patches

- Generator 1 out into ring mod input A
- Generator 2 out into ring mod input B
- then filter the result

Or: - Generator 2 into ring mod - clean sine/triangle from another VCO into the other input - envelope the final output

Results

- bells
- sci-fi alarms
- inharmonic percussion
- robotic voice-like tones

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7. Precision oscillators as stabilizing partners

Recommended types: - a stable analog VCO - a digital sine oscillator - through-zero capable FM source if available

Specific examples: - Dixie II+ - Rubicon - STO - Ts-L - Odessa / digital clean source

Why

Generator is unstable in a good way. Pairing it with a more stable oscillator creates contrast.

Uses

- stable VCO provides tuned bass/fundamental
- Generator provides upper grit and movement
- stable VCO can externally FM Generator
- Generator can modulate stable oscillator's PWM/filter/folder instead of pitch

Best musical role

Use Generator as the **chaos layer**, not necessarily the tuning anchor.

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8. Sequencers and gate sequencers

Recommended types: - CV sequencer - trigger sequencer - Euclidean trigger source - random sequencer

Specific examples: - Make Noise Rene - Intellijel Metropolix - Winter Modular Eloquencer - Korg SQ-1 - Pamela's New Workout / Pro Workout - Euclidean Circles

Why

The Generator often shines more from **rhythmic modulation events** than traditional pitch sequencing.

Better than sequencing pitch:

- sequence **Index CV bursts**
- sequence external FM routing changes manually between takes
- sequence filter cutoff while Generator free-runs
- use stepped CV to jump coarse regions

Great performance setup

- trigger sequencer → envelopes → Index CV
- random/sequencer CV → one EXP input
- clocked modulation → Shape

This turns Generator into a percussion/texture voice that still feels composed.

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9. Low-pass gates

Recommended types: - Make Noise Optomix - LxD - Natural Gate - any vactrol-ish LPG

Why

Generator can be brash and harmonically dense. LPGs soften edges in a very satisfying way.

Results

- woody FM bongos
- struck metallic plucks
- Buchla-ish but dirtier transients
- animated drones with natural decay

Patch

- Generator **Index OUT** → LPG → mixer
- short envelope → LPG CV
- another envelope → Index CV

This gives a timbral transient and an amplitude transient that feel linked but distinct.

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10. Delay, reverb, and granular processors

Recommended types: - tape/dub delay - clocked delay - shimmer/plate reverb - granular texture module

Specific examples: - Mimeophon - Chronoblob - Magneto - FX Aid - Desmodus Versio - Beads / Arbhar style granular

Why

Generator makes fantastic source material for spatial processing.

Best roles

- short delay for metallic resonances
- long feedback delay for sci-fi dub drones
- granular capture of unstable FM bursts
- freeze/reverb for huge noise beds

Patch idea

Create a percussive patch with Index CV, then feed the result into: - a **very short modulated delay** for resonator-like clangs - or into **granular freeze** for shimmering alien ambience

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11. Clock dividers, logic, and comparators

Recommended types: - logic module - comparator - clock divider - PLL if you have one

Why

At low frequencies, Generator can become a strange modulation and event source.

Uses

- run one oscillator in low range as a CV/LFO
- compare it to derive gates
- combine with another clock source using logic
- use resulting rhythmic gates to trigger envelopes back into Index CV

Results

- self-generating percussion systems
- irregular clocks
- machine chatter
- evolving trigger ecosystems

Creative patch ideas

1. FM drum voice

Goal: metallic tom / kick / zappy percussion

Patch

- Set **Gen 1** to **low**
- Set **Gen 2** to **mid**

- Patch envelope to **Index CV**
- Listen to **Index OUT**
- Optionally patch **Gen 2 out** into **External Input**
- Set destination switch to modulate **Gen 1**

This is close to the manual's suggestion and is one of the module's sweet spots.

Add-ons

- LPG after output for organic decay
- transient shaper / VCA for punch
- band-pass filter for tuned drum bodies

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2. Two-layer stereo beast

Goal: one module, wide stereo image

Patch

- Send **1** to left channel processing chain
- Send **2** to right channel processing chain
- Put a filter on one side, a wavefolder or LPG on the other
- Modulate **Shape** slowly
- Modulate **Index CV** with a different LFO/envelope

Why it works

The outputs are related but not identical. They split into beautiful stereo complexity very quickly.

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3. Self-patched chaotic voice

Goal: unstable vocal/tearing lead

Patch

- **2 → External Input**
- Set destination to **Gen 1**
- Use internal FM as normal on Gen 2
- Slowly move **Shape**
- Add slow CV to **Index CV**

Result

This creates a nested FM structure: - Gen 1 influences Gen 2 internally through Index - Gen 2 externally influences Gen 1

Very lively, very unstable, often vocal or shrieking.

Add a filter

A resonant low-pass or band-pass after this patch can make it much more controllable.

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4. Pseudo-duophonic drone machine

Goal: complex layered drone

Patch

- Tune Gen 1 and Gen 2 to related but not exact intervals by ear
- Output **1** and **2** to separate VCAs/filters
- Slow random to **Shape**
- Slower triangle LFO to **Index CV**
- Optional external oscillator to **External Input** routed to Gen 2

Add effects

- stereo delay
- long plate reverb
- subtle saturation

This gives a living drone voice with internal motion and timbral beating.

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5. Audio-rate modulation hub

Goal: use Generator as a modulation source, not the main sound

Patch

- Use **Gen 1** or **2** output to modulate:
- filter cutoff FM
- wavefolder symmetry
- VCA amplitude at audio rates
- delay time
- Meanwhile use another oscillator as the audible voice

Why

Generator excels at “dirty modulation.” Its complex, shifting spectra can make ordinary modules sound far more animated.

Especially effective targets

- analog filter cutoff FM
- resonance CV
- wavefolder fold amount
- phase modulation inputs on digital oscillators

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6. Nintendo / zipper / sputter patch

Goal: glitchy, game-like, rude noises

Patch

- Put one oscillator near the boundary between low and audio range

- Put the other oscillator in mid or high
- Use stepped random into one EXP input
- Send envelope bursts to Index CV
- Self-patch **2** into external FM for **Gen 1**
- Fast manual tweaks of Shape

Optional extras

- bitcrusher
- sample rate reducer
- comparator for harsh gate extraction
- short digital delay

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7. CV laboratory patch

Goal: Generator as dual LFO / audio-to-CV weirdness source

Patch

- Run one oscillator in low range
- Use output **1** as modulation for another module
- Use output **2** as audio
- Use external FM to make the LFO irregular
- Send the low oscillator through a comparator for gates

Great for

- weird clocking
- wobbling filter motion
- unstable panning
- chaotic envelope triggering

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8. Resonator excitation patch

Goal: physical-model-ish textures

Patch

- Create short FM bursts with envelope to Index CV
- Send output into:
- resonator
- Karplus/physical modeling voice
- comb filter
- short resonant delay

Result

The Generator makes excellent “excitation material” because it can be noisy, sharp, and spectrally rich.

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9. Dirty bass stack

Goal: tuned low-end plus mangled harmonic layer

Patch

- Use a stable VCO for the fundamental bass
- Tune Generator above it
- Mix Generator output quietly underneath
- Envelope to Index CV for movement
- Filter both together or in parallel

Why

Generator often works best in bass music as the **character layer**, not the only oscillator.

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10. Envelope-following feedback patch

Goal: dynamic self-interaction

Patch

- Generator output → distortion/filter → envelope follower
- envelope follower CV → Index CV or external FM depth control
- optional attenuverter in between

Result

The louder/brighter the sound gets, the more it changes itself. This can create: - snarling sustain - unstable decays - responsive noise gestures

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Modules that pair especially well

If you want percussion

- Function generator / envelope
- LPG
- band-pass filter
- trigger sequencer

Example chain:
Pam's → envelope → Index CV → Generator → LPG → band-pass filter → delay

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If you want drones

- slow random
- stereo filter
- reverb/delay
- VCA mixer for separate outs

Example chain:
Marbles / random LFOs → Shape + Index CV → outputs split to dual filters → stereo FX

If you want harsh industrial sounds

- distortion
- wavefolder
- ring mod
- aggressive filter
- feedback mixer

Example chain:
Generator 2 → folder → distortion → filter
Generator 1/Index Out → ring mod sidechain or feedback modulation

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If you want melodic use despite weak tracking

- quantizer
- precision adder
- stable companion oscillator
- tuner utility
- sequencer with lots of attenuation control

Important note

Because it does **not** track 1V/oct properly, use it for: - approximate intervals by ear - drones - riffs in a limited register - layered textures over a tuned voice

Don’t expect it to behave like a precision FM voice.

Performance tips

1. Treat Shape as the macro knob

If you only touch one parameter live, make it **Shape**. It changes both oscillators and often gives the biggest “scene change.”

2. Use the Index knob carefully

Per the manual: - **full left = 100% gain** - **full right = 0% gain**

That’s easy to misread in performance. It behaves “backwards” compared to some expectations.

3. Separate “sound” and “animation”

A nice workflow: - set base tone with ranges + fine tuning - set Shape to taste - use Index CV for animation - use external FM only as spice

4. Exploit the two outputs independently

Even if you think of it as one voice, it is often more rewarding as: - one raw output - one processed output - one center image, one side image - one audio source, one modulation source

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Summary

The Generator is best understood not as a polite dual VCO, but as a **compact analog FM ecosystem**. It rewards:

- envelopes into **Index CV**
- self-patching through **External Input**
- random and slow CV into **Shape**

- splitting its multiple outputs into separate signal paths
- pairing with **filters, LPGs, VCAs, wavefolders, and time-based effects**

If you want the most immediate wins, pair it with:

1. **Function generator/envelope**
2. **LPG or character filter**
3. **Random source**
4. **VCA/attenuverter utility**
5. **Delay/reverb**

That combination turns Generator into a monster for: - metallic percussion - unstable drones - noisy basses - glitch effects - chaotic modulation

Generated With Eurorack Processor