Noise Engineering — Integra Solum

- Manual PDF

Manual / Source

Noise Engineering Integra Solum: modulation ideas for aggressive percussion, basslines, and dark atmospheres

Integra Solum is not a sound source by itself; it's a **dual rotating clock divider / trigger generator**. That means its real power is in how it **animates other modules**: envelopes, LPGs, VCAs, switches, sequential switchers, filters, distortion, sample-and-holds, drum voices, and modulation sources.

The module gives you:

- **2 independent divider sections**
- **8 trigger outputs per side**
- **independent or shared clocking/reset**
- **Shift/Offset rotation** per side
- **3 main modes**
- `/2N` = powers-of-two divisions
- `N` = sequence of eight
- `/2N+1` = odd divisions
- **Wack mode** for randomized trigger behavior

Important behavior to exploit

From the manual:

- Clock responds to a rising edge around **3.3 V**
- One clock can **normal to both sides**
- Outputs update with about **70 µs latency**
- Reset can be used to **re-align patterns**
- Output triggers are about **0–5 V**, triggering around **3.4 V**
- **Shift** rotates which jack is considered first in the cycle
- **Wack mode** changes the mode behavior:
- `/2N` becomes **probabilistic divide by two**
- `N` becomes **one random trigger per step**
- `/2N+1` makes **each output independently 50% likely** on each clock

That means this module excels at: - stable rhythmic scaffolding - rotating accents - bursty probabilistic events - clock-related modulation changes - controlled chaos

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Core patching mindset

Think of Integra Solum as a **rhythm brain** for: - **when a sound happens** - **when a modulation changes** - **when distortion amount jumps** - **when a filter snaps open** - **when a voice changes pitch** - **when a delay or reverb gets hit**

For the styles you asked about, the magic is usually:

1. **Use one side for note or drum timing**
2. **Use the other side for modulation timing**
3. Rotate one or both sides with **Shift**
4. Periodically **Reset** for phrase structure
5. Use **Wack mode** selectively for controlled instability

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1. Distorted percussive sounds

A. Rotating industrial kick/snare pattern

Patch

- Master clock into one **Clock** input so both sides run
- Side A in **N mode**
- Patch several outputs from Side A to:
- kick trigger
- snare trigger
- envelope trigger for a VCA'd noise burst
- envelope trigger for a click transient
- Side B in `/2N+1` or Wack `/2N+1`
- Use Side B outputs to trigger:
- distortion CV changes
- filter envelope retriggers
- wavefolder strike or VCA pings
- a sequential switch selecting different percussion sources

Why it works

Side A gives a more structured pulse stream. Side B creates asymmetry and movement. If Side B controls timbre rather than note timing, your percussion sounds like it is being "re-synthesized" each hit.

Best modulation targets

- **filter cutoff CV**
- **resonance CV** in tiny amounts
- **distortion amount**
- **wavefolder symmetry/fold**
- **sample rate / bit depth** on a crusher
- **decay time** of percussion envelopes
- **switches** that alternate between sine/noise/FM transients

Trick

Take one output from Side B and send it to a **very fast decay envelope** controlling VCA level into a distortion. Some hits slam harder, creating uneven clipped transients. That produces very alive, broken-machine percussion.

B. Broken DnB hats with probabilistic fill behavior

Patch

- Fast clock, e.g. 1/16 or faster
- Side A in `/2N`
- Trigger closed hats from a faster division
- Trigger open hats from a slower division
- Put Side B in **Wack** `/2N` or **Wack** `N`
- Use Side B random triggers for:
- extra hat accents
- burst generator trigger
- short noise stabs
- panning modulation envelope

Sound design tip

Send hats/noise through: - HPF - distortion - very short room reverb - compressor/saturator

Now use Integra Solum to trigger **different envelope shapes** for the same noise source. That creates metallic, tearing top-end.

Trick

Patch two outputs to a **logic OR** or mixer before a hat trigger input. Then rotate **Shift**. You'll get changing composite rhythms without repatching.

C. Kick with unstable “speaker-rip” attack

Patch

- Use a kick voice or sine oscillator with pitch envelope
- Side A triggers the kick
- Side B triggers:
- an extra click envelope
- a super-short FM envelope to the oscillator pitch or phase modulation input
- distortion wet/dry or drive CV

Best mode

- Side A: `/2N` or `N`
- Side B: Wack `N` or `/2N+1`

Why it gets nasty

If the attack transient and distortion amount are triggered independently but clock-related, you get those **ripped-cone**, overdriven, neuro-style drum impacts.

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2. Dubstep / drum & bass bassline generation

Integra Solum won’t generate pitch directly, but it can create the **event structure** for bass modulation. That’s often more important than the actual oscillator.

A. Reece / neuro bass motion network

Patch

Use one bass voice: - 2 detuned oscillators or a supersaw/reese source - lowpass or bandpass filter - distortion/wavefolder - VCA - maybe phaser/flanger

Timing architecture

- Side A triggers your **main amp envelope**
- Side B triggers changes to modulation destinations:
- sample-and-hold for filter cutoff
- sequential switch for different envelope depths
- burst or extra envelope for FM spikes
- logic module to combine triggers into growl phrases

Suggested mode setup

- Side A in `N` for regular phrase stepping
- Side B in `/2N+1` for uneven modulation accents
- Occasionally use **Wack** `N` for random “which step gets movement”

Great CV chains

Use Side B trigger outputs to trigger: - **sample & hold** sampling random voltage for filter cutoff - **track-and-hold** on wavetable position - **sequential switch** choosing one of 4 modulation sources - **envelope generator** with varying decay amounts - **clocked slew** for stepped wobble contours

Result

You get bass notes that remain rhythmically anchored while their tone mutates every few steps: classic **talking / snarling / neuro** movement.

B. Half-time dubstep wobble with rotating accents

Patch

- Slow host clock synced to tempo
- Side A in `/2N`
- Use one output for note gate / VCA envelope
- Use slower outputs for filter plucks and sub drops
- Side B in `N`
- Patch different Side B outputs to:
- LFO reset
- envelope retrigger for filter
- accent VCA
- distortion boost
- delay send gate

Shift strategy

Turn **Shift** on Side B during playback. This rotates which trigger output occurs first, so the phrase changes but remains grid-locked.

Why this is especially good

Instead of modulating the bass continuously with one LFO, Integra Solum gives you **discrete rhythmic gestures**. That often sounds more modern and intentional in dubstep.

Patch extension

Use one trigger to **reset the LFO phase** on certain steps only. That creates “wobble that restarts” on selected hits, which is a strong bass design trick.

C. DnB rolling bass with ghost triggers

Patch

- Fast clock from your sequencer or Pam's-style source
- Side A in `/2N+1`
- Main bass envelope on one output
- Side B in **Wack** `/2N`
- Use Side B outputs for:
- short muting envelopes to chop the bass
- FM spikes
- notch filter modulation hits
- pitch envelope retriggers for zaps

Sound design stack

- saw/reese source
- bandpass into distortion
- second filter after distortion
- sub sine layered underneath
- VCA controlled by Side A
- additional "interrupt" VCA controlled by Side B

Why it sounds DnB

The "interrupt" VCA creates those machine-gun internal articulations and ghost syncopations inside a sustained bass phrase.

D. Triggered modulation matrix for basses

This is one of the best uses of Integra Solum.

Patch

Take 4–6 outputs and assign each to trigger one event: - sample random cutoff - switch distortion type - retrigger transient envelope - open parallel

bandpass - trigger short reverb send burst - switch oscillator sync on/off via VCA or logic

Then: - Side A = rhythm skeleton - Side B = modulation decorations

The bass becomes **structurally repeatable but timbrally unstable**, which is exactly where a lot of advanced bass music lives.

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3. Haunting atmospheric pad sounds

Pads benefit less from many triggers directly hitting the audio path, and more from Integra Solum creating **slow structural evolution**.

A. Triggered pad animation

Patch

Create a pad voice: - 1–3 oscillators or a drone source - long attack/release envelope or sustained gate - lowpass/bandpass filter - chorus/phaser/reverb/delay

Integra Solum role

Use very slow clocking.

- Side A in `/2N`
- Trigger:
- long envelope retriggers
- filter contour pulses
- VCA swells
- reverb send accents
- Side B in `N` or Wack `N`
- Trigger:
- sample-and-hold for subtle pitch drift

- random panning changes
- wavefolder amount changes
- switching among modulation routings

Why it works

Pads become eerie when their changes happen **discretely but infrequently**. Integra Solum can create those phrase-level shifts cleanly.

B. “Breathing haunted choir” patch

Patch

- Very slow master clock
- Side A in `N`
- Use one output every few clocks to retrigger a **long envelope**
- Use another output to briefly increase **filter resonance**
- Use another to send a burst to **reverb freeze / shimmer / feedback VCA**
- Side B in Wack `N`
- Each random trigger step controls:
- slight FM amount burst
- sample-and-hold on wavetable position
- delayed sub-octave swell
- noise layer into the pad

Result

The pad seems to inhale, shift tone, and occasionally reveal ghost overtones.

C. Dark evolving drone with reset phrasing

Patch

- Clock Side A and Side B from the same slow clock
- Put one side in `/2N`, the other in `/2N+1`
- Patch outputs to:
- two different envelope generators
- one switch selecting filter modes
- one strike to a resonator mixed beneath the pad
- one trigger to reverse or clock a delay/reverb modulation source if available

Then periodically **Reset** both sides manually or from a sequencer phrase reset.

Why reset matters

Without reset, the interaction slowly drifts into long evolving forms. With periodic reset, the atmosphere gets a recurring “haunting motif.”

Best mode choices by goal

For distorted percussion

- **`N`**: best for linear, stepped, rotating drum lines
- **`/2N+1`**: best for asymmetrical industrial rhythms
- **Wack `/2N+1`**: best for explosive glitch percussion and metallic chaos

For basslines

- **`N`**: strong for phrase-locked modulation events
- **`/2N`**: good for halftime and predictable wobble scaffolding

- **Wack** `N` : great for inserting random motion while keeping one event per step
- **Wack** `/2N` : good for unstable accents and ghost modulation

For pads

- `/2N` at slow clocks: best for broad structural breathing
- `N` : useful for orderly long-form rotation
- **Wack** `N` : subtle haunted unpredictability

Shift/Offset performance techniques

The **Shift** control is one of the most musically important features.

Because it rotates the outputs, you can repurpose the same patch into many patterns without moving cables.

Great uses of Shift

- Rotate which drum gets the downbeat
- Move accents around a bass phrase
- Change which modulation occurs first in a cycle
- Reframe a pad's sequence of tonal changes

Performance idea

Patch 4–8 outputs into a network of: - triggers to drums - modulation retriggers - switch advances - random sample clocks

Then perform with only: - **mode switch** - **Shift** - **Reset**

This gives dramatic variation with low patch complexity.

Wack mode: where the weirdness lives

Wack mode is especially useful for the genres you mentioned.

Wack `/2N`

- Great for humanized or unstable accents
- Excellent for broken hats, ghost snares, crackle percussion
- Good for bass timbre changes that shouldn't happen every cycle

Wack `N`

- One random trigger each step
- Great for selecting one of many timbral events
- Very useful for "one thing changes each beat" bass animation
- Excellent for haunted pad articulation

Wack `/2N+1`

- Wildest setting
- Dense trigger clouds
- Perfect for glitch percussion, FM burst clusters, reverb splashes, and chaotic control events
- Use with attenuated modulation or logic if it becomes too busy

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Advanced patch ideas

1. Distortion scene switching

Use Integra Solum to trigger a sequential switch that changes: - clean path - overdrive path - wavefold path - bitcrush path

Same sound source, different processing per trigger = massive rhythmic timbral variation.

2. Triggered FM spikes

Take one output to a very short decay envelope controlling FM amount on an oscillator.
This is amazing for: - punchy kicks - tearing bass growls - ghostly pad overtones

3. Parallel percussion architecture

Use different outputs to hit: - body layer - click layer - noise layer - resonator layer

Then mix them. As Shift rotates, the composite drum identity changes.

4. Bass articulation by selective muting

Instead of only triggering the bass on/off, use some Integra Solum outputs to trigger a second envelope that briefly **ducks** the bass with a VCA.
This creates internal syncopation and stutter-groove.

5. Reverb and delay as instruments

Trigger short envelopes that open VCAs feeding effect sends: - percussion trigger opens reverb send only on selected hits - bass trigger opens delay send only on phrase endings - pad trigger splashes shimmer reverb randomly

This gives a very cinematic, haunted space.

Practical patch recipes

Recipe 1: Neuro snare engine

- Side A `N`: trigger snare body
- Another Side A out: trigger noise burst
- Side B Wack `/2N`: trigger distortion boost
- Another Side B out: trigger bandpass envelope
- Rotate Shift until groove locks

Result: unstable tearing snare with changing transient aggression.

Recipe 2: Dubstep bass growl

- Side A `/2N`: trigger amp envelope
- Side B `N`: trigger sample-and-hold for filter cutoff
- Another Side B out: trigger FM spike envelope
- Another Side B out: trigger delay-send accent
- Reset every 1 or 2 bars

Result: consistent groove with mutating growl character.

Recipe 3: Rolling DnB reese

- Fast clock
- Side A `/2N+1`: trigger VCA chopper
- Side B Wack `N`: one random modulation event per step
- Modulation events:
- notch sweep
- distortion gain jump
- phaser feedback rise
- transient pitch jab

Result: rolling, complex, forward-moving bass texture.

Recipe 4: Haunted pad

- Slow clock
- Side A `/2N`: long envelope retriggers
- Side B Wack `N`: random shimmer, filter swell, or pitch-drift resample
- Heavy reverb and stereo modulation
- Occasional manual Reset

Result: drifting, ghostly, semi-repeating ambient texture.

Things to watch out for

- Integra Solum outputs are **triggers**, not continuous CV shapes.
- For richer modulation, send triggers to:
    - envelopes
    - function generators
    - sample-and-holds
    - switches
    - logic
- If a patch gets too chaotic, reduce complexity by:
- using only 2–4 outputs per side
- slowing the clock
- using reset every bar or phrase
- moving randomization to timbre, not note timing
- If your target module needs hotter gates, check whether 5 V triggers are sufficient. Usually they are in Eurorack.

Best companion modules for Integra Solum

It pairs especially well with: - **envelope/function generators** - **VCAs** - **distortion/wavefolders** - **sample & hold** - **sequential switches** - **logic**

modules - **clock multipliers/dividers** - **filters with CV over resonance/ cutoff** - **burst generators** - **effects with CV-able send or parameters**

If you want, I can also give you:

1. a **10-patch performance cheat sheet** for Integra Solum,
2. a **genre-specific patch list** for dubstep vs DnB vs dark ambient, or
3. a **"what to patch each of the 16 outputs to" template**.

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