Noise Engineering — Integra Solum

- Manual PDF

Manual PDF / documentation

Using Noise Engineering Integra Solum to build full-length Eurorack songs

Integra Solum is easy to misunderstand as “just” a clock divider / trigger source. But for song construction, that is exactly the kind of module that can turn a cool loop into an arrangement.

Its real strength is not only making rhythms — it is making **structured time divisions**, **section changes**, **rotating variations**, and **parallel trigger streams** that can control multiple layers of a patch over longer spans.

What Integra Solum does well

From the manual:

- Dual rotating clock divider
- 16 trigger outputs total, in two groups of 8
- Both sides can share one clock or run independently
- Both sides can share reset or reset independently
- 3 modes per side:
- `/2N` = powers-of-two divisions
- `N` = sequence of eight
- `/2N+1` = odd divisions

- `Shift` rotates output order
- “Wack mode” adds randomized behavior
- Outputs are trigger outputs, 0–5 V, triggering around 3.4 V

That means it can act as:

- a master **section clock brain**
- a **drum arrangement source**
- a **phrase variation generator**
- a **fill / break generator**
- a **modulation scheduler**
- a **song form coordinator**

Why this module is useful for full songs

A full song usually needs more than a repeating 1-bar pattern. It needs:

- intro
- groove entry
- tension / subtraction
- variation
- fills
- breakdown
- return
- ending

Integra Solum helps because it naturally produces **events at different time scales**.

For example, from one master clock you can derive triggers that happen:

- every 2 steps
- every 4 steps
- every 8 steps
- every 16 steps
- every 32 steps

Those longer divisions are exactly what creates arrangement.

Instead of asking:

> “How do I make a song?”

you can patch:

> “What should happen every 8 bars? Every 16 bars? Every 32 beats? What should rotate at the end of each phrase?”

Integra Solum gives you those timing landmarks.

Core song-building idea

Use Integra Solum in **layers of time**:

- **Fast events**: hats, accents, ratchets, melodic note clocks
- **Medium events**: kick pattern variations, bass phrase resets, chord changes
- **Slow events**: mute/unmute, filter opening, switching sequencer pages, changing effect sends, transitions between sections

A full-length song emerges when those layers interact over time.

Best roles for each side

Because Integra Solum is dual, a very practical use is:

Side A: “musical pattern timing”

Use one side for things the listener clearly hears as rhythm or phrase structure: - drums - bass resets - melodic step advances - fills - phrase endings

Side B: “arrangement and transitions”

Use the other side for slower or more hidden control: - switch sequential switch routes - trigger envelope bursts for transitions - advance sequencer pages - open VCAs for different voices - change quantizer root - enable effect sends - trigger sample changes

This split makes the patch feel more song-like instead of just busy.

Understanding the modes musically

1. `/2N` mode: powers of two

This is the most useful mode for arrangement.

Musically, use it for: - phrase boundaries - 2-bar / 4-bar / 8-bar / 16-bar changes - kick dropouts every few bars - opening a filter every 8th or 16th cycle - switching sections

This is the “song form” mode.

Example uses

- Output 1: every 2 clocks
- Output 2: every 4 clocks
- Output 3: every 8 clocks
- Output 4: every 16 clocks

Even if you don’t know exactly which jack corresponds to which division in practice, patch and listen: some outputs will clearly be slower and ideal for arrangement timing.

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2. `N` mode: sequence of eight

This behaves more like a moving one-of-eight trigger stream.

Musically, use it for: - stepping through drum voices - driving an 8-stage melodic accent structure - sending one trigger to a sequential switch to create scene changes - creating “which lane is active now?” behavior

This is the “ordered pattern evolution” mode.

Example uses

- Trigger one of 8 VCAs in succession
- Route one trigger across 8 modulation destinations via switch logic
- Clock a switch that changes oscillator timbre every phrase step

Very useful for making arrangement feel intentional rather than random.

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3. `/2N+1` mode: odd divisions

This is where groove starts becoming less square.

Musically, use it for: - polymetric accents - fills that don’t align every bar - asymmetrical modulation - variation in percussion layers - non-obvious phrase resets

This is the “keep the loop from becoming static” mode.

Example uses

- Trigger a clap accent every 3 or 5 cycles
- Fire a noise burst into reverb on an odd division
- Advance a secondary melody at an odd interval against a 16-step main line

Odd divisions are excellent for full-length songs because they create **longer composite cycles** before repeating.

Wack mode for arrangement

Wack mode is particularly valuable for transitions and anti-loop fatigue.

From the manual:

- `/2N` becomes probabilistic divide-by-two behavior
- `N` generates one random trigger at each step
- `/2N+1` gives independent 50% chance per output per clock

This means Wack mode is not just “random chaos.” It is **controlled variation**.

Good musical uses for Wack mode

- fills at the end of phrases
- semi-random percussion texture during breakdowns
- changing note density in arpeggios
- evolving hi-hat accents
- conditional stabs or FX hits

Best practice

Don’t leave everything in Wack mode all the time. Use it in **specific sections**: - intro texture - pre-drop tension - breakdown instability - final chorus variation - outro decay

That way it sounds like arrangement, not drift.

Patch strategies for full-length songs

1. Build a verse/chorus structure with mutes and VCAs

What you need

- Integra Solum
- master clock
- multiple voices
- VCAs or mute modules
- envelopes

Patch concept

- Clock both sides from one master clock
- Use Side A in `/2N` mode for phrase timing
- Use slow outputs to trigger envelopes that open VCAs for different voices
- Use Side B to rotate or switch variation triggers

Song behavior

- Intro: only kick + texture voice open
- Verse: bass VCA opens every 8 or 16 beats
- Chorus: lead voice and open hats come in on a slower divider trigger
- Breakdown: gate closes bass and kick, leaves FX and melody fragments
- Final section: all VCAs opened, plus Wack-mode percussion accents

This is one of the cleanest ways to turn a patch into sections.

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2. Use it as a “scene change trigger” for sequential switches

Sequential switches are one of the strongest song-form tools in Eurorack.

Pair with

- Doepfer A-151
- Noise Engineering Vice Virga / Confundo Funkitas style logic tools
- any sequential switch
- switchable sequencers or sample players

Patch concept

Use slow Integra Solum outputs to: - advance a sequential switch - switch between: - different bass CV sequences - different drum trigger patterns - different modulation routings - different quantizer roots - different effect send levels

Result

The patch changes “scene” every phrase.

Example

- Scene 1: intro
- Scene 2: verse groove
- Scene 3: chorus
- Scene 4: breakdown
- Scene 5: return
- Scene 6: final chorus with extra percussion

Integra Solum becomes a song section conductor.

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3. Drive drum arrangement over many bars

A common issue in Eurorack is a great 1-bar drum loop that never develops.

Patch concept

Let your core drum sequencer handle the main beat, but use Integra Solum to create: - clap entrances - tom fills - crash triggers - hat density changes - kick dropouts - snare flam triggers - end-of-phrase noise bursts

Pair with

- drum modules
- logic modules
- burst generators
- VCAs
- mute matrix
- OR combiner / trigger mixer

Specific approach

- Main sequencer = kick/snare fundamentals
- Integra Solum outputs = arrangement overlays
- `/2N` outputs trigger crash or fill every 16 or 32 steps
- `N` mode rotates through toms or percussion lanes
- Wack mode drives occasional hat and rim variations

This creates the feeling of a drummer or arranger intervening over time.

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4. Reset sequencers to create phrases

Resets are one of the most important arrangement tools in modular.

Pair with

- melodic sequencer
- bass sequencer
- Euclidean sequencer
- quantizer
- clocked modulation source

Patch concept

Use Integra Solum outputs not only as note triggers, but as: - sequencer reset triggers - modulation reset triggers - envelope re-sync triggers

Why this matters

A patch often sounds “songless” because multiple clocks run freely with no phrase boundaries.

Use slow Integra Solum triggers to: - reset the bass sequencer every 16 steps - reset the melody every 32 steps - reset a modulation LFO every 64 steps

Now phrases line up and sections feel intentional.

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5. Use Shift as a live arrangement control

The Shift/Offset control rotates outputs. This is very useful live.

Instead of repatching, you can rotate which output is considered first in the cycle.

Musical result

- fills happen in different places
- accents shift forward/backward
- phrase emphasis changes
- drum lane ordering changes

- switch progression changes

If one side is controlling a sequence of section actions, rotating it effectively rearranges the order of events.

Practical use

During performance: - keep one side stable for core groove - manually move Shift on the other side to create evolving arrangements

This is a strong way to make a 6-minute performance feel composed.

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6. Separate clocks for macro and micro time

Because each side can be clocked independently, you don’t have to run both from the same pulse.

Powerful approach

- Side A gets 16th-note clock
- Side B gets bar clock, phrase clock, or divided clock from another module

Why

Now one side handles local rhythm while the other handles large-scale arrangement.

Example

- Side A: hats, percussion, melodic triggers
- Side B: every bar or every 2 bars triggers section changes, filter swells, switch advances

This creates hierarchy in the patch, which is key to song form.

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7. Create intros and outros by gradual layer activation

Full-length songs often need gentle entry and exit.

Patch concept

Use progressively slower outputs to bring in layers one by one: - drone starts immediately - kick starts after a few bars - bass enters after 8 bars - hat enters after 16 bars - lead enters after 32 bars

You can do this with: - trigger-to-gate modules - sample & hold plus comparator - sequential switches - latching VCAs / gate-controlled VCAs

Similarly for outros: - remove hats first - then lead - then bass - leave kick + delay tail - then only texture

Integra Solum gives the timing skeleton for that.

Module combinations that work especially well

With trigger sequencers

Examples: - Steppy - Numeric Repetitor - Varigate - Pam’s Pro Workout - Euclidean Circles

Use Integra Solum as the **macro arranger** above the trigger sequencer.

The sequencer makes the groove. Integra Solum decides when the groove changes.

With melodic sequencers

Examples: - Metropolix - René - Mimetic Digitalis - Moskwa - Voltage Block plus quantizer

Use Integra Solum to: - reset phrases - switch stored sequences - transpose sections - enable alternate clocks - trigger different envelopes for note articulation

This helps transform a cool riff into verse/chorus development.

With quantizers

Examples: - Scales - Bard Quartet - O_C - ADDAC quantizers

Use slow trigger outputs to: - change root note - switch scale - transpose melody up for chorus - move bass from tonic pedal to progression tones

One of the fastest routes to “song” is harmonic change. Integra Solum can schedule those changes.

With sequential switches

This may be the single best pairing.

Use it to switch: - CV patterns - trigger lanes - modulation destinations - audio sources - filter inputs

Now every phrase can be a different arrangement state.

With logic modules

Examples: - AND / OR / XOR logic - Compare 2 - Joranalogue logic tools - Ladik logic modules

Logic multiplies the usefulness of Integra Solum.

Example

- Main snare trigger AND a slow divider trigger = only occasional snare accent
- Kick trigger XOR odd division = changing syncopation
- Melody gate OR random Wack trigger = occasional grace notes

This creates controlled song evolution.

With VCAs and envelope generators

This is essential.

Triggers only matter musically if they open or shape something. Use Integra Solum to trigger: - accent envelopes - amplitude envelopes - filter envelopes - effect send envelopes - ducking or sidechain pulses

For song construction, think in terms of: - when does this part enter? - how strongly? - for how long? - on what phrase cycle?

With effects

Use slow outputs to animate effects over sections: - send more snare to reverb every 8 bars - open delay feedback during fills - trigger freeze or hold functions - switch between dry and wet paths - clock modulation on delay/reverb parameters

Effects automation is one of the easiest ways to create progression without changing notes.

Concrete full-song patch examples

Patch 1: Techno arrangement engine

Modules

- drum voices
- bass voice
- lead voice
- 1 main trigger sequencer
- 1 melodic sequencer
- Integra Solum
- mute VCAs
- filter
- delay/reverb
- sequential switch

Patch

- Main clock to Integra Solum and trigger sequencer
- Side A `/2N`: phrase triggers
- Side B `N`: route through sequential switch for section changes

Use

- Output A1: occasional open hat accents
- Output A2: clap enable every phrase
- Output A3: crash trigger every 16 steps/bars
- Output A4: reset bass sequence every 32 steps
- Output B outputs: advance switch selecting 1 of 4 lead modulation states

Song structure

- 0:00–0:45 intro: kick + filtered percussion only
- 0:45–1:30 bass enters on a slow divider event
- 1:30–2:15 lead enters when switch reaches scene 2
- 2:15–2:45 breakdown: mute kick using gate logic, enable Wack percussion
- 2:45–4:00 full groove return, Shift slightly rotated for new accents
- 4:00–end gradual layer subtraction

Patch 2: Generative ambient song with recurring form

Modules

- 2–3 voice patch
- quantizer
- clocked random
- envelopes
- VCAs
- reverb
- sequential switch
- Integra Solum

Patch

- Side A in `N` mode controls which voice is active each step/phrase
- Side B in `/2N` mode resets melodic and modulation cycles
- Wack mode on one side for sparse random texture triggers

Result

- recurring phrase markers create recognizable form
- random textures keep it evolving
- resets keep it from turning into an endless drift

This is great for long-form ambient where “song” means recurring sections rather than verse/chorus.

Patch 3: Bassline + melody song form

Modules

- bass sequencer
- melody sequencer
- quantizer
- two voices
- mixer
- VCA
- switch or precision adder
- Integra Solum

Patch

- Side A controls bass phrase resets and accents
- Side B controls melody transposition and section changes

Use

- A slow output resets bass every 16 steps
- Another output opens bass accent envelope at phrase start
- Side B triggers precision adder transposition:
- section 1 = root
- section 2 = +5th
- section 3 = relative minor / alternate root
- another slow output enables melody only in chorus sections

Now your song gains harmonic and textural development without needing a DAW-style arranger.

Patch 4: Drum fill and transition machine

Modules

- main drum sequencer
- sample player or noise voice
- burst generator
- logic
- reverb
- Integra Solum

Patch

- Main groove stays stable
- Integra Solum handles only transitions:
- fill trigger
- crash trigger
- reverse cymbal / noise swell
- delay send burst
- kick mute for one beat before drop

Why it works

Many songs are defined less by the loop and more by the transitions between loops. Integra Solum can specialize in that role and dramatically improve song feel.

Practical workflow for writing a song with Integra Solum

Method 1: Build from the longest timescale first

1. Set master clock

2. Patch slow Integra Solum outputs to section-change functions
3. Define:
4. intro length
5. phrase length
6. breakdown point
7. return point
8. Then fill in drums and melody

This works better than starting with a dense groove and trying to “arrange” later.

Method 2: Reserve one side only for arrangement

This is a great discipline.

- Side A = groove support
- Side B = song form only

Do not spend all outputs on drums. Keep at least a few outputs for: - mutes - resets - switch advances - effect moments - harmonic changes

That is usually the missing ingredient in Eurorack songs.

Method 3: Use one “event” per phrase

For each phrase boundary, decide one thing that changes: - add hat - remove bass - transpose melody - open filter - trigger fill - change switch state - enable random mode

If each phrase has one clear event, the listener hears progression.

Integra Solum excels at creating these phrase events.

Important performance ideas

Manual interaction matters

A full song in Eurorack often comes from a combination of: - automated structure - live intervention

On Integra Solum, live actions can include: - changing mode - rotating Shift - entering/exiting Wack mode - changing which side shares a clock/reset - muting outputs downstream

These actions can act like arrangement moves: - verse to chorus - stable groove to fill-heavy section - breakdown to full density return

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Use reset intentionally

Reset is one of the strongest “section marker” gestures in modular. A reset can make the whole system feel like it has arrived at a new chapter.

Use resets: - at drop returns - at end of breakdowns - at start of melody sections - when changing clock relationships

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Limitations to be aware of

Integra Solum is not a full song arranger by itself.

It does not: - store songs - chain patterns explicitly - remember section order - output pitch CV - mute audio directly

So to make full songs, you should pair it with: - VCAs - switches - logic - sequencers - quantizers - mixers - effects

Think of it as a **structural timing generator**, not a complete composer.

That said, structural timing is often exactly what a modular patch lacks.

Best song-building use cases in one sentence each

Integra Solum is especially good for:

- turning bar-level loops into phrase-level arrangements
- making different voices enter and leave on longer cycles
- creating fills and transitions automatically
- resetting sequencers into recognizable song phrases
- controlling section changes via switches
- adding non-repeating long-form variation with odd divisions
- using Wack mode to inject controlled instability

A simple “full song” starter patch

If you want one practical patch to try immediately:

Modules

- clock source
- kick, snare, hat voices
- bass voice
- lead voice
- melodic sequencer
- sequential switch
- 4 VCAs or mute channels
- Integra Solum

Patch

- Clock to both Integra Solum sides
- Side A `/2N`
- one output to hat accents

- one to bass sequencer reset
- one to crash
- one to fill trigger
- Side B `N`
- outputs to sequential switch selecting:
    1. bass only
    2. bass + drums
    3. add lead
    4. breakdown modulation state
    5. full chorus
- Use VCAs to open/close layers based on switch outputs
- At breakdown, engage Wack mode on one side for hats and percussion only
- Rotate Shift for the final section

That can easily produce a 4–8 minute performance with clear form.

Final thought

Integra Solum helps create full-length songs because it gives you a way to think beyond the loop.

In Eurorack, the jump from “great pattern” to “great song” usually comes from adding: - phrase boundaries - section changes - controlled entrances and exits - resets - fills - long-cycle variation

Integra Solum is extremely strong at all of those.

If you treat it not as a divider but as a **song clock architecture module**, it becomes much more powerful.

Generated With Eurorack Processor