Doepfer — A-160-5

- Manual PDF

Manual PDF / Product Page: Doepfer A-160-5 Voltage Controlled Clock Multiplier / Ratcheting Controller

Using These Modules Together for Melodic Music

From the manual pages, the main module described is the **Doepfer A-160-5 Voltage Controlled Clock Multiplier / Ratcheting Controller**, shown in patch examples together with the **Doepfer A-155 sequencer** and **A-154 Sequencer Controller**.
Used together, these modules are very good at creating **melodic lines with rhythmic variation**, especially **ratcheting melodies**, **accented note repeats**, and **step-dependent articulation**.

What each module contributes

A-160-5

The A-160-5 is a **voltage-controlled clock multiplier**. It takes an incoming clock and creates a faster clock at its output according to: - the **CV at CV In** (0 to +5V) - the **Mode switch** - or the **Manual control** if no CV is patched

Important behavior: - **0V CV = no output clock** - Increasing CV selects higher multiplication factors - The 3 switch modes choose different factor sets: - **integers** - **powers of two** - **mixed set**

This makes it ideal for **ratcheting**, where one sequencer step can produce: - no trigger - one trigger - two triggers - several triggers

A-155 Sequencer

The A-155 is the core melodic sequencer in the patch examples. It provides: - a stepped CV row for **pitch** - another CV row that can be used to control the **ratchet amount per step** - gate/trigger signals for note events

A-154 Sequencer Controller

The A-154 expands sequencing control and helps with: - clocking and transport control - more flexible sequencing behavior - easier integration of the A-155 into more complex performance patches

In the example, the A-154/A-155 combo is used as the sequencer source, while the A-160-5 adds **sub-step trigger multiplication**.

Core melodic use case: ratcheting melody lines

This is the most direct melodic patch shown by the manual.

Basic patch idea

Use: - one sequencer CV row for **pitch** - another sequencer CV row for **ratchet density** - the A-160-5 to generate repeated triggers within a single step

Patch flow

1. **Sequencer clock** goes to the **A-160-5 Clock In**
2. **A-155 pitch CV row** goes to your **VCO 1V/oct input**
3. **A-155 second CV row** goes to **A-160-5 CV In**
4. **A-160-5 Clock Out** goes to the **gate input of an envelope** or directly to a trigger destination
5. Envelope opens a VCA for the VCO

Result

For each step: - the **pitch row** determines the note - the **second CV row** determines how many times that note retriggers during the step

So instead of a plain 8-step melody, you get: - single notes on some steps - fast repeated notes on others - muted steps where CV = 0V

That gives a melody much more motion and phrasing than a standard one-trigger-per-step sequence.

Why this is musically powerful

1. Per-step rhythmic articulation

A normal sequencer often gives each step equal weight.
With the A-160-5, each step can behave differently: - step 1: one note - step 2: two repeats - step 3: four repeats - step 4: rest - step 5: fast burst

This turns a static melody into something much more expressive.

2. Ratcheting without changing pitch

Because the pitch CV can stay constant during the step while only the trigger rate changes, one pitch can become: - a stab - a tremolo-like pulse - a rising-energy repeated note - a sequenced ornament

This is especially useful for Berlin-school, trance, techno, electro, and arpeggiated melodic music.

3. Built-in mute via 0V

The manual states that **0V at CV In produces no output clock**.
This means a sequencer row controlling the A-160-5 can also create **rests**.
That is extremely useful for melody shaping: - not every pitch step has to sound - some notes can be skipped entirely - ratchet control doubles as articulation/mute programming

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Best musical strategies

1. One row for pitch, one row for ratchet

This is the most obvious and effective patch.

Example

- Row 1: melodic notes
- Row 2:
- 0V = rest
- low CV = 1 pulse
- medium CV = 2–3 pulses
- higher CV = 4 or more pulses

This gives you a melody where every step has both: - a note value - a performance gesture

It feels almost like sequencing **pitch + picking pattern**.

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2. Use powers-of-two mode for cleaner rhythmic structure

The middle mode uses **powers of two**.
This is often best for musical consistency because the subdivisions tend to feel more regular: - 1x - 2x - 4x - 8x, etc.

For melodic work, this is excellent when you want: - tight, grid-aligned repeats - predictable rhythmic ornamentation - less “odd” variation

Good for: - arpeggios - trance plucks - sequenced basslines - Berlin-school pulses

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3. Use integer mode for more organic phrasing

The integer mode gives more conventional multiplying factors.
This can create less symmetrical and more human-feeling variations across steps.

Good for: - expressive melodic sequences - less mechanical phrasing - patterns that avoid always dividing into powers of two

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4. Use mixed mode for evolving melodic figures

The mixed mode can be the most playful. It creates a wider range of subdivisions depending on CV.
This is useful when your sequencer row is already programmed melodically and you want a broader range of ratchet behaviors.

Good for: - live performance - happy accidents - evolving lead sequences - generative or semi-generative melody work

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5. Send the multiplied clock to envelopes, not pitch

The A-160-5 does not generate melody by itself; it generates **timing density**.
The best melodic use is usually: - pitch CV to oscillator - A-160-5 output to envelope gate/trigger input

That way repeated clocks retrigger the same note within the step.

This creates: - note repeats - fluttering plucks - mandolin-like repeated articulations - classic sequencer ratchets

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Patch recipes for melodic components

Patch 1: Berlin-school ratcheting lead

Connections

- Master clock → A-154/A-155 clock input
- Same clock → A-160-5 Clock In
- A-155 Row 1 CV → VCO 1V/oct
- A-155 Row 2 CV → A-160-5 CV In
- A-160-5 Clock Out → ADSR gate in
- ADSR → VCA CV
- VCO → VCF → VCA

Programming idea

- Row 1: simple minor-scale melody
- Row 2:
- some steps at 0V for rests
- some low for single notes
- some medium for doubles
- occasional high settings for dramatic bursts

Musical result

A classic sequenced melody with animated repeated notes, very reminiscent of vintage electronic sequencing styles.

Patch 2: Accented melodic ornamentation

Instead of ratcheting many steps, only ratchet selected notes.

Programming idea

- Most steps = one pulse

- Key melody notes = multiple pulses
- Phrase endings = mute or single pulse

Result

The melody remains clear, but some notes become: - ornaments - accents - fills - transitions

This is excellent for making a melody feel composed rather than purely looped.

Patch 3: Bassline with rhythmic fill steps

Use the A-160-5 on a bass sequence.

Programming idea

- Low notes on Row 1
- Row 2 mostly low values
- Every 4th or 8th step gets a higher ratchet amount

Result

A bassline with occasional rapid retriggers, like: - pick-style bass attacks - sequenced rolls - fill notes before loop restart

This is very effective in techno and electro.

Patch 4: Dual-function melodic row with silence control

Because 0V mutes the A-160-5 output, the ratchet-control row can define: - whether a note sounds - how often it retriggers

Result

You can separate: - **pitch composition** from Row 1 - **phrase articulation** from Row 2

This is powerful because Row 2 becomes a true **performance lane**: - mute - normal note - repeated note - dense repeated note

That’s almost like sequencing picking, bowing, or strumming intensity.

Important technical limitation for musical use

The manual notes that the A-160-5 needs **a few clock pulses to stabilize** if the incoming clock changes frequency.
So for best melodic results: - feed it a **steady clock** - avoid rapidly varying the incoming clock tempo - do not expect perfect output immediately after abrupt clock changes

In practice, this means it works best when driven by: - a stable master clock - a sequencer clock with fixed or slowly changing tempo

This is important if you want clean ratchets that stay musically tight.

Practical performance advice

Keep the incoming clock steady

Since multiplication is derived from averaging recent clock cycles, a jittery or wildly changing clock can make the output feel unstable.

Use the manual knob for auditioning

If nothing is patched to CV In, the **Manual** knob selects multiplication.
This is useful for: - testing rhythmic densities by ear - finding the best mode before applying sequencer CV - live performance tweaks if you temporarily remove CV control

Program musically, not maximally

Too many ratchets on every step can blur the melody. Usually the best results come from contrast: - many normal notes - a few repeated notes - some rests - occasional bursts

That creates phrasing instead of chaos.

Match envelope settings to ratchet speed

If your envelope is too long, fast ratchets may smear together.
For clearer melodic repeats: - use shorter decay/release - use snappy envelopes - tune VCA/VCF response for articulation

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Best kinds of melodic content these modules make

These modules are especially strong for:

- **Berlin-school sequences**
- **Tangerine Dream-style ratcheting lines**
- **trance/arpeggiated leads**
- **techno melodic loops**
- **electro basslines with repeated triggers**
- **ornamented step-sequenced melodies**
- **plucked repeating note phrases**
- **gated melodic ostinatos**

They are less about freehand melody generation and more about **adding expressive rhythmic articulation to sequenced pitch material**.

Summary

Used together, the **A-155/A-154** provide the **melodic pitch structure**, while the **A-160-5** provides **per-step trigger multiplication**.

That means you can create melodic phrases where each note step has its own articulation: - silent - single-hit - double-hit - rapid repeated burst

This is one of the most effective classic Eurorack methods for creating **animated, musical, rhythmic melodies** from simple sequencer rows.

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