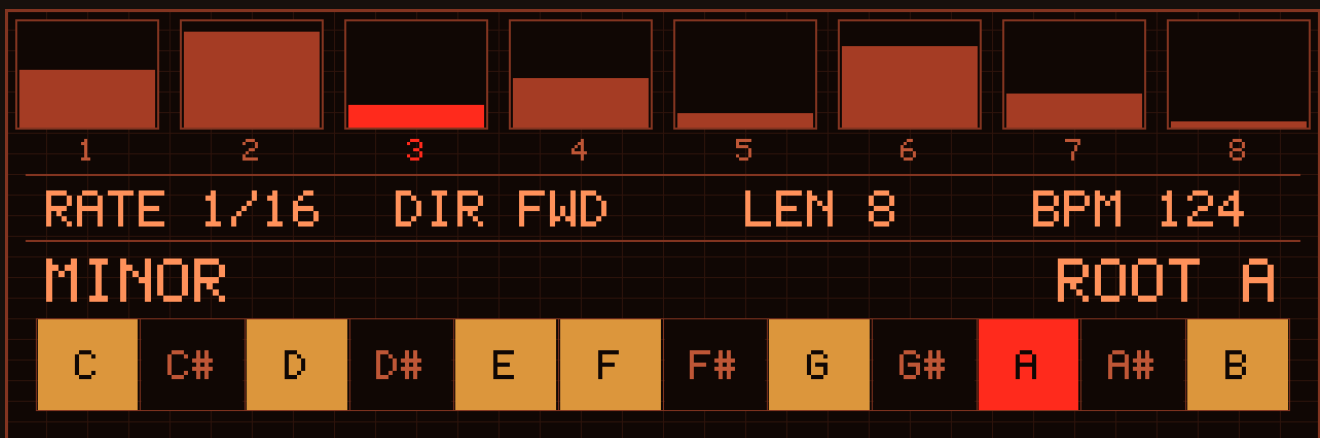


STEPLING

8-Stage CV Step Sequencer

2U Rack Extension · CV Processor · Vintage-style



USER MANUAL

Version 1.0 · for Stepling 1.0.2

Doodov Digital Design

Welcome

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Stepling is a compact eight-stage step sequencer for the Reason rack, modelled on the classic vintage step-sequencer hardware. Each of its eight stages holds a pitch, a pulse count, a gate mode, a ratchet pattern, and slide and skip switches — so a single column of controls describes not just a note but how many times it repeats, how it is gated, and how it connects to its neighbours. The result is a sequencer that turns a handful of knobs into long, evolving musical phrases.

Stepling is a CV device: it does not make sound on its own. Instead it outputs pitch and gate control voltages that drive any Reason instrument, plus a wealth of CV inputs and outputs for modulation and for linking several units together. It is the 2U companion to **Step Farther**, the larger 4U sequencer in the same family, and shares its sequencing engine.

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Quick start

02

Get a sequence playing in under a minute:

- 1 Create the devices.** Add Stepling to the rack, then add an instrument (for example Subtractor or Thor) below it.
- 2 Patch pitch and gate.** Flip the rack around (Tab). Connect Stepling's **Pitch CV** output to the instrument's sequencer-control CV input, and Stepling's **Gate** output to its gate input.
- 3 Dial in some notes.** Flip back and set a few stage pitches. Give one or two stages a higher pulse count, and try a ratchet on another.
- 4 Press Run.** On its internal clock Stepling plays in time with Reason's tempo and drives the instrument. Choose a **Scale** and **Root** so notes stay in key, and a Rate to taste.
- 5 Optional — external clock.** Switch the clock to **External** and patch a CV to the Clock input to advance the sequence one step per pulse — for clocking Stepling from another device.

Stepling does not use patches — its entire state is saved with your song, so there is nothing to load or recall.

Connections

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All connections are on the rear panel. Pitch is carried as note-value CV (0–127).

Outputs

Output	Sends
Pitch CV	The played note as pitch CV (note values 0–127) — patch to an instrument's CV pitch input.
Gate	A gate/trigger for each played pulse — patch to the instrument's gate input.

Output	Sends
Sync	A single pulse once per sequence cycle — at the first or last stage, set by Sync mode. Use it to reset or trigger other gear once per loop.
Pitch 1–8	Per-stage pitch outputs: each stage's finished pitch, always live. Used to drive extra voices or to slave another Stepling / Step Farther (see section 10).

Inputs

Input	Function
Clock	External clock. Each rising edge advances the sequence when the clock switch is set to External.
Reset	A rising edge jumps the sequence back to its first stage.
Octave transpose	Shifts every note in whole octaves, added to the front-panel Octave knob.
Global modulation	One input per global parameter — rate, swing, gate time, slide time, direction, scale, root, octave range, step division, sync mode and sequence length.
Per-stage modulation	Per-stage CV that nudges that stage's pitch, pulse, gate and more, for hands-off variation.
Per-stage pitch in	Replaces a stage's pitch with an external pitch CV (0–127) when External Pitch is enabled — the key to linking devices.

The eight stages

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Every stage is an identical column of controls. As the sequence runs, the current stage is highlighted on the display and its values are sent to the outputs. A stage is more than a single note: its pulse count, gate mode and ratchet decide how long it holds the floor and how it is rhythmically articulated.

Per-stage control	Range	What it does
Pitch	0–35 semitones	The stage's note, up to three octaves above the base. The pitch is quantised to the current Scale and Root, then shifted by the Octave controls.
Pulse count	1–8	How many clock pulses the stage lasts. A pulse count of 4 holds the stage for four steps before moving on — the heart of the vintage step-sequencer feel.
Gate mode	6 modes	How the stage is gated across its pulses (see Gate modes).
Ratchet	8 variants	Subdivides each pulse into rapid repeats or accent patterns (see Ratchets).
Slide	On / Off	Glides smoothly from the previous note into this stage's pitch, in classic analog style. Slide time sets the glide length.
Skip	On / Off	Removes the stage from the sequence. The playhead steps over it as if it were not there.

Gate modes & ratchets

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Gate modes

Each stage's gate mode decides how its pulses are turned into gate signals.

Mode	Behaviour
HOLD	One continuous gate spanning the whole stage. Ratchet has no effect in this mode.
MULT	A fresh gate on every pulse of the stage — the standard repeating-note behaviour.
SING	A single gate on the stage's first pulse only; the remaining pulses are silent but still count time.
REST	Silent. The stage occupies its time but emits no gate — useful for rhythmic gaps.
DOT	Dotted feel: the gate fires, then a second sub-gate at one-and-a-half times the pulse spacing.
RAND	A 50/50 coin flip on every pulse — each pulse independently fires or stays silent.

Ratchet variants

Ratchets subdivide each pulse into several fast hits, or reshape their timing and accents.

Variant	Behaviour
1	No ratchet — a single hit per pulse (the default).
2 / 3 / 4	Two, three or four evenly-spaced hits per pulse — classic ratcheting.
ACCENT	A ratcheted group with an emphasised hit for a stressed, rolling feel.
FRONT	Front-loaded: the hits cluster toward the start of the pulse.
BACK	Back-loaded: the hits cluster toward the end of the pulse.
BOUNCE	Four hits with accelerating spacing, like a ball settling as it bounces.

Global controls

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These controls shape the whole sequence rather than a single stage.

Control	Range	What it does
Rate	1/1 ... 1/32T	Step length as a musical division, including triplets (T) and dotted (d) values.
Swing	0–100%	Delays off-beat pulses for a shuffled groove while keeping the average tempo.
Gate time	short – long	The length of each gate as a fraction of its pulse.
Slide time	short – long	How long a slide takes to glide between notes.
Scale	30 scales	Quantises every pitch to a musical scale (see Scales).
Root	12 notes	The key centre the scale is built on.
Octave range	1 / 2 / 3	How many octaves the pitch knobs span across their travel.
Octave	–2 ... +2 oct	Transposes the whole sequence in whole octaves. Also available as a CV input.
Sequence length	1–16	How many stages play before looping. Lengths above 8 wrap back through the stages, vintage-style, for longer patterns.
Direction	16 modes	The order in which stages are visited (see Direction modes).
Step division	1–32	Clock divider — plays one step every 1, 2, 4, 8, 16 or 32 clock ticks.
Clock	Int / Ext	Internal locks the sequence to Reason's transport (song tempo); External advances one step per pulse received at the Clock input.
Sync mode	First / Last	Sets whether the Sync output's once-per-cycle pulse fires at the first or the last stage.
External pitch	On / Off	Lets per-stage pitch inputs take over the stage pitches — used for device linking.
Run / Reset	buttons	Start and stop playback, or jump back to the first stage.

Direction modes

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Direction sets the path the playhead takes through the stages. The five core modes each emit every stage's full pulse count. Their **Fixed** partners (marked -F) ignore pulse counts and advance exactly one step per clock, flattening the pattern to one hit per stage. Six further modes add more adventurous motion.

Mode	Name	Path through the stages
FWD	Forward	1 → 2 → ... → 8, then repeat.
FWD-F	Forward (Fixed)	Forward, one step per clock, ignoring pulse counts.
REV	Reverse	8 → 7 → ... → 1, then repeat.
REV-F	Reverse (Fixed)	Reverse, one step per clock.
PNG	Ping-pong	Up to the top, back down, end stages played once.
PNG-F	Ping-pong (Fixed)	Ping-pong, one step per clock.
RND	Random	A random active stage is chosen on every step.
RND-F	Random (Fixed)	Random, one step per clock.
BRN	Brownian	A random walk: step up, down or stay (25 / 50 / 25%).
BRN-F	Brownian (Fixed)	Brownian walk, one step per clock.
DRK	Drunken	A looser three-state random walk — back, stay or forward.
PND	Pendulum	Like ping-pong, but the end stages are played twice.
OE	Odd-Even	All odd-numbered stages first, then all even-numbered stages.
PIV	Pivot	Zig-zags from the outside in: 1, last, 2, last-1, ...
SHF	Shuffle	A random order that plays each stage once per pass, then reshuffles.
CRD	Chord	Visits the stages in order of ascending pitch.

Scales

08

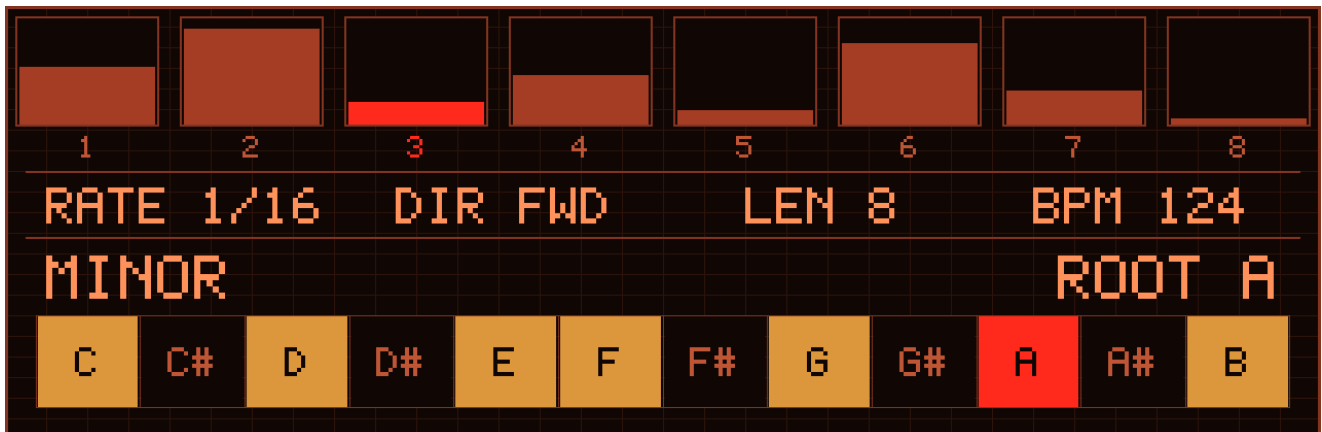
The Scale control quantises every pitch so the sequence stays musical no matter how the pitch knobs are set. Thirty scales are available, from everyday major and minor through modal, symmetric and world scales. Choosing **Chromatic** leaves pitches unquantised.

Chromatic	Major	Minor
Dorian	Mixolydian	Lydian
Phrygian	Locrian	Diminished
Whole-Half	Whole Tone	Minor Blues
Pentatonic Minor	Pentatonic Major	Harmonic Minor
Melodic Minor	Super Locrian	Arabic
Hungarian Minor	Minor Gypsy	Hirojoshi
In-Sen	Iwato	Kumoi
Pelog	Spanish	Tritone
Prometheus	Augmented	Enigmatic

The Root control then sets the key centre (any of the twelve notes). Scale and Root can both be modulated by CV, and the keyboard strip on the display always shows which notes are currently in key.

Reading the display

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The display at a glance — stage bars, transport line, scale and root, and the live scale keyboard.

Area	Shows
Stage bars	Eight bars, one per stage, their height set by each stage's pitch. The playing stage and its number are lit bright red.
Transport line	The current Rate, play Direction, sequence Length and the working tempo (BPM).
Scale & Root	The selected scale on the left and the root note on the right. While you nudge a stage's pitch, the edited note appears in amber in the centre.
Keyboard	A one-octave keyboard. Notes that belong to the current scale are lit; the note playing right now is shown in red. It updates the instant you change scale or root, even when stopped.

CV modulation & linking devices

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Modulating the sequence

Almost every parameter has a matching CV input on the back. Patch an LFO to the Scale input to drift between keys, a random source to the per-stage pitch inputs for controlled chaos, or an envelope to Gate Time for swells. Front-panel settings and CV add together, so a knob sets the starting point and the CV moves around it.

Clocking and sync

Leave the clock on Internal to run in time with Reason's transport. Switch to External and patch a CV to the Clock input to advance the sequence one step per pulse — for clocking Stepling from another device or a gate source. The Sync output emits one pulse per cycle (at the first or last stage, per Sync mode), handy for resetting or triggering other gear once each loop. The Reset input, or the Reset button, returns the sequence to the start.

Linking two or more units

Each stage has its own always-live **Pitch** output and a matching per-stage **pitch input**. Patch a master unit's per-stage pitch outputs into a second unit's per-stage pitch inputs and enable **External Pitch** on the second unit: it now follows the master's notes while keeping its own gates, ratchets, slides and timing. This lets you build harmonised or rhythmically independent layers from one set of pitches — or pair Stepling with its larger sibling Step Farther.

Patch ideas

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- **Acid line.** One octave range, a minor or blues scale, generous Slide on a few stages and a fast Rate — then sweep a filter on the instrument for a classic acid-style line.
- **Evolving pad.** A long Sequence length (12–16), Hold gates, slow Rate, and a gentle LFO into the Scale input so the harmony drifts over time.
- **Generative percussion.** Send Gate and Sync to drum voices, choose the Random or Shuffle direction, and add Ratchets on a couple of stages for rolls and fills.
- **Two-voice harmony.** Link a second unit via the per-stage pitch outputs, transpose it an octave or set a different scale, and give it its own gate pattern.

Specifications

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Specification	
Format	Reason Rack Extension, 2U, CV Processor (helper device)
Stages	8, each with pitch, pulse count, gate mode, ratchet, slide and skip
Scales / Root	30 scales × 12 root notes, with live keyboard readout
Directions	16 play directions including fixed, pendulum, pivot, shuffle and chord
Gate modes	6 (Hold, Mult, Single, Rest, Dotted, Random)
Ratchets	8 variants (1–4, Accent, Front, Back, Bounce)
Rate	12 divisions, 1/1 to 1/32T, with swing
Sequence length	1–16 steps (wrapping beyond 8)
Octave	range 1–3 octaves, global transpose ±2 octaves
Clock	Internal (Reason transport) or external CV clock, with reset and per-cycle sync
Outputs	Pitch (note value 0–127), Gate, Sync (one pulse per cycle), plus 8 per-stage pitch outputs
Inputs	Clock, Reset, Octave, 11 global and per-stage modulation, 8 per-stage pitch
Patches	none — state is saved with the song

Stepling and Step Farther are made by Doodov Digital Design. Thank you for sequencing with us.

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