rings

_travelers guide
_for synthesizing nature

3	4	10
resonators + 3 hidden	voices, strummed	s of ringing

[model] press **[model]** hold › then noon = 12 o'clock cw / ccw = clockwise / counter

you bring the hit, rings is the body that rings · three resonators + three hidden ones + an easter egg

one cv from a sequencer is enough to play it · long press = 3 s

orange = hold

01 buttons · LEDs

rng_01

[poly]	voices: 1 ● · 2 ● · 4 ● · chords = strum notes quickly
[poly] 3 s	**3 voices** bouncing odd / even in an o e e o e e o e pattern · LED red + pulsing green
[model]	resonator: modal ● · sympathetic strings ● · string ●
[model] 3 s	its **hidden twin** (04) · LED pulses · **[model]** again = back
poly LED blinks off	a new note was strummed
power on + [model]	colour-blind mode: blink counts + brightness levels

02 knobs · cv

rng_02

[frequency]	root, in semitone steps · 5 octaves
[structure]	the shape of the body: depends on the resonator (04) · one notch = pure harmonic
[brightness]	to noon: opens the exciter · past noon: higher modes ring longer (wood → glass)
[damping]	decay, from under 100 ms to about 10 s
[position]	where it is struck · middle = hollow, square-like
5 attenuverters	cv amount for each knob · same order as the jacks
[frequency] att, unpatched	fine tune ±1 semitone



07 LED codes

rng_07

poly LED	● 1 voice · ● 2 · ● 4 · red + pulsing green = 3
model LED	● modal · ● sympathetic · ● string · pulsing = hidden twin
calibrating	LED 1 orange (send 1 v) › LED 2 orange (send 3 v) · both red = failed
firmware update	both orange at boot · LED 1 green = receiving · LED 2 = level, green or yellow is good · both orange = writing · alternating red = too quiet · **[frequency]** = input gain

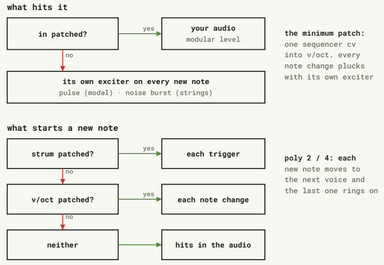
03 patching

rng_03

[strum]	trigger = start a new note (the old one rings out on its own voice)
[v/oct]	pitch of the resonator
[in]	the excitation: clicks, noise, contact mics, drums · modular level
[odd] **[even]**	patch both to split · one cable = both mixed
mono	odd / even = complementary partials or pickup phase
poly	odd / even = alternate voices

_fig.01 : what plays it

the normalling, drawn



the minimum patch: one sequencer cv into v/oct. every note change plucks with its own exciter

poly 2 / 4: each new note moves to the next voice and the last one rings on

06 calibration · fixes

rng_06

retune the v/oct

if notes drift out of tune

1. unplug all cv · keyboard or midi-cv into **[v/oct]**
2. a cable in the **[frequency]** cv jack, other end loose
3. hold **[poly]** + **[model]** 2 s, release › LED 1 blinks orange
4. send 1 v (c2) · press **[poly]** › LED 2 blinks orange
5. send 3 v (c4) · press **[poly]** › done

both LEDs blink red = it failed, start again · fine tune dead afterwards = step 2 was skipped

stop the hiss

if it makes noise with nothing patched

1. unplug every cable, ins and outs
2. hold **[poly]** + **[model]**, release › LED 1 blinks orange
3. hold **[poly]** + **[model]** again, release › both LEDs blink red
4. press **[poly]** › both green · press **[poly]** › back to normal

09 rings vs elements

rng_09 · same code

the split	elements = exciter + resonator + reverb · rings = the resonator alone: the spare 40 % of cpu buys the voices + the string models

04 resonators

rng_04 · **[model]**

modal

struck bars, plates, tubes (as in elements)

structure	ratio between partials: plate · bar · string
brightness	wood / nylon → glass / steel
damping	how long the modes ring
position	strike point · centre cancels even modes
odd / even	odd and even partials

sympathetic strings

sitar / sarod drones (comb filters)

structure	tuning set between strings · notches at octaves and fifths
brightness	string brightness
damping	how long they keep ringing
position	excitation point
odd / even	pickup phase

string

extended karplus-strong

structure	modulation + detuning of partials: curved bridge (sitar, tanpura) to piano tension to inharmonic
brightness	pluck brightness · all-pole absorption filter
damping	decay
position	pluck point

only the modal model reaches a pure harmonic spectrum, at the structure notch: otherwise the pitch is bell-like by design

04 hidden twins

rng_04 · hold **[model]** 3 s

2-op fm

hold **[model]** on modal · pulsing green

structure	frequency ratio
brightness	fm index
damping	fm index + amplitude decay
position	feedback · none at noon
in	envelope follower on fm index + level

western chords

hold **[model]** on sympathetic · pulsing yellow

structure	chord: strings tuned to chords, not fifths / octaves

karplusverb

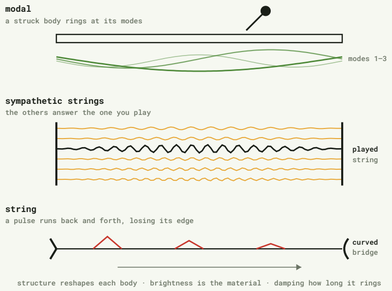
hold **[model]** on string · pulsing red

structure	as string, plus a reverb whose absorption and decay follow the string

a short **[model]** press from a twin returns to its normal model

_fig.02 : three bodies

what you are hitting



05 disastrous peace

rng_05 · the easter egg

enter / leave	set the knobs as in fig.04, then hold **[model]** for a few seconds
what it is	organ / string-machine synth, loosely after the roland rs-09
[poly]	chord size: 10-note fat chords (no overlap) … 3-note chords that overlap 1 · 2 · 4
[model]	fx: formant filter ● · solina-ish ensemble ● · caveman reverb ●
[model]	a variation of that fx (gentler formant, shinier reverb)
[frequency] **[structure]**	root note · chord type
[brightness]	registrations: mixes of square + saw octaves, dark → bright
[damping]	decay, then attack · fully cw = drone
[position]	fx amount
[strum]	fires the envelope on a new group of voices
[v/oct] **[in]**	root (changes retrigger if strum is empty) · in goes straight to the fx

10 under the hood

rng_10 · 14 hp · 25 mm deep

audio	in takes up to 16 Vpp · 16-bit, 48 kHz · 32-bit float inside
cv · trig	cv ins ±8 V, 12-bit at 2 kHz · **[strum]** fires at 0.6 V
60 filters	1 voice gets all 60 · 2 voices 30 each · 4 voices 15 each, so fewer partials

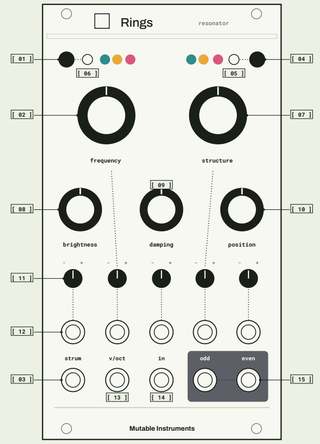
_fig.04 : the secret handshake

egg knobs



_fig.03 : front panel

01–06 = sections · 07–15 = hardware



[01]	**_poly :** voices · LED
[02]	**_frequency :** knobs · cv
[03]	**_strum :** patching
[04]	**_model :** resonators + twins
[05]	**_model LED :** egg fx colour
[06]	**_poly LED :** calibration · status
[07]	**_structure :** body shape
[08]	**_brightness :** material
[09]	**_damping :** decay
[10]	**_position :** strike point
[11]	**_atts :** one per knob
[12]	**_cv ins :** bright freq damp struct pos
[13]	**_v/oct :** pitch
[14]	**_in :** excitation
[15]	**_odd / even :** split outs

_where things hide

no menus · rng_08

held buttons

- **poly 3 s** 3 voices, odd / even rhythm
- **model 3 s** the hidden twin of this model
- **model, on a twin** back to the normal model
- **both 2 s** calibration
- **fig.04 + model** disastrous peace, in and out

at power on

- **hold model** colour-blind mode on / off
- **hold poly** firmware update (audio into in)
- **remembered** voices, model and egg state

_first patches

stock firmware · rng_11

pluck a melody
sequencer cv › **[v/oct]**
nothing else: every note change plucks it with its own exciter

percussion
trigger › **[strum]** · modal
damping low · structure picks bar, plate or bell

strummed chords
poly 4 · fast runs of notes › **[v/oct]**
each note lands on the next voice, the last ones ring on

bowed or blown
noise › vca (slow envelope) › **[in]**
rings has no bow of its own: the envelope is the bow

resonate a loop
drums › **[in]** · **[v/oct]** empty
hits in the audio strum it · sympathetic + damping cw = drone

wide stereo
cables in **[odd]** and **[even]**
mono: the partials split · poly: the voices alternate