

Ring5 is a resonator – the bar, the tube or the bunch of strings you set vibrating. It turns a short, unpitched excitation into a full-bodied pitched sound. It is a native Reason port of Mutable Instruments **Rings**, with the same DSP and the same controls, plus what a rack device needs: MIDI play, pitch bend and mod wheel, an envelope, an LFO, CV outputs, 38 factory patches, automation and Remote. Play it as an instrument, or patch audio into the back and use it as an effect.

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Quick start

- 1 **Create Ring5** from the Instruments menu. Reason gives it a sequencer track and routes its two outputs to the mixer.
- 2 **Play notes** from your keyboard or a clip. The built-in exciter strikes the resonator on every note.
- 3 **Shape the sound** with **Structure**, **Brightness**, **Damping** and **Position**, or open the patch browser and load a factory patch.
- 4 **Pick a model** from the MODE menu and raise **POLY** to let notes overlap and to play chords.
- 5 **Use it as an effect**: press **Tab**, patch a drum loop, vocal or synth into **AUDIO IN**, and play notes to tune the resonator to your song.

Ring5 vs. the Rings module

- **Plays from MIDI**. Each note sets the pitch and strums a new voice. Chords are strummed for you.
- **1, 2, 3 or 4 voices** (the module offers 1, 2 or 4).
- **All hidden modes are menu items**: FM Voice, Quantized, Reverb String and four String Synth effects.
- **New modulation**: an AD envelope and an LFO, each with an internal destination and a CV output.
- **Pitch bend and mod wheel**, with a settable bend range and a mod-wheel destination.
- **Knob captions follow the model** – e.g. RATIO and FEEDBACK in FM Voice, CHORD in Quantized.
- **Stereo audio input**, summed to the mono exciter.
- **Frequency** is a ± 30 -semitone transpose. The FM input is not normalised to a fine-tune voltage.
- **ODD and EVEN are always separate** – nothing is auto-mixed into ODD.
- **Patches, automation, Remote and MIDI CC** for every front-panel control.



Resonator controls

A. Polyphony (POLY). How many voices can ring at once. Each new note moves to the next voice and lets the previous one decay. The LED colour echoes the setting.
1 Voice · 2 Voices · 3 Voices · 4 Voices – default 1

B. Resonator type (MODE). Selects one of ten models. The LED colour echoes the model; switching to or from a String Synth model crossfades to avoid a click.
Modal · Sympathetic · Inharmonic · FM Voice · Quantized · Reverb String · Syn Formant · Syn Chorus · Syn Ensemble · Syn Reverb

C. Frequency. Coarse transpose in semitone steps, detuned at the centre. It shifts whatever pitch arrives by MIDI or the V/OCT input.
–30 to +30 semitones – default 0

D. Harmonic structure. The frequency ratio between the partials of the modal resonator, the detuning of the sympathetic strings, or the non-linearity/inharmonicity of the string. In the Quantized and String Synth models it selects a chord (CHORD); in FM Voice it sets the ratio (RATIO).
0-100% – default 35%

E. Brightness. The level of the upper harmonics. Over the lower part of its travel it opens a low-pass filter on the exciter; beyond that it raises the damping filter (the Q of the higher modes). Reads INDEX in FM Voice and HARMONICS in the String Synth models.
0-100% – default 55%

F. Damping. The decay time, from short taps to long rings. Notes ring out after you release them, as on the module, so Damping is how you set note length. Reads ENVELOPE in the String Synth models, where it shapes decay and then attack.
0-100% – default 65%

G. Excitation position. Where on the string or surface the excitation lands. The centre thins out the even harmonics for a hollow tone. Sweeping it recalls the PWM of a square oscillator, or a phaser's comb filtering. Reads FEEDBACK in FM Voice and FX in the String Synth models (all captions: page 4).
0-100% – default 25%

H. CV trims for the modulation inputs – on the back panel (page 3).

Modulation & output

I. Envelope (ENV) NEW ATTACK, DECAY, DEPTH and DEST of a note-triggered AD envelope. Details on page 5.

J. LFO NEW RATE (with a readout in Hz, or a note value when synced), SYNC, DEPTH, RETRIG, WAVE and DEST. Details on page 5.

K. Volume and the stereo output meter. Sets the level of both outputs.
0-100% – default 100%

Pitch bend & mod wheel NEW

N. BEND and **RANGE**. BEND mirrors your keyboard's pitch wheel and springs back to centre. RANGE (the box above it) sets a full bend in semitones; 0 turns bending off.
RANGE 0-24 semitones – default 2

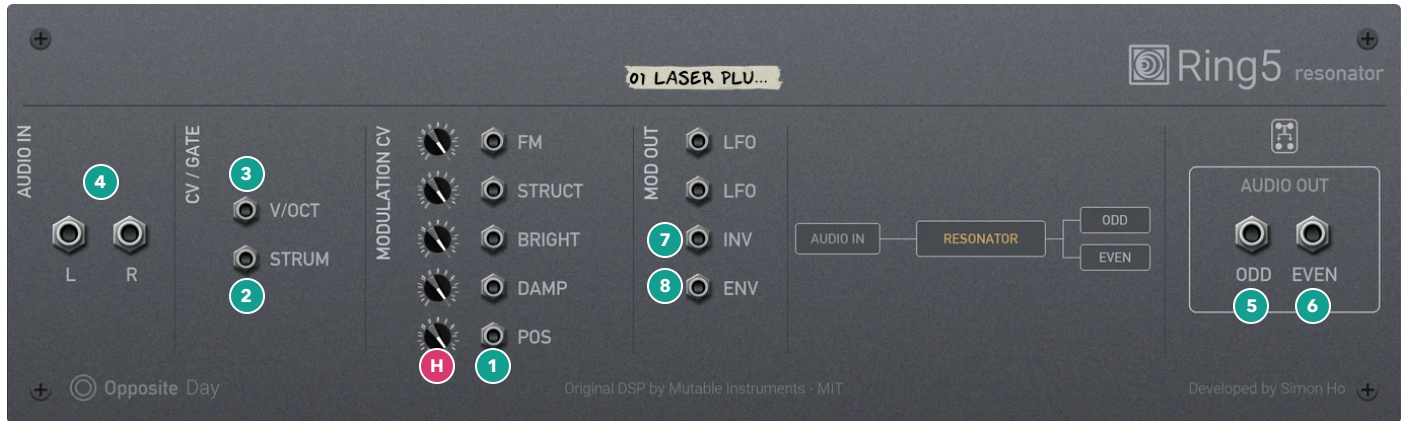
O. MOD, MOD DEST and amount. MOD mirrors your keyboard's mod wheel. MOD DEST picks what it moves; the bipolar knob above VOLUME sets how far (centre = off). See page 5.
MOD DEST default Off · amount –100 ... +100%, default 0

L. NOTE LED. Lights while a MIDI note is held.

M. Patch browser. Arrows step, the folder browses, the disk saves. The **folded** device keeps L and M.

Back panel & signal flow

Press Tab to flip the rack



Inputs and outputs

1. Modulation CV inputs – FM, STRUCT, BRIGHT, DAMP, POS. Each one adds to its front-panel knob, and the result is limited to the knob's range. FM offsets the pitch by up to ± 12 semitones at full CV.

H. CV trims. Reason's standard trim knobs. They set how much of each incoming CV is applied.

2. Strum (gate) input. Each rising edge freezes the playing voice, lets it decay, and starts the next voice at the current pitch. Works alongside MIDI notes.

3. V/Oct (note CV) input. Takes Reason note CV – from a Matrix, a Player or another device's note CV output. When patched, it overrides the MIDI pitch. A pitch change alone does not strum, so pair it with a gate into STRUM (2).

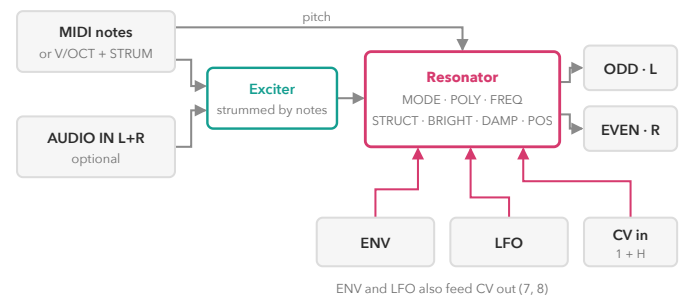
4. Audio input, L / R. The excitation signal. L and R are summed to mono. Patching either jack switches the internal exciter off, and sharp transients in the audio strum new voices.

5, 6. Odd and even audio outputs (left / right). With one voice they carry two complementary parts of the sound: odd and even partials (modal models), or components dephased by excitation position and pickup placement (string models). With more voices they split odd- and even-numbered voices. They are never mixed together, so keep both cabled; Reason does this when you create the device.

7. LFO outputs – LFO, LFO and INV **NEW**. Two copies of the LFO and an inverted one. The raw bipolar signal, unaffected by the front DEPTH and DEST.

8. Envelope output (ENV) **NEW.** The raw 0–1 envelope, unaffected by DEPTH and DEST.

Signal flow



Making the right connections

Ideally, Rings needs three signals: a **trigger** saying when a note should fade and a new one start, a **pitch**, and **audio** that hits, strikes or caresses the resonator. Because you may not have all three, Ring5 assumes:

- (1) If nothing is patched into AUDIO IN, the internal exciter fires on every strum – a low-pass filtered pulse or a noise burst, depending on the model.
- (2) A new voice is strummed by each MIDI note-on, a gate into STRUM, or – with audio patched in – sharp transients in that audio.
- (3) Pitch comes from MIDI notes, unless V/OCT is patched.

As a result...

You can play Ring5 straight from a MIDI keyboard or a sequencer track with no cables at all.

Every model reads the same four knobs, but each gives them its own meaning. The three classic models are printed on the module; the rest are its hidden modes, which on hardware need button holds. In Ring5 they are ordinary MODE entries you can automate or map with Remote.

CLASSIC RINGS

Modal

Modal synthesis simulates resonance in vibrating structures – bars, plates, strings – as a set of modes. Each mode is one partial, made by a band-pass filter whose Q sets how long it sustains. Different materials have different ratios between their modes, which Structure recreates.

Structure	Ratio between partials: from string-like harmonics toward bells and metal.
Brightness	Exciter tone, then high-mode damping.
Damping	Decay time.
Position	Strike point.

Sympathetic

Instruments like the sitar or sarod have strings that are never plucked; they simply ring along with the played strings, adding overtones or undertones. Ring5 builds a bunch of such strings from comb filters.

Structure	Tuning ratio between the sympathetic strings.
Others	As in Modal.

Inharmonic

An extended Karplus-Strong string: a tuned comb filter and an absorption filter, plus non-linearities and a dispersion all-pass filter.

Structure	Amount of non-linearity / inharmonicity – clean string to bent, metallic string.
Others	As in Modal.

HIDDEN MODES

FM Voice

A two-operator FM voice instead of a resonator.

Structure	Frequency ratio.
Brightness	FM index.
Damping	Decay of FM index and amplitude.
Position	Feedback – centre is none.

Quantized

Sympathetic strings tuned to chords. Structure steps through 11 chords, so sweeping it moves from chord to chord.

Structure	Chord selection (11 steps).
Others	As in Sympathetic.

Reverb String

A string model through a reverb whose decay follows the string's own damping, so tails stay coherent.

Damping	Decay of string and reverb together.
Others	As in Inharmonic.

STRING SYNTH (“DISASTROUS PEACE”)

Syn Formant · Syn Chorus · Syn Ensemble · Syn Reverb

Rings’ hidden string machine: a chord-based organ/string synth with a choice of four effects. Each MODE entry picks the effect.

Structure	Chord type (11 steps).
Brightness	Registration – the octave mix of square and saw waves.
Damping	Decay, then attack time. Fully right gives a drone.
Position	Effect amount.

Knob captions by model

Only these change; every other caption stays standard.

Quantized	Structure → CHORD.
FM Voice	Structure → RATIO · Brightness → INDEX · Position → FEEDBACK.
Syn models	Structure → CHORD · Brightness → HARMONICS · Damping → ENVELOPE · Position → FX.

Choosing a model

- **Plucks, mallets, kalimba:** Modal or Inharmonic, Damping below halfway.
- **Bells and gongs:** Modal with Structure toward the right, or FM Voice.
- **Drones and pads:** Sympathetic, Quantized or a String Synth model with high Damping.
- **Effect on drums or vocals:** Sympathetic or Reverb String with audio in AUDIO IN.

Polyphony & strumming

Enabling more voices doesn't add inputs. It lets notes played in sequence overlap without cutting each other's tails: each strum freezes the current voice, lets it decay, and starts the next voice.

On the module, a chord means strumming a fast run of notes. In Ring5 you can simply **play the chord**: simultaneous MIDI notes are queued and released a few milliseconds apart, one per voice. Set POLY to at least the number of notes in the chord, or the oldest notes get re-used.

In the modal models, the resonator's modes are shared among the voices, so each extra voice gets fewer partials:

POLY	1	2	3	4
Modes per voice	60	28	17	12

Use 1 voice for the richest single tone, and raise POLY only as far as your part needs. Changing POLY resets the voices, so ringing tails are cut.

Modulation

Ring5 adds three modulation sources the module doesn't have: an envelope, an LFO and the mod wheel. Each has one internal destination, chosen from the same list, in the order of the panel's knobs:

Off Freq Structure Brightness Damping Position FM

All three can run at once; their amounts add up and the result is limited to the knob's range. **DEPTH** is bipolar: the centre detent is off, turning right adds the modulation and turning left subtracts it. On Structure, Brightness, Damping and Position, full depth can sweep the whole knob range. On FM and Freq it swings up to ± 12 semitones.

I. Envelope

A single AD (attack-decay) envelope, retriggered by every note-on and shared by all voices. A new note restarts the attack from wherever the envelope currently is, so fast playing doesn't click.

CONTROL	RANGE	DEFAULT
ATTACK	1 ms – 2 s (exponential)	≈ 3 ms
DECAY	2 ms – 8 s (exponential)	≈ 85 ms
DEPTH	-100% ... +100%	0 (off)
DEST	Off ... FM	Off

J. LFO

WAVE: Sine, Triangle, Saw (falling ramp), Square or Random (a new random value held for each cycle).

RATE runs from 0.02 to 20 Hz and the readout shows the exact value. Turn **SYNC** on and the LFO locks to Reason's transport: RATE then picks a note value, and the readout shows it. With the transport stopped, a synced LFO keeps running at the song tempo and snaps to the grid when you press play.

SYNC DIVISIONS – RATE KNOB, SLOW → FAST								
16/4	8/4	4/4	2/4	1/4	1/8	1/8T	1/16	1/32

RETRIG restarts the cycle on each note-on in free-running mode. It has no effect while synced, because the transport sets the phase.

O. Mod wheel

Choose a target in **MOD DEST** and set the amount knob above VOLUME. The wheel then scales that amount: wheel down = no effect, wheel up = the full amount. The amount is bipolar like DEPTH, so the wheel can also pull a knob down. Freq and FM swing up to ± 12 semitones at full amount. Default: MOD DEST Off, amount centred, so the wheel does nothing until you set it up.

Pitch bend is separate: BEND moves the pitch by up to $\pm$ RANGE semitones (default 2, up to 24).

CV outputs: more destinations

The back-panel outputs carry the raw LFO (twice, plus an inverted copy) and the raw envelope, whatever DEPTH and DEST are set to. Patch them into a MODULATION CV input (1) and use its trim (H) as the amount to modulate a second or third destination, or into any other device in the rack.

As an instrument

- **Notes** from a keyboard or the sequencer set the pitch and strum a new voice. Velocity is not used. Shape dynamics with automation, the envelope or the mod wheel.
- **Wheels:** your keyboard's pitch and mod wheels drive BEND and MOD. Set the bend RANGE (**N**) and a MOD DEST (**O**).
- **Note length:** releasing a key does not mute the voice – it rings out, as on the module. Set the length with Damping, or use ENV → Damping.
- **Chords:** play them; Ring5 strums them for you (see page 5).
- **Tuning:** Frequency transposes in semitones, ± 30 . For vibrato, use LFO → Freq with a little depth, or put it on the mod wheel.

As an effect

1. Create Ring5 and press **Tab**.
2. Patch a source – a drum loop, Kong, a vocal track's insert or send – into **AUDIO IN** L and R. The internal exciter turns off.
3. Transients in the audio now strum the resonator. Play or sequence notes on Ring5's track to set its pitch; until a note arrives it rings an octave below middle C.
4. Balance dry and wet in the mixer, or put Ring5 on a send.

Quiet or smooth sources produce few transients. Add a gate into STRUM for rhythmic control.

With CV

Patch a **Matrix** (or any note CV and gate pair) into **V/OCT (3)** and **STRUM (2)**. The note CV sets the pitch and each gate strums. Both are needed: Ring5 does not strum on pitch changes alone.

Patching recipes

Plucky snap. ENV → Brightness, DEPTH right, short DECAY. Each note opens bright and darkens as it rings.

Phaser motion. LFO Sine → Position, slow RATE, moderate DEPTH. The comb pattern sweeps through the tone.

Vibrato. LFO Sine or Triangle → Freq, RATE ≈ 5 Hz, very small DEPTH.

Wheel-controlled brightness. MOD DEST Brightness, amount fully right, Brightness knob low. The mod wheel opens the tone as you play.

Shifting bells. Modal, LFO Random → Structure, SYNC on at 1/4. A new material on every beat.

Two destinations from one LFO. Set DEST to Position, then cable LFO out (**7**) into BRIGHT CV (**1**) and set its trim (**H**). Use INV instead of LFO to move Brightness against Position.

Chord drone. Quantized or Syn Ensemble, POLY 4, Damping high. Automate Structure to step through chords.

Drum resonator. Kong → AUDIO IN, Sympathetic, Damping $\approx 70\%$. Sequence a bass line on Ring5's track so the drums ring in key.

Factory patches

Open the patch browser **(M)** to load these, or save your own. Every patch stores the full panel, including ENV and LFO settings.

CATEGORY	PATCHES
Classic Rings	Modal Pluck · Glass Bell · Wooden Bar · Sympathetic Strings · Inharmonic String · Reverb String
Bells & Metals	Deep Gong · Tubular Bell · FM Metallic · FM Bell Stab
Chords & Ensembles	Major 9 Shimmer · Sus4 Drone · Octave Stack · Reverb Choir
Motion	Structure Morph · Clockwork · Subtle Vibrato · Gentle Tremolo · Drifting Timbre
Ambient & Drones	Endless Drone · Frozen Cathedral · Deep Space Pad · Sympathetic Wash
Plucks & Percussion	Karplus Pluck · Kalimba · Marimba · Snappy Perc · Harp Pluck
Zaps & Plucks	Laser Pluck · Boing Mallet · Ray Gun · Transient Click · Pitch-Drop Tom · Rubber Kick · Spring Blip · Wobble Tom
Trills & Sweeps	Whole-Step Trill · Counter Sweep

Parameter & MIDI reference

Every front-panel control can be automated, mapped with Remote (including **Edit Remote Override Mapping**) and, except Mode and Poly, played by MIDI CC. BEND and MOD follow your keyboard's wheels. The Remote name is what a Remote map refers to.

CONTROL	RANGE	DEFAULT	MIDI CC	REMOTE NAME
RESONATOR				
Frequency (C)	−30 ... +30 semitones	0	76	Freq
Structure (D)	0-100%	35%	71	Structure
Brightness (E)	0-100%	55%	72	Brightness
Damping (F)	0-100%	65%	73	Damping
Position (G)	0-100%	25%	74	Position
Mode (B)	10 models	Modal	—	Model
Poly (A)	1-4 voices	1 Voice	—	Polyphony
Volume (K)	0-100%	100%	75	Volume
ENVELOPE (I)				
Attack	1 ms – 2 s	≈3 ms	86	Env Attack
Decay	2 ms – 8 s	≈85 ms	87	Env Decay
Depth	−100 ... +100%	0	88	Env Depth
Dest	Off, Freq, Structure, Brightness, Damping, Position, FM	Off	89	Env Dest
LFO (J)				
Rate	0.02-20 Hz, or 16/4 ... 1/32 when synced	≈1 Hz	80	LFO Rate
Depth	−100 ... +100%	0	81	LFO Depth
Wave	Sine, Triangle, Saw, Square, Random	Sine	82	LFO Wave
Dest	Off, Freq, Structure, Brightness, Damping, Position, FM	Off	83	LFO Dest
Retrig	Free / Retrig	Free	84	LFO Retrig
Sync	Free / Sync	Free	85	LFO Sync
PITCH BEND & MOD WHEEL (N, O)				
Bend Range	0-24 semitones	2	90	Bend Range
MW Amount	−100 ... +100%	0	91	MW Amount
MW Dest	Off, Freq, Structure, Brightness, Damping, Position, FM	Off	92	MW Dest
BEND / MOD	Keyboard pitch & mod wheels	centre / 0	—	—

Troubleshooting

No sound when I play. Check that the NOTE LED (**L**) lights and Volume (**K**) is up. If anything is cabled into AUDIO IN, the internal exciter is off – a silent source means a silent Ring5. Unplug it to play from MIDI alone.

V/OCT is patched but nothing plays. Pitch changes don't strum. Add a gate into STRUM, or play MIDI notes.

Chords only play one or two notes. Raise POLY to at least the number of notes.

The tone gets thinner with more voices. Expected in the modal models: modes are shared between voices (60 at POLY 1, 12 at POLY 4).

Ring5 tails stop when I change POLY. Changing POLY resets the voices. Set it before you play.

Notes keep ringing after I let go. That is how Rings works. Lower Damping, or use ENV → Damping (DEPTH left) to shorten notes as they decay.

Only half the sound reaches the mixer. ODD and EVEN carry different parts of the sound and are never mixed together. Cable both outputs.

Sweeping Structure jumps in steps. In Quantized and the String Synth models, Structure selects one of 11 chords.

The synced LFO drifts when the transport is stopped. It free-runs at the song tempo while stopped and locks to the grid on play.

The mod wheel does nothing. MOD DEST defaults to Off and the amount to centre. Pick a destination and turn the amount knob above VOLUME.

Pitch bend does nothing. Check RANGE (**N**) isn't 0.

A knob's caption changed. Captions follow MODE – e.g. STRUCTURE reads CHORD in Quantized. The knob is the same; only its panel name changes. Tooltips, automation and Remote keep the standard names.

Ring5 as an effect is out of key. Play or sequence notes on Ring5's own track – without notes it rings at its default pitch.

Credits & license

Original DSP: **Rings** by Émilie Gillet / **Mutable**

Instruments, released open-source under the MIT license. Parts of this manual are adapted from the Rings quickstart guide and manual.

Ported to Reason and developed by **Simon Ho** under the **Opposite Day** label. Ring5 ships free.

Rings manual: pichenettes.github.io/mutable-instruments-documentation/modules/rings/

Ring5 at a glance

- 10 models · 1–4 voices · ± 30 -semitone transpose
- AD envelope + LFO with tempo sync, 7 destinations each
- Pitch bend (up to ± 24 st) + mod wheel with its own destination
- Stereo audio in · ODD / EVEN stereo out
- 7 CV inputs (5 with trims) · 4 CV outputs
- 38 factory patches · full automation, Remote and MIDI CC