SPLITFIRE

RUBATO · Operation Manual

Rubato front panel — record / slice / play, with looper, stutter, character, envelope and filter sections.

Rubato is a slice-and-loop performance sampler. It records audio into an internal buffer, slices it on transients, and plays it back through three pitch engines with polyphonic or monophonic voicing, a dual-mode looper, a stutter engine, tape-style character controls, an amp envelope and a multimode filter. Extensive CV / Gate I/O and Combinator automation make every section performable.

This manual documents every control. If you are new to the device, read the **Getting Started** guide first.

Contents

1 Overview & signal flow

Audio entering **IN L/R** is written to an internal buffer by the recorder. When a take finishes, a transient detector scans the buffer and stores a set of slice boundaries. Note events (from MIDI or the slice-select CV) trigger voices that read the buffer through the selected pitch engine. Each voice then passes through the loop logic, the stutter engine, the character stage (Drag / Wow / Scatter), the amp envelope and finally the filter before reaching **OUT L/R**.

Signal order, briefly:

IN → Recorder → Buffer	Slicer → Voices → Pitch engine	Loop → Stutter → Character	Envelope → Filter → OUT

Performance mode — PERF (Fixed vs Real-Time)

PERF sets how held notes respond to knob changes. In **Fixed** (the display shows **FIX**) a voice captures its settings when the note starts and keeps them. In **Real-Time** (**RT**) the engine re-reads the performance controls — speed, direction, character and loop points — every processing block, so sustained notes follow the knobs as you move them. Use Fixed for stable, predictable playback and Real-Time for hands-on performance and automation sweeps.

2 The display

The waveform view draws the recorded buffer with the play region and the live playhead. Markers are colour-coded: **green** = region start, **red** = playhead, **amber** = region end. Detected slice boundaries are drawn as vertical divisions. Two status lines below decode the current state.

Top line — state

Field	Meaning
READY / ARMED / REC	Recorder state. ARMED waits for the quantize point; REC is capturing.
PITCH / SLICE	The active play mode (set by PLAY / SLICE).
TAPE / TIME / PRO	The selected pitch engine. In Slice mode this area instead shows slice information such as the auto-slice count and current slice.
LOOP / 1-SHOT / XFADE	Loop mode, at the right edge.

Bottom line — transport & toggles

Field	Meaning
POLY / MONO	Voice mode group.
FIX / RT	Performance mode (PERF).
n/n (e.g. 10/4)	Record length in bars/beats.
FWD / REV	Playback direction (DIR).
Xn.n (e.g. X1.0)	Playback speed (SPEED).

Field	Meaning
RT	Loop-length real-time mode is engaged.
SNAP	Loop-length updates snap immediately rather than at the loop seam.
QNT	Record quantize is on.

Greyed fields are inactive; lit fields are engaged. The display fixes the slice readout so each of the three pitch engines reports correctly — **TAPE**, **TIME** and **PRO** each show their own label.

3 Recording

The recorder writes incoming audio into the buffer that every other section reads from. Controls live in the brown panel at the bottom centre.

Control	What it does
IN / REC	Input/record indicator. Lights while a signal is present and during capture.
LENGTH	How much audio to capture, in musical units (bars/beats). Recording stops automatically when this length is reached.
REC	Arms and starts recording. With Record Quantize on, capture begins at the next quantize boundary so the take lands in time.
CLR	Clears the buffer and the slice set, returning the device to an empty state.
UNDO	Reverts the most recent recording, restoring the previous buffer.
REC Q	Record Quantize on/off. When on, recording start is aligned to the grid.
Q SIZE	The quantize resolution used by Record Quantize.

> **Workflow note**
> Set **LENGTH** before arming so the take is the right size, and use **REC Q** when recording from a running sequence so the downbeat lines up. **UNDO** and **CLR** let you iterate quickly without re-patching.

4 Slicing

After a take, Rubato divides the buffer into **slices** at detected transients. Slices are what Slice mode plays, what the slice CVs address, and what the looper and stutter operate within.

Control	What it does
SLICE	Selects Slice play mode (as opposed to Pitch). When lit, keys and the slice CVs address individual slices.
SLICES	Sets how the buffer is divided — the working number of slices.
TRANS	Transient sensitivity. Higher values detect more transients and create more slices; lower values produce fewer, longer slices.
FADE	Slice onset fade. A short fade-in at the start of every slice (squared response, up to ~16 ms) that de-clicks the attack. Most useful when the amp Attack is at zero.
TARGET	Retarget crossfade. The crossfade length used when a CV live-retargets which slice is playing under a held note. At zero the slice change snaps instantly; higher values blend the outgoing and incoming slice for click-free scrubbing (active in Tape mode).

The detector caps the slice count at the engine maximum, so very high sensitivity on a long take simply fills up to that limit. The waveform display shows every slice boundary so you can see the division you are playing.

5 The playback engine

Play mode — PLAY / SLICE

Pitch treats the buffer as a single instrument: every key plays the whole region, transposed relative to **ROOT**. **Slice** maps the detected slices across the keyboard from the root upward (and onto the slice CVs), so you can re-sequence or finger-drum the material.

Pitch engine — PITCH (Tape / Time / Pro)

The pitch engine determines how transposition and speed changes are rendered:

- **Tape** — varispeed. Pitch and speed are linked exactly like tape; lowest CPU, and the home of the tape character controls. Reverse, drag and the loop crossfade all behave most naturally here.
- **Time** — time-stretch / pitch independent. Pitch and speed can move separately using a granular engine.
- **Pro** — the highest-fidelity stretch engine for clean transposition and stretching of tonal material, at the most CPU.

Region, root, speed & direction

Control	What it does
START / END	Trim the played region within the buffer (the green and amber markers).
ROOT	The note that plays the material at its original pitch and the anchor for slice mapping.
FORM	Formant control for the Time / Pro engines — shifts timbre independently of pitch.
DENS	Grain density for the Time / Pro engines (Character / Smooth / Ultra). More grains = smoother stretch, fewer = more character.
SPEED	Playback rate. In Tape this also moves pitch; in Time / Pro it is independent.
DIR	Playback direction, forward or reverse.
PAN S	Pan spread across simultaneous voices for a wider stereo image.

6 Voices & output

Control	What it does
VOICE	Voice mode. Poly plays multiple notes at once; Mono plays one note at a time; Legato/Porta variants reuse a single voice so overlapping notes glide rather than retrigger.
PORTA	Portamento time — the glide between pitches in the mono/legato voice modes.
VOL	Output level.

> **Mono, Legato & the slice CVs**
> The slice-select and slice-offset CVs only retarget the voice in **Mono** or **Legato** modes, because there is a single active voice to move. In Poly each note holds its own slice. Choose a mono mode when you want to scrub or sequence slices under a sustained note.

7 Looping

The looper repeats a zone at the end of the played region. **LEN** sets where the loop-back point sits (the loop length), snapped internally to a quiet zero-crossing for clean repeats. **MODE** selects the loop behaviour:

MODE	Behaviour
Off (1-SHOT)	No loop — the region plays once and the voice releases.
Loop	Repeats the zone with a hard wrap, smoothed by a short fixed de-click fade. Keeps a tight, rhythmic feel. The loop XFADE knob has no effect here.
Loop X-Fade	Crossfades the tail of the loop into its head over a length set by the loop XFADE knob, for a seamless, sustained loop with no audible repeat point.

Control	What it does
LEN	Loop length / position of the loop-back point inside the region.
XFADE	Loop crossfade length. Only audible in Loop X-Fade mode; capped at half the loop-zone length, so short loops limit it automatically.
RT LEN	Puts loop length into a real-time mode so it can be changed live, updating cleanly as the loop plays.
RT	Real-time loop tracking. With SNAP off, loop-length changes take effect at the loop seam (smooth); with SNAP on they apply immediately.

> **If the loop XFADE knob seems to do nothing**
> Check that **MODE** is set to **Loop X-Fade**, not plain **Loop**. The crossfade length is ignored in plain Loop by design.

8 Stutter

The stutter engine re-triggers a small window of the current playback for rolls, glitches and beat-repeat effects. It runs on top of normal playback and can be engaged from the panel button or the stutter gate CV.

Control	What it does
STUTTER	Engages the stutter engine on the active voice(s).
WIN (Size)	Window size — the fraction of the region used as the repeating mini-loop. Smaller windows give faster, finer rolls. Captured when stutter engages.
RATE	Stutter playback speed within the window. Modulated live, so it can be swept while the stutter runs.
XFADE	Stutter crossfade — smooths the wrap at the window boundary and the transitions in and out of stutter to avoid clicks.

Both Window/Size and Rate have dedicated mod-CV inputs on the back panel. Size sets the window for stutters that engage after the CV is present; Rate modulates continuously while a stutter is sounding.

9 Character & modulation

These controls add analogue/tape-style movement and texture. They are most characterful in the Tape pitch engine.

Control	What it does
DRAG	Tape-drag. Displaces the read position like a slipping tape, smearing and thickening the sound; at higher amounts the playhead wanders into neighbouring buffer audio for an authentic drift.
WOW	Wow & flutter — slow pitch modulation that emulates tape transport instability, from gentle warble up to seasick depth.
SCAT (Scatter)	Scatter / saturation character that randomises the read position and colours the tone for grittier, less static playback.

DRAG, WOW and SCAT each have additive mod-CV inputs on the back panel, so an LFO or envelope can animate them. CV is summed with the knob and clamped to the legal range.

10 Envelope & filter

Amp envelope

Control	What it does
ATTACK	Fade-in time at note-on. At zero, slices rely on the slice FADE control for de-clicking.
REL	Release time after note-off.

Multimode filter

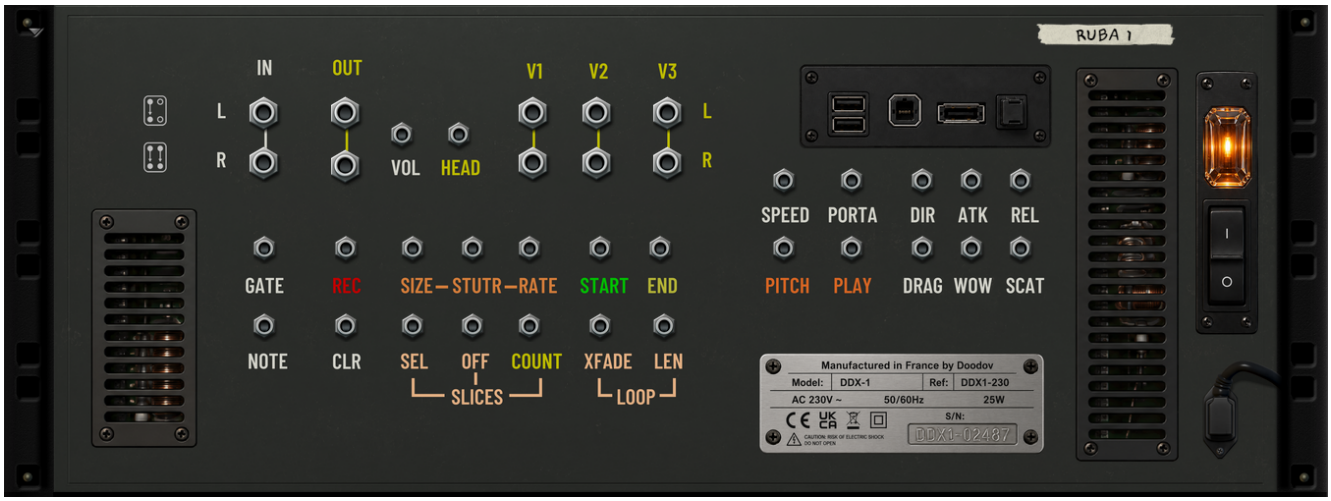
Control	What it does
CUTOFF	Filter cutoff frequency.
RESO	Resonance / emphasis at the cutoff.
ENV	Amount of filter envelope applied to the cutoff (positive sweep).
DECAY	Decay time of the filter envelope.
TYPE	Filter type — low-pass, band-pass or high-pass.

Sound-design tip

A short filter **DECAY** with a healthy **ENV** amount gives each slice a percussive 'pluck'; pair it with **RESO** for acid-style movement, then add a touch of **WOW** for tape feel.

11 CV / Gate & the back panel

Every performance section can be driven by control voltage. The back panel carries the audio jacks, gate inputs, modulation CV inputs and slice CVs.



Rubato back panel — audio I/O, gates, modulation CV inputs and the slice / loop CVs.

Audio & gates

Control	What it does
IN L/R	Audio input to the recorder.
OUT L/R	Main audio output.
GATE / NOTE	Trigger and pitch CV for playing the engine from a CV source.
REC / CLR	Gate inputs to start recording and to clear the buffer.
STUTR	Gate input that engages the stutter engine.

Modulation CV inputs

Control	What it does
PITCH	Selects the pitch engine (Tape / Time / Pro) by voltage — overrides the panel switch when patched.
PLAY	Selects play mode (Pitch / Slice) by voltage.
DRAG / WOW / SCAT	Additive modulation of the matching character knobs.
SIZE / RATE	Additive modulation of stutter Window/Size and Rate.
START / END / SPEED / PORTA / DIR / ATK / REL	Modulation inputs for the corresponding playback and envelope controls.
XFADE / LEN	Loop crossfade and loop length modulation.

Slice CVs

Control	What it does
SEL (Select)	0–1 V selects a slice directly across the whole set, overriding the keyboard. A rising ramp steps through slices like a sequencer.
OFF (Offset)	Shifts the selected/played slice up or down, centred at the midpoint for no shift — scrub around a base slice with a second CV.
COUNT	Slice-count CV output, reflecting the current number of slices.
HEAD / VOL / V1–V3	Playhead and level CV, plus per-voice outputs for patching Rubato into the rest of your rack.

Selector CVs (PITCH, PLAY) and the slice CVs are read per processing block, which is ideal for sequenced and LFO-rate modulation. The slice select / offset CVs act on the single active voice in Mono or Legato modes.

12 Automation & the Combinator

All of Rubato's parameters are available as automation lanes in the sequencer and as targets in the Combinator and on a remote control surface, organised into logical groups (Recording, Playback, Slicing, Performance, Sound Design). The trigger buttons — **Record**, **Clear**, **Undo** and **Stutter** — are exposed as 0/1 targets, so a Combinator button or a control-surface key can fire them remotely. Assign them like any other parameter from the host's automation or Combinator modulation routing.

> **Performing with automation**
>
> Switch **PERF** to **Real-Time** so sustained notes follow automated changes to speed, direction, loop points and character in real time rather than freezing at note-on values.

13 Tips & troubleshooting

Symptom	Try this
No sound when I play	Confirm a take has been recorded (waveform visible) and the buffer isn't cleared. Check VOL and the filter CUTOFF.
The loop XFADE knob does nothing	Set MODE to Loop X-Fade; it is ignored in plain Loop.
Slice CV doesn't move the slice	Use Mono or Legato voice mode — the slice CVs act on a single active voice.
Clicks at slice starts	Raise the slice FADE control, or add a little amp ATTACK.
Slice changes click when scrubbing	Raise TARGET (retarget crossfade); it is most effective in the Tape engine.
Recording doesn't start on the beat	Enable REC Q and set Q SIZE so capture aligns to the grid.
Transpose sounds artefacty	Try the Time or Pro pitch engine instead of Tape, and adjust DENS.

14 Control reference

A quick map of the front-panel controls by section.

Record

Control	What it does
IN/REC	Input / record indicator.
LENGTH	Capture length.
REC / CLR / UNDO	Record, clear buffer, undo last take.
REC Q / Q SIZE	Record quantize on/off and resolution.

Slice & play

Control	What it does
PERF / PITCH / PLAY	Performance mode, pitch engine, play mode.
SLICE / SLICES / TRANS	Slice mode, slice count, transient sensitivity.
FADE / TARGET	Slice onset fade, CV-retarget crossfade.
FORM / DENS	Formant and grain density (Time/Pro).
START / END / ROOT	Play region and root note.

Voices, character & output

Control	What it does
VOICE / PORTA	Voice mode and portamento.
SPEED / DIR	Playback rate and direction.
DRAG / WOW / SCAT	Tape character: drag, wow & flutter, scatter.
PAN S / VOL	Voice pan spread and output level.

Loop, stutter & filter

Control	What it does
LEN / MODE / XFADE	Loop length, loop mode, loop crossfade.
RT LEN / RT	Real-time loop length and tracking.
STUTTER / WIN / RATE / XFADE	Stutter engage, window size, rate, crossfade.
ATTACK / REL	Amp envelope.
CUTOFF / RESO / ENV / DECAY / TYPE	Multimode filter.

SplitFire Rubato — Operation Manual. Manufactured in France by Doodov. All controls and behaviour described reflect the current device version.