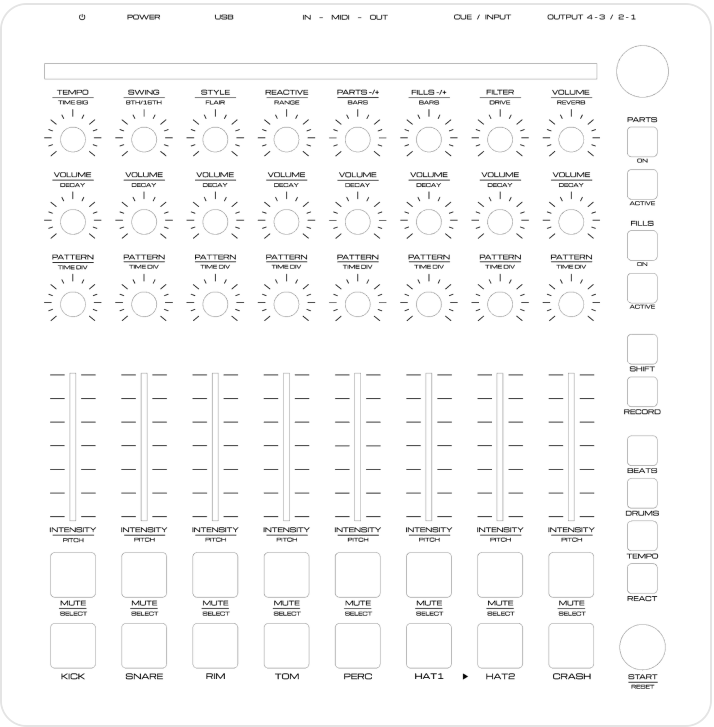
SpaceDrum

OWNER'S MANUAL

The first drum machine that listens.

SpaceDrum is a generative, audio-reactive drum instrument — you compose the groove, and it listens and plays along.



ALAN Instruments

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Manual v1.0.1. This manual covers SpaceDrum software SD1.32. The latest edition is always at alaninstruments.com.

01 Welcome

SpaceDrum is the first drum machine that listens.

Combining generative beat-making with real-time audio reactivity, it's an endless idea machine, an inspiring rhythm instrument, and the ultimate jam companion. You compose the groove; SpaceDrum builds the arrangement around it, adds fills, and reacts in real time to whatever else is playing in the room.

Under the hood, eight sample-based drum voices are driven by a **generative rhythm engine** that decides *what* each drum plays from a few musical controls — while you shape *how* it all sounds with hands-on knobs. Nothing is buried in menus: **every knob is a performance control**, meant to be turned mid-groove.

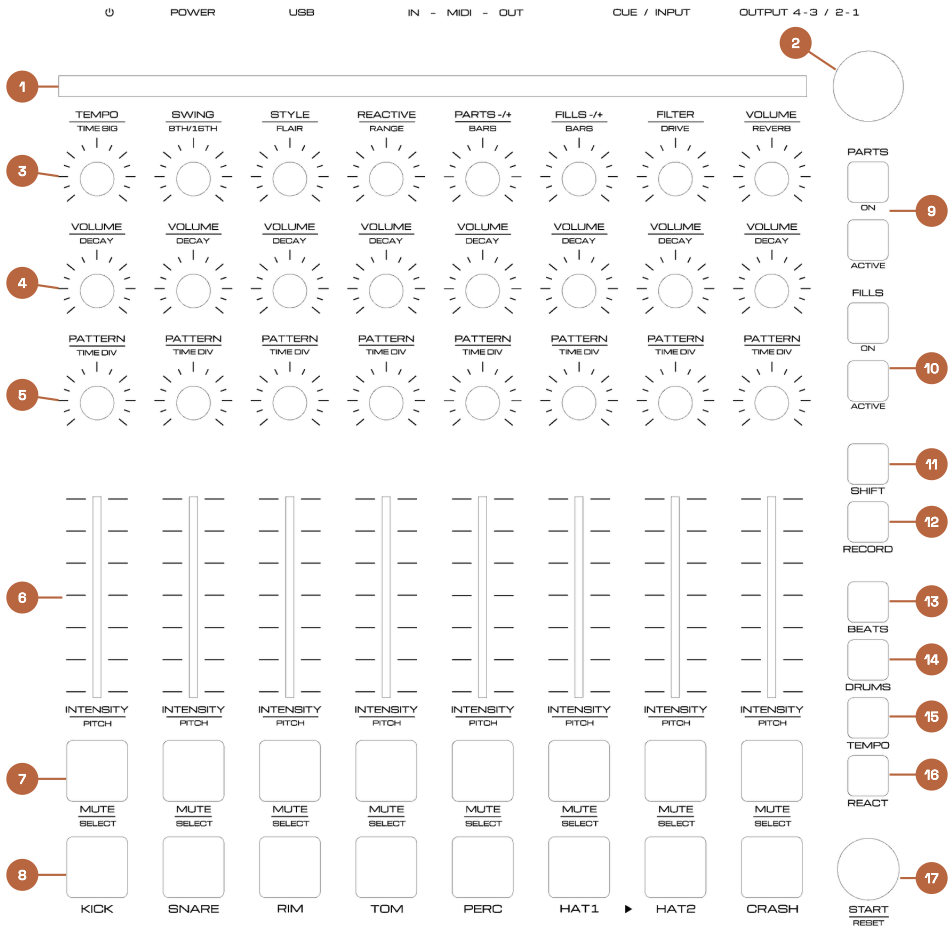
What makes it different

- **It composes structure, not just loops.** *PartMaker* turns one groove into a full arrangement, and you decide how much each drum changes between parts.
- **It adds fills.** *FillMaker* breaks the loop with fills; you set how often and how wild.
- **It listens to your other gear.** Plug a synth, guitar, or turntable into SpaceDrum's input and its *Reactivity* locks the rhythmic decisions to what you're playing.
- **It's built to last a lifetime.** Individually handmade in Chicago, and repaired by the people who designed it.

> **A NOTE ON YOUR EDITION**
>
> You're holding an early, hand-built SpaceDrum. Its capabilities grow through free software updates over the instrument's life: the instrument only gets better in your hands.

02 Meet SpaceDrum – Anatomy

Top panel at a glance

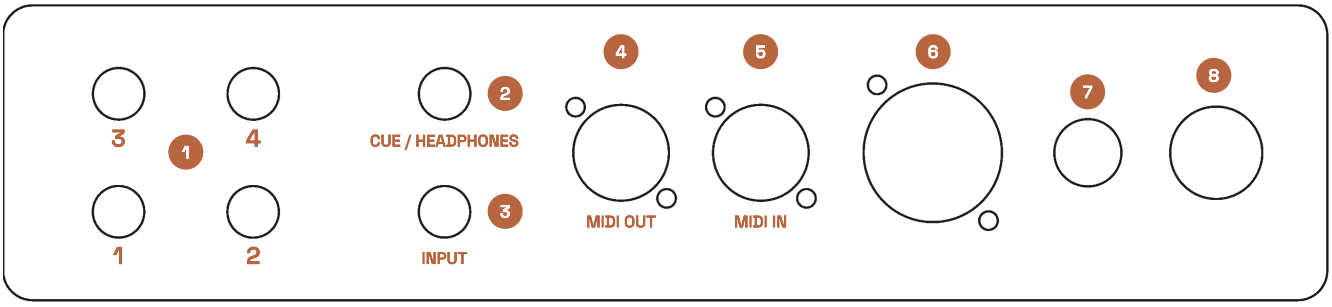


Top panel at a glance. Upper label = turn or tap; lower label = with Shift held. Numbers match the list below.

1	**Timeline** 16 lights: the bars, swing and the Part; PatternView; SpectrumView	§4.6
2	**Parameter display** Shows the control you touch, in real units	§4.6
3	**Global knobs** Tempo · Swing · Style · Reactive · Parts · Fills · Filter · Volume	§4.2
4	**Volume / Decay** One per drum	§7
5	**Pattern / Time Div** One per drum	§7, §8
6	**Intensity / Pitch faders** One per drum	§7, §8
7	**Mute / Select pads** Tap = mute · Shift + tap = select the drum	§4.4
8	**Drum pads** Play the drum · pick a drum · Shift + tap = PatternView	§4.4
9	**Parts On / Active** PartMaker	§8
10	**Fills On / Active** FillMaker	§8
11	**Shift** The second layer of every control	§4
12	**Record** PatternMaker	§8
13	**Beats** Load and save beats · BeatMaker	§11
14	**Drums** Sounds · output routing · DrumMaker	§10, §12
15	**Tempo** Tap tempo · clock source	§4.3
16	**Reactivity** On/off · Range · SpectrumView	§9
17	**Play (Start / Reset)** Play / stop · Shift = restart at the first downbeat	§5

Every knob and fader has a **second function** you reach by holding **Shift (11)**; the lower label names it. The 16 pads also show the beat as it plays and become menus for beats, sounds and routing.

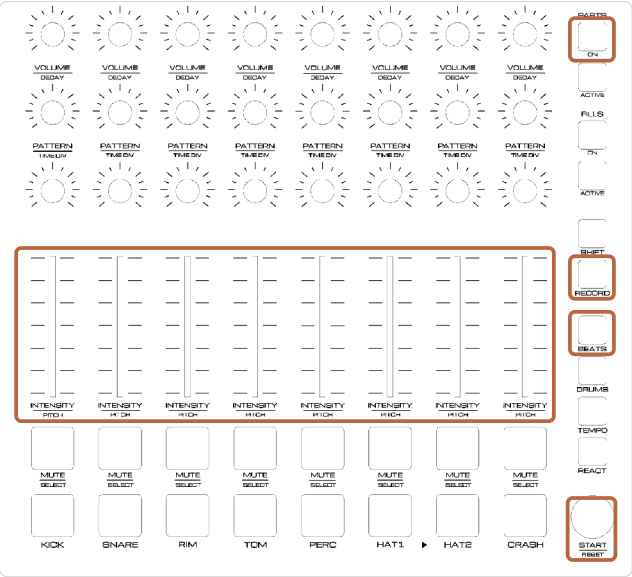
The rear panel



The rear jack panel. Numbers match the list below; §12 explains each connection.

1	**Outputs 1–4** Four 1/4" outputs: 1 + 2 are the stereo main pair, 3 + 4 the direct outs	§12
2	**Cue / headphones** Stereo headphone jack with its own cue mix	§12
3	**Input** 1/4" input: the sound Reactivity listens to	§9, §12
4	**MIDI Out** 5-pin DIN: clock and notes to other gear	§12, §19
5	**MIDI In** 5-pin DIN: clock and notes from other gear	§12, §19
6	**USB** The COMMAND app, multichannel recording and MIDI	§12, §13
7	**Power** Barrel jack for the included supply	§15
8	**On** The power button	§15

03 Quick Start – Your First Beat



On the panel: Play, Beats, the Intensity faders, Parts On and Record.

1. **Connect audio.** Run a cable from SpaceDrum **1/4" output 1** to a powered speaker, mixer, or interface. (Start with the first output; add more later for individual drums.)

2. **Power on.** Plug in the included power supply and flip the power switch. The panel lights run a brief startup animation — a white comet that laps the pads once per bar, with the buttons breathing once a bar — while the instrument wakes up, and the display shows the software and firmware versions. Turn the **Tempo** knob during startup and the animation follows you; SpaceDrum then starts at that tempo. When it settles, you're ready.

3. **Press Play.** Hit the **Play** button. SpaceDrum starts generating a beat — the pads light in time as each drum hits.

4. **Try a factory beat.** Tap **Beats** and the pads show the 16 beat slots; tap one to load it (§11). Each factory beat brings its own tempo, feel and sounds. *After a load, a knob waits until you turn it to the beat's value — then it takes over (§4).*

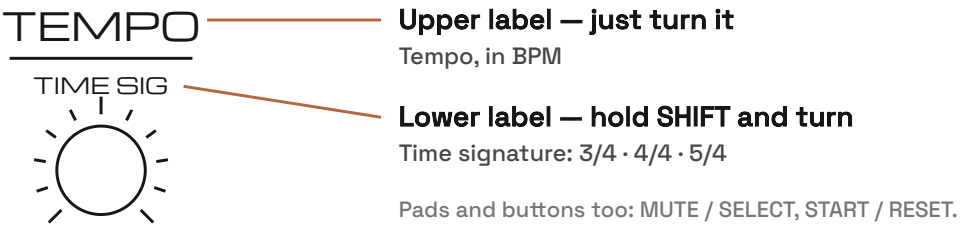
5. **Turn some knobs.** Nudge a few **Intensity** faders to make drums busier or sparser, bring up **Tempo**, add a little **Swing**. The display shows what you're changing.

6. **Add motion.** Tap **Fills On** to let it break the loop with fills; tap **Parts On** to let the arrangement evolve.

7. **Play your own part.** Hold **Record** and tap a drum pad to hand that drum to PatternMaker (it turns red), let go, tap **Record** and play the pad in time. Tap Record again and your part loops (§8). Tap **Play** to stop.

That's the whole loop: **seed a groove, then shape it while it plays.** The rest of this manual is about doing that with intent.

04 The Panel – Every Control



Every control has two jobs. The upper label is what it does; the lower label is what it does while you hold Shift.

Every knob sends a live value to the sound engine; every button is an action. **Hold Shift** to reach a control's **second (Shift) function.** The panel is organized as **four banks of eight** controls plus the buttons and the 16 pads.

KNOBS PICK UP — THEY NEVER JUMP

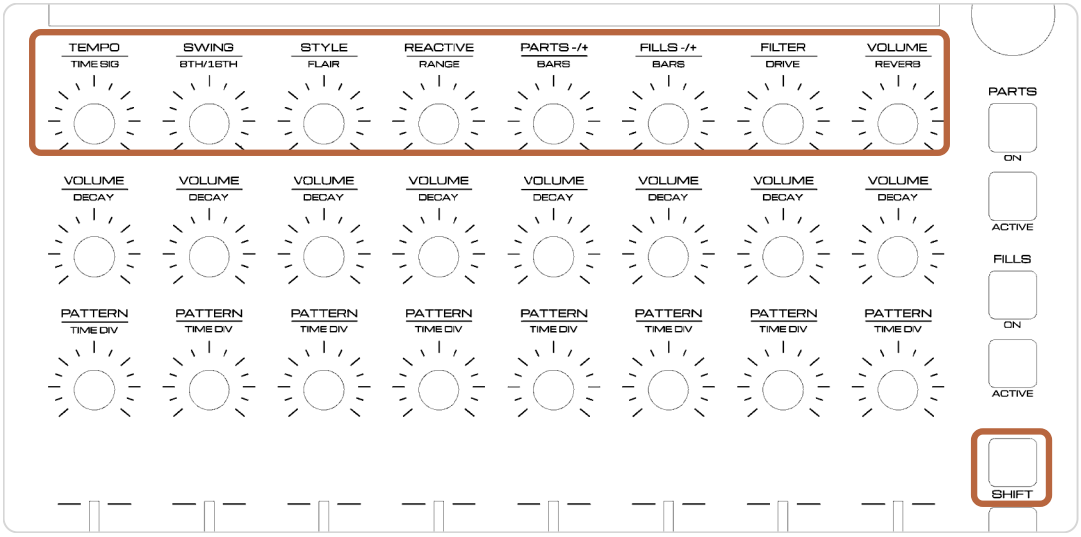
A knob's position and the value it controls can disagree: loading a beat, BeatMaker or DrumMaker, tap tempo, COMMAND or your DAW can all change a value without moving the knob, and each knob has a Shift layer it shares its position with. So when a value was set some other way, the knob **waits**. Turn it toward the value; the moment it reaches it, the knob takes over and follows your hand. While it's catching up, the display shows the value it's heading for, so you can see which way to turn. Nothing lurches when you load a beat, and a centered knob always means the same thing.

4.1 The four control banks

The global bank runs across the top. The three banks below it are **per-drum:** each has one control for every drum, left to right **kick · snare · rim · tom · perc · hat 1 · hat 2 · crash.**

BANK	BASE FUNCTION (PER KNOB)	HOLD SHIFT
Volume bank	Per-drum **Volume**	Per-drum **Decay** (how long each hit rings)
Pattern bank	Per-drum **Pattern** (straight at center; left = sparser and syncopated, right = denser and syncopated)	Per-drum **Div** (printed TIME DIV; its rhythmic rate — five settings, see §7)
Intensity faders	Per-drum **Intensity** (how busy/dense that drum plays)	Per-drum **Pitch** (tuning, ±24 semitones)
Global bank	Eight master/section controls (below)	Eight Shift functions (below)

4.2 Global controls



On the panel: The global controls run across the top; Shift reaches their lower labels.

KNOB	BASE	HOLD SHIFT
Tempo	Song tempo (56–183 BPM; center = 120)	**Time signature** (3/4 · 4/4 · 5/4)
Swing	Swing amount (8th-note feel)	Swing-16 (16th feel)
Style	The rhythmic character of the kit: straight at center, more syncopated toward either edge	**Flair** (how much it improvises)
Reactivity	**Amount** — how the drums react to input; center = off, right = play *more*, left = play *less*	**Range** — with no drum selected, the overall sensitivity range (how strongly SpaceDrum responds to the input level) · with a drum selected, that drum's frequency range (bass ↔ treble)
Parts	Part shift (move through the arrangement)	Part length (2 · 4 · 8 · 16 · 32 bars)
Fills	Fill level (how much it fills)	Fill length (½ · 1 · 2 · 4 · 8 bars)
Filter	Master filter: turn down for low-pass, up for high-pass	Master **Drive**: turn down for bit reduction, up for overdrive
Master Volume	Overall output level	Master **Reverb**

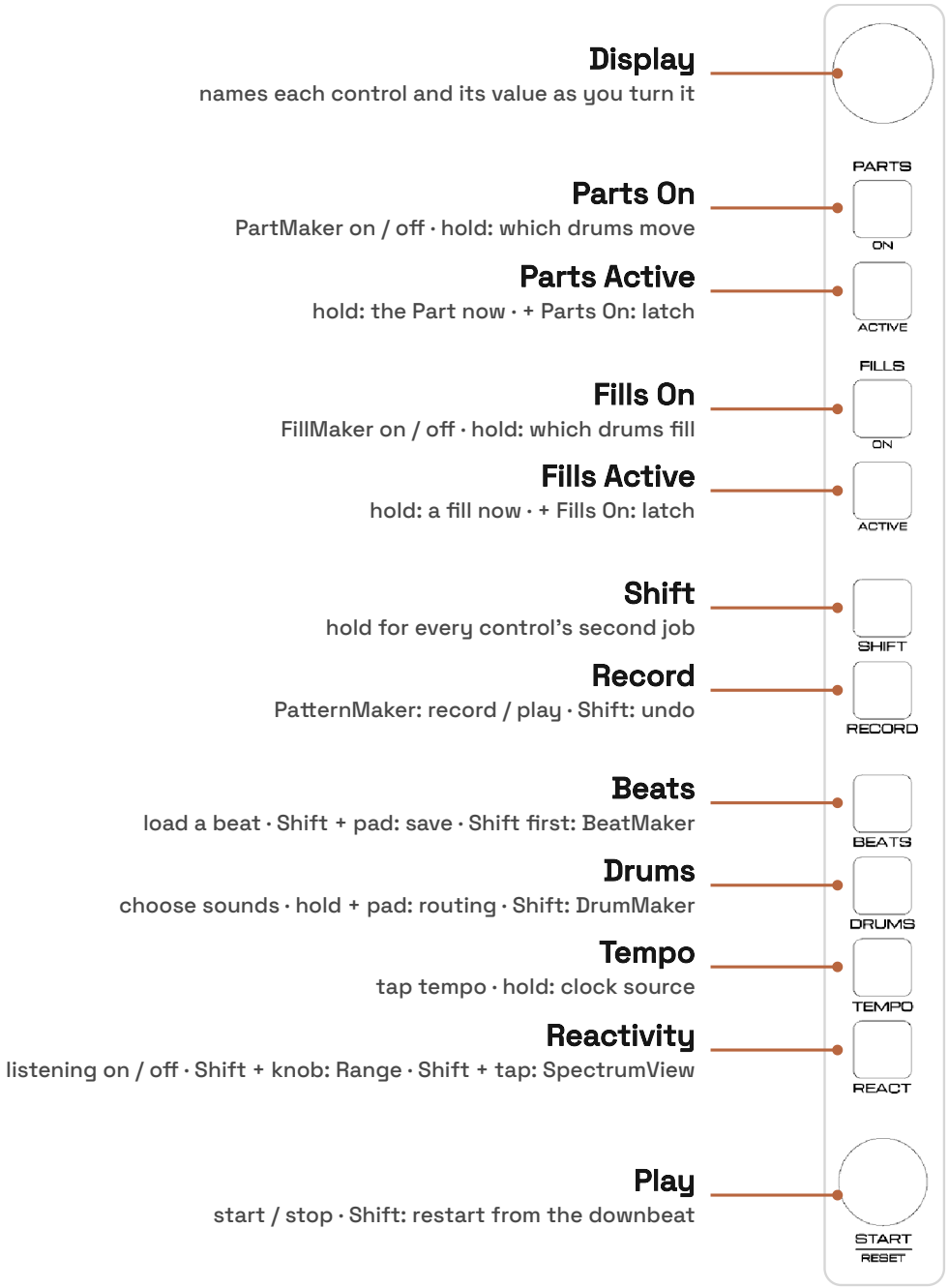
PER-VOICE FOCUS

To select a drum, hold Shift and tap its pad in the top row (printed MUTE / SELECT). Tap it again to deselect; you can select more than one. Selecting focuses several global knobs on *that* drum, so **Style / Filter / Reverb / Reactivity** can be dialed per-voice as well as globally. See §7.

RANGE WORKS AT TWO LEVELS

Shift + the **Reactivity** knob is **Range.** With no drum selected it sets the **overall sensitivity range** for your whole rig: how strongly SpaceDrum responds to the input level. Select a drum first (§4.2) and the same move sets that drum's **frequency range** instead, so a drum's frequency range is only ever changed one drum at a time.

4.3 The buttons

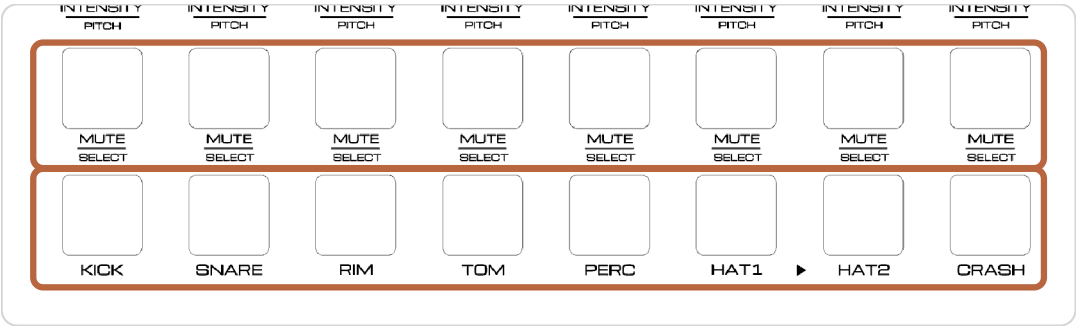


The buttons, top to bottom. The right-hand column runs the full height of the panel, from the display down to Play.

BUTTON	WHAT IT DOES
Record	The **PatternMaker** button (§8). **Tap** = record / play; **Shift + Record:** tap = undo/redo, hold 1 second = clear; **hold** = show which engine each drum is using; **hold + a drum pad** = switch that drum between the generative engine and PatternMaker.
Play *(printed START / RESET)*	Starts and stops the sequencer. **Shift + Play** restarts at the first downbeat.

BUTTON	WHAT IT DOES
Shift	Hold to reach the second function of any knob or button.
Tempo	**Tap** in time to set the tempo — the Tempo light flashes on each tap that counts (Internal clock). While SpaceDrum plays, the light also blinks on the **1 of every bar**. **Hold** to open the **clock-source page**: the first three top-row pads choose **Internal · USB · DIN** (cyan; bright = selected).
Beats	**Tap** to show the 16 beat slots on the pads, then tap a pad to load that beat, or **hold Shift and tap a pad to save** into that slot (§11). **Shift + Beats** (Shift held first) = **BeatMaker**: a fresh beat (§8). To see one drum's pattern on the timeline, hold **Shift** and tap its drum pad (**PatternView**, §8).
Drums	**Tap** to pick a drum and choose its sound: the top row shows the eight sample banks, then tap a drum pad and the pads become its 16 sample slots (§10). **Hold + a drum pad = output routing** for that drum (§12); press Drums again to leave. **Shift + Drums** = **DrumMaker**: fresh sounds (§10).
Reactivity	**Tap** to toggle listening on/off. **Hold** it and tap a drum pad to switch that drum's reactivity on/off. **Shift + tap** shows **SpectrumView** on the timeline (the Reactivity light breathes); Shift + tap again to close it.
Parts On	**Tap** to turn the evolving arrangement (PartMaker) on/off, in time with the bar. **Hold** to open the Parts page: tap drum pads to choose **which drums PartMaker moves** (dark blue: bright = in, dim = out), or turn a drum's controls to **capture** changes into the Part (§8). **Shift + Parts On** arms a bar-quantized restart.
Parts Active	**Hold** to force the Part while held. To **latch**: hold Parts Active and press Parts On (the light blinks); one tap of Parts Active unlatches. **Shift + Parts Active** clears the changes captured into the Part.
Fills On	**Tap** to turn fills (FillMaker) on/off. **Hold** to open the Fills page: tap drum pads to choose **which drums fill** (light blue: bright = in, dim = out), or turn a drum's controls to **capture** changes into the fills (§8).
Fills Active	**Hold** for a momentary fill. To **latch**: hold Fills Active and press Fills On; one tap of Fills Active unlatches. **Shift + Fills Active** clears the changes captured into the fills.

4.4 The pads (16)



On the panel: Top row: mute / select pads. Bottom row: drum pads.

Tap Drums



Top: sample banks (bright = in use, dim = has sounds). Bottom: pick a drum.

Hold Tempo



Top 1–3: clock source — Internal · USB · DIN.

Hold Reactivity



Drum pads: Reactivity on (bright) / off (dim).

Hold Record



Drum pads: amber = generative, red = PatternMaker.

The pads become menus when a button calls them up. The beat keeps playing underneath.

Hold pages (Drums, Record, Reactivity, Tempo, Parts On, Fills On) all open after the same short moment, so a quick tap never flashes them. The 16 lit pads sit in two rows of eight, one column per drum in the usual order (kick · snare · rim · tom · perc · hat 1 · hat 2 · crash):

- **Bottom row — drum pads.** Tap to play that drum by hand (that's also how you record into PatternMaker), or to pick a drum when a button asks for one.
- **Top row — mute pads** (printed MUTE / SELECT). Tap to mute or unmute that drum; **Shift + tap** to select it (§4.2). Mutes are part of live playing and aren't stored in a saved beat.
- **Shows the beat** — pads light in time as drums hit.
- **Becomes a menu** when a button calls for it:

DO THIS	THE PADS SHOW
Tap **Beats**	The 16 beat slots — tap one to load it, Shift + tap to save into it
Hold **Shift** + a drum pad	That drum's pattern, on the timeline lights (PatternView)
Tap **Drums**	Top row: sample banks 1–8. Then tap a drum pad: its 16 sample slots
Hold **Drums** + a drum pad	Output routing for that drum (cyan) — pads 1–4 = outputs 1–4, pad 8 = headphones
Hold **Parts On** / **Fills On**	Which drums PartMaker / FillMaker move: dark blue (Parts) or light blue (Fills), bright = in, dim = out — tap to switch

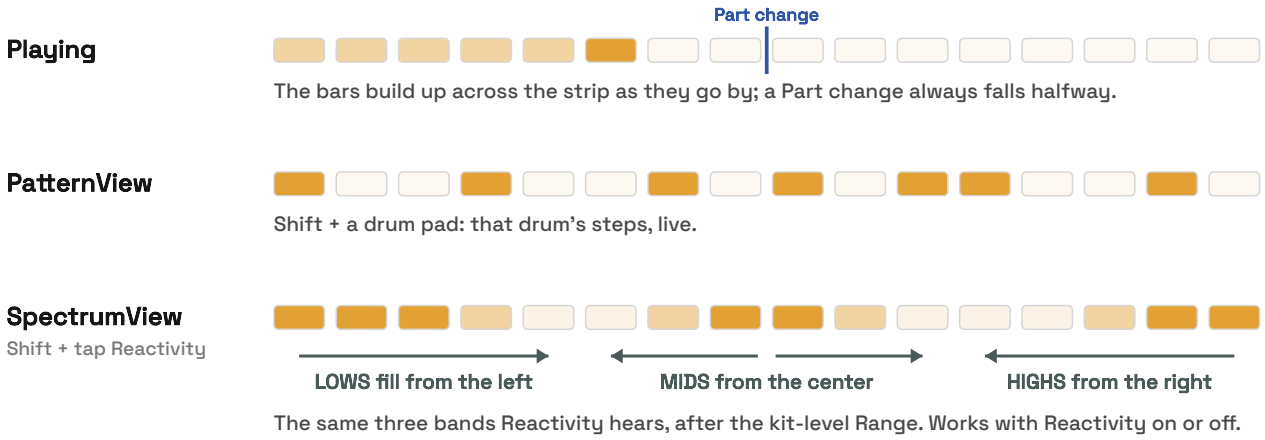
DO THIS	THE PADS SHOW
Hold **Reactivity**	Each drum's reactivity: bright green = on, dim green = off — tap to switch
Hold **Record**	Each drum's engine: amber = generative, red = PatternMaker — tap to switch. While recording: red = drums with a loop
Hold **Tempo**	Clock source on top pads 1–3: Internal · USB · DIN

4.5 The lights

SpaceDrum's lighting is live feedback from the engine:

- **The 16 pads** (full-color) show sequencer activity — each hit flashes, held bright enough to always catch fast notes. A drum on the generative engine flashes **amber**; a drum on PatternMaker flashes **red.**
- **The timeline** — the amber strip across the top — shows the beats, bars, swing and coming Part changes, in **PatternView** one drum's pattern (§4.6), and with Shift + tap Reactivity the **SpectrumView** (§9).
- **Button status lights** show what's engaged (Play running, Parts/Fills latched — a **blinking** light means "latched"). While PatternMaker is in use, the **Record** button pulses on the beat while recording and glows dim while the loop plays. **Drums** stays brightly lit while the output-routing view is open. **Tempo** blinks on the 1 of every bar and flashes on each tap. **Reactivity** breathes while SpectrumView is up.
- **The startup animation** (a white comet + buttons breathing once a bar) plays until the engine is ready.

4.6 The timeline & the display



The timeline has three views. Normally it shows the bars going by; Shift + a drum pad shows one drum's pattern (PatternView); Shift + tap Reactivity shows the input (SpectrumView).

The timeline – the rhythm, made visible

The strip of amber lights across the top of the panel is the most prominent thing on the instrument, on purpose. We started without it, added it, and kept moving it up until it sat at the very top, because seeing the rhythm turned out to be that fundamental. On it you can see:

- **The beats and the bars** — the bars accumulate across the strip as they go by.
- **The swing** — you can watch, and feel, the exact amount of shuffle as the light moves.
- **The arrangement** — when PartMaker is about to move into the Part and back. The Part change always falls halfway along the strip.
- **One drum's pattern** — in **PatternView** (Shift + a drum pad), the timeline shows exactly what that drum is playing, step by step, including the loops you've recorded into PatternMaker (§8).

And everyone in the room can see it too. That's part of the point: an instrument that's transparent about time is easier to play with, easier to learn from, and more fun to watch.

The parameter display

The small round display is a parameter display. Touch any control and it shows you that control's name and value in real units, then steps back.

- **Named per drum** — per-drum controls read as drum + control, e.g. *Snare Decay 80%*, *Hat 1 Pitch +5*, *Kick Range -40%*.
- **Real units** — Tempo in **BPM**; Pitch in **semitones** (±24); Decay, Volume, Intensity, Swing and Reverb in **%**; Part and Fill length in **bars**; Div as **2 · 3 · 4 · 6 · 8**; Swing Feel as **8th / 16th**; time signature as **3/4 · 4/4 · 5/4**.
- **Centered controls show a signed value** — Style, Pattern, Filter, Drive, Reactivity Amount, a drum's Range, Part shift and per-drum Parts/Fills read from **-100 to +100**, with 0 at center, so you can always find "neutral".
- **Per-drum switches** confirm on screen — e.g. holding Reactivity and tapping a drum shows *Snare / Off / React*.

> **THE WIDESCREEN VIEW**
>
> When you do want the big picture — in the studio, or while producing — the **COMMAND** app (§13) shows every knob and parameter at once, with your samples and the beat moving in real time.

Shift & Hold at a Glance

Every Shift and hold gesture on one page. **Shift** = hold Shift, then turn or tap. **Hold** = press and keep holding for a moment; the pads become a menu until you let go.

Shift + knob or fader

CONTROL	WITH SHIFT
Tempo	Time signature (3/4 · 4/4 · 5/4)
Swing	16th-note swing
Style	Flair
Reactivity	Range: overall sensitivity · selected drum: its frequency range (bass ↔ treble)
Parts	Part length
Fills	Fill length
Filter	Drive (bit reduction ↔ overdrive)
Master Volume	Master Reverb
Volume (per drum)	Decay
Pattern (per drum)	Time Div
Intensity fader	Pitch

Shift + button or pad

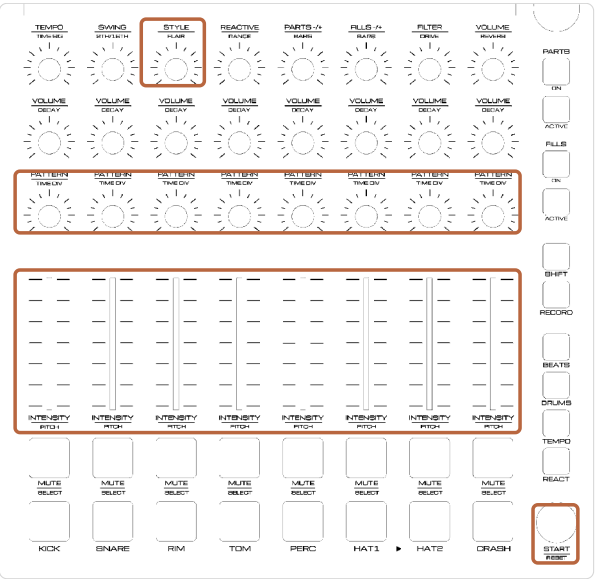
PRESS	WITH SHIFT
Play	Restart at the first downbeat
Record — tap	Undo / redo the last pass
Record — hold 1 s	Clear every loop
Beats *(Shift first)*	BeatMaker: a fresh beat
Beats, then Shift + pad	Save the beat into that slot
Drums	DrumMaker: fresh sounds
Tempo — tap	Next clock source
Reactivity — tap	SpectrumView on / off
Parts On	Arm a bar-quantized restart
Parts Active	Clear the changes captured into the Part
Fills Active	Clear the changes captured into the fills
Top pad (Mute / Select)	Select that drum — tap again to deselect
Drum pad	PatternView of that drum — again to exit

Hold a button

HOLD	WHAT IT DOES
Record	Each drum's engine: amber = generative, red = PatternMaker — tap a drum pad to switch
Record *while recording* + hold a drum pad ½ s	Clear that drum's loop
Drums + a drum pad	Output routing: pads 1–4 = outputs 1–4, pad 8 = headphones — press Drums to close
Reactivity	Tap drum pads: Reactivity on / off per drum
Tempo	Clock source on top pads 1–3: Internal · USB · DIN
Parts On	Tap drum pads: which drums PartMaker moves · turn a drum's controls: capture into the Part
Fills On	Tap drum pads: which drums fill · turn a drum's controls: capture into the fills
Parts Active	Force the Part while held · hold + press Parts On = latch
Fills Active	A fill while held · hold + press Fills On = latch

Tap Parts Active or Fills Active once to unlatch. Hold pages all open after the same short moment, so a quick tap never opens one.

05 The Generative Engine



On the panel: Style, the Pattern knobs, the Intensity faders and Play.

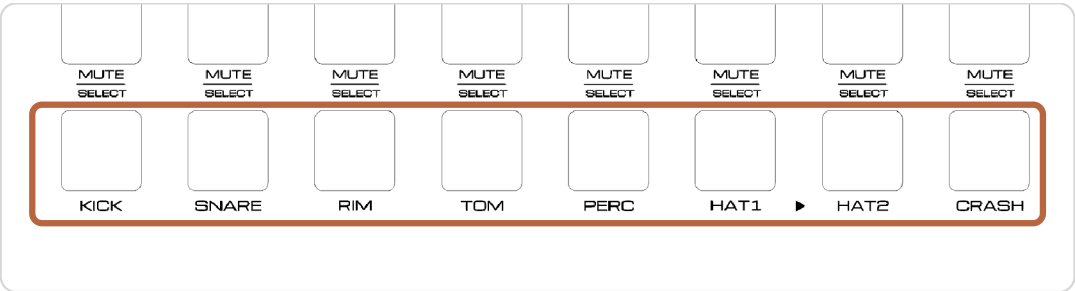
SpaceDrum doesn't store patterns you program step by step. Instead, a **generative engine** *decides* what each drum plays, in real time, from a handful of musical controls that you set and play.

- Each of the eight voices has its own generator, so the kick, snare, hats and the rest each make their own decisions while staying locked to the same clock.
- **Style** sets the overall rhythmic character; **Pattern** picks the variation within it. Both are **centered knobs**: the straightest rhythms sit at the center detent, and they grow more syncopated as you turn toward either edge. On Pattern, left goes **sparser** and right goes **denser**.
- **Intensity** (per drum) decides how busy or sparse that voice is; **Flair** adds controlled unpredictability so it never loops robotically.
- Turn a control and the part *changes as you listen* — this is the heart of playing SpaceDrum.

Transport. Press **Play** to start, again to stop. On power-up the engine is ready but silent until you press Play. **Shift + Play** restarts at the first downbeat — handy for locking to other gear. When SpaceDrum starts or stops, it also sends MIDI Start/Stop to your DIN and USB gear so the rest of your rig follows (see §12).

Time signature. Hold **Shift** and turn the **Tempo** knob to choose 3/4, 4/4 (center), or 5/4.

06 Eight Drum Voices



On the panel: The drum pads name the eight voices, left to right.

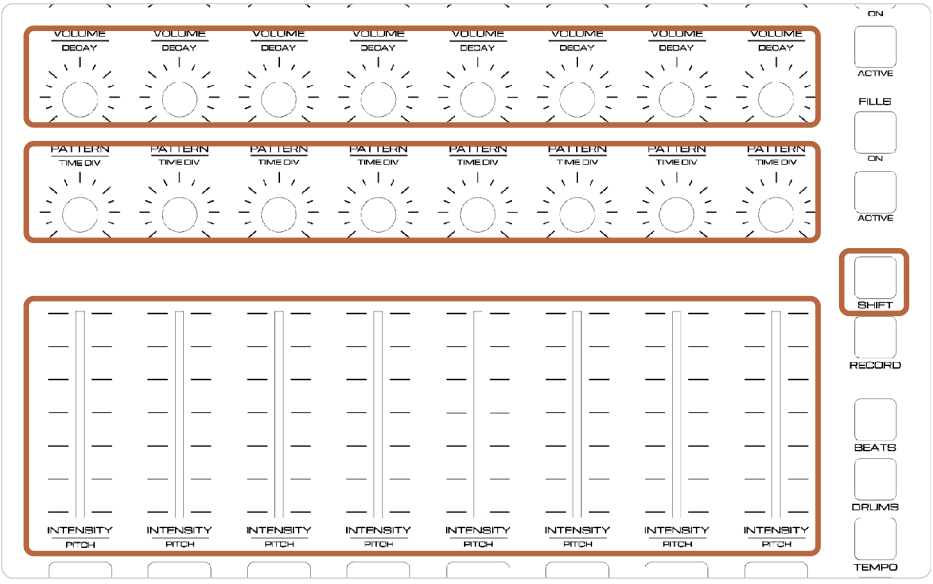
SpaceDrum has **eight sample-based voices**, always in this order across the per-drum knobs:

Kick · Snare · Rim · Tom · Perc · Hat 1 · Hat 2 · Crash

Each voice plays a sound sample, and the kit shares **16 voices of polyphony**, so fast rolls and long tails sound natural. (With very long sounds played densely, all 16 can be ringing at once; the next hit then takes over the most recent voice.) One musical detail worth knowing: **Hat 1 chokes Hat 2** — an open hat is silenced by a closed hat, just like a real hi-hat.

You shape each voice with its own knobs (§7) and choose its sound from the sample library (§10).

07 Shaping the Sound – Per-Drum Controls



On the panel: The three per-drum banks, one control per drum; Shift for Decay, Time Div and Pitch.

Each voice is sculpted by its knobs across the three per-drum banks (base + Shift), plus the global controls when that drum is selected:

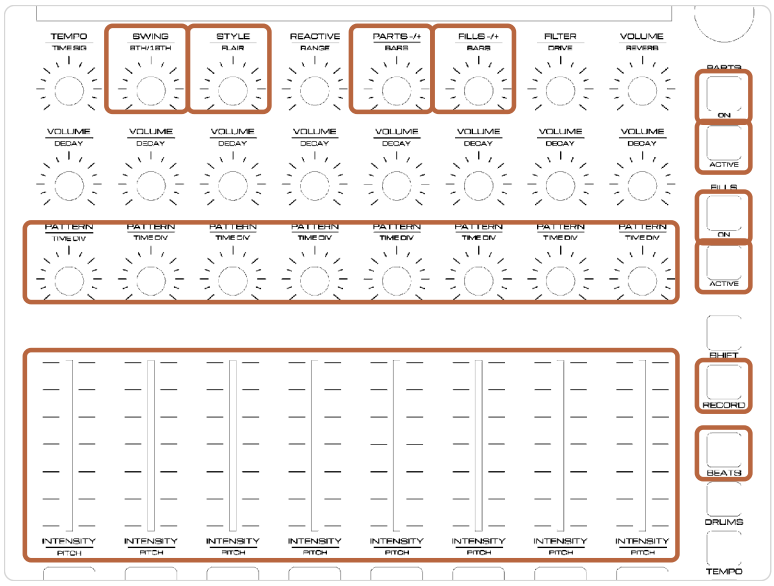
CONTROL	WHERE	WHAT IT DOES
Volume	Volume bank (base)	Level of that drum in the mix.
Decay	Volume bank (Shift)	How long the hit rings — short and tight vs. long and open. Decay **follows the loaded sound:** at maximum, a hit rings for the full length of its sample, whatever sample that is. Every drum starts at full decay.
Pattern	Pattern bank (base)	How that drum plays within the Style: straight at center; turn left for sparser, syncopated parts and right for denser, syncopated parts.
Div	Pattern bank (Shift)	That drum's rhythmic rate, in five settings shown on the display as **2 · 3 · 4 · 6 · 8**, from slower to faster subdivisions; **4** (center) is the default.
Intensity	Intensity fader (base)	How busy or sparse the drum plays (its density). At zero, the drum is silent.
Pitch	Intensity fader (Shift)	Tunes the drum up or down, ±24 semitones.
Filter	Global (base, drum selected)	Filter for the selected drum: turn down for low-pass (darker), up for high-pass (thinner).
Drive	Global (Shift, drum selected)	A bipolar dirt stage: center is clean; right for overdrive/saturation, left for bit-crush / lo-fi crunch.

CONTROL	WHERE	WHAT IT DOES
Reverb	Global Master-Vol Shift (drum selected)	Reverb send for the selected drum. Out of the box the kick is dry, the hats get 30% and the other drums 17%; master reverb starts at 20%.
Flair	Global Style Shift (drum selected)	Per-drum Flair — how much that voice improvises.

BUILT-IN STEREO COMPRESSION & LIMITING

The main mix and the headphone/cue mix each run through a **stereo-linked compressor** and a **true-peak limiter**, voiced at the factory. The compressor works in parallel ("New York" style) and sets its own threshold from what's playing, so it glues the kit without flattening transients or pumping, and the stereo image stays put even when drums are routed hard left or right. The limiter caps the output at **−1 dBFS**, so SpaceDrum never clips, whatever the beat, tempo or intensity.

08 Rhythm & Feel

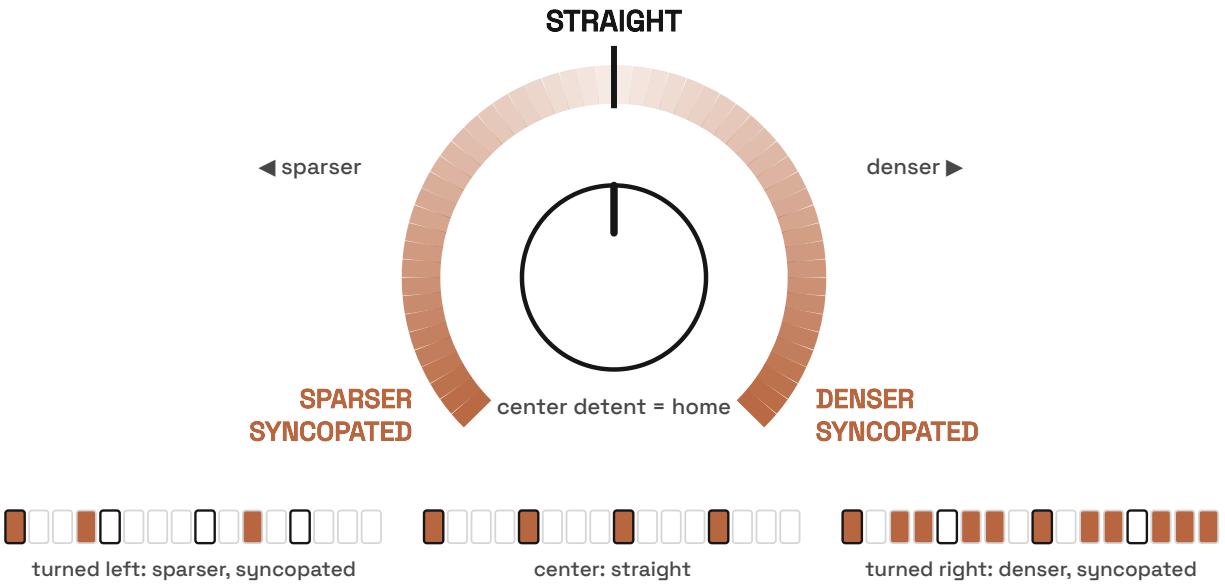


On the panel: Swing, Style, Parts and Fills knobs, the Pattern knobs and Intensity faders, and the Parts, Fills, Record and Beats buttons.

Style sets the rhythmic character of the kit, Pattern sets how each drum plays within it, Intensity sets how busy each drum is, and Flair sets how much it varies.

CENTERED KNOBS: STRAIGHT IN THE MIDDLE

Style and **Pattern** both have a center detent, and the center is home: the straightest, most on-the-grid rhythms live there. Turn away from center in **either direction** and the rhythm gets progressively more syncopated, until the edges hold the most syncopated patterns. The two sides are different territory: on **Pattern**, turning **left** makes the drum **sparser** as it syncopates, and turning **right** makes it **denser**. Whenever you want to get back to straight, find the detent.



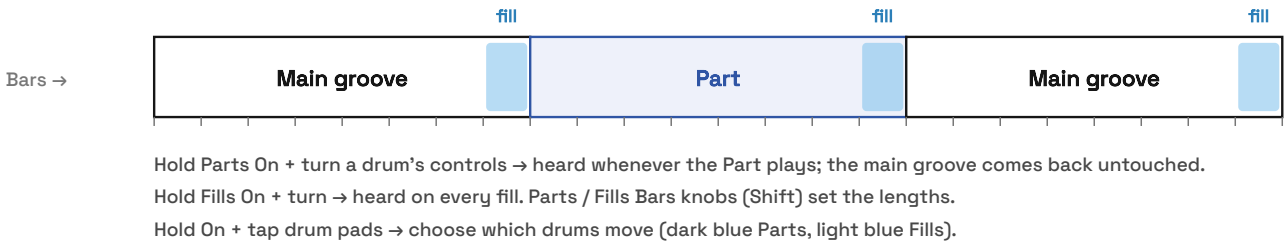
Shown for Pattern (each drum). Style (the whole kit) is centered the same way: straight at the detent.

Pattern, left and right. Straight at the center detent. Turn left and the drum gets sparser and more syncopated; turn right and it gets denser and more syncopated. The strips show the idea, not exact patterns.

- **Style** (global, and per-drum offset) — the rhythmic character of the whole kit. At the center detent the kit plays its straightest groove; turn either way and it becomes more and more syncopated.
- **Pattern** (per drum) — how each drum plays within the Style, on the same centered scale: straight at center, more syncopated toward either edge. **Left is sparser, right is denser:** turn left and the drum drops hits and leans on the offbeats; turn right and it fills in with more offbeat hits. Each drum has its own Pattern, so the kick can stay straight while the hats get syncopated.
- **Intensity** (per drum) — *how much each voice plays.* Low = sparse and spacious; high = busy and driving — and hits appear in order of importance (backbone first, ghost notes last), so every level is a real groove. Your primary on-the-fly arrangement control. At zero, that drum rests.
- **Flair** (global + per drum) — controlled variation added each bar: a little keeps the groove human; a lot makes it genuinely improvise.

- **Swing** — machine-wide shuffle/groove feel (8th feel by default; **Shift** switches to 16th feel), and you can choose **which drums swing** (select a drum and turn Swing to switch its swing on or off) so the hats can shuffle over a straight kick. Full swing approaches a triplet feel, and it holds through tempo changes.
- **Time signature** — SpaceDrum isn't locked to 4/4. It plays in **3/4, 4/4, and 5/4**, so waltzes and Take-Five-style 5/4 grooves are on the table — not just straight four. Set it with **Shift + the Tempo knob** (Appendix A). Time signature is part of a saved beat (§11), so each recalled beat brings its own meter.
- **Div** (per drum) — sets how fast a given drum subdivides (five settings, §7), so hats can run doubles while the kick stays on the floor.

PartMaker — arrangement that evolves



PartMaker and FillMaker turn one groove into an arrangement.

Turn on **Parts** and SpaceDrum builds a **song structure** — it moves between sections instead of looping one bar forever. You set how many parts, how long they run, and how much each drum changes between them (**Part shift** / **Part length** on the global bank).

- **Parts Active — hold** to force the Part momentarily. **Latch** it by holding Parts Active and pressing Parts On; one tap of Parts Active unlatches.
- **Shift + Parts On** arms a clean, bar-aligned (re)start.
- **How much each drum changes** — with a drum selected (§4.2), the Parts knob sets that drum's own share of the change.

- **Which drums take part — hold Parts On.** After a moment the drum pads light **dark blue:** bright = in, dim = out. Tap a pad to take that drum in or out; the display reads *Parts 6/8*. A drum that's out keeps all its settings — PartMaker just leaves its pattern alone, so the kick can hold steady while everything else moves. Saved with the beat; every drum starts in.
- **Give the Part its own sound — hold Parts On and turn.** While the Parts page is open, turn a drum's own controls — its Volume, Pattern and Intensity knobs and their Shift layers, or the global knobs while that drum is selected: the change is written into the **Part** (the section PartMaker moves to) instead of the main groove. You hear it whenever the Part plays — straight away if it's playing now — and the main groove comes back untouched when the Part ends. Tempo, Swing, the master controls and mutes aren't captured; they stay live across the whole arrangement. **Shift + Parts Active** clears what you captured. Captured changes are saved with the beat.

FillMaker

Turn on **Fills** and SpaceDrum breaks the loop with **expressive fills** at musical moments. **Fill level** sets how often/how wild; **Fill length** sets their size.

- **Fills Active — hold** for a fill right now. **Latch** fills on by holding Fills Active and pressing Fills On; one tap of Fills Active unlatches.
- **Per-drum fills** — with a drum selected, the Fills knob sets how much that drum joins in.
- **Which drums fill — hold Fills On.** The drum pads light **light blue:** bright = in, dim = out; tap to switch, and the display reads *Fills 8/8*. Keep the kick out and the fill stays grounded. Saved with the beat. (Holding both Parts On and Fills On: the last one you pressed owns the pads.)
- **Give fills their own sound — hold Fills On and turn.** The same capture as Parts: what you change on a drum while the Fills page is open is heard on every fill, and the groove comes back when the fill ends. Turning the Fills knob here sets how much each drum joins the fills. Fill length isn't captured. **Shift + Fills Active** clears it.

Between Style, Intensity, Flair, Parts and Fills, a single seeded groove can carry a whole arrangement.

BeatMaker & DrumMaker

Stuck, or just curious? Hold **Shift** and press **Beats**: **BeatMaker** rolls a brand-new rhythm on the spot. With a drum selected (§4.2), it rolls just that drum and leaves the rest of the kit alone. **Shift + Drums** is **DrumMaker**, the same idea for sounds: it picks fresh samples for the kit, or for the selected drum. Neither one saves anything; if you like what you hear, save it as a beat (§11).

Hold Shift *before* pressing Beats. Pressing Beats first and then Shift + a pad is how you save (§11).

PatternView — see what a drum is playing

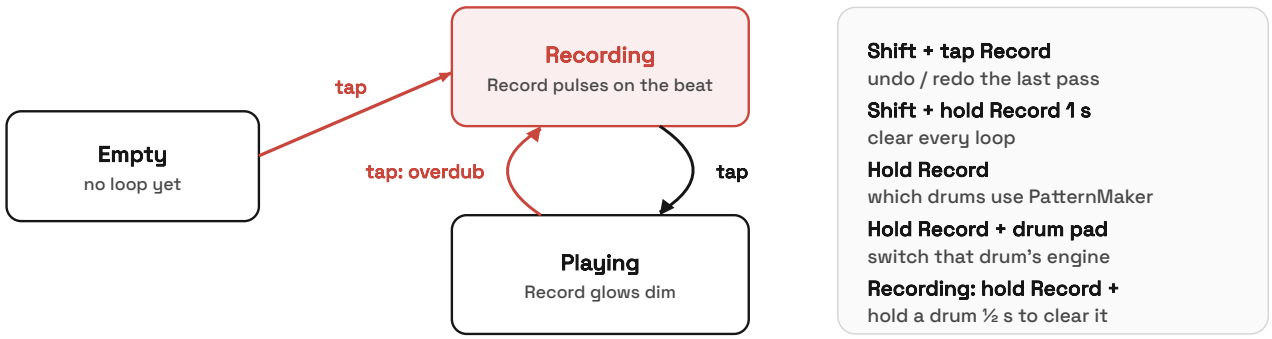
Hold **Shift** and tap a drum pad: the **timeline lights** show that drum's pattern, step by step, and its drum pad holds solid amber so you know which one you're watching. The view follows the music — it refreshes every bar (so you see Flair's variations as they happen), keeps up while Reactivity bends the pattern, and shows your recorded loop for a PatternMaker drum. Shift + tap another drum to switch; Shift + tap the same drum again to leave PatternView.

PatternView is a great way to learn what Style, Pattern, Intensity and Div actually do: watch the steps appear and disappear as you turn them.

PatternMaker — record your own loop

At a glance. PatternMaker lives on the **Record** button:

YOU'RE IN…	TAP RECORD	SHIFT + TAP RECORD	SHIFT + HOLD RECORD 1 S
Empty (no loop)	Start **recording**	—	—
Recording	Switch to **playing**	**Undo / redo** the latest pass	**Clear** all loops
Playing	**Record** more on top	**Undo / redo**	**Clear** all loops



Hits snap to the nearest 16th; each drum has its own 32-step loop at its own Time Div.

PatternMaker lives on Record. Tap to move round the loop; Shift for undo and clear.

Where the generative engine composes rhythms *for* you, **PatternMaker** lets you play them *yourself*. Play the drum pads by hand and PatternMaker records what you play into a loop that runs alongside the generated groove — then keep layering on top of it.

One engine per drum. Each drum runs either the **generative engine** (the default) or **PatternMaker**. Hold **Record** and the drum pads show which: **amber = generative**, **red = PatternMaker**. Still holding Record, tap a drum pad to switch it. So the kick and snare can play your recorded part while the hats and percussion keep improvising. Only drums set to PatternMaker record and play a loop; a PatternMaker drum with nothing recorded stays silent.

The loop. Each PatternMaker drum has its own 32-step loop that runs at that drum's **Time Div** and stays locked to SpaceDrum's clock, so it's always in time. Your hits snap to the nearest 16th. The loop plays whenever SpaceDrum is playing, and stops when it stops.

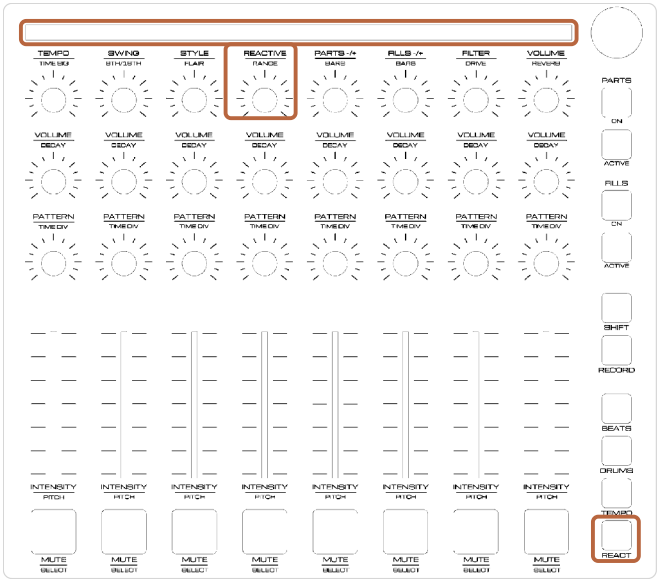
Intensity still matters. PatternMaker treats each recorded hit the way the generator treats its notes. A hit you record with the drum's Intensity fader **low** is treated as essential and plays at almost any setting. A hit recorded with the fader **high** becomes a ghost note that only appears when you push Intensity up again. Fills and Reactivity lift PatternMaker drums just like generative ones.

The Record button:

- **Tap Record.** The first tap starts **recording.** You hear the loop while you play, and it keeps recording, pass after pass, until you tap again to switch to **playing.** Tap again to record more on top (overdub), and once more to go back to playing.
- **Shift + tap Record — undo / redo.** Takes back your latest recording pass, and a second tap brings it back (one level).
- **Shift + hold Record for 1 second** — clears every PatternMaker loop.
- **Hold Record** — the drum pads show each drum's engine (amber / red); tap a drum pad to switch it.
- **Clear one drum** — while recording, hold **Record:** the drums that have a loop light red. Then **hold that drum's pad for about half a second.** Letting go of either one early cancels.

Your loops, and which drums use PatternMaker, are **saved with the beat** and come back playing when you load it.

09 Reactivity – Playing *With* the Machine



On the panel: The Reactivity knob and button; SpectrumView shows on the timeline.

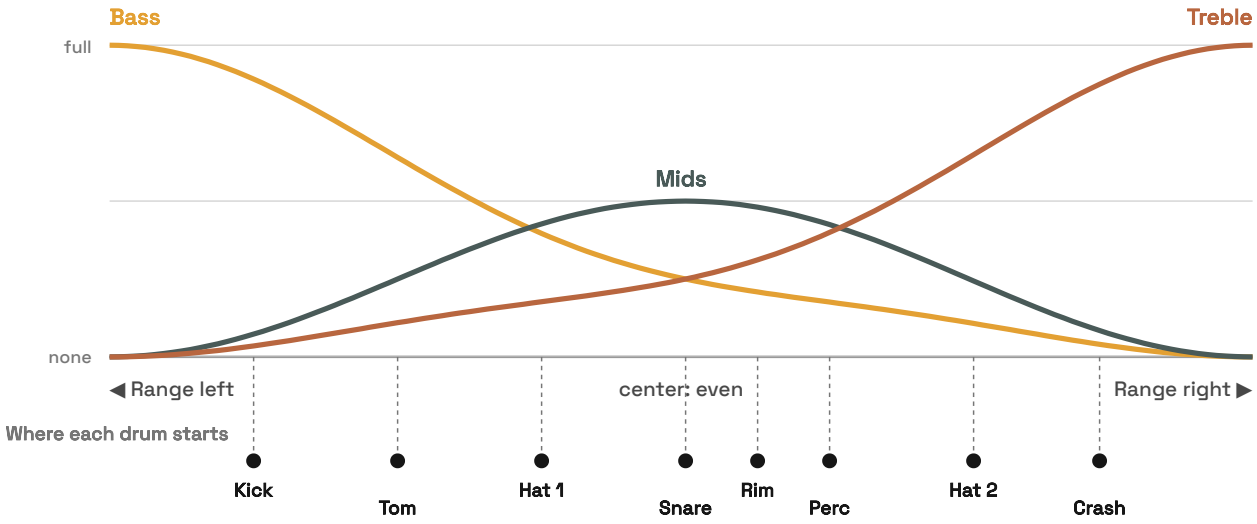
Reactivity is SpaceDrum listening to the room and playing along.

This is the part that feels like magic: you jam, and the machine jams back. Feed an external instrument into SpaceDrum's **audio input** — a synth, guitar, drum machine, turntable, a bass DI, a whole mix — and turn on **Reactivity**. SpaceDrum follows the energy of what it hears, per frequency band, and **modulates what the drums play** to match. It changes *what* the drums decide to play, in time with the music you feed it — it is not an audio effect on the drum sound.

Two controls do it all:

- **Amount** (the Reactivity knob) — a center-detent control. **Center = off** (the beat plays untouched). Turn **right** and the drums *take space* — the more the input plays, the more they play. Turn **left** and they *make space* — the more the input plays, the more the drums pull back, so you can play against your source. Kit-wide, or per-drum when a drum is selected.

- **Range** (hold **Shift** + the Reactivity knob) works at two levels. **With no drum selected** it sets the **overall sensitivity range:** how strongly SpaceDrum responds to the input level. Match it to your source (a hot line-level track needs less than a quiet mic). It belongs to your rig, not a beat: it starts at 40 at power-on and isn't saved with beats.
- **Range for one drum** (select a drum, then hold **Shift** + the Reactivity knob) sets that drum's **frequency range**, which part of the input it listens to: **left = the bass, center = the whole spectrum evenly, right = the treble.** Every drum starts where it naturally sits — the kick toward the bass, the snare in the middle, hat 2 and the crash toward the top — so the kick follows your bassline while the cymbals track the top end. A drum's frequency range is always set one drum at a time: select a drum (§4.2), then Shift + turn; the display shows, for example, *Kick Range -40%*. Each drum's Range is saved with the beat (§11).



Range chooses what a drum hears. Turn it left and the drum follows the bass, right and it follows the treble; in the middle it hears everything evenly. Each drum starts at its own place.

It moves the groove, not just the density. With Amount right, louder playing also adds **Flair** and turns each drum's **Pattern** clockwise for you — the crash and hats most, the kick least. With Amount left, louder playing takes Flair away and turns Pattern counter-clockwise. Either way the rhythm moves along the same centered scale as the knob: clockwise heads toward the denser side and counter-clockwise toward the sparser side, a drum moving away from center gets more syncopated,

and one moving toward center gets straighter. Pattern follows you instantly; Flair changes at the next bar.

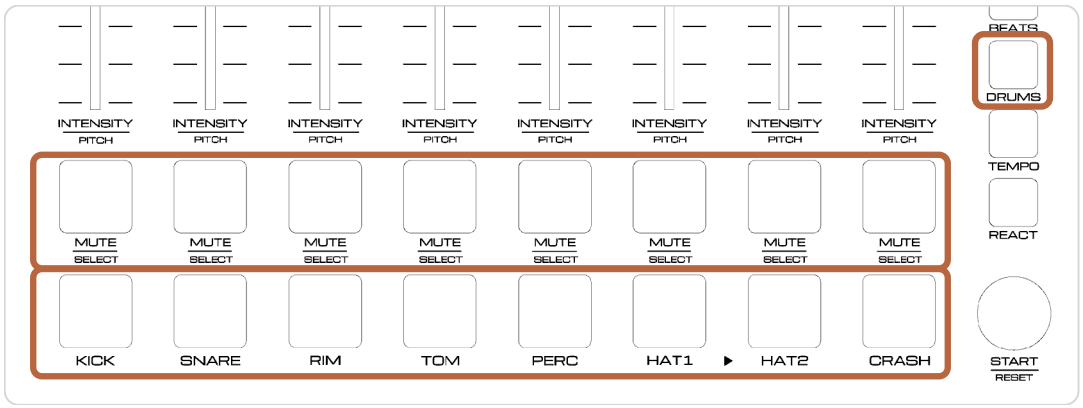
Amount isn't part of a beat. The kit Amount starts at **+70** every time you power on, so as soon as you feed SpaceDrum a source the drums respond, and loading a beat never changes it. If you select a drum and set its own Amount, that per-drum setting is saved with the beat.

Buttons & extras

- **Reactivity** button — tap to toggle listening on/off.
- **SpectrumView — Shift + tap Reactivity.** The timeline becomes a three-band meter of what SpaceDrum hears at its input: lows fill in from the left, mids from the center outward, highs from the right, and the Reactivity light breathes while it's up. It shows the same three bands Reactivity listens to, after the kit-level Range, so it's the easiest way to set that Range: with no drum selected, hold Shift and turn the Reactivity knob until SpectrumView moves clearly with your source. It works with Reactivity on or off. Shift + tap Reactivity again to bring the timeline back.
- **Hold Reactivity** and tap a **drum pad** to switch Reactivity **on or off for that drum** (bright green = on, dim green = off).
- **Per-drum on/off** is saved with each beat, and every drum starts with Reactivity on. Turn it off for the drums you want rock-steady — say, a kick that should never move — and let the rest follow the music.
- **Watch the drum pads:** each drum's pad glows **green when it's reacting positively** (taking space) and **red when reacting negatively** (making space) — dark means it isn't reacting.

Reactivity is a performance tool — ride Amount to lean the drums into a build and pull back for a breakdown, all driven by the sound you're feeding it.

10 Sounds & Samples



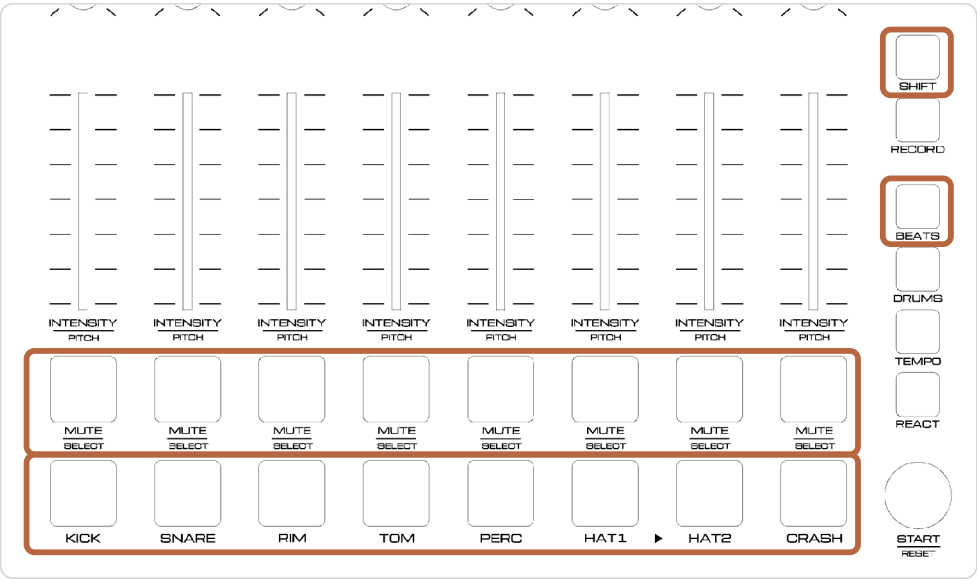
On the panel: Drums opens the sample banks (top row) for the drum you pick (bottom row).

Every voice plays a **sound sample.** Each voice has **8 sample banks of 16 slots** you can pick from and swap on the fly. **Bank 1** holds the factory sounds; banks **2–8** are yours to fill.

- **Choosing a sound.** Tap **Drums.** The top row lights up as the eight banks (bright = the bank in use, dim = a bank that has sounds in it); tap one to choose it. Then tap a drum pad, and the 16 pads become that drum's 16 slots in that bank — pick one and it plays instantly. Empty slots stay dark and silent. (You can also set the **Sample** parameter for a drum over MIDI or from COMMAND.)
- **Factory sounds.** SpaceDrum ships with a curated collection of drum sounds inspired by classic drum machines, loaded across the eight voices and ready to play. Each factory beat picks its own sounds from this set.
- **Your own samples.** Load your own sounds into banks 2–8 with the **COMMAND app** (§13): connect over USB, drop almost any audio file onto a slot, and COMMAND converts it to SpaceDrum's format (WAV, **48 kHz, 16-bit, mono**, up to 5 seconds, with a short fade so a trim never clicks) and copies it over. New sounds are ready after SpaceDrum restarts.

Swapping sounds is meant to be part of playing — change a drum's sound mid-groove and hear it immediately.

11 Saving & Recalling Your Work



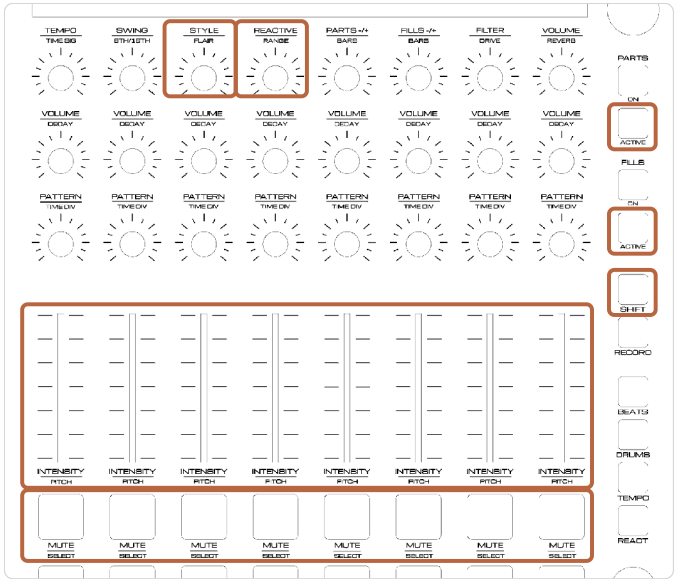
On the panel: Beats shows the 16 beat slots on the pads; Shift + a pad saves.

SpaceDrum saves a **beat** — a complete snapshot of the groove: every drum's sample, tuning, decay, the generative settings, **time signature**, mixer levels, Flair, swing, master reverb — and each drum's **output routing**, its **Reactivity on/off**, which drums use **PatternMaker**, your **PatternMaker loops**, and **which drums PartMaker and FillMaker move**.

- **Recall:** tap **Beats** and the pads show the 16 beat slots; tap one to load it.
- **Save:** tap **Beats**, then **hold Shift and tap one of the 16 pads** to save the current groove into that slot. Your saved beats are stored on the instrument.
- SpaceDrum has **16 beat slots**, and they come loaded with **16 factory beats**, ready to play and to use as starting points. Save over any slot to make one your own.
- **Not saved:** your drum mutes, the master Filter, Drive and Volume, and Reactivity's kit Amount and kit-level Range. These are live controls, so loading a beat never yanks them out from under you.
- The save format is **versioned**, so future updates can read your old beats instead of breaking them — your work is safe across updates.

- **Back up your beats.** All 16 beats live in one file. COMMAND's Update tab (§13) can copy it to your computer and put a beats file back onto SpaceDrum, so you can back up your work or move it to another SpaceDrum.

Tips from the Workshop



On the panel: Shift and the Intensity faders (Pitch), Parts and Fills Active, Style and Reactivity, and the top pads that select a drum.

A few things we've learned playing SpaceDrum every day. The first four end with a recipe for the power-on beat, so you can hear them the moment you switch on.

Start here: the power-on beat

Every time you switch SpaceDrum on, it starts from the same beat. Here is all of it:

AREA	AT POWER-ON
Time	120 BPM · 4/4 · no swing · every drum at Div 4
Who plays	**Kick** (Intensity 19%), **Snare** (17%), **Hat 1** and **Hat 2** (77%). Rim, Tom, Perc and Crash sit at 0: silent, and ready for a fader.
Style & Pattern	Style 0 (straight), Flair 0, no per-drum Style. Every Pattern at 0 except Hat 1 and Hat 2 at −42, which gives the hats a little syncopation over a straight kick and snare.
Reactivity	Kit Amount +70, every drum's own Amount +51, kit-level Range 40. Each drum's Range is spread from low to high so it listens to its own part of the sound: Kick −75 · Tom −50 · Hat 1 −25 · Snare 0 · Rim +13 · Perc +25 · Hat 2 +51 · Crash +73.
Parts & Fills	Both off. Parts +51, Part length 8 bars, Fills 76%.
Sound	Full Decay, Pitch 0, Filter open, Drive 0. Master Reverb 20%: Kick dry, Snare, Rim, Tom, Perc and Crash at 17%, the hats at 30%.

1 · Sweep a drum's pitch while it plays

Hold Shift and the Intensity faders become Pitch, ±24 semitones per drum. Pitch follows the fader instantly, so a slow push is a riser and a quick throw is a drop.

> **Try it.** Press Play. Hold Shift and push the Hat 1 fader slowly up over a few bars, then pull the Kick fader down for a deep, boomy kick. Let go of Shift and the faders are Intensity again. They won't jump: each one picks up when you move it past its current value.

2 · Hold Active for an instant Fill or Part

You don't need Fills or Parts switched on. Hold **Fills Active** and a fill plays right now, for as long as you hold; let go and the groove comes straight back. **Parts Active** does the same with the Part.

> **Try it.** At power-on Parts and Fills are both off, so the groove stays put until you ask. Hold Fills Active through the last beat of a four-bar phrase and release on the downbeat. Hold Parts Active for a bar to drop in a quick B-section. To keep one going, latch it: hold Active and press On. One tap of Active unlatches it.

3 · Give each drum its own Style

Style moves the whole kit. Select a drum and the Style knob moves only that drum, on top of the kit's Style. When drums sit at different Styles, their parts interlock instead of moving together.

> **Try it.** At power-on everything is straight. Hold Shift and tap the Snare's top pad to select it, and turn Style a little left. Shift + tap the Snare's pad again to deselect, select Hat 1, and turn Style a little right. Deselect. The kick stays straight and anchors the beat while the snare and hats syncopate in opposite directions. To bring a drum back, select it and return Style to the center detent.

4 · Set up Reactivity step by step

Reactivity works best added to a groove that already stands on its own, one drum at a time, with Range matched to what you're feeding it. Every drum starts reacting at power-on (kit Amount +70), so begin by turning it off.

1. **Start with Reactivity off.** Turn the Reactivity knob to the center detent. Center is off.
2. **Build the groove first.** Get Style, Pattern and Intensity where you want them, so the beat works without any input.
3. **Dial in Range for your setup.** Play your source at its normal level: guitar, voice, synth or a track. With no drum selected, hold Shift and turn the Reactivity knob to set the overall sensitivity range, how strongly SpaceDrum responds to the input level. A hot line-level track needs less than a quiet mic. Shift + tap Reactivity opens SpectrumView, so you can watch the lows, mids and highs it hears. The kit-level Range resets to 40 at every power-on, so check it whenever your setup changes.
4. **Take the kick and snare out.** Hold Reactivity and tap the Kick and Snare drum pads until they're dim green (off). The backbone stays steady while the hats and percussion react.
5. **Bring Reactivity in.** Turn the Reactivity knob slowly right of center and play. Stop where the drums answer you without taking over.

6 **Add the kick and snare back.** Hold Reactivity and tap their pads to switch them on again, one at a time. Select each one and give it a smaller Amount of its own, so the foundation moves less than the top.

7 **Experiment with positive and negative.** Select a drum and turn the Reactivity knob left of center: that drum now makes space when the input gets loud, and its pad glows red, while drums right of center take space and glow green. Try the kick at about −50 with the hats positive. When the input gets loud the hats push forward and the kick backs off, and when it goes quiet the kick comes back.

> **Why it works.** Each drum's Range is already spread at power-on, kick listening low and hats high, so each drum answers its own part of the sound. To point a drum somewhere else, select it and turn Shift + Reactivity; its Range saves with the beat.

5 · Almost great? Roll just one or two drums

When a beat is close but missing something, don't start over. Select only the drum (or two) you want to change, then use a Maker on just those: **BeatMaker** (hold Shift, press Beats) for a fresh part, **DrumMaker** (hold Shift, press Drums) for a fresh sound. Everything you didn't select stays exactly as it was.

> **Try it.** Select Hat 1 (Shift + its top pad) and roll BeatMaker until the hats sit right; deselect. Or select Perc and roll DrumMaker for a new percussion sound. Like it? Save the beat (§11).

6 · Swing everything but the kick and snare

Switch swing off on the kick and snare and leave it on for the rest. The backbone stays rock solid while the hats and percussion shuffle around it: a hybrid groove that's tight and still grooves.

> **Try it.** Turn Swing up. Select the Kick and turn Swing to switch its swing off, then do the same for the Snare; deselect. Push Swing further and only the drums still swinging move.

7 · Add Flair once the beat is built

Build the groove first, then add **Flair** to one or more drums for variety: each bar they vary a little, while the rest keep the beat steady.

> **Try it.** Select Hat 1 and turn Shift + Style (Flair) up a little; deselect. Add a touch to the Perc too. Keep the kick at 0 so the groove never loses its anchor.

8 · Play with Time Div

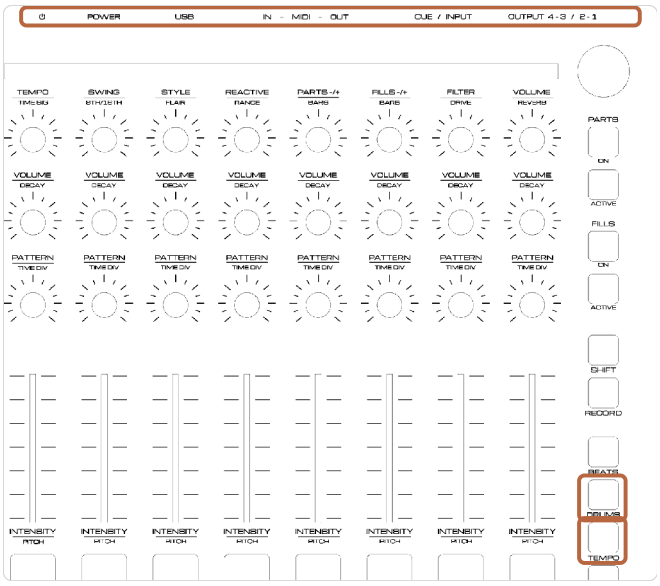
Each drum's **Div** (Shift + its Pattern knob) sets how fast it subdivides: 2 · 3 · 4 · 6 · 8, with 4 the default. Changing it on just one or two drums opens up a whole new feel.

> **Try it.** For a **halftime break**, take the Snare's Div down to 2 and bring it back to 4 to drop back in. For a rolling **triplet groove**, bring up the Perc and set its Div to 3 or 6 against a kick and snare on 4.

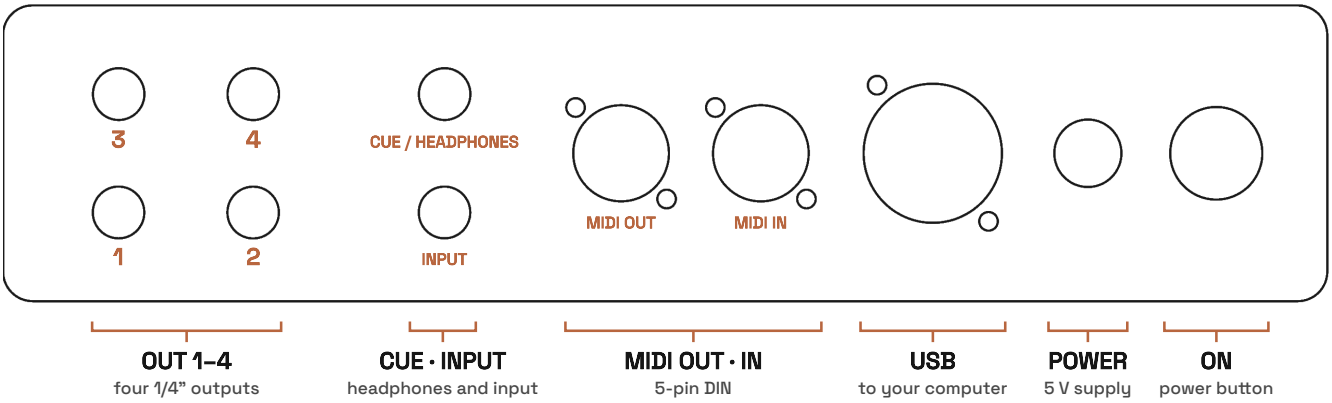
KEEP WHAT YOU FIND

None of this changes the power-on beat. When something you've dialed in is worth keeping, save it to a beat slot: per-drum Style, per-drum Amount, each drum's Range and Pitch are all saved with the beat (§11). The kit Amount and kit-level Range are the exceptions; they belong to your rig, not a beat (§9).

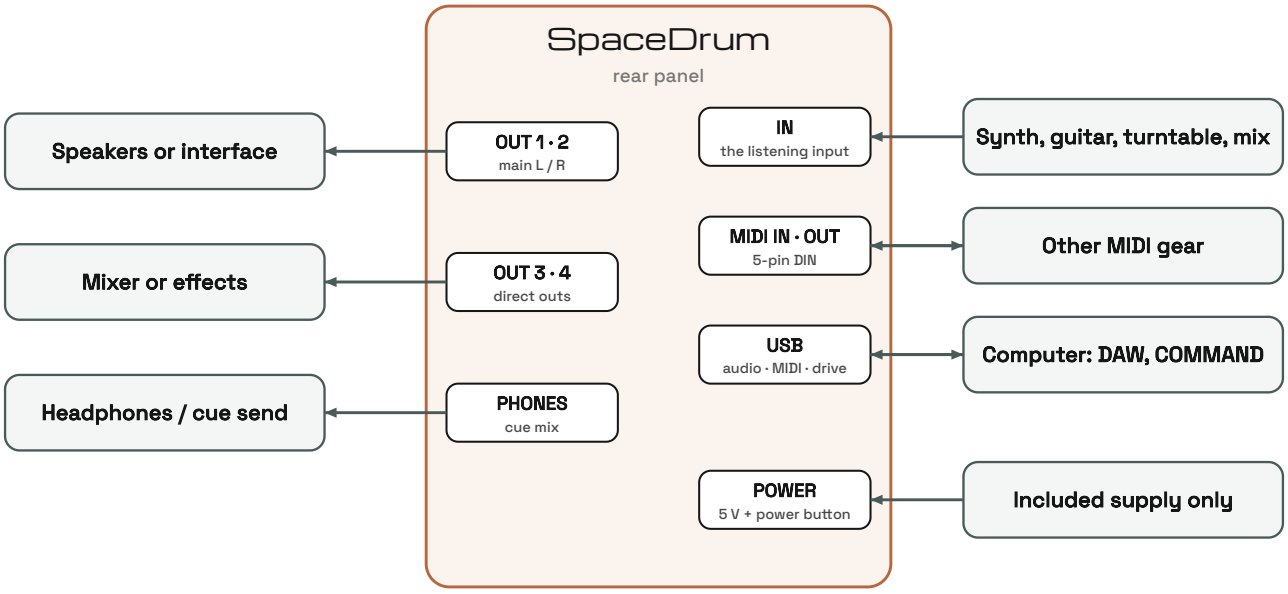
12 Connecting SpaceDrum



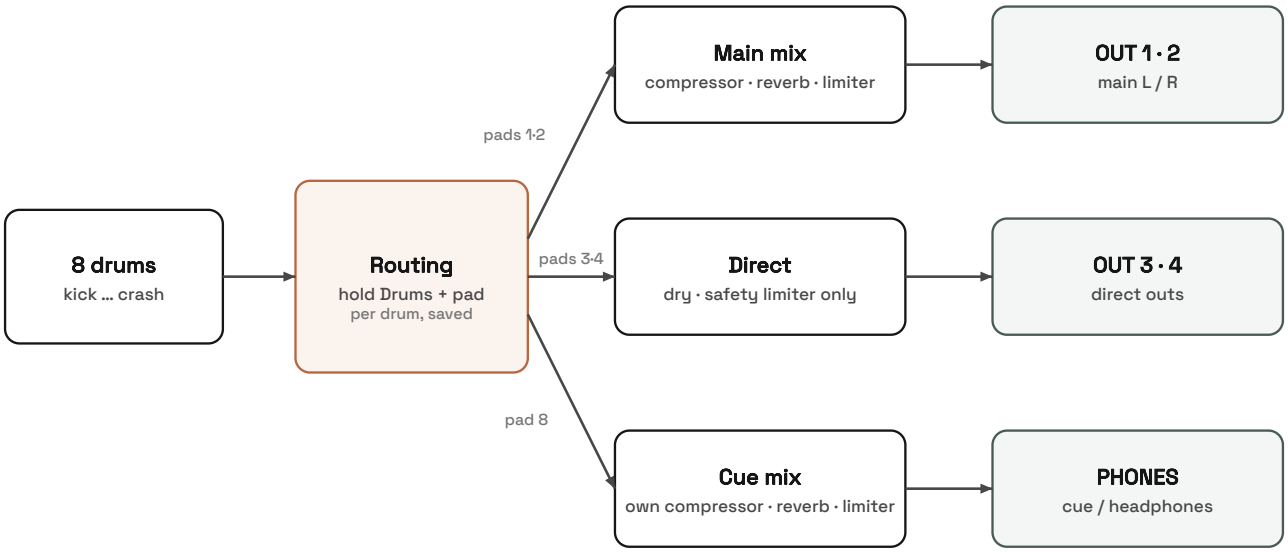
On the panel: The jack labels along the top edge; hold Tempo for the clock source; hold Drums + a drum pad for output routing.



The rear jack panel.



Connecting SpaceDrum. What plugs in where. (This shows the connections, not the order of the jacks on the panel.)



USB to computer: 1–2 main mix · 3–10 each drum, dry · 11–12 inputs USB from computer: 1–2 Mix-Thru → main outs

Where the sound goes. Each drum can go to any mix of the main outs, the direct outs and the headphones; the computer gets every drum on its own channel.

Audio out

SpaceDrum has **four 1/4" outputs** and a stereo **headphone / cue** jack:

OUTPUT	WHAT IT CARRIES
1 + 2 — main L / R	The main stereo mix, through the master compressor, limiter and reverb. Start here.
3 and **4** — direct outs	Any drums you send there, **dry** — before the master compressor and reverb (only the safety limiter stays on) — for your own mixer or effects.
Headphones / cue	Its own stereo **cue mix** — not a copy of the main outs — with its own compressor, limiter and reverb, and the same Drive and Filter as the main mix. Every drum is in it by default, centered so nothing disappears from one ear. Works for headphones or as a line-level cue send to a monitor or a second mixer channel.

Stereo placement. Outputs 1 and 2 are a true stereo pair: route a drum to **both** for center, or to **only 1** or **only 2** to place it hard left or right — reverb tails follow it.

Routing each drum. By default every drum plays through the main outs **and** the headphones. To change where a drum goes, hold **Drums** and tap that drum's pad. The view stays open after you let go: pads **1–4** switch **outputs 1–4** and pad **8** switches the **headphones** (cyan bright = on, dim = off). A drum can go to any combination, or none. Press **Drums** again to close the view. Changes are instant and click-free, and the routing is **saved with the beat.** While the view is open the pads don't play drums; the beat keeps running underneath so you can hear the result.

Audio in (the "listening" input)

The **input** is what SpaceDrum listens to for Reactivity (§9); plug in any line-level source. The input is also sent to your computer over USB.

MIDI (DIN)

5-pin MIDI In and Out connect SpaceDrum to the rest of your rig:

- **As the master clock** (default) — SpaceDrum sends MIDI clock and Start/Stop out the DIN, and its drums play out on **MIDI channel 10**, each hit with its own velocity, so external gear locks to it and can double its parts.

- **DIN In controls SpaceDrum just like USB.** Notes, CCs and NRPN on channel 10 arriving at the DIN input do exactly what they would over USB: play drums (notes 36–43) and set controls (the full map is in Appendix B, §19).
- **As a follower** — hold **Tempo** and tap one of the first three top-row pads: **Internal** (SpaceDrum is the master), **USB** or **DIN**. While following, SpaceDrum also obeys the incoming Start/Stop, and a Stop returns it to the top of the bar. The clock source is part of your rig, not your beat, so it isn't saved with beats; SpaceDrum starts up as the master clock.
- **Tap tempo from a foot pedal** — send **CC 116** on any channel (DIN or USB); each press past the midpoint counts as one tap, on the Internal clock.

USB — one cable to your computer

A single USB cable makes SpaceDrum a **class-compliant device** that carries three things at once:

1. **Multichannel audio** — record straight into your DAW (12 channels to the computer, 4 from it, 48 kHz): channels **1–2** the main mix, **3–10** each drum on its own track (kick → crash, raw, before the master processing), and **11–12** whatever is plugged into the input.
2. **USB Mix-Thru** — whatever your DAW plays to SpaceDrum's USB channels 1–2 comes out of the main outputs alongside the drums, at unity and after the drum compressor, so it isn't squashed. One pair of speakers for the whole session.
3. **USB-MIDI** — clock, notes, and full parameter control to/from your DAW.
4. **A built-in drive** — for transferring samples, beats, and updates via the COMMAND app.

IMPORTANT — POWER IS SEPARATE

The USB cable carries **data only**. SpaceDrum is powered by its included supply through the barrel jack, never over USB. Use the supplied adapter (see §15).

13 The COMMAND App

COMMAND is SpaceDrum's companion desktop app (version 1.5, macOS). Connect a USB cable and COMMAND becomes the bridge between SpaceDrum and your computer:

- **Live control** — a knob for every global control and the per-drum controls (Volume, Decay, Pattern, Div, Pitch, Intensity, Drive, Filter, Reverb, Style, Parts, Fills, Flair, Range, Swing on/off), with mute and solo that stay in sync with the panel, and a beat display locked to SpaceDrum's clock.
- **Load your own samples** — into banks 2–8 of any drum (§10). Drop in almost any audio file: COMMAND converts it to 48 kHz / 16-bit / mono, trims it to 5 seconds with a fade, and lets you adjust the trim on a waveform before it copies the file over. Bank 1 is protected so the factory sounds are always there.
- **Update tab** — put a panel-firmware update onto SpaceDrum (§14), copy your saved beats to your computer or a beats file back onto SpaceDrum (§11), and eject SpaceDrum safely.

14 Updating SpaceDrum

SpaceDrum improves over its life through **free updates** — new sounds, features, and fixes.

How updates apply. SpaceDrum appears to your computer as a drive. Each update arrives as a single **update file** (`.spd`). Download it, copy it onto the SpaceDrum drive (one update file at a time), eject, and restart: it **installs on the next restart.** Keep SpaceDrum powered until the update has finished, and follow any instructions that come with it.

What's updatable: the sound engine, the factory sounds, the display and the panel firmware. Updates never touch your saved beats or your own samples — those are yours to move, with COMMAND (§11, §13).

15 Power & Care

- **Power.** Please only use the power supply provided.
- **Powering down.** Press **Play** to stop, wait a few seconds after saving a beat, then switch off at the power switch. Your saved beats are stored on the instrument.
- **Handling & environment.** It's a handmade instrument with a wood enclosure and metal panel — keep it dry, out of direct heat, and don't block any vents. Clean with a dry or barely-damp cloth.
- **Service.** SpaceDrum is repaired by ALAN Instruments in Chicago. For help or service, email **info@alaninstruments.com** or visit **alaninstruments.com**.

16 Troubleshooting

SYMPTOM	TRY THIS
No sound	Confirm you pressed **Play**; check the output cable and that your speaker/interface is on and up; bring up **Master Volume** and the drum **Volume** knobs; make sure **Intensity** isn't at zero on every drum.
The startup light sweep never stops (white comet keeps looping)	The panel is powered but not yet hearing from the engine. Give it a moment after power-on; if it persists, power-cycle. If it continues, contact support.
One drum is silent	Check its **mute pad** (top row) and its **Intensity** fader. Hold **Record**: if the drum shows **red**, it's on PatternMaker with nothing recorded — record a loop or tap it back to amber. Hold **Drums** + its pad to check its **output routing** (it may be sent only to outputs 3/4 or nowhere).
A knob does nothing	It's picking up (§4): the value was set by a beat, a Maker, tap tempo or your computer. Turn it toward the value on the display — it takes over the moment it reaches it.
The timeline shows a bouncing meter instead of the beat	SpectrumView is on (the Reactivity light breathes). Shift + tap **Reactivity** to close it.
The pads don't play drums	A view may be open: if **Drums** is brightly lit, the output-routing view is open — press Drums to close it. The pads also don't play while Beats, Drums, Reactivity or Record is held.
The drums don't react to my input	Make sure listening is on (tap **Reactivity**), **Amount** isn't at center, and the drum's Reactivity isn't switched off (hold Reactivity: dim green = off). Raise the kit-level **Range** (no drum selected, Shift + turn the Reactivity knob).
Headphones too quiet or too loud	Check which drums are routed to the headphones: hold **Drums** + a drum pad, then look at pad 8 (bright = on). Every drum goes to the headphones by default.
Glitches / dropouts under heavy playing	Almost always **power**. Use the included supply; don't try to power it over the USB data cable.
It stopped playing on its own / briefly cut out then resumed	SpaceDrum self-recovers from momentary power sags and keeps playing — if it recovered, no action needed. If it keeps happening, check your power supply/outlet.
No lights at all	Check the power supply, barrel connection, and the power switch.
Computer doesn't see it	Use a known-good USB **data** cable; it appears as "SpaceDrum." SpaceDrum is a class-compliant USB device, so it needs no driver; the COMMAND app runs on macOS. Remember the data cable carries no power — the unit still needs its own supply.
External gear won't sync	Connect to **MIDI DIN Out** (or use USB-MIDI); external gear should follow SpaceDrum's clock, and its drums play on **MIDI channel 10**. Press **Shift + Play** to restart at the first downbeat. If SpaceDrum should follow instead, hold Tempo and pick USB or DIN on the top pads (§12).

17 Specifications

Instrument type	Generative, audio-reactive, sample-based drum instrument
Voices	8 sample-based (kick, snare, rim, tom, perc, hat 1, hat 2, crash), 16-voice polyphony; 8 banks × 16 sample slots per voice
Engine	Real-time generative rhythm engine with per-voice generators; PatternView; PartMaker arrangement + FillMaker fills; PatternMaker performed loops (per drum); Reactivity (audio-driven, per-drum on/off); 16 factory beats
Time signatures	3/4 · 4/4 · 5/4
Tempo	56–183 BPM
Controls	24 knobs + 8 Intensity faders (base + Shift); 16 lit pads (8 drum pads + 8 mute pads); Buttons — Record, Play, Shift, Beats, Drums, Tempo, Reactivity, Parts On/Active, Fills On/Active
Display	Round parameter display: live parameter takeover with real units (BPM, bars, %, ±semitones, named settings)
Audio out	Four 1/4" outputs (main L/R + two direct outs), stereo headphone/cue jack; per-drum routing to any combination; stereo-linked compressor + −1 dBFS true-peak limiter on the main and cue mixes
Audio in	One 1/4" input (drives Reactivity; also sent over USB)
MIDI	5-pin DIN In/Out and USB-MIDI; clock master, or follower of USB / DIN; tap tempo by foot pedal (CC 116); drums on ch 10 (notes 36–43); full CC/NRPN control over DIN or USB
USB	One cable: class-compliant multichannel audio (12 channels to the computer: main mix, 8 drum stems, input; 4 from it; 48 kHz) + MIDI + drive
Audio	48 kHz; samples 48 kHz / 16-bit
Companion app	COMMAND (desktop, USB)
Power	External 5 V supply (included); power button
Enclosure	Wood case, metal front panel; handmade in Chicago

18 Appendix A – Full Control Map

For power users. Base = normal; Shift = hold Shift. Per-drum order: kick · snare · rim · tom · perc · hat1 · hat2 · crash.

Per-drum knob banks

BANK	BASE	SHIFT
Volume bank (×8)	Volume	Decay
Pattern bank (×8)	Pattern	Div
Intensity faders (×8)	Intensity	Pitch

Global bank (8 knobs)

#	BASE	SHIFT
1	Tempo (56–183 BPM)	Time signature (3/4 · 4/4 · 5/4)
2	Swing (8th)	Swing (16th)
3	Style	Flair
4	Amount — reactivity (center=off, R=more, L=less)	Range: overall sensitivity · *drum selected → that drum's frequency range (bass↔treble)*
5	Part shift	Part length
6	Fill level	Fill length
7	Filter (master/selected drum)	Drive
8	Master Volume	Master Reverb

Buttons

BUTTON	BASE	SHIFT / GESTURE
Record	Tap = record / play · hold = show engines (amber/red) · hold + drum pad = switch engine · while recording, hold + hold a drum pad ½ s = clear that drum	Shift+tap = undo/redo · Shift+hold 1 s = clear all loops
Play (START / RESET)	Play/Stop	Shift+Play = restart at the first downbeat

BUTTON	BASE	SHIFT / GESTURE
Shift	Secondary layer (held)	—
Tempo	Tap = tap tempo (light blinks on the 1 of each bar) · hold = clock-source page (top pads 1–3: Internal / USB / DIN)	—
Beats	Tap = beat slots on the pads (tap a pad to load)	Shift+Beats = BeatMaker (new beat) · Beats, then Shift + pad = save
Drums	Tap = select drum / sample banks & slots · hold + drum pad = output routing (press Drums to close)	Shift+Drums = DrumMaker (new sounds)
Reactivity	Tap = listening on/off · hold + drum pad = that drum's reactivity on/off	Shift+tap = SpectrumView on/off
Parts On	Tap = Parts on/off · hold + drum pads = which drums PartMaker moves (dark blue) · hold + turn a drum's controls = capture into the Part	Shift = arm bar-quantized restart
Parts Active	Hold = momentary · hold Active + press On = latch · tap = unlatch	Shift+Active = clear captured part changes
Fills On	Tap = Fills on/off · hold + drum pads = which drums fill (light blue) · hold + turn a drum's controls = capture into the fills	—
Fills Active	Hold = momentary fill · hold Active + press On = latch · tap = unlatch	Shift+Active = clear captured fill
Drum pads (bottom row ×8)	Play the drum by hand · pick a drum · menu choices	Shift+tap = PatternView on/off
Mute pads (top row ×8)	Mute / unmute the drum · sample banks 1–8 in the Drums view	Shift+tap = select the drum · tap again = deselect

PatternMaker. Tap **Record** = record ⇔ play (record again to overdub) · **Shift + tap Record** = undo/redo · **Shift + hold Record 1 s** = clear all loops. See §8.

19 Appendix B – Full MIDI Map

Every sound-shaping and groove control on SpaceDrum can be set over MIDI. SpaceDrum sends and receives on **MIDI channel 10**, and the DIN jacks and USB do exactly the same thing. All values are 0–127. On a *centered* control, 64 is the center detent.

- **Direct CCs** cover the 16 global controls and 11 controls on each drum: one CC, one control, ready for a DAW lane or a controller knob.
- **NRPN** covers the per-drum controls that have no CC (Flair, Range, Sample and the rest of the table below). Send **CC 99** = NRPN number ÷ 128 (that's 0 for numbers below 128, and 1 for 128 and up), then **CC 98** = the rest (number − 128 × CC 99), then **CC 6** = the value. The NRPN number is the same field number a saved beat uses.
- **SpaceDrum talks back.** Whenever a control changes, from the panel, a beat load or MIDI, SpaceDrum sends the new value out on its CC (or its NRPN). Record that into your DAW and you've captured the performance.

Global controls — CC

CONTROL	CC	VALUES
Tempo	13	BPM = value + 56 (56–183); 64 = 120
Time signature	21	0–42 = 3/4 · 43–85 = 4/4 · 86–127 = 5/4
Swing	14	0–127 = 0–100 %
Swing feel	22	0–64 = 8th · 65–127 = 16th
Style	15	64 = straight (center); either way = more syncopated
Flair	23	0 = none … 127 = most
Reactivity Amount	24	64 = off; above = play more, below = play less
Range (kit level: overall sensitivity)	16	0–127; how strongly SpaceDrum responds to the input level
Parts (Part shift)	17	centered, 64 = 0
Part length	25	2 · 4 · 8 · 16 · 32 bars (five zones, 64 = 8)
Fills (Fill level)	18	0–127
Fill length	26	½ · 1 · 2 · 4 · 8 bars (five zones, 64 = 2)
Filter (master)	19	0–127
Drive (master)	27	centered, 64 = 0
Reverb (master)	28	0–127 = 0–100 %
Master Volume	20	0–127

CONTROL	CC	VALUES
Tap tempo (foot pedal)	116	any channel; each rise past 64 = one tap (Internal clock only)

Per-drum controls — CC

CONTROL	KICK	SNARE	RIM	TOM	PERC	HAT 1	HAT 2	CRASH	VALUES
Volume	29	30	31	110	33	34	35	36	0–127
Decay	37	109	39	40	41	42	43	44	0–127; 127 = full sample length
Pattern	49	50	51	52	53	54	55	56	64 = straight; below = sparser, above = denser (both syncopated)
Div (Time Div)	57	58	59	60	61	62	63	64	2 · 3 · 4 · 6 · 8 (five zones, 64 = 4)
Intensity	77	78	79	80	81	82	83	84	0 = silent … 127 = busiest
Pitch	85	86	87	88	89	90	91	92	64 = 0; ±24 semitones
Drive	1	2	3	4	5	104	7	8	centered, 64 = 0
Filter	9	10	11	12	45	46	47	48	centered, 64 = open
Reverb	65	66	67	68	69	70	71	72	0–127
Style (per-drum offset)	73	74	75	76	93	94	95	106	centered, 64 = 0
Mute	117	118	119	107	102	103	108	105	64–127 = muted · 0–63 = playing

Per-drum controls — NRPN

CONTROL	KICK	SNARE	RIM	TOM	PERC	HAT 1	HAT 2	CRASH	VALUES
Flair	125	126	127	128	129	130	131	132	0 = none … 127 = most
Range	143	144	145	146	147	148	149	150	0 = bass · 64 = even · 127 = treble
Reactivity Amount (per drum)	108	109	110	111	112	122	123	124	centered, 64 = 0
Parts (per drum)	121	51	60	69	78	87	96	104	centered, 64 = 0
Fills (per drum)	37	45	54	63	72	81	90	99	centered, 64 = 0
Sample	35	43	52	61	70	79	88	97	slot 0–15 in the drum's current bank
Swing on/off	151	152	153	154	155	156	157	158	0 = off · 127 = on

Example: to set the snare's Range to even, send CC 99 = 1, CC 98 = 16 (144 − 128), CC 6 = 64.

Drum notes — in and out

Each drum sends its own note on channel 10 with the hit's velocity. Record those notes to capture SpaceDrum's part, or send the same notes from pads, a keyboard or a DAW to play its drums.

DRUM	KICK	SNARE	RIM	TOM	PERC	HAT 1	HAT 2	CRASH
Note (ch 10)	36	37	38	39	40	41	42	43

Clock and transport

- **As the master** (the default), SpaceDrum sends MIDI clock and Start / Stop out of the DIN jack and over USB.
- **As a follower** (hold Tempo, choose USB or DIN), it follows incoming clock and Start / Stop / Continue, and a Stop returns it to the top of the bar.

Not on MIDI

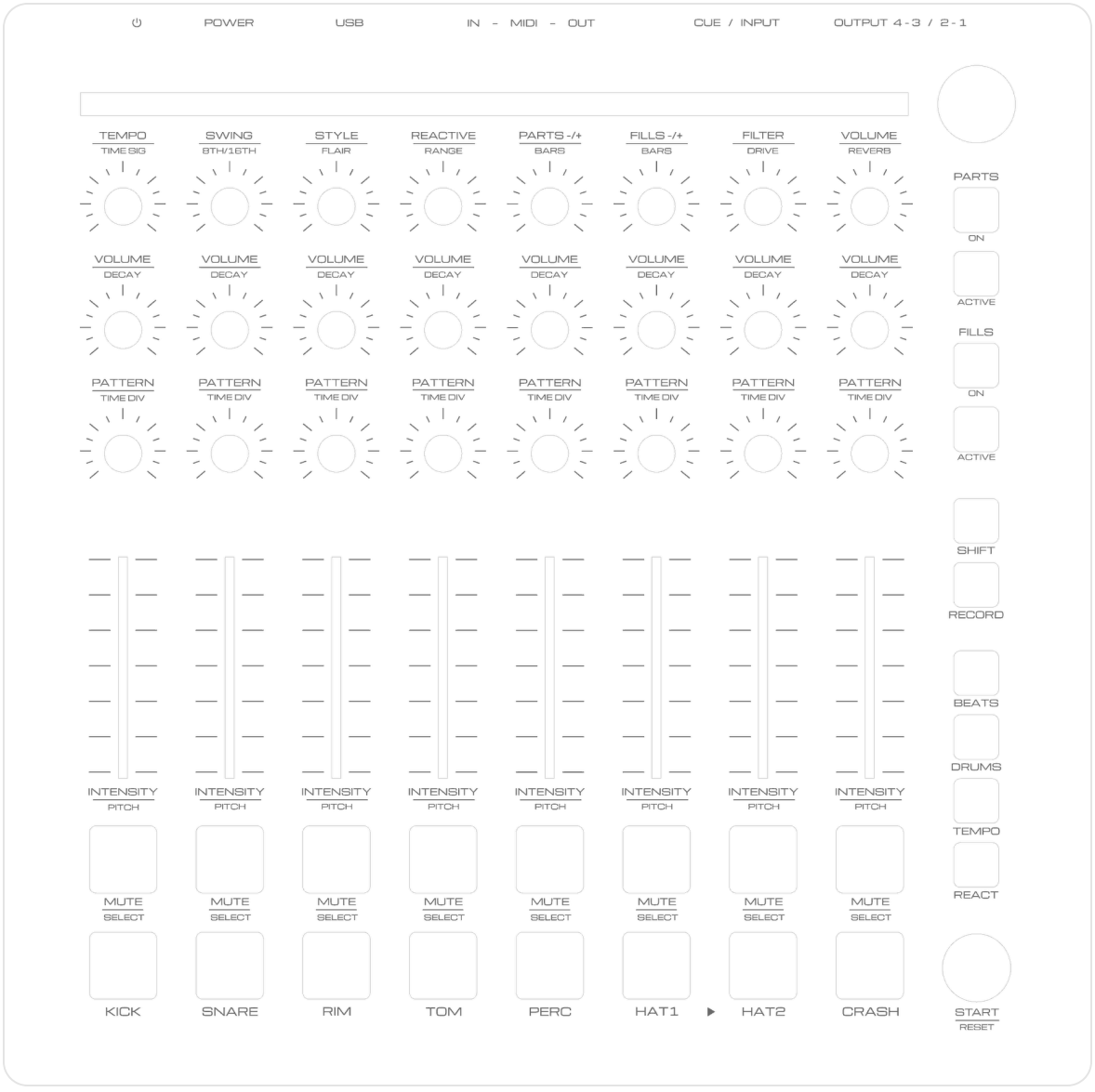
These live on the panel only: Play, Parts and Fills on / Active, PatternMaker recording, beat load and save, Reactivity on / off per drum, output routing and the clock source.

Keep CC 0, 32 and 38 off channel 10. The direct map stays clear of MIDI's reserved CCs (0, 32, 6, 38, 96–101, 120–127). In this release CC 32 still also sets Tom Volume and CC 38 still also sets Snare Decay. So turn off Bank Select messages for channel 10, and send NRPN values with CC 6 only (SpaceDrum ignores the CC 38 data byte anyway).

C Appendix C – Panel Templates

Blank copies of the top panel for your own diagrams: mark knob positions, circle the pads you use, note a beat you want to come back to, or sketch a setup for a show. In the printed manual there are four of these pages; photocopy them for more.

Beat / idea _____ Slot _____ Tempo _____ Date _____



_____

_____

_____

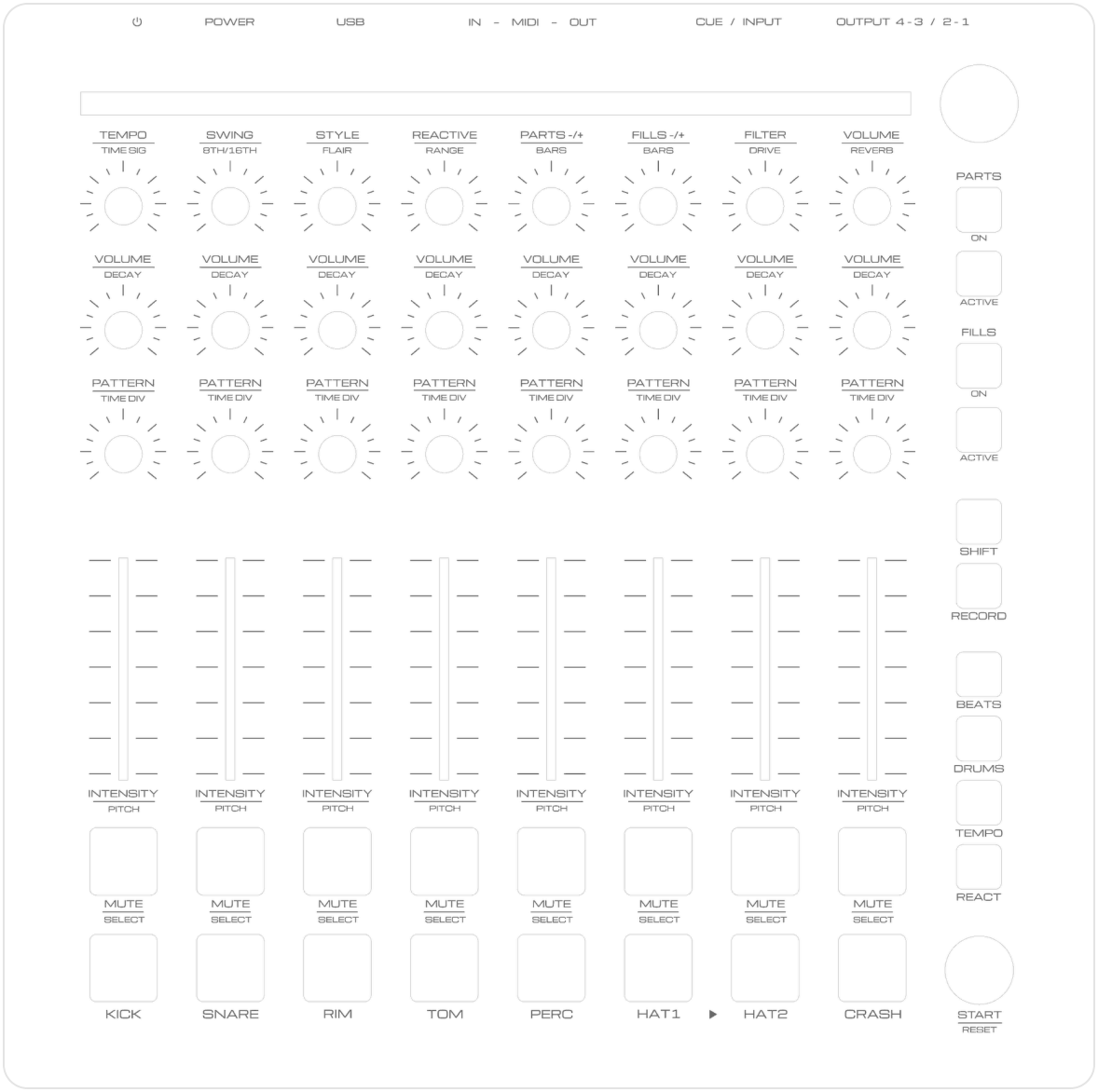
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Beat / idea

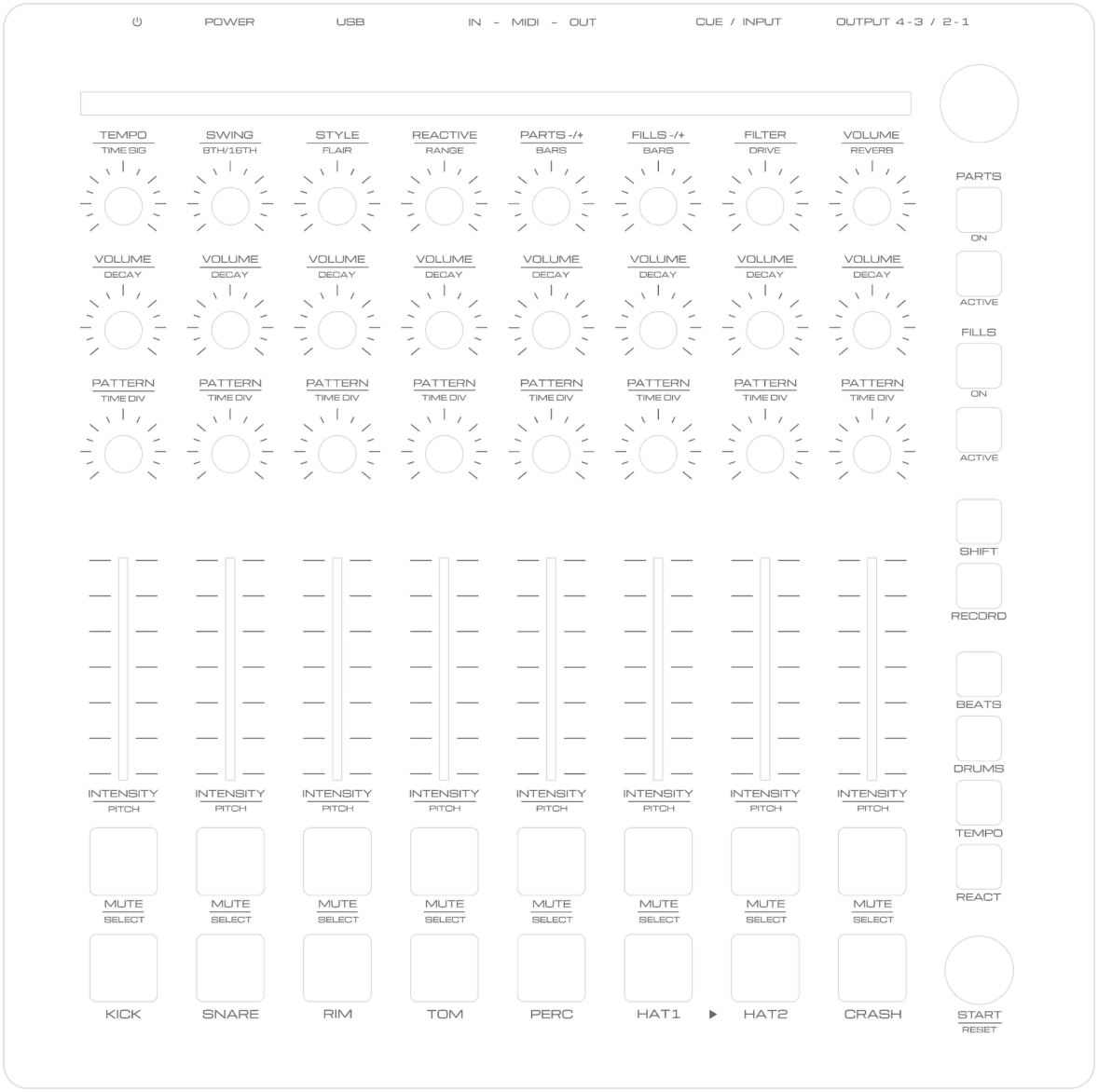
Slot

Tempo

Date



Beat / idea | Slot | Tempo | Date



Beat / idea | Slot | Tempo | Date

