

Ursa Bass Engine: Operation Manual

Created by Shane TV



Overview

Ursa is a generative bass engine and note player designed to transform static, held chords into grooving, evolving, and highly stylized basslines. It utilizes a 4-cell generative engine to create dynamic loops ranging from 1 to 16 bars. By combining 20 distinct algorithmic bass "Voices" with an advanced ratcheting and interval system, Ursa takes the guesswork out of laying down the perfect low-end while maintaining deterministic, repeatable sequences that lock perfectly into your track's key and scale.

The Usuals

- **The "Power" Button:** Bypasses the Ursa Bass Engine. When off, incoming MIDI notes will pass straight through unaltered and the internal sequencer stops.
- **The Patch Browser:** Use the standard Reason patch browser to load Factory Presets or save your own custom seeds and panel settings.

Motor Section (Blue)



The Motor section acts as the rhythmic heart of your bassline, governing its foundational timing and density.

- **Rate:** Sets the base note size, featuring 13 musical divisions from 1/4 to 1/64, including dotted and triplet variations.
- **Mod (Rate):** An internal LFO that shifts the current Rate based on the selected depth, creating push-and-pull momentum.
- **Density:** Adjusts the probability of notes triggering on any given step versus leaving a rest.
- **Mod (Density):** Applies an internal LFO to the Density parameter for evolving, breathing rhythms over time.
- **Length:** Controls the base duration of generated notes, from tight, percussive staccato plucks to long legato sustains.
- **Mod (Length):** Dynamically alters the note lengths across the pattern's progression.
- **Time Mult:** Global scaling for the entire sequence (0.5x, 1x, or 2x speed).
- **Hold:** When active, the current rhythmic and melodic state is "latched," sustaining the bass pattern even after you release your MIDI keys.

Throttle Section (Green)



The Throttle section manages the performance algorithms, the loop structure, and how Ursa interprets your chords.

The 4-Cell System

Ursa doesn't just loop endlessly; it thinks in musical phrases. The generative engine is divided into a 4-Cell System, meaning your total loop is broken down into four equal quadrants (Cell 1, 2, 3, and 4).

- **Cell Size:** Dictates the duration of each quadrant (from 1/4 bar up to 4 bars). If set to 1 Bar, your total loop is 4 Bars long.
- **Cell Controls:** Each of the 4 cells features dedicated **Mute** buttons, localized **Pitch/Rhythm Seeds**, and **Interval/Sweep (LFO)** controls to dial in specific melodic movements for that specific part of the phrase.

Throttle Knobs & Buttons

- **Voice:** Selects the mathematical foundation for the bassline, choosing from 20 unique playing styles (see Voice Table below).
- **Root Select:** Tells Ursa which note from your held chord to use as the foundation (Lowest, 2nd Lowest, up to Highest).
- **Offset:** Shifts the start position of the loop forward or backward by up to 16 steps.
- **Drop:** Controls the probability of notes being completely dropped to create sparse, funky pockets of silence.
- **Synco (Syncopation):** Pushes or pulls notes off the main grid, emphasizing upbeats and offbeats depending on the Voice.
- **Ratchet:** Triggers sub-step rolls, trap-style stutters, and arpeggios. The musicality of the ratchet is entirely dependent on the selected Voice.
- **Break (Variator):** Introduces voice-specific "Breaks" and performance shifts, typically occurring at the end of a cell or phrase (bars 8 to 12).
- **Turnaround (Delta):** Triggers voice-specific melodic flourishes, heavy ratchets, and interval jumps at the very end of a loop (bars 12 to 16).
- **Global Seeds (Pitch & Rhythm):** Generates entirely new random seeds for the overall device to immediately find a new riff.
- **Key & Mode:** An integrated quantizer that snaps all output to 1 of 12 root notes and 9 scales (Major, Minor, Dorian, Phrygian, Lydian, Mixolydian, Blues, and Pentatonics). While set to **Auto**, Ursa becomes "Chord Aware" and will mostly stay in key while you experiment. For a final product it may be more accurate to select a key.
- **Key Lock:** Preserves your Key and Mode settings so they don't change while you are surfing through presets.

Swerve Section (Orange)



The Swerve section provides harmonic coloring and humanizing offsets to polish the bass performance.

- **Global Intervals:** Master control that scales the melodic intervals dialed into your individual cells, dictating how far the bassline walks away from the root.
 - **Bounce:** Probability for a note to jump exactly one octave up for that classic disco/house bass pop.
 - **Octave:** Transposes the entire sequence up or down by two octaves.
 - **Swing:** Adds a rhythmic shuffle by rushing or delaying offbeat notes.
 - **Glide:** The probability to trigger overlapping notes, forcing portamento/glide in connected synths.
 - **Accent:** Introduces "Velocity Pocketing," giving downbeats heavier velocity and offbeats softer ghost-note velocities to create a human feel.
 - **Ghost:** Adds low velocity quick plucks in the empty parts of the bassline
 - **Gravity:** Adds to the likelihood of the root note being struck, works with bounce to probabilistically move that anchor note +1 octave
 - **Pocket:** Micro-shifts the midi forward or backward to push and pull on the track's energy
-

Voice Selection Table

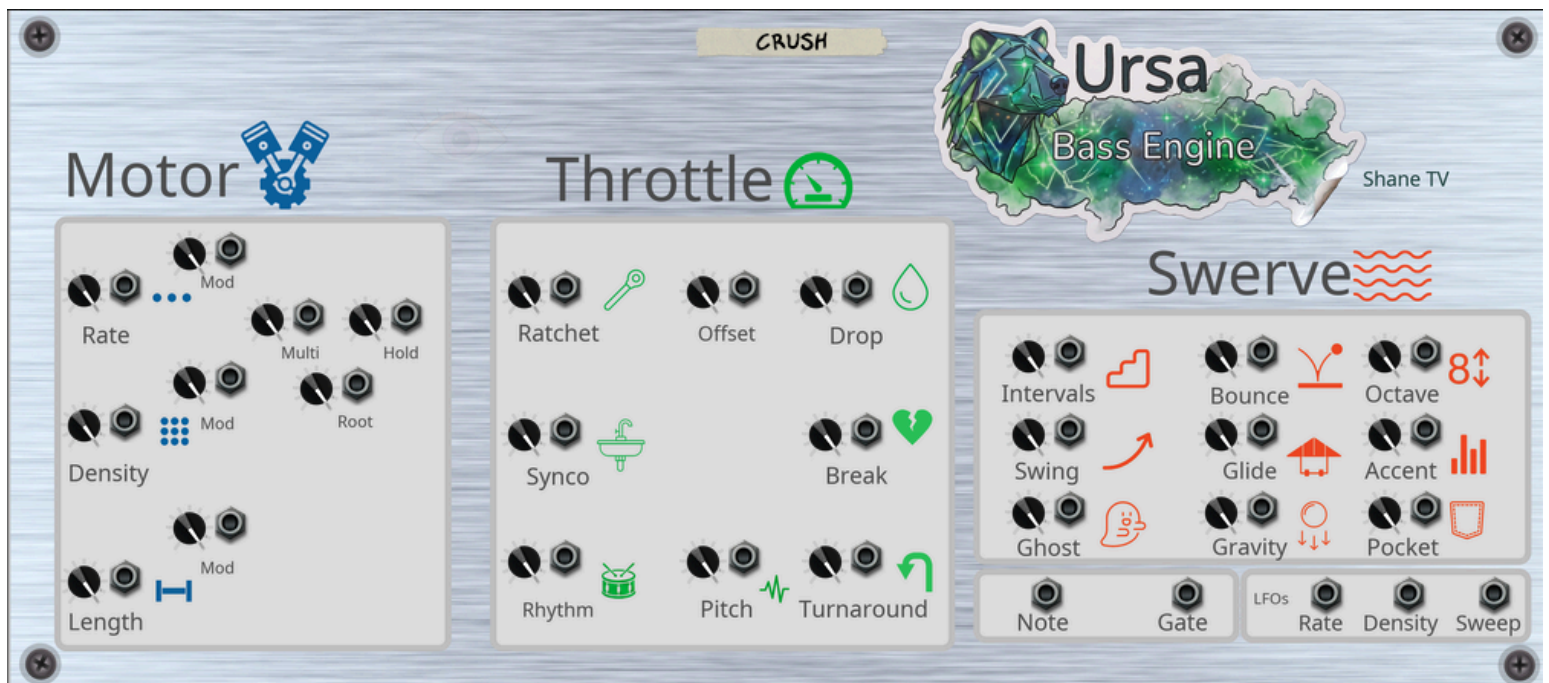
Voice	Style & Vibe	Special Rules & Modifiers
0. Warehouse	Straight 16ths.	<p>Ratchets: 2-hit repeats.</p> <p>Breaks/Turnarounds: Heavy drops and extreme bounce.</p>
1. Anchor	Basic 8ths, stable and solid.	<p>Ratchets: 2-hit repeats.</p> <p>Synco: Adds off-beat drops.</p>
2. Chug	Triplet rock/metal driving feel.	<p>Ratchets: 3-hit triplet bursts.</p> <p>Turnarounds: Ratchets heavily increase.</p>
3. Pocket	Tight 32nds, bouncing offbeats.	<p>Ratchets: 2-hit repeats.</p> <p>Synco: Massive drops on specific beats.</p>

4. Hustle	Driving momentum.	Ratchets: 2-hit Octave pop (ratchet jumps +12 semitones).
5. Stroll	Melodic walking bass.	Ratchets: 3-hit Walk Up (+2, +4 scale degrees).
6. Velvet	Smooth, descending lines.	Ratchets: 4-hit Walk Down (-2, -4, -5 scale degrees).
7. Siren	Sweeping, wide arpeggios.	Ratchets: 4-hit Arp Up (+2, +4, +7 scale degrees).
8. Concrete	Modern Trap & Drill.	Ratchets: 4-to-6 hit Trap rolls. The final note in the roll drops an octave for an 808-style hit.
9. Neon	Rigid, electronic sequencing.	Ratchets: 3-hit descending steps.
10. Boom	Sub-heavy, massive note lengths.	Ratchets: 2-hit sub slides (+12). Length swells immensely on ratchets.
11. Rumble	Aggressive, alternating octaves.	Ratchets: 4-hit alternating octaves (0, -12, 0, -12).
12. Trench	Deep, dark triplet grooves.	Ratchets: 3-hit heavy bursts (+12). Favors negative intervals.
13. Nod	Dilla-style swung hip-hop.	Ratchets: 2-hit "Dilla double."

Accents: Drops ghost notes to extreme low velocities (60) while dragging behind the beat.

14. Tide	Percussive, no-glide plucks.	Ratchets: 2-hit Fifths (+7 scale degrees). Forces Glide to zero.
15. Haze	Floating, airy octave jumps.	Ratchets: 3-hit Float up (+3, +7 scale degrees).
16. Sunland	Plucky, upbeat bounce.	Ratchets: 2-hit tight plucks (+2 scale degrees).
17. Montuno	Latin-inspired syncopation.	Ratchets: 2-hit Octave doubles (+12 scale degrees).
18. Poly	Complex math/quintuplets.	Ratchets: 5-hit Quintuplet bursts.
19. Glitch	Random IDM chaos.	Ratchets: 2 to 6 hits, totally randomized pitches.

CV Section



Ursa features a fully routable back panel, allowing you to modulate almost every parameter using standard Reason Control Voltage.

- **Trim Knobs:** Unlike standard players, Ursa features dedicated Trim attenuators for every single CV input. By default, these sit at 1.0 (100% pass-through), but can be dialed back to precisely scale incoming LFOs or envelopes from 0 to 100%.
- **CV Inputs:** Dedicated CV inputs exist for Rate, Rate Mod, Density, Density Mod, Length, Length Mod, Time Multiplier, Hold, Ratchet, Synco, Offset, Variator (Break), Delta (Turnaround), Drop, Root Select, Global Pitch/Rhythm Seeds, Intervals, Swing, Octave, Bounce, Glide, and Accent.
- **CV Outputs:** Ursa provides dedicated **Gate Out** and **Pitch Out** jacks. Use these to bypass the main Reason sequencer routing and trigger external modular gear or legacy instruments directly.

Tips and Tricks

- **The Trap Bass Roll:** Switch to **Voice 8 (Concrete)** and automate the **Ratchet** knob (or map the Mod Wheel to it). As you push it up, Ursa will automatically generate 4-hit and 6-hit 32nd note rolls, specifically dropping the final note down an octave to emulate a classic 808 slide.
- **Ghost Note Magic: Voice 13 (Nod)** utilizes heavy "velocity pocketing". Pair this with an instrument that has its filter cutoff heavily mapped to velocity. Ursa will automatically play the downbeats loud and bright, while sneaking in dark, muffled ghost notes on the offbeats.
- **The Glitch Trigger:** Need absolute control? Switch to **Voice 19 (Glitch)**. Ursa stops acting like a loop player and turns into a One-Shot trigger. It will only fire complex, randomized, ratcheted bursts exactly when you press a key on your MIDI controller.