

BS-203

MacroAcidizer



USER MANUAL

Version 1.0 · Born Second · VST3 / AU / Standalone (macOS)

1. Introduction

The BS-203 MacroAcidizer is a three-voice acid bassline instrument. Each of its three synthesizer models was captured from real hardware - a Roland MC-202, a TB-303, and the rare Japanese Juteon-shonen BassBoy+ - measured control-by-control, and fitted into the engine with its imperfections intact: tuning drift, harmonic leakage, noise floor, and each filter's true personality. On top sits a generative acid sequencer that writes sixteen basslines with every press of RANDOMIZE, and an effects rack with fitted saturation, tempo-synced delay, and reverb.

Installation

Run the installer from the DMG and select the formats you want: VST3 (/Library/Audio/Plug-Ins/VST3), Audio Unit (/Library/Audio/Plug-Ins/Components), and/or the Standalone app (/Applications). After installation, rescan plugins in your DAW; some hosts require a restart to pick up new Audio Units. The BS-203 appears under the manufacturer **Born Second**.

Quick start

1. Load the BS-203 on a MIDI/instrument track and start your host's transport.
2. Flip the sequencer **ON/OFF** switch up. A bassline plays immediately.
3. Press **RANDOMIZE** to roll a new family of sixteen patterns; browse them with the **MODE** knob.
4. Ride **FREQ**, **RES/PEAK** and **ENV** in the VCF section - this is where acid lives.
5. Found something? Drag the **smiley face** into your DAW to capture the exact sequence as MIDI, or save the whole state as a preset via **PRESETS > Save preset...**

The model switch

The three-position switch at the top right selects the active machine: **202** (up), **BassBoy** (middle), **303** (down). The faceplate, synthesis engine, keyboard, and available controls all change with it. Controls with the same musical function (cutoff, resonance, envelope, mixer levels, accent) share their values across models so you can flip machines mid-pattern; controls unique to one machine keep independent per-model settings.

2. The Three Voices



MC-202 mode

MC-202

A full SH-101-family voice: saw and pulse with measured pulse-width taper (50% down to 14%), sub-oscillator (1 or 2 octaves down), 4-pole OTA low-pass filter with the measured bottom-heavy cutoff taper, one shared ADSR envelope for filter and amplifier, portamento, and an LFO with measured rate and depth curves. The model preserves the captured unit's analog character: slight tuning error across the keyboard, even-harmonic leakage in the square, gentle resonance that does not self-oscillate, and the real noise floor (see GRIT in section 6). All six panel sections are live in 202 mode.

TB-303

A diode-ladder low-pass fitted from captures - the soft, wide filter knee that defines the 303. Resonance raises a narrow peak up to roughly +24 dB that shifts as much as 2.2 octaves above the cutoff as you raise it, with the characteristic bass thinning. The accent circuit interacts with resonance: accented steps get louder *and* brighter, more so at high resonance. Slides use the 303's fixed glide time (~110 ms) and tie through step boundaries on a single envelope. The envelope is decay-only in strict mode; a thin-bass high-pass keeps the low end tight in a mix. Sections that don't exist on a real 303 appear dimmed - see Section Expansion below.

BassBoy+ (Basubitchi)

Modeled from the Juteon-shonen BassBoy+. A brighter two-pole filter (122 Hz - 1.7 kHz) with a ferocious resonant peak - just under +31 dB, clamped at the edge of self-oscillation. Accent is level-dominant with a subtle darkening. BassBoy mode adds four exclusive controls on repurposed faders: **TRI** (triangle oscillator level, in the mixer), **DRIVE** (pre-filter saturation), **DIST** (post-filter level-compensated fuzz), and **CSTEP** (cutoff step - quantizes all

filter motion onto a coarse grid and a hold clock for zippered digital sweeps). These four keep their own values and do not affect the other models.

Section expansion (303 and BassBoy modes)

Dimmed sections are authentically absent on the original hardware - but small buttons in the section headers unlock them, adding 202-style features the originals never had: LFO (vibrato and filter wobble), full ADSR, VCA gate mode, sub-oscillator, PWM and more. Each section unlocks independently, so a patch can be 'mostly authentic 303 plus an LFO'. Unlock states are saved with presets and sessions.

3. Synth Panel Reference

LFO	RATE / DELAY	LFO speed (measured taper, ~3 Hz at 5) and onset delay. 202 mode / expanded only.
VCO	MOD	LFO-to-pitch depth (vibrato). Measured: subtle at 5, wide at 10.
VCO	PORTA	Portamento time, measured exponential taper (40 ms - 580 ms).
VCO	PWM + source switch	Pulse width (manual) or PW modulation from LFO/ENV. Drag the 3-position switch. In BassBoy mode this fader becomes CSTEP.
MIXER	SQR / SAW	Oscillator levels. Both may be mixed.
MIXER	SUB / TRI	202: sub-oscillator level (1 or 2 octaves down). BassBoy: triangle oscillator level.
MIXER	ACC	Accent amount: how hard accented steps hit, in level and filter kick. Live in every model.
VCF	FREQ	Cutoff, through each model's measured taper. Most of the action sits in the upper half of the fader - like the hardware.
VCF	RES / PEAK	Resonance, with each model's measured peak curve and behavior.
VCF	ENV	Envelope-to-cutoff amount (the squelch depth). Strongly exponential response.
VCF	MOD / KYBD	LFO-to-cutoff and key tracking (202 / expanded). In BassBoy mode these faders become DRIVE and DIST.
VCA	ENV / GATE	Amplifier follows the ADSR, or holds full level while a note is held (GATE) - the classic acid setting, letting the filter envelope do the shaping.
ENV	A D S R	One envelope shared by filter and amplifier, with attack/decay/release curves fitted from hardware. 303/BassBoy strict mode uses D only.

All faders and switches are drag-to-position; switches also respond to a direct click on the desired position. Hovering shows the value on the main display while dragging shows it live, on the hardware's own 0-10 scale.

4. The Acid Sequencer

The sequencer is generative: **RANDOMIZE** writes **sixteen related basslines at once** - a bank of pattern rows ranging from loose melodic randomness to strict root-hammering acid, plus matching groove banks. The knobs then *browse* what was generated. Turning **MODE** or **NOTES** never destroys anything: every position is another view of the same generation, instantly and reversibly. About a quarter of the rows in each generation inherit their DNA from a built-in library of 29 classic acid patterns - complete with their original accents and slides.

ON/OFF	Engages the sequencer. It runs when the host transport plays, locked to the grid with sample accuracy. When the transport is stopped (or the sequencer is off), the on-screen keyboard and incoming MIDI play the synth directly.
MODE	Selects the pattern row (shown as a kaomoji on the display). Rows span random-to-acid in a scrambled order; the last position is maximum acid.
NOTES	Groove density: how many steps sound, from sparse to relentless.
LENGTH	Pattern length, 1-16 steps.
GATE	Note length as % of a step (10-200%). Also shapes exported MIDI.
DIV	Clock division, 1/32 to 1/1 including triplets (1/16T, 1/8T...) and dotted.
ACCENT	How many steps are accented. The mixer's ACC fader sets how hard they hit.
SLIDE	How many steps slide. Slides tie through the step boundary and glide - true 303 legato, one envelope, no retrigger.
KEY + Maj/Min	Root key, and scale snapping to Harmonic Major or Harmonic Minor. Flipping the switch re-colors the playing pattern live.
RANDOMIZE	Generates a new sixteen-row bank. During playback the pattern changes at the next step.
GRAB MIDI	Press the smiley and drag into your DAW: the exported clip is exactly the sequence the engine played - same notes, accents, slides, and gate lengths.

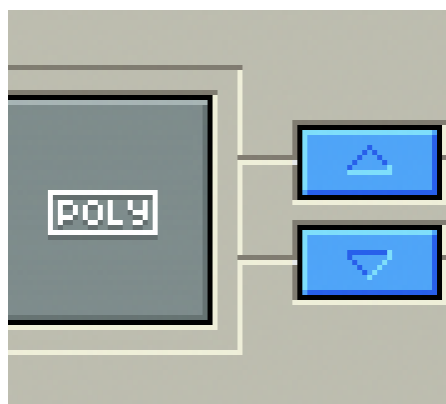
MIDI root-follow

While the sequencer runs, hold a MIDI note (or an on-screen key) to steer the pattern's root live - the pattern re-roots without regenerating. With the sequencer off, the BS-203 is a normal mono synth over MIDI; velocity above 100 triggers an accent.

Patterns are part of your project

The full sixteen-row bank is saved with your DAW session and inside every preset. Reopen a project next year and the exact bassline - and all fifteen siblings you could dial to - comes back identically.

5. Polyphonic Mode



The POLY badge on the main display

The BS-203 is monophonic at heart - but the **POLY** badge on the main display unlocks six voices for live playing. Click it to toggle: the badge lights when poly is engaged, and its styling follows the active model.

In poly mode, each note played over MIDI or on the on-screen keyboard receives a complete voice - a full copy of the active model's signal path, from oscillators through the fitted filter to the envelope. A chord in TB-303 mode is six diode ladders squelching in parallel, not one filter fed six pitches. When all six voices are busy, the oldest note yields. Held notes light their keys on the keyboard display, each going dark as its voice releases.

The sequencer always remains monophonic - slides and ties intact - regardless of the POLY setting: acid lines are a one-voice art form, and poly mode doesn't dilute them. Poly applies to what *you* play. With the sequencer running, incoming notes steer the pattern's root as usual; with it stopped or off, they play chords.

Output level is automatically compensated as voices stack, weighted by how loudly each voice is actually sounding, so chords sit at a consistent level with single notes. Six voices cost roughly six times the CPU of one - on dense projects, switch POLY off when you're done playing pads on your acid box (a sentence we accept full responsibility for making possible). POLY is host-automatable and saved with presets and sessions.

6. Effects

ON/OFF	Engages the rack. Fades in and out click-free.
SATCH	Saturation, fitted from reference hardware renders: loudness-stays-flat, dynamics compress, brightness pours on. Subtle edge at 2, full fuzz at 10.
DEL TIME / FB / MIX	Delay. With SYNC on, TIME steps through musical divisions (1/32-1/1, triplets, dotted) locked to the session tempo; free milliseconds otherwise.
SYNC	Locks DEL TIME and REV TIME to the host tempo.
REV TIME / SIZE / MIX	Reverb. With SYNC on, TIME chooses a note-length decay target and SIZE shapes the tone; unsynced, TIME is damping and SIZE is room size.
VOLUME	Master output.

7. Presets, State, and Character

Presets

The PRESETS button opens the browser: **Save preset...** writes a .bs203preset file (default folder: Documents/BS-203 Presets), and every saved preset is listed for instant recall. The arrow buttons step through your presets in order - each press is a complete instrument change: patch, model, section unlocks, and the full pattern bank. Preset files are portable; share the folder and your basslines travel with it.

GRIT

The GRIT parameter (host-automatable) blends in the measured noise floor of the captured hardware. It defaults on - the BS-203 is deliberately not a clean instrument. Set it to zero for silence between notes.

A note on authenticity

Every voice in this instrument comes from measurements of real units, and real units are imperfect: the 202's oscillator runs a few cents sharp at the top of the keyboard, its square wave leaks even harmonics at -34 dB, the 303's filter knee is softer than any textbook says it should be. These are not bugs. Where a captured unit's age clearly diverged from the circuit's design (a dead filter pole, a dark cutoff ceiling), the model follows the schematic and the deviation is documented in the source. Everything else sounds like the machines on the bench - including what's wrong with them.

8. Specifications

Formats	VST3, Audio Unit, Standalone application (macOS)
Voices	3 modeled machines: Roland MC-202, TB-303, Juteon-shonen BassBoy+
Polyphony	Monophonic sequencer (as nature intended); 6-voice POLY mode for live playing
Sequencer	16 steps, 16-row generative banks, sample-accurate host sync, MIDI drag-export
Automation	Every control exposed to the host; per-model parameters under their own names
Developer	Born Second

バスビッチ
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Analog Modeled, Acid Freak Sequenced