AETHERSTEEL

Physical Modeling Synth by OM IS

USER MANUAL



Version 1.1.1 · VST3 / Standalone

OM INFINITE SOUND

2026

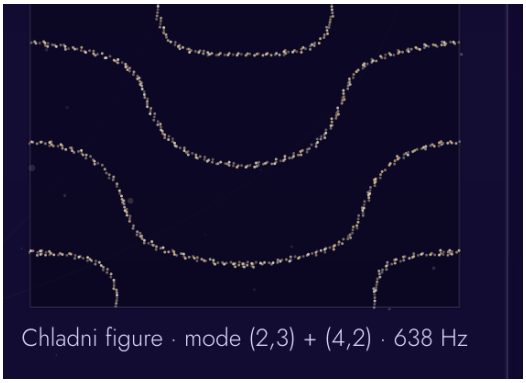
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1. Inspiration and History

From bells to singing steel

Metal has sung for humanity for thousands of years: bronze bells, gongs, and the Himalayan singing bowls traditionally cast from an alloy of seven metals. Western theatres added their own voice — the thunder sheet, a large hanging sheet of steel shaken behind the stage to conjure storms. And in the late eighteenth century the physicist Ernst Chladni (1756–1827), a founder of acoustics, showed that a vibrating plate hides geometry: sand scattered on it gathers into the elegant nodal patterns that now bear his name.



AETHERSTEEL draws the Chladni figure of its steel sheet, live, in the PLATE panel.

In the 1960s, artists in New York began building instruments out of sheet steel itself — sculptures that were also instruments. Out of that lineage come the two artists this instrument honours.

Constance Demby and the Sonic Steel Instruments

Constance Demby (1939–2021), American composer, painter and sculptor, was a pioneer of new age and space music. Her instruments were born in the studio: while she was working a sheet of metal with a blowtorch, it gave off a thunderous roar — and gave her the idea of massive steel instruments. The **Space Bass** is a ten-foot sheet of mirror-finish stainless steel fitted with steel and brass rods, played with mallets and a bow; it spans some five octaves, with sounds that recall wind chimes, thunder, whale cries and human voices. Its companion, the **Whale Sail**, is another bowed sheet-metal sculpture.

Her Sonic Steel Instruments colour albums such as Sacred Space Music and her best-known work, Novus Magnificat (1986). The sounds of the Space Bass were licensed by Skywalker Ranch for film scores, and the Discovery Channel filmed it in Gaudí's Park Güell in Barcelona.

Robert Rutman and the steel cello

Robert Rutman (1931–2021), born in Berlin, was a painter, sculptor and instrument builder who worked for decades in the United States. In the 1960s he and Constance Demby collaborated in New York on steel sound sculptures, among them the multimedia piece Space Mass. From that work came his two instruments: the **steel cello** — a single string stretched across a gently curved sheet of stainless steel, about eight feet tall, played with a bass bow — and the **bow chime**, upright metal rods mounted on a bar and set ringing with the bow.

In 1976 he founded the US Steel Cello Ensemble, which toured the United States and Europe. His instruments also travelled to galleries and museums with bows on hand, so that anyone could play them.

From steel to code

Those instruments are rare, enormous, and each one unique. AETHERSTEEL rebuilds their physics in software: every rod, sheet and string is a modal model — a set of resonances with the frequencies, decays and couplings of real metal — excited by a simulated bow, mallet, hand or shake. Change the MATERIAL and the mathematics of steel becomes that of brass, titanium or crystal. Nothing here is a recording: what you hear is metal, computed.

> AETHERSTEEL is an homage created by OM INFINITE SOUND. It is not affiliated with the estates of Constance Demby or Robert Rutman.



The song of metal: a Chladni figure of a bowed square plate, and the timeline that leads to AETHERSTEEL. Original illustration for this manual.

2. Introduction

AETHERSTEEL is a physical-modeling synthesizer. It does not play back recordings: it simulates, in real time, metal rods, sheets and strings that are bowed, struck, rubbed or shaken. The instrument is inspired by the Sonic Steel Instruments built by Constance Demby for her cosmic music — the Space Bass and the Whale Sail — and by Robert Rutman's steel cello and bow chime.

Five instrument models, four ways of exciting them and eight metals can be combined freely. The sound then travels through a modal plate resonator (PLATE) and the AURASHIMMER space (SPACE), a shimmer reverb ported from the OM IS SYN-8800. Forty factory presets cover the whole range, from rolling thunder sheets to crystal bowls.

- **5 models**: Thunder Sheet, Space Bass, Bow Chime, Whale Sail and Leaf Cello.
- **4 exciters**: BOW, MALLET, RUB and SHAKE.
- **8 materials**, from stainless steel to a seven-metal alloy and crystal.
- **40 factory presets** (8 per model), level-balanced.
- Polyphony from MONO (with legato) up to 32 voices.
- Look-ahead output limiter with gain-reduction display.
- Resizable interface (4:3, from 720×540 to 2160×1620).

3. Installation

Windows

- Copy **AETHERSTEEL.vst3** to C:\Program Files\Common Files\VST3 (administrator rights are required for that folder).
- Rescan your plug-ins in the DAW (in FL Studio: Options → Manage plugins → Find installed plugins).

macOS

- Copy **AETHERSTEEL.vst3** to ~/Library/Audio/Plug-Ins/VST3.
- If the build is not notarized, remove the quarantine flag from Terminal: `xattr -dr com.apple.quarantine ~/Library/Audio/Plug-Ins/VST3/AETHERSTEEL.vst3`

> The Standalone version runs without a DAW: open it, choose your audio and MIDI device, and play.

4. Quick start

- Load AETHERSTEEL on an instrument track and open the interface.
- Use the arrows of the preset browser (top centre) to audition the 40 factory presets.
- Pick a model with the five icons above the stage, and an exciter (BOW, MALLET, RUB, SHAKE) at the top left.
- Hold a chord and move INHARMONIC, DECAY or the MATERIAL box — the sound follows live.
- Raise AURA and COSMOS in SPACE for the signature celestial wash.
- Save your sound: click the preset name → Save, and choose a user bank.

5. Interface Overview



The complete interface, at its design size of 1440×1080.

The interface is a single window organised in panels:

- **Header** — logo, preset browser, UNDO/REDO, RANDOM, concert pitch, voices and the OUT knob with the limiter.
- **EXCITER** (left) — how the metal is set in motion.
- **Stage** (centre) — the instrument itself, animated and touchable.
- **PLATE** (right) — the resonant sheet, the MATERIAL selector and the live Chladni figure.
- **VIBRATING ELEMENT**, **TUNING** and **SPACE** — the lower row.
- **Keyboard and SCOPE** — at the bottom.

> Every knob: drag to change, double-click to reset to its default. All edits are undoable with UNDO/REDO.

6. Header and Output



The header bar.

Preset browser

The arrows step through every preset in order — the five factory folders first, then your user banks. Click the preset name to open the full menu: all factory presets grouped by model, your user banks, and the actions Save, Save as, Rename, Delete and Init.

UNDO · REDO · RANDOM

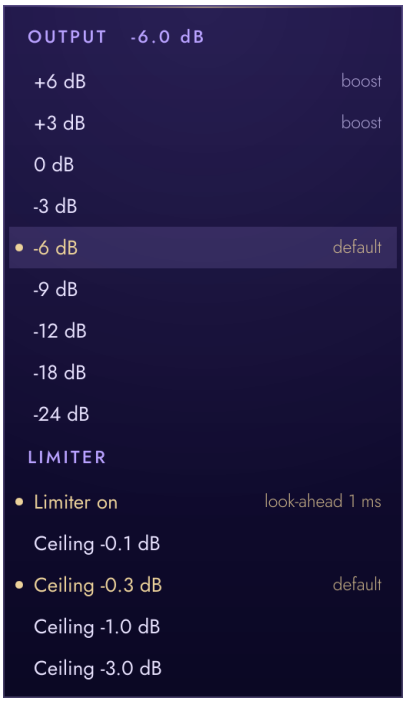
UNDO and REDO walk the edit history. RANDOM designs a new patch for the current model — it draws every control from ranges that suit that instrument and names the result; the tuning, scale and session settings are never touched.

Concert pitch and voices

The A = 432 Hz chip shows the concert pitch (400–480 Hz). Its menu offers historical tunings — 415 baroque, 440 ISO standard, 442 European orchestras, and more. The VOICES chip sets the polyphony: MONO, 2, 4, 6, 8, 12, 16, 24 or 32 voices. In MONO, BOW and RUB play legato, gliding between notes in about 40 ms.

The OUT knob and the limiter

The OUT knob sets the output level (−36 to +6 dB, default −6 dB). Right-click it for its menu: level presets, the safety limiter on/off and its ceiling (−0.1, −0.3, −1 or −3 dBFS). The limiter looks 1 ms ahead, so peaks never pass the ceiling, and switching it adds no clicks.



The OUT knob menu.

Around the knob, a thin arc shows the limiter's **gain reduction**, from 0 to −12 dB over its travel. It rises instantly, falls back in about 300 ms, and a white dot holds the recent peak for 1.5 s. The caption under the knob reads L-ON, the current reduction (for example L −2.3), or L-OFF; past 3 dB of reduction — or when the signal would clip with the limiter off — everything turns hot pink.



L-ON: limiter idle	Reducing 2.3 dB	Strong reduction, 7 dB	L-OFF: no protection

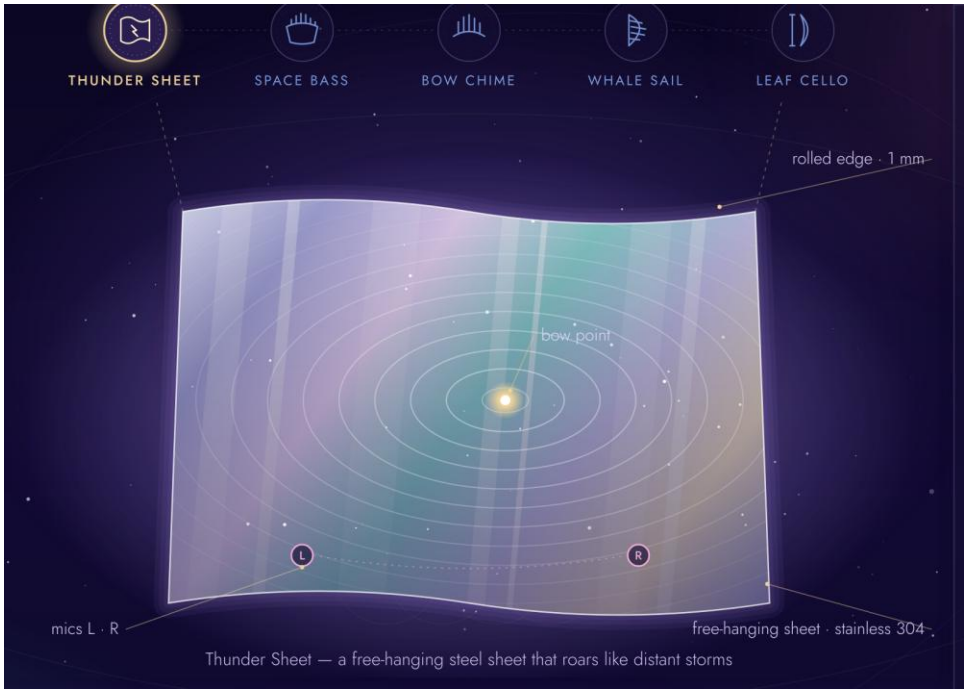
The four states of the output indicator.

7. The five Instruments

The five icons above the stage choose the model. The stage is not an illustration: drag the bow or rub point along the instrument to change where it is played, and drag the L and R microphones over the sheet to re-position the stereo image. The caption under the stage names the current material.

THUNDER SHEET

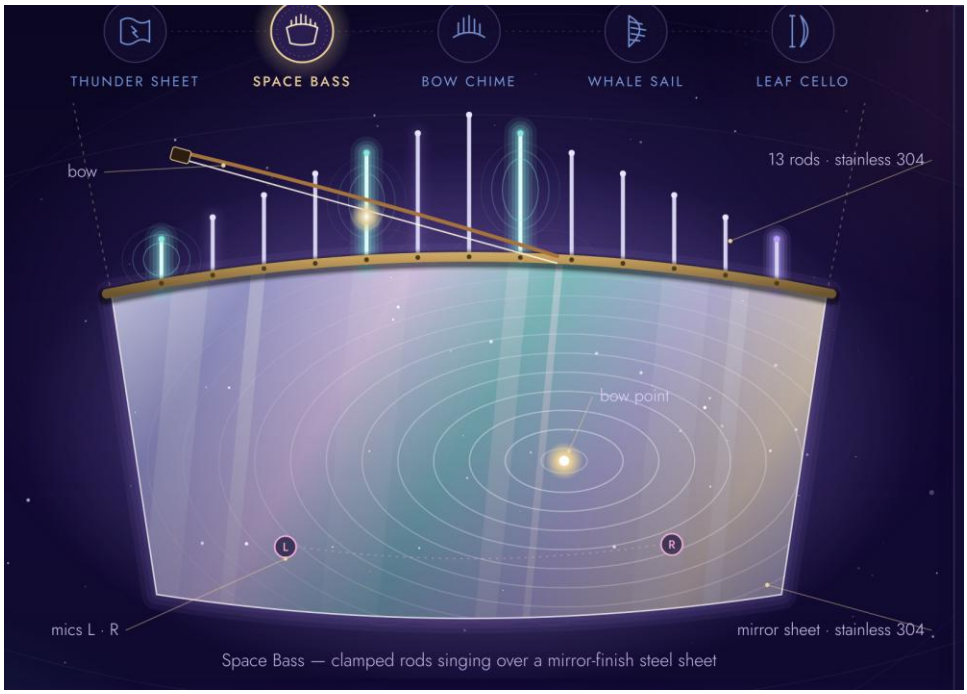
A large suspended steel sheet. Shaken it rolls like stage thunder; bowed it produces vast, dark washes. The 304 stainless original is the classic theatre thunder sheet.



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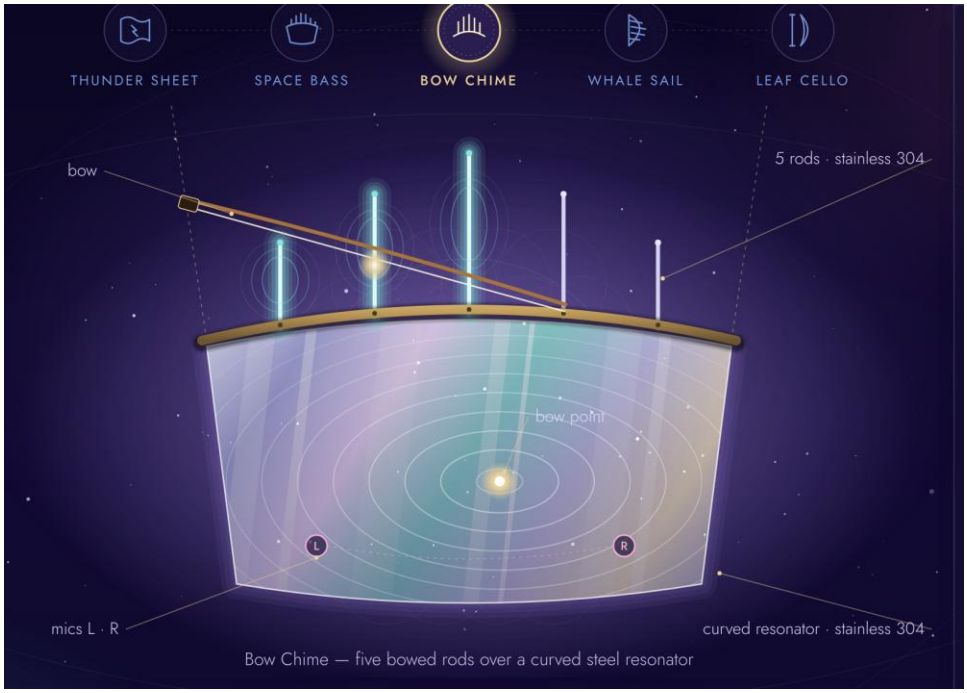
SPACE BASS

Clamped rods singing over a mirror-finish steel sheet — Constance Demby's signature instrument. Deep, meditative bass with long, breathing overtones.



BOW CHIME

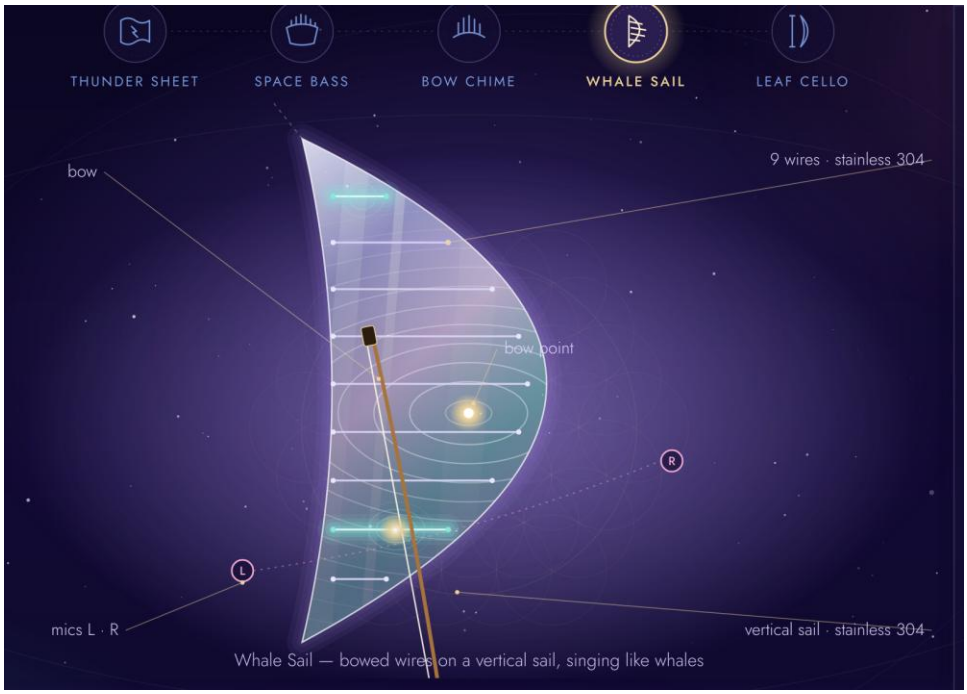
Vertical rods, bowed or struck, over a curved resonator — after Robert Rutman's Bow Chime. Bell-like chimes with strong, inharmonic partials.



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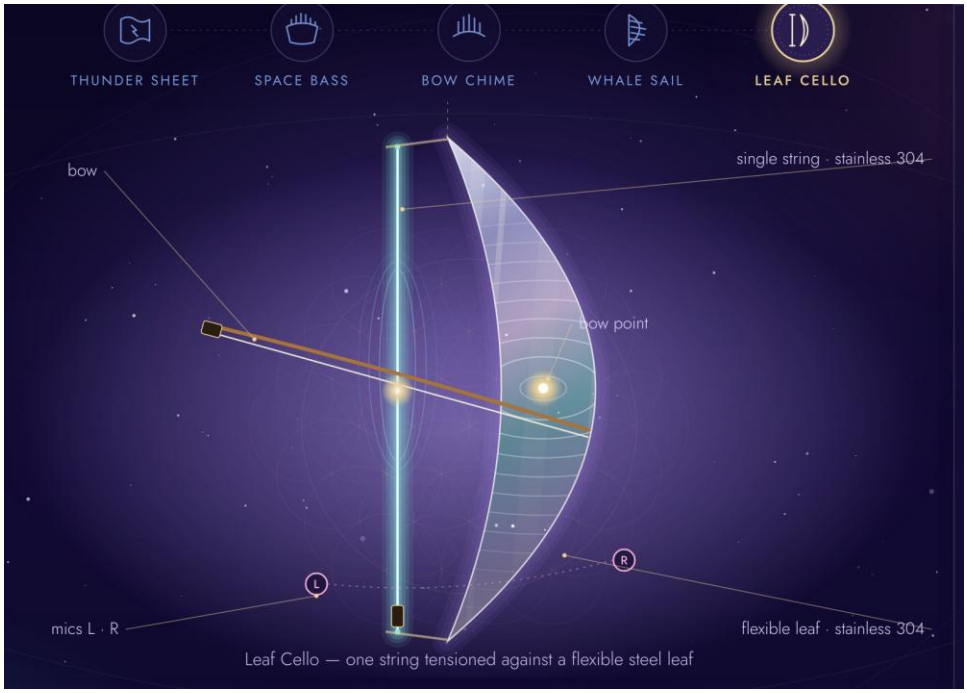
WHALE SAIL

A curved steel sail. Bowed near its edge it sings long glissandi — the whale-song instrument of Demby's Sonic Steel.



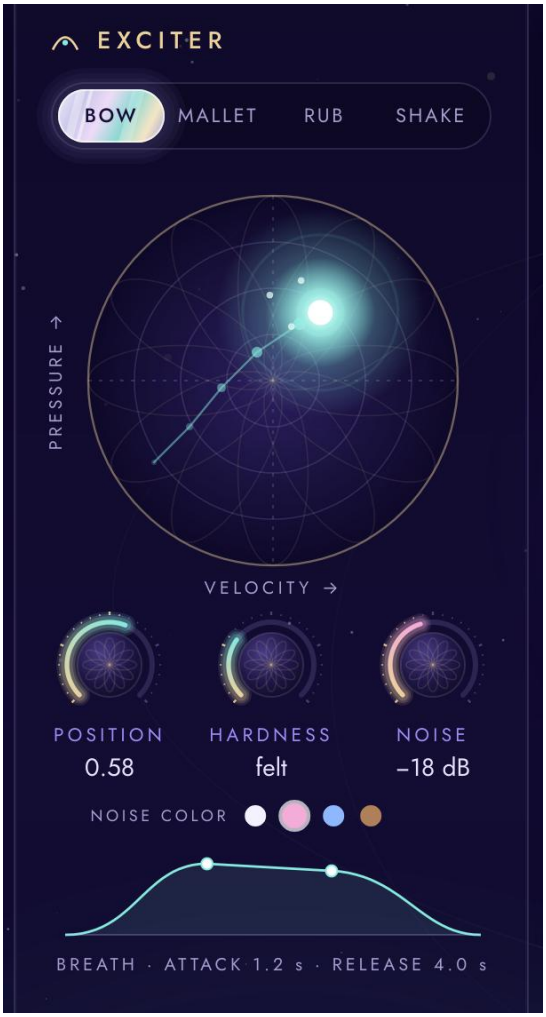
LEAF CELLO

A single long steel ribbon played like a cello string, after Rutman's steel cello. Sustained, vocal tones with a clean harmonic series.



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8. EXCITER



The EXCITER panel.

The exciter is how the metal is set in motion. Choose one of four at the top of the panel:

Exciter	Gesture	Character
BOW	Sustained bowing	Singing, swelling tones that last while the key is held. Legato in MONO.
MALLET	A single strike	Percussive attack, then the metal rings freely (DECAY).
RUB	Rubbing by hand	Granular friction — irregular whispers riding on the tone. Legato in MONO.
SHAKE	Shaking the frame	Clusters of small impacts, like rolling thunder.

Pressure / velocity pad

The round XY pad drives the playing gesture: the horizontal axis is VELOCITY (bow speed, up to 0.5 m/s) and the vertical axis is PRESSURE. Hard pressure with slow speed growls; light pressure with fast speed whispers.

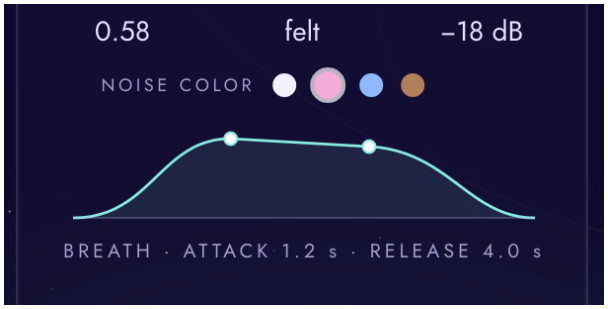
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Control	Range (default)	What it does
POSITION	0–1 (0.58)	Contact point along the element. Near the edge favours high partials; the middle favours the fundamental.
HARDNESS	wool → steel (felt)	Hardness of the mallet or bow hair: wool, felt, rubber, wood, steel. Harder is brighter.
NOISE	off / −31…0 dB (−18 dB)	Level of the exciter noise — the breath of the bow, the grit of the strike.
NOISE COLOR	white · pink · blue · brown (pink)	Timbre of that noise (see below).
ATTACK	0.01–5 s (1.2 s)	How the sustained exciters swell in (BOW and RUB only).
RELEASE	0.05–20 s (4 s)	Fade after the key is released.

NOISE COLOR

Dot	Noise	Sound
White	White	Flat spectrum — bright, airy hiss.
Rose	Pink (−3 dB/oct)	Balanced and natural. The default.
Blue	Blue (+3 dB/oct)	Fine and glassy, like metal on crystal.
Brown	Brown (−6 dB/oct)	Deep and soft, like wind.

Envelope

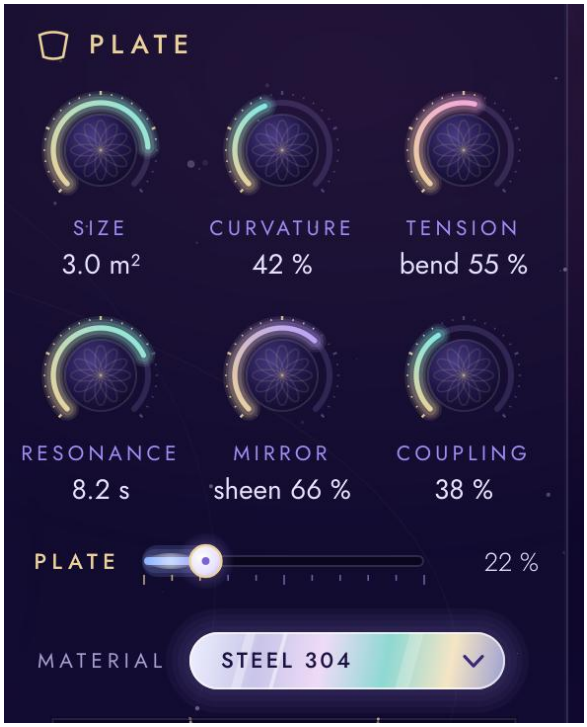


Drag the nodes; double-click a node to reset it.

For BOW and RUB the curve reads BREATH · ATTACK · RELEASE; drag the first node for the attack and the second for the release. For MALLET and SHAKE the strike is instantaneous, so the curve shows STRIKE · DECAY · RELEASE and only the release node is draggable — the ring is set by the DECAY knob in VIBRATING ELEMENT.

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9. PLATE



The PLATE panel.

PLATE is the resonant steel sheet behind the instrument — a modal resonator, not a conventional reverb. The rods pour their energy into it (COUPLING) and the sheet answers with its own modes, which you can see live in the Chladni figure.

Control	Range (default)	What it does
SIZE	0.5–3.55 m² (3.0)	Sheet area. The lowest mode sits near 90 Hz ÷ √size — bigger is deeper.
CURVATURE	0–100 % (42 %)	Bend of the sheet; also widens the stereo decorrelation.
TENSION	0–100 % (55 %)	How hard the sheet is bent while it rings — detunes and bends its answer.
RESONANCE	0.2–20 s (8.2 s)	Decay time (RT60) of the sheet.
MIRROR	0–100 % (66 %)	Surface polish — a mirror finish reflects more highs.
COUPLING	0–100 % (38 %)	How much energy the rods feed into the sheet (and back).
PLATE	0–100 % (22 %)	Fader: how much of the sheet is mixed into the output.

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MATERIAL

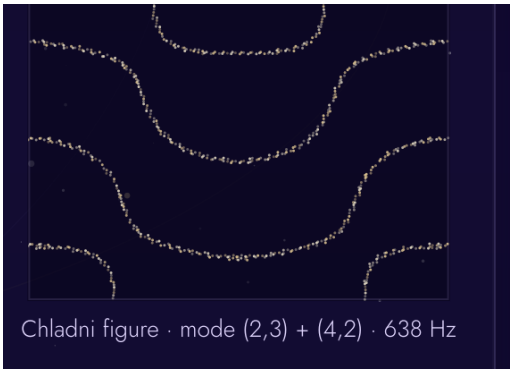


The iridescent MATERIAL selector.

The MATERIAL box changes the metal of the whole instrument — rods and sheet. Each material has its own decay, overtone level, overtone ratio and detune:

Material	Character
STEEL 304	Stainless — the reference. Even, long, neutral.
SPRING STEEL	High carbon — the longest crystalline ring.
TITANIUM	Light and bright, with a clean tail.
ALUMINUM	Sweet and round, like vibraphone bars.
BRASS	Warm and shorter — the highs die first.
BRONZE	Bell metal with a deep hum and slow beating.
SEVEN METALS	The Tibetan bowl alloy — pulsing beats.
CRYSTAL	Quartz bowl — pure, almost endless.

Chladni figure



The panel's lower display draws the Chladni figure of the sheet: the pattern that sand would form on a vibrating plate. It follows the dominant frequency of what is actually sounding.

10. VIBRATING ELEMENT

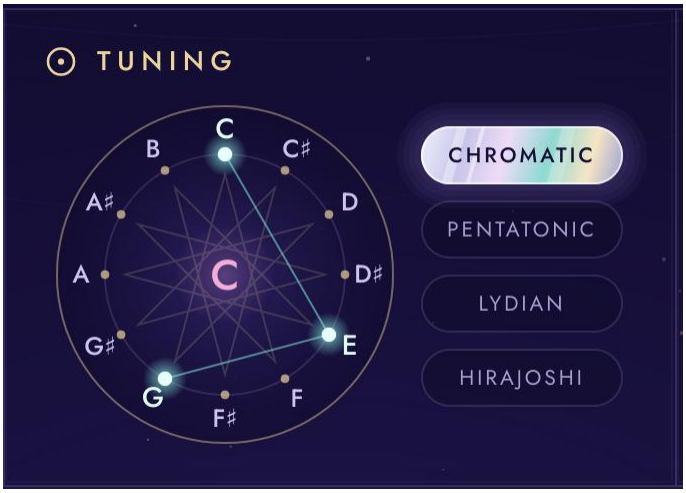


Live partials on the left; the four element knobs on the right.

This panel shapes the metal itself. The PARTIALS · LIVE display shows the real partials of the lowest sounding note, as ratios of its fundamental — on a harmonic instrument they land on the integer marks; on sheets and chimes they spread inharmonically. All four knobs act on notes already sounding.

Control	Range (default)	What it does
INHARMONIC	×1–×9.5 (×6.27)	Ratio of the main overtone — from harmonic to bell-like.
RODS	5–21 (13)	Number of sympathetic rods, tuned to the current scale and tonic.
DECAY	0.1–15 s (5.4 s)	How long the metal rings after a strike.
BRASS	0–100 % (35 %)	Blends in the warm 2nd/3rd overtones of brass.

11. TUNING



The tuning wheel with its twelve-pointed star, and the four scales.

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The wheel shows the twelve notes. Teal dots are the notes actually sounding; brighter note names belong to the active scale; the rose letter in the middle of the star is the **tonic**. Incoming MIDI notes are snapped to the active scale, and the sympathetic rods are tuned to it.

- **Drag the star up or down** (or use the mouse wheel) to move the tonic by semitones; it wraps around the circle. Double-click returns it to C.
- **Click a scale button** (left or right click) to choose that scale's tonic from a menu that previews the resulting notes. Each scale remembers its own tonic.
- The four scales are CHROMATIC, PENTATONIC (major), LYDIAN and HIRAJOSHI (Japanese).



The tonic menu of the PENTATONIC scale.

12. ASCENSION SPACE



The SPACE panel with the AURA fader and the lotus output meter.

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ASCENSION SPACE is where the instrument becomes cosmic. Its heart is AURASHIMMER — the shimmer reverb of the OM IS SYN-8800, ported verbatim: an 8-line modulated reverb network whose tail is continuously pitched up one and two octaves, so long chords bloom into an ascending choir.

Control	Range (default)	What it does
COSMOS	0.5–30 s (9 s)	Decay time (RT60) of the shimmer space.
TIDE	0.01–2 Hz (0.07 Hz)	Rate of a slow swell shared by every voice — the tide of the whole instrument.
DEPTH	0–100 % (45 %)	Depth of that swell: 0 % off, 45 % ≈ 4 dB, 100 % ≈ 11 dB. The mod wheel adds more on top.
DRIFT	0–±30 ¢ (±12 ¢)	Slow random detune per voice — the living, breathing unison.
MIX	0–100 % (64 %)	Wet trim of the space send (64 % = unity).
AURA	0–100 % (68 %)	Fader: amount of shimmer, dry to wet. 70 % is the classic SYN-8800 level.

> The lotus meter shows the stereo output level. If the signal exceeds 0 dBFS before the limiter, the lotus turns hot — click it to clear.

13. Keyboard and SCOPE



The C2–C6 keyboard. The dots above mark the sympathetic rods.

The on-screen keyboard spans C2 to C6. The small dots above it mark the notes of the sympathetic rods for the current scale, tonic and RODS count. PITCH bends ±2 semitones; MOD adds a 5.5 Hz vibrato of up to ±30 cents and deepens the TIDE swell.



The SCOPE: spectrum bars, waveform, and the live tuner.

The SCOPE draws the output waveform over soft spectrum bars. The violet number at the top right is a live tuner: the frequency of the lowest note actually sounding — glides, drift and pitch bend included.

14. Presets



AETHERSTEEL ships with 40 factory presets — eight per model, one for each material. They are level-balanced: every preset sits at about the same loudness, with peaks safely under the limiter.

Model	Factory presets
THUNDER SHEET	Thunder Temple · Spring Storm · Titan Rumble · Silver Rain · Brass Monsoon · Bronze Tempest · Himalaya Thunder · Crystal Lightning
SPACE BASS	Orion Sea · Event Horizon · Titan Moon · Silver Abyss · Golden Depths · Bronze Gravity · Tibetan Drone · Crystal Ocean
BOW CHIME	Chime of Lyra · Vega Glass · Titanium Halo · Moon Vibes · Desert Bells · Temple Rods · Singing Bowls · Quartz Garden
WHALE SAIL	Whale Song · Polar Light · Titan Wind · Silver Current · Amber Whale · Bronze Leviathan · Kailash Wind · Ice Cathedral
LEAF CELLO	Cello of Saturn · Spring Aria · Titan Lament · Silver Leaf · Brass Elegy · Bronze Psalm · Monastery Cello · Crystal Leaf

User presets and files

- Save to any user bank (User Bank A, B, C…) from the preset menu; Rename and Delete act on the loaded user preset.
- Presets live as .aetherpreset files (readable XML) in Documents\OM IS\AetherSteel\Presets, in one folder per model plus your user banks.
- The factory copies are versioned: when an update improves a factory preset, its file is refreshed automatically on the next start. Your own presets are never touched, and a deleted factory file reappears.
- Init resets the sound to the default patch.

Session settings

Some settings describe your session, not a sound, so **no preset ever changes them**: concert pitch, scale and its tonics, polyphony, output level, and the limiter with its ceiling. They are saved with the DAW project instead.

15. MIDI

Message	Function
Note On / Off	Plays the instrument; velocity drives the strike or bow strength.
Pitch Bend	±2 semitones.
CC 1 (Mod Wheel)	Vibrato up to ±30 cents at 5.5 Hz, plus a deeper TIDE swell.
CC 64 (Sustain)	Sustain pedal.
CC 121	Reset controllers.



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