

Soma

Three-oscillator PM/FM network with a low-pass gate.

Three oscillators (Left, Center, Right) modulate each other by phase and frequency modulation, so a single held note can drift from harmonic tones through stereo motion to feedback that develops into noise. A Natural-Gate-style low-pass gate follows. It is based on the Three Body and Natural Gate module manuals, as a playable mono voice.

The centre's sine/cosine and saw/cosaw pairs start 90 degrees apart but receive phase modulation in opposite directions, so their relationship changes under modulation. That is where the stereo motion comes from.

DEFAULT CONNECTIONS

```
L sine -> C phase 1      C sine -> L FM      L sine -> R phase
R sine -> C phase 2      C cos  -> R FM      R sine -> L phase
Outer oscillators in Ratio mode follow the centre's frequency (Mult / Div).
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```
[3 oscillators] -> waveform + Mix -> low-pass gate -> Width -> Volume
(one voice, 4x oversampled inside the engine)
```

QUICK START

- 1 Load on a MIDI track and pick a **Preset** (Init, Glass Orbits, Slow Rotation, Stereo FM, Crossfold, Ratio Chord, Ratio Steps).
- 2 Play notes. Raise the centre's **Phase** Index 1 and Index 2 for harmonic phase modulation, then the outer **FM** indexes for stereo FM.
- 3 Set an outer oscillator to Ratio and use **Mult** and **Div** to lock it to the centre at an integer ratio.
- 4 Shape each note with the gate: **Decay** and **Material** set how it rings, **Open** raised fully turns it into a drone.
- 5 Raise **Gate Mod** so FM and centre phase depth follow the gate envelope on every hit.

CONTROLS

LEFT AND RIGHT OSCILLATORS

CONTROL	RANGE	WHAT IT DOES
Type	Hi / Ratio	Hi runs free at audio rate. Ratio follows the centre at Mult / Div. Default Ratio.
Coarse, Fine	+/-48 st, +/-100 ct	Pitch in Hi mode.
Mult, Div	1-32	Ratio in Ratio mode. Coarse/Fine and Mult/Div share a position; Type decides which shows.

CONTROL	RANGE	WHAT IT DOES
FM mode	Lin / Exp-PM	Linear FM, or exponential FM. In Ratio mode the second setting turns FM into phase modulation.
FM source, Index	see below, 0-1	Defaults: L takes C Sine, R takes C Cos.
Phase source, Index	see below, 0-1	Defaults: L takes R Sine, R takes L Sine.
Mix	0-1	Level into the output. Default 0.

CENTER OSCILLATOR

FM mode, source, Index	-	No default source on the module, so FM starts Off.
Phase Index 1, 2	0-1	Two phase-modulation inputs; defaults are L Sine and R Sine.
Mix	0-1	Default 1.

GATE

Open	0-1	How open the low-pass gate rests. Fully open makes a drone.
Decay	60-8000 ms	Per-note decay. Default 900.
Material	Hard / Balanced / Soft	Gate voicing.
Ctrl	-1 to +1	Gate control offset.

OUTPUT

Preset	7 presets	Init, Glass Orbits, Slow Rotation, Stereo FM, Crossfold, Ratio Chord, Ratio Steps. Presets write the parameters; Live's restored values win on load.
Waveform	Sine/Cos, Saw/Cosaw, Triangle, Square	The waveform all three oscillators send to the mix.
Gate Mod	0-1	Scales FM and centre phase depth by the gate envelope.
Glide	0-2000 ms	Pitch glide.
Width	0-1	Stereo width. Default 1.
Volume	-60 to 0 dB	Output gain. Default -18.

NOTES

Modulation sources

Each FM and Phase input can take: Off, L Sine, C Sine, C Cos, R Sine, LFO or Gate Env. Each defaults to the module's normalised connection.

Playing

- Monophonic. MIDI pitch drives the Free (Hi) oscillators; Ratio oscillators follow the centre. Pitch bend range defaults to +/-2 semitones.
- Some engine options exist only through presets, for example Ratio Steps uses an LFO to step the outer ratios; they have no control on the face.

Design notes

The oscillators and their feedback live in one gen~ engine inside a poly~ voice with 4x oversampling and resampling filters. Oversampling reduces aliasing but does not match a hardware path; deep feedback and discontinuous waves can still alias.

STATUS

Built and frozen as Soma.amxd. Loading it in Live, checking CPU and aliasing, and listening are still yours to confirm.