

Nostromo Spectral Synthesizer

Operation Manual

Version 2.0.1

Document 2.3



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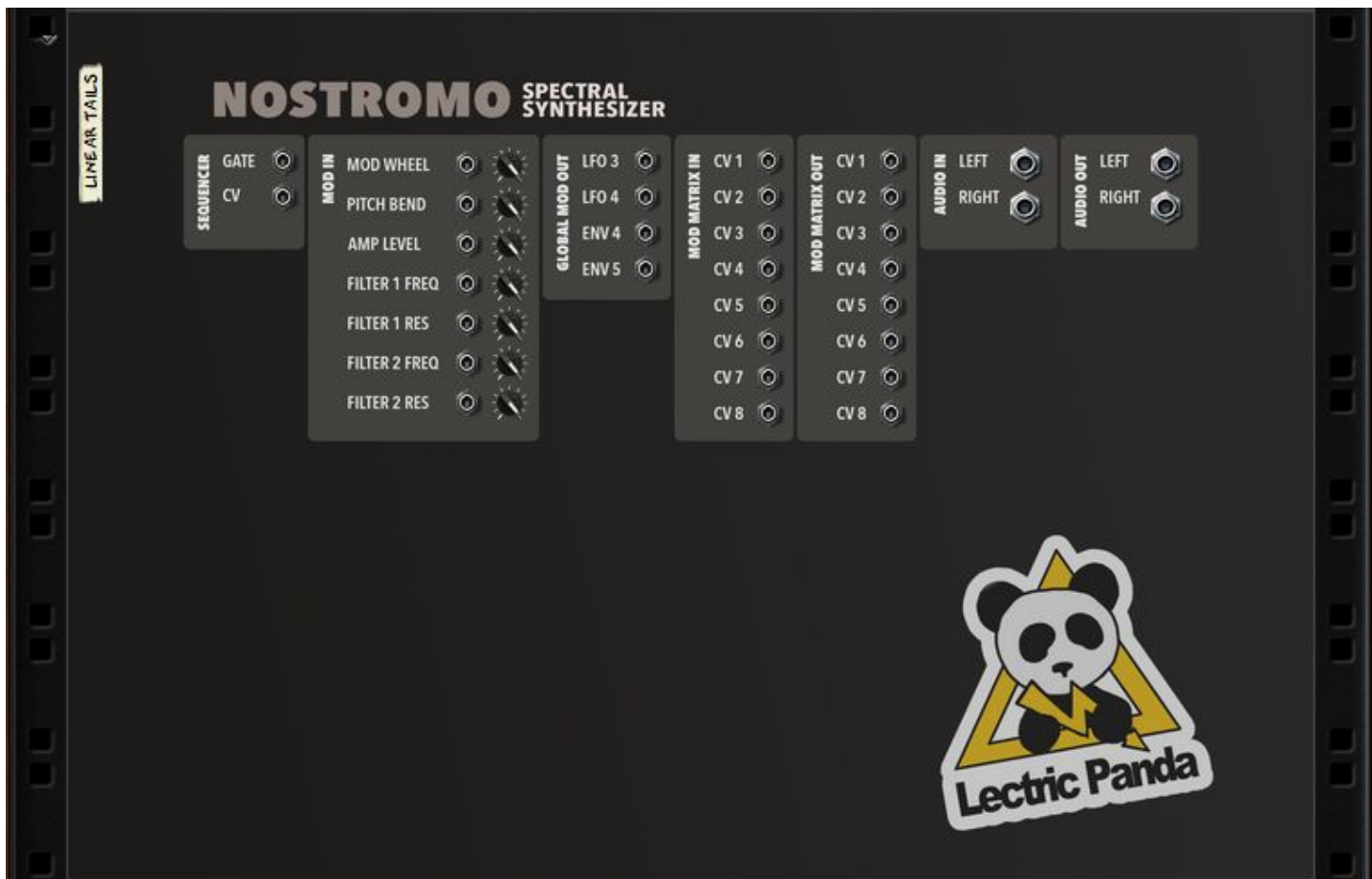
[Acknowledgments](#)

Introduction

Nostromo is a spectrum-table based synth for the Reason Rack, designed to provide a never-ending source of auditory modulation and changing textures. It provides three independent oscillator sections, each containing a sweepable, nine-slot spectrum-table. Fill your table from the 3800 spectrum catalog to produce infinite sonic combinations. Each oscillator contains a dedicated table-sweep LFO with 1000 different waveforms. Run each oscillator section through 4 multimode stereo filters, hosting analog modeled ZDF filters, saturating comb filters, and an amplitude/ring modulator. Sculpt your sounds with six DAHDSR looping envelopes, six additional LFOs, and a massive modulation matrix providing 69 modulation sources, 163 modulation destinations, 8 external CV ins, and 8 external CV outs. External audio inputs are also provided to allow Nostromo to act as a dual filter and effects device. A built-in patch generator creates sounds beyond comprehension.



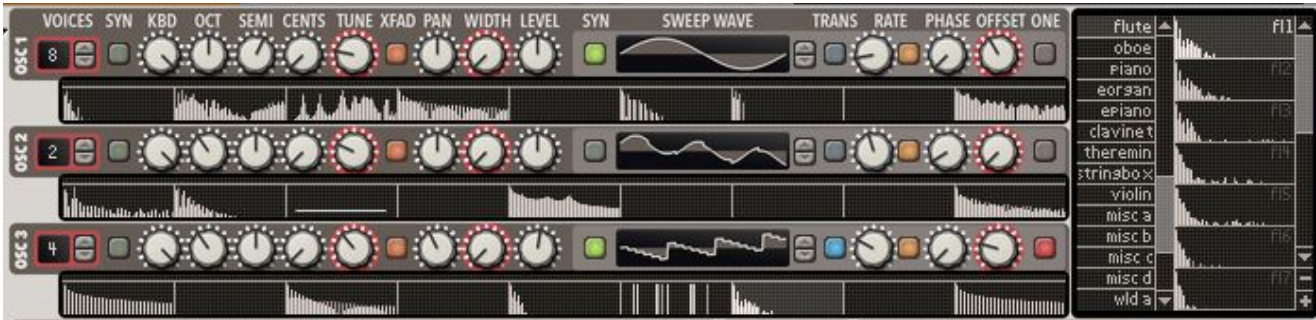
Nostromo Front Panel



Nostromo Back Panel

Oscillators

Nostramo has three oscillator sections. Each has up to 8 voices sounding in unison and a dedicated table-sweep LFO.



Oscillator 1-3 with Spectrum Catalog

Voices



Number of sounding unison voices, 0-8. Setting to zero will turn off the oscillator.

Key Sync



Synchronizes all oscillators to a phase of zero on key-down. Useful for percussive sounds you want to sound identical on each attack. Deactivate for free-running oscillators.

Keyboard Tracking



How much the oscillator pitch tracks incoming note data. At 0%, the pitch is fixed regardless of played note. At 100%, the pitch matches the incoming note.

Pitch



Adjusts the base pitch of the oscillator.

- **Octave** +/- 4 Octaves
- **Semitone** +/- 24 Semitones
- **Cents** +/- 100 Cents

Voice Detune



Detunes the unison voices from each other. The more unison voices active for the oscillator, the further apart the tuning will be. Detune has no effect when the **Voices** parameter is set to 1.

Crossfade



Enables crossfading between spectrums as the LFO sweeps. When disabled, sweeping the spectrum-table can create more rhythmic and distinct timbre changes.

Stereo Pan



Oscillator's placement in the stereo field.

Voice Stereo Spread Width



Pans the unison voices away from each other. More unison voices will result in a wider panning spread. Offsets are calculated from the **Stereo Pan** parameter. Width has no effect when the **Voices** parameter is set to 1.

Level



Volume of the oscillator.

Filter Select



Located in the **Filter 1-2** section, this fades oscillator output into the filter inputs. A value of -100 (full counter-clockwise) only sends output to **Filter 1**. A value of 100 (full clockwise) only sends output to **Filter 2**. A value of 0 (straight up) sends equal output to both **Filter 1** and **Filter 2**.

Sweep LFO Section



This section controls the dedicated LFO that sweeps the read position of the spectrum-table.

Key Sync



Resets the Sweep LFO Phase on key-down. If disabled, the LFO phase will be random on key-down.

Sweep Waveform



Selects the waveform used to sweep the spectrum-table.

Transport Sync



Locks the Sweep LFO to song playback.

Sweep Rate



Sets the rate at which the LFO sweeps the spectrum-table. Free rates range from 0.0Hz to 50.0Hz. Available Synced Rates: 32/4, 28/4, 24/4, 20/4, 16/4, 12/4, 8/4, 7/4, 6/4, 5/4, 4/4, 7/8, 3/4, 5/8, 2/4, 7/16, 5/8T, 3/8, 4/8T, 5/16, 1/4, 3/16, 2/8T, 1/8, 1/8T, 1/16, 1/16T, 1/32, 1/32T, 1/64, 1/128.

Sweep Phase



Sets the phase of the Sweep LFO and the initial phase on key-down. Setting the **Rate** to zero allows **Phase** to sweep the LFO wave manually.

Sweep Voice Offset



Sets an offset to the read position for each unison voice. Offset has no effect when **Voices** is set to 1.



Sweep One Shot

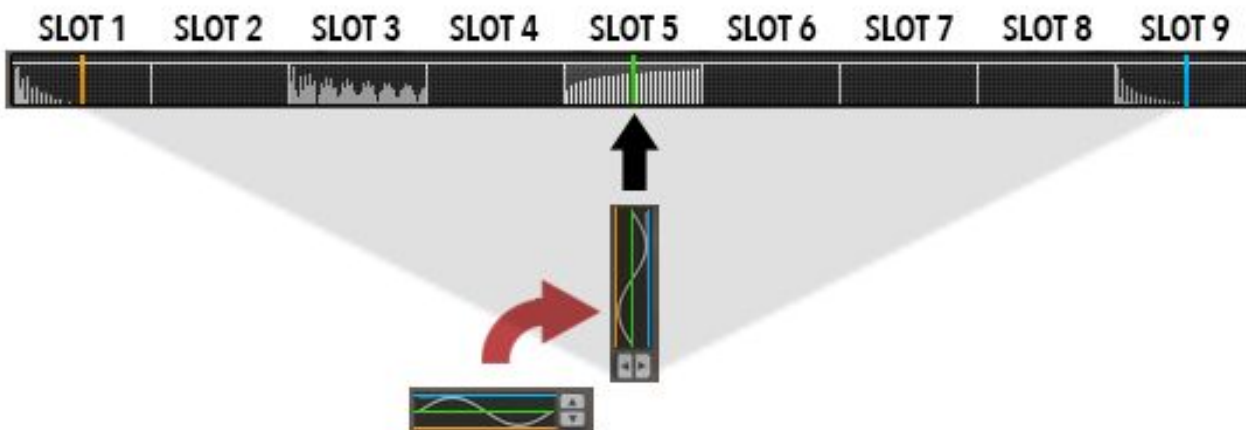


Causes the read position to freeze at the end of one complete sweep LFO cycle.


Spectrum Table



Nine-slot table of spectrums that can be swept via LFO.



Rotating the Sweep LFO waveform 90 degrees shows the mapping.

An example, using Sweep LFO sine wave (5) . Playback starts with the sweep LFO phase reset to zero. Since the LFO value is 0, the read position is the center (slot 5). As the LFO progresses, it rises to +1, the read position swings right (to slot 9). The sine wave then falls back to -1, the read position swings left (to slot 1).

Then the LFO continues back to where it started, zero, and the read position returns to slot 5.

Selecting and Editing a Slot

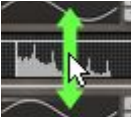
Clicking on a slot will highlight it as the target slot for spectrum loading. Once a slot is highlighted, click a spectrum from the spectrum catalog to load it into the slot.

Clicking on a highlighted spectrum slot a **second** time will locate the spectrum in the **Spectrum Catalog**.

[Option]/[Alt]+Clicking a slot will load a random spectrum from the Spectrum Catalog.

Dragging a Slot

Click+dragging a slot up and down will scroll through the spectrum catalog.



Empty Waveform

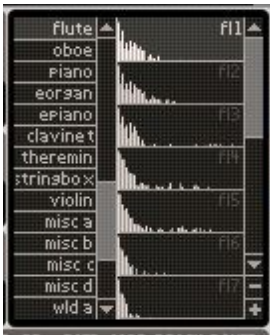
The first category and waveform in the catalog, both called "empty", causes Nostromo to skip over the slot when producing sound. If crossfade (XFAD) is enabled, it will create a fade between the filled slot to the left, and the filled slot to the right. If crossfade is disabled, it will produce the sound of the filled slot to the left.



[Command]/[Ctrl]+Clicking a slot resets it to the "empty" waveform.

Silence Waveform

The third category, called "silence", contains the waveform also called "silence". As the name implies, it simply doesn't produce a sound. This can be used to create rhythmic gate effects (with XFade Off) or pumping effects (with XFade On).

Spectrum Catalog



The Spectrum Catalog hosts over 3800 spectrums. Clicking a spectrum in the catalog will load it into the currently selected slot.. The   buttons in the lower left can be used to change the selected spectrum incrementally.

Filters

The filter section contains 4 multimode stereo filters. Each oscillator section and external audio input can be faded between Filter 1 and Filter 2. By default the filters are parallel, but can be switched to run in serial where Filter 1 is routed into Filter 2. Each filter can be switched between analog modeled ZDF filters, comb +/- filters, and an amplitude/ring modulator. Filter 1 and Filter 2 and be faded between two additional filters, Filter 3 and Filter 4.



Filter 1 and Filter 2



Filter 3 and Filter 4

Filter Panel Select



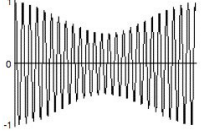

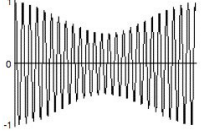

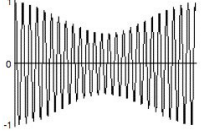

Selects which filter panel is visible.

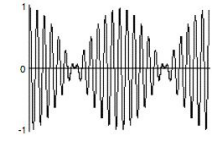
Filter Mode



Selects the filter mode.

<input checked="" type="checkbox"/> Bypass Comb Amplitude/Ring Modulation Transistor Ladder State Variable	Comb + Comb -	Low Pass 24 dB Low Pass 18 dB Low Pass 12 dB Low Pass 6 dB	Low Pass 12 dB Band Pass 12 dB High Pass 12 dB
		Band Pass 24 dB Band Pass 18+ dB Band Pass 18- dB Band Pass 12 dB	Low Shelf 12 dB Band Shelf 12 dB Peaking 12 dB High Shelf 12 dB
		High Pass 24 dB High Pass 18 dB High Pass 12 dB High Pass 6 dB	Notch 12 dB All Pass 12 dB
		Notch 24 dB	

Comb Filter									
Comb +	Saturating Comb with positive feedback								
Comb -	Saturating Comb with negative feedback								
Amplitude Modulation / Ring Modulation									
AM/RM	Amplitude Modulation to Ring Modulation								
	<table border="1"> <thead> <tr> <th>Resonance Value</th> <th>Effect</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>None</td> </tr> <tr> <td>0.1-0.2</td> <td>Vibrato </td> </tr> <tr> <td>0.5</td> <td>Full AM </td> </tr> </tbody> </table>	Resonance Value	Effect	0	None	0.1-0.2	Vibrato 	0.5	Full AM 
	Resonance Value	Effect							
	0	None							
0.1-0.2	Vibrato 								
0.5	Full AM 								

	1.0	Full RM 
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**Analog Modeled ZDF
Tapped 4 Pole Transistor Ladder**

LP24	Low Pass, 4 Pole, 24db/oct
LP18	Low Pass, 3 Pole, 18db/oct
LP12	Low Pass, 2 Pole, 12db/oct
LP6	Low Pass, 1 Pole, 6db/oct
BP24	Band Pass, 4 Pole, 24db/oct
BP18+	Band Pass, 3 Pole, 18db/oct low side, 12db/oct high side
BP18-	Band Pass, 3 Pole, 12db/oct low side, 18db/oct high side
BP12	Band Pass, 2 Pole, 12db/oct
HP24	High Pass, 4 Pole, 24db/oct
HP18	High Pass, 3 Pole, 18db/oct
HP12	High Pass, 2 Pole, 12db/oct
HP6	High Pass, 1 Pole, 6db/oct
N24	Notch, 4 Pole, 24db/oct

**Analog Modeled ZDF
2 Pole State Variable**

LP12	Low Pass, 2 Pole, 12db/oct
BP12	Band Pass, 2 Pole, 12db/oct
HP12	High Pass, 2 Pole, 12db/oct
LS12	Low Shelf, 2 Pole, 12db/oct
BS12	Band Shelf, 2 Pole, 12db/oct
PK12	Peaking, 2 Pole, 12db/oct
HS12	High Shelf, 2 Pole, 12db/oct

N12	Notch, 2 Pole, 12db/oct
AP12	All Pass / Phase, 2 Pole, 12db/oct

Frequency



The cutoff frequency of the filter. In the case of AM/RM, the frequency of the modulator.

Resonance



The feedback in the analog modeled filters creating a peak at the frequency. Higher values can cause the filters to self oscillate. In the case of AM/RM, the amount of modulation applied.

Envelope Amount



How much **Envelope 2** modulates the filter frequency.

Envelope Invert



Causes **Envelope 2** to modulate the frequency downwards instead of upwards.

Velocity



Determines how much the note velocity scales the **Envelope Amount** parameter.

Keyboard Follow



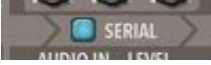
How much the filter frequency follows incoming note data. At 0%, the frequency is fixed regardless of played note, at 100%, the base frequency changes to match incoming note data.

Level



Output volume of the filter.

Serial Routing



Causes the output of **Filter 1** to be directly routed into **Filter 2**.

Oscillator Filter Select



Located in the **Filter 1-2** section. See [Filter Select](#) in the Oscillators section.

External Audio Input



Located in the **Filter 1-2** section.

Level



Adjust the gain of the external audio.

Filter Select



Fades the external audio input into the filters. A value of -100 (full counter-clockwise) only sends audio to **Filter 1**. A value of 100 (full clockwise) sends audio to **Filter 2**. A value of 0 (straight up) sends equal audio to both **Filter 1** and **Filter 2**.

Filter 1 and Filter 2 Select

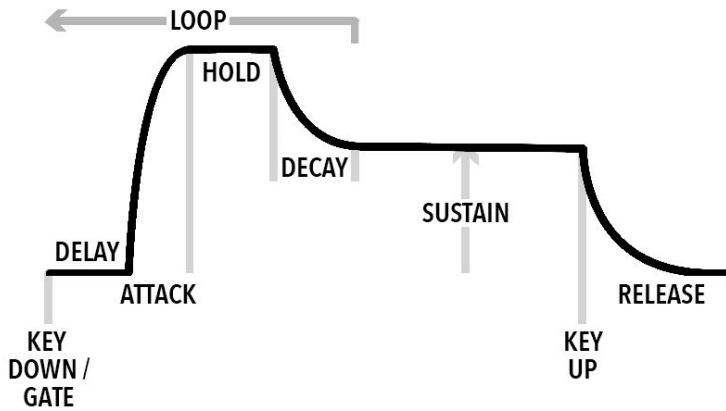
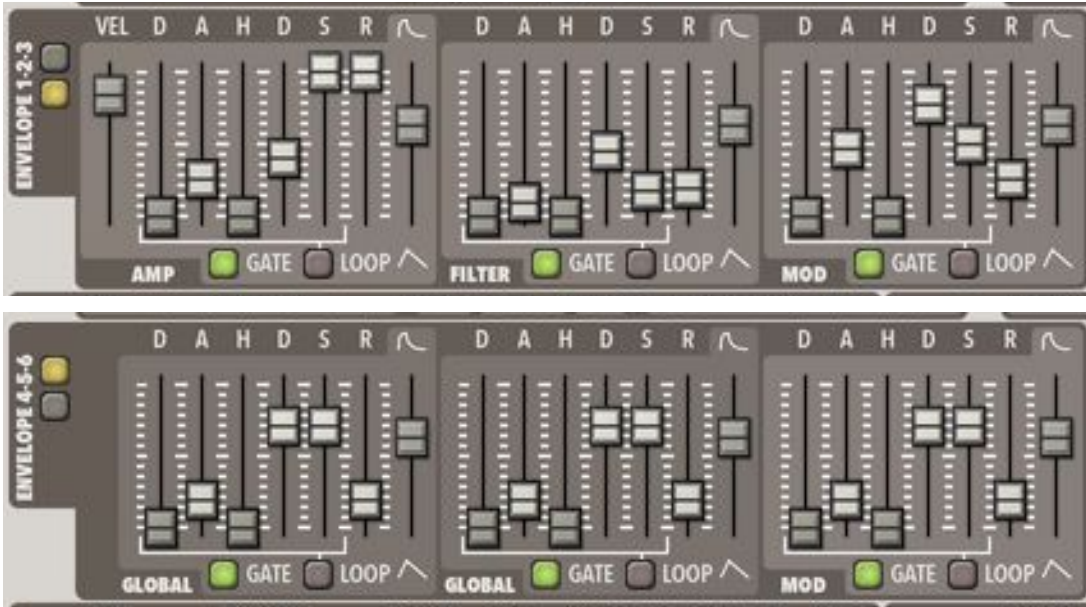


Located in the **Filter 3-4** panel.

Fades the output from **Filter 1** and **Filter 2** into **Filter 3** and **Filter 4**. A value of -100, full counter-clockwise, only sends audio to **Filter 3**. A value of 100, full clockwise, sends audio to **Filter 4**. A value of 0, straight in the middle, sends equal audio to both **Filter 3** and **Filter 4**.

Envelopes

Nostromo has four **DAHDSR** envelope generators. **Envelope 1** is hard-wired into the amplifier and used to shape the amplitude of the sound. **Envelope 2** is hard-wired into all filters' **Envelope Amount**. **Envelope 3** and **Envelope 6** are general purpose modulation envelopes which must be routed in the modulation matrix. **Envelope 4** and **Envelope 5** are also general purpose modulation, but these are global and shared between all voices.



Envelope Parameters shown graphically

Envelope Panel Select



Selects which envelope panel is visible.

Velocity



(Envelope 1 Amp Only)

Determines how much the note's velocity scales **Envelope 1 Amp** in the amplifier.

Delay



The time delay between note-on gate and the attack phase.

Attack



The time it takes for the note to reach full volume.

Hold



The time the note is held at full volume.

Decay



The time it takes for the note to fall to the sustain level.

Sustain



The note level during the sustain phase.

Release



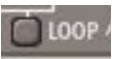
The time it takes for the note to fall from the sustain level to silence, once the key has been released.

Curve



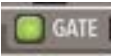
The shape of the envelope. A value of 0 creates longer sounding transitions. A value of 100 will make envelopes sound quick and snappy.

Loop



Will cause the envelope to jump back to the start of the delay phase after the decay phase.

Gate



Enables the envelope being triggered via the key-down gate. Disable if you wish to only trigger the gate via the modulation matrix.

LFOs

Nostromo has six general purpose modulation LFOs which must be routed in the modulation matrix. **LFO 3** and **LFO 6** are global and shared between all voices.



LFO Panel Select



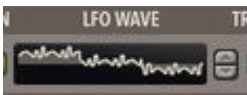
Selects which LFO panel is visible.

Key Sync



Resets the LFO Phase on key-down. If disabled, the LFO phase will be random on key-down.

Waveform



Selects the LFO waveform.

Transport Sync



Locks the LFO to song playback.

Rate



Sets the cycle rate of the LFO. Free rates range from 0.0Hz to 50.0Hz. Available Synced Rates: 32/4, 28/4, 24/4, 20/4, 16/4, 12/4, 8/4, 7/4, 6/4, 5/4, 4/4, 7/8, 3/4, 5/8, 2/4, 7/16, 5/8T, 3/8, 4/8T, 5/16, 1/4, 3/16, 2/8T, 1/8, 1/8T, 1/16, 1/16T, 1/32, 1/32T, 1/64, 1/128.

Keyboard Follow



How much the LFO **Rate** follows incoming note data. At 0%, the rate is fixed, regardless of played note. At 100%, the base frequency changes to match incoming note data.

Phase



Sets the phase of the LFO waveform. If **Key Sync** is enabled, this would be the initial phase on key-down. Setting the **Rate** to zero allows **Phase** to sweep the LFO wave manually.

Delay



Introduces a delay before the LFO modulation onset after a note is played.

Lag



Limits how fast the LFO value can change its output value.

One Shot



Causes the read position and value to freeze at the end of one complete LFO cycle.

Modulation Matrix

MOD MATRIX 1-8	SOURCE	AMT	DEST 1	AMT	DEST 2	AMT	SCALE	
<input type="checkbox"/>	LFO 6	+ 42	Env 5 Gate	+ -13	Swp 2 Rate	+ 100	Wav Swp 2	+
<input type="checkbox"/>	Env 6	+ -36	Filter 2 Filter	+ 25	LFO 2 Rate	+ 100	Drift Voice 1	+
<input type="checkbox"/>	Env 6	+ -94	LFO 4 Phase	+ 27	Swp 2 Offset	+ -100	Drift Voice 1	+
<input type="checkbox"/>	Env 5	+ 18	Swp 1 Gate	+ -12	Env 4 Gate	+ 100	Wav Swp 3	+
<input checked="" type="checkbox"/>	Wav Swp 2	+ -74	Env 3 Rel	+ 35	Osc 2 Pan	+ -100	Env 1	+
<input type="checkbox"/>	Drift Voice 2	+ -89	LFO 4 Rate	+ 4	Env 5 Gate	+ 100	Wav Swp 2	+
<input type="checkbox"/>	Wav Swp 2	+ -54	Env 2 Rel	+ -28	Env 6 Gate	+ 100	LFO 4	+
<input type="checkbox"/>	Env 3	+ 90	Osc 1 Pan	+ -87	Filter 2 Freq	+ 100	LFO 6	+

MOD MATRIX 9-16	SOURCE	AMT	DEST 1	AMT	DEST 2	AMT	SCALE	
<input type="checkbox"/>	Wav Swp 3	+ -64	Filter 2 Freq	+ 25	Env 1 Rel	+ 100	Env 6	+
<input type="checkbox"/>	Env 2	+ 23	Swp 2 Offset	+ 71	LFO 4 Gate	+ 100	LFO 1	+
<input type="checkbox"/>	Env 2	+ -1	LFO 5 Gate	+ -32	Swp 1 Rate	+ 100	Env 6	+
<input type="checkbox"/>	LFO 5	+ 91	LFO 2 Phase	+ 54	Swp 2 Rate	+ 100	LFO 3	+
<input type="checkbox"/>	Drift Gbl 1	+ 66	Swp 2 Phase	+ 49	Env 5 Gate	+ -100	Wav Swp 1	+
<input type="checkbox"/>	Drift Gbl 2	+ 50	Env 3 Gate	+ 71	LFO 4 Rate	+ 100	LFO 4	+
<input type="checkbox"/>	Drift Gbl 2	+ -23	Filter 1 Filter	+ -68	Filter 1 Filter	+ 100	Env 3	+
<input type="checkbox"/>	Env 5	+ 90	Swp 1 Rate	+ 48	Env 5 Gate	+ -100	LFO 6	+

MOD MATRIX 17-24	SOURCE	AMT	DEST 1	AMT	DEST 2	AMT	SCALE	
<input type="checkbox"/>	Drift Voice 1	+ 62	LFO 3 Rate	+ -52	Swp 2 Rate	+ -100	LFO 3	+
<input type="checkbox"/>	Env 2	+ 4	Osc 2 Filter	+ -72	LFO 6 Phase	+ 100	Wav Swp 1	+
<input checked="" type="checkbox"/>	LFO 6	+ 47	LFO 5 Gate	+ 93	Swp 1 Rate	+ 100	Wav Swp 2	+
<input type="checkbox"/>	LFO 3	+ -72	Env 4 Gate	+ 10	Env 3 Rel	+ 100	LFO 3	+
<input type="checkbox"/>	Env 4	+ 89	Env 4 Rel	+ -99	Osc 2 Pan	+ 100	LFO 5	+
<input type="checkbox"/>	Env 4	+ 82	Osc 2 Filter	+ -79	LFO 4 Rate	+ 100	Wav Swp 3	+
<input type="checkbox"/>	LFO 6	+ -42	Swp 1 Gate	+ -41	LFO 4 Phase	+ -100	Env 1	+
<input type="checkbox"/>	Env 1	+ -12	Env 1 Gate	+ 50	Env 4 Rel	+ 100	Wav Swp 2	+

MOD MATRIX 25-32	SOURCE	AMT	DEST 1	AMT	DEST 2	AMT	SCALE		
<input checked="" type="checkbox"/>	LFO 4	+ 55	LFO 1 Rate	+ -22	Filter 1 Filter	+ 100	LFO 3	+	
<input type="checkbox"/>	Env 2	+ -18	Env 1 Gate	+ 20	Filter 2 Filter	+ 100	Drift Gbl 2	+	
<input type="checkbox"/>	Env 4	+ -99	LFO 5 Phase	+ 49	LFO 4 Gate	+ -100	Drift Voice 1	+	
<input type="checkbox"/>	Env 2	+ -67	LFO 4 Phase	+ 0	Env 1 Gate	+ -100	LFO 6	+	
<input type="checkbox"/>	Drift Voice 2	+ -72	Osc 2 Pan	+ 100	82	LFO 1 Rate	+ -100	Drift Voice 1	+
<input type="checkbox"/>	Env 2	+ -1	Env 2 Gate	+ -54	Env 2 Gate	+ -100	Env 1	+	
<input type="checkbox"/>	Drift Gbl 1	+ 13	Env 1 Rel	+ 64	LFO 6 Rate	+ -100	Wav Swp 2	+	
<input type="checkbox"/>	Drift Gbl 1	+ -70	Swp 2 Phase	+ 52	Swp 2 Phase	+ -100	Wav Swp 2	+	

The modulation matrix is used to connect a modulation source to modulation destinations. The source modulation can be scaled via an optional scale amount.

Sources and Destinations can be selected either by clicking in the relevant column and selecting an item from the pop-up menu, or by clicking on the arrow next to it, dragging the mouse over a control and letting go of the mouse button. Note that some items, like “Audio - Input Envelope Follower” can only be selected through the menu, as it has no corresponding control on-screen.

To quickly delete an entry in the Mod Matrix (or to reset an amount to “0”), simply [Command]/[Ctrl]-Click it.

Modulation Matrix Panel Select



Selects which modulation panel is visible.

Modulation Sources

Source Parameter	Description
Mod Wheel, Breath, Aftertouch, Expression, Sustain	Standard Performance Parameters Range: 0 to 100
Pitch Bend	Range:100 to 100
LFO 1, LFO 2, LFO 3, LFO 4, LFO 5, LFO 6, Wave Sweep 1, Wave Sweep 2, Wave Sweep 3	Nostromo LFO Modulation sources Range:-100 to 100
Env 1, Env 2, Env 3, Env 4, Env 5, Env 6,	Nostromo Envelope Modulation sources Range: 0 to 100
Drift Voice 1, Drift Voice 2	Slowly drifting random modulation sources Unique to voice Range: -100 to 100
Drift Global 1, Drift Global 2	Slowly drifting random modulation sources Global, shared by all voices Range: -100 to 100
CV1 - CV8	CV Modulation Inputs on back panel.
Polyphony	Number of sounding notes. 1 to 6 mapped to Range: 0 to 100
Voice Velocity	Velocity of note Range: 0 to 100
Voice Key Full	Note value (whole keyboard) mapped to range: -100 to 100.
Voice Key Oct	Note value (octave-wrapped) mapped to range: -100 to 100.
Voice Gate	100 when key held, 0 when key released.
Last Velocity	Velocity of most recent note Global Range: 0 to 100

Last Key Full	Most recent note value (whole keyboard) mapped to range: -100 to 100. Global
Last Key Oct	Most recent note value (octave-wrapped) mapped to range: -100 to 100. Global
Last Gate	100 when key held, 0 when key released. Global
Voice Note	100 if the note currently played matches the note specified in the Mod Matrix, otherwise 0.
Voice Number	100 if the current Voice's playing order matches the number, otherwise 0. For example, with polyphony set to 2 and playing two notes simultaneously, one voice would have Voice 1 equal 100, and the other would have Voice 2 equal 100.
-200,-100,100,200	Constant Values. Scaling with 200 will double the amount of modulation from source.
Audio Input Envelope	Tracks the incoming audio's level.
Compressor Gain	Tracks the gain reduction applied by the compressor.

Modulation Destinations

The details of these destinations are documented in their respective sections. They are listed here for reference.

Filter 1-4	Frequency, Resonance, Env, Level, Filter 3/4
Oscillator 1-3	Pitch, Detune, Pan, Width, Level, Filter
Oscillator Sweep LFO 1-3	Gate, Phase, Key Follow, Offset, Rate, Delay, Lag
LFO 1-6	Gate, Phase, Key Follow, Rate, Delay, Lag
Envelope 1-6	Gate, Delay, Attack, Hold, Decay, Sustain, Release
CV Out	CV Out 1-8
Global	Portamento, Drift, Stereo Spread
Audio In	Level, Filter
Delay	Time, Offset, Mod Amt, Mod Rate, Feedback, Dry/Wet
Reverb	Decay, Damp, Dry/Wet
Compressor	Threshold, Ratio, Attack, Release, Dry/Wet

FX Config



Determines the routing order of the effects.

- ✓ Delay > Reverb > Compressor
- Delay > Compressor > Reverb
- Reverb > Delay > Compressor
- Reverb > Compressor > Delay
- Compressor > Delay > Reverb
- Compressor > Reverb > Delay

FX Config Options

Delay



Enable



Turns the Delay effect on.

Tempo Sync



Enables tempo sync for **Time** and **Offset**.

Time



Sets the delay time for left and right channel. Free rates range from 0ms to 1sec. Available Synced Rates: 3/4, 5/8, 2/4, 7/16, 5/8T, 3/8, 4/8T, 5/16, 1/4, 3/16, 2/8T, 1/8, 1/8T, 1/16, 1/16T, 1/32, 1/32T, 1/64, 1/128.

Offset



Adds an additional delay to the right channel. Free rates range from 0ms to 1sec. Available Synced Rates: 3/4, 5/8, 2/4, 7/16, 5/8T, 3/8, 4/8T, 5/16, 1/4, 3/16, 2/8T, 1/8, 1/8T, 1/16, 1/16T, 1/32, 1/32T, 1/64, 1/128, 0.

Ping Pong



Switches the feedback of the left delay into the right input and right delay into the left input.

Mod Rate



Sets the rate of the delay line modulation LFO. 0.14Hz to 18Hz.

Mod Amount



Sets the amount of modulation to the delay time from the delay line LFO.

Feedback



Amount of delayed signal that is fed back into the input.

Dry/Wet



Balance between the unprocessed (dry) signal and the effect (wet) signal.

Reverb



Enable



Turns the Reverb effect on.

Decay



How long it takes for the reverb to decay into silence.

Dampening



Amount of low pass filtering to apply to reverb.

Size



Perceived size of the reverb chamber.

Dry/Wet



Balance between the unprocessed (dry) signal and the effect (wet) signal.

Compressor



When the compressor is enabled, an automatic make-up gain is applied to thresholds below -12dB that normalizes the level to -12dB for the set ratio.

Enable



Turns the Compressor on.

Threshold



This sets the level at which onset of compression occurs.

Ratio



Ratio specifies the amount of gain reduction applied to signal levels above the set threshold.

Attack



How quickly the Master Compressor will react when signals rise above the set threshold.

Release



How long it takes before the compressor lets the sound through, unaffected, after the signal level drops below the set threshold.

Dry/Wet



Balance between the unprocessed (dry) signal and the compressed (wet) signal.

Global



Drift



The amount of global drift applied to all oscillators. Low values create nice, lush strings and pads. High values recreate the sounds of old, out of tune analog gear.

Stereo Spread



Adjusts the width of the stereo field. A setting of -100% will cause the output to be mono. 0% will not affect the output. 100% will cause a widening of the stereo field.

Master Level



Sets the master volume.

Polyphony



Number of voices allowed to sound at once. Once the limit is reached, the oldest voice will be silenced and replaced with the newest note down.

Legato



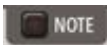
When enabled, once the limit of polyphony is reached, the latest voice is taken over without retriggering. Use this with polyphony set to 1 for sliding basslines.

Portamento



Sets the speed at which the pitch glides between played notes.

Note Activity



Lit when the device is playing any notes.

Performance



Pitch Bend Range



Sets the amount of pitch bend when the wheel is turned fully up or down, in semitones.

Pitch Bend



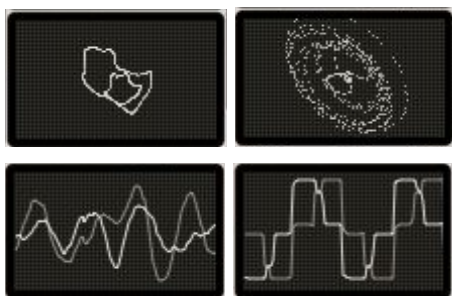
Global bending of note pitch.

Modulation Wheel



Performance modulation wheel.

Display



The built in wave display uses the main audio outputs to generate two types of graphs. The display mode can be cycled by clicking on the display.

Lissajous curve



The left audio channel is the x axis, the right audio channel provides the y axis.
The phase between the two can be changed by click-dragging left-right on the display.
The refresh rate can be adjusted by click-dragging up-down on the display.

Oscilloscope



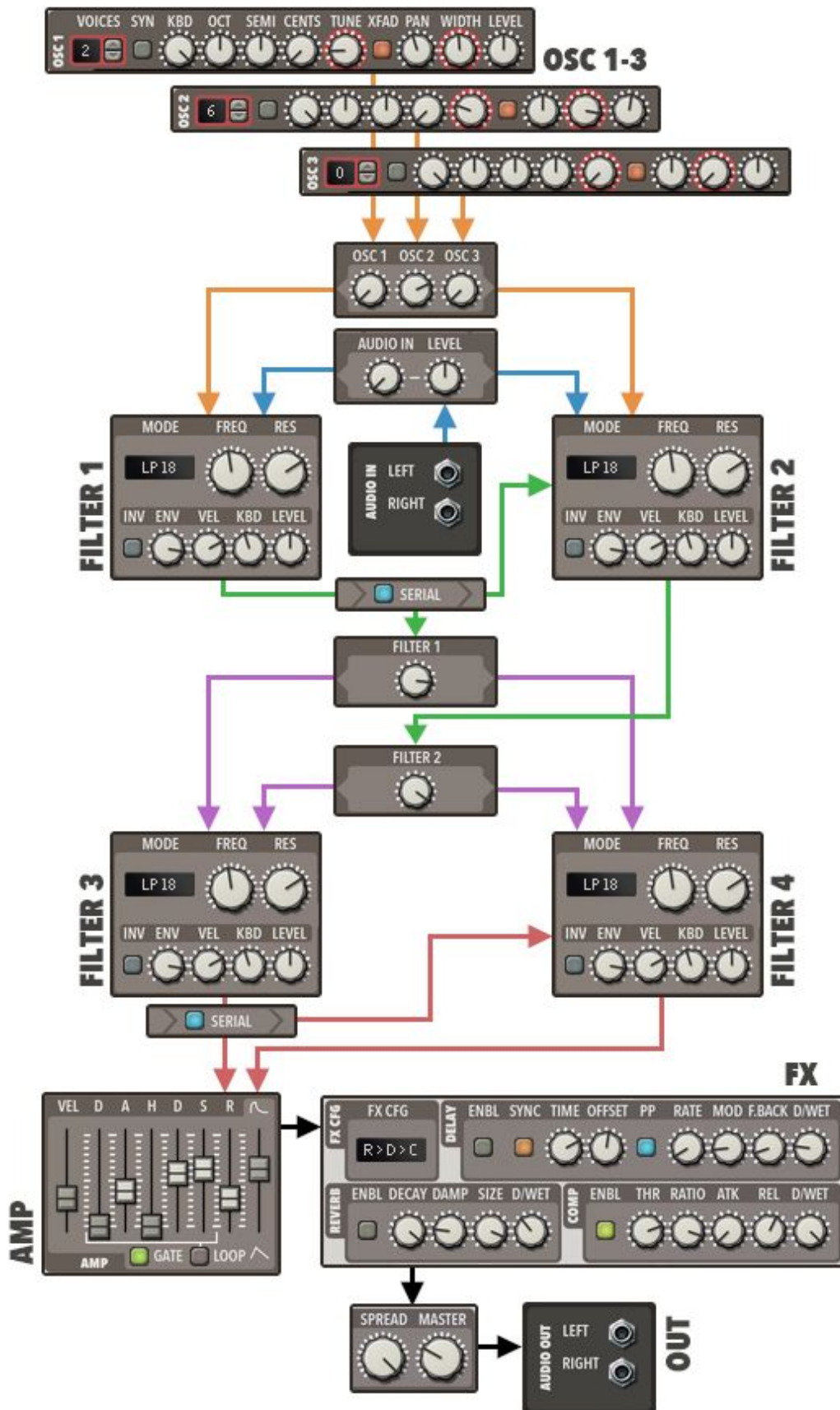
Displays the audio waveform. Height is normalized to fit the display. Display is synced to the waveform's zero crossings.

The refresh rate / horizontal zoom can be adjusted by click-dragging up-down on the display.

Off

Disables the display to save CPU resources.

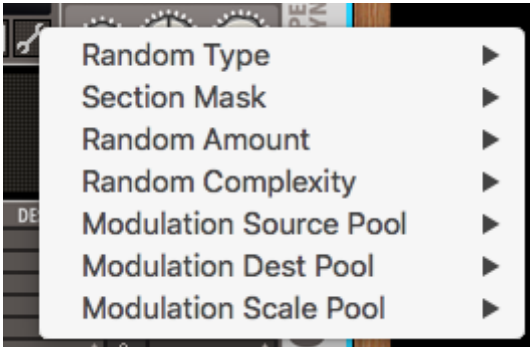
Signal Flow Overview



Procedural Patch Generation

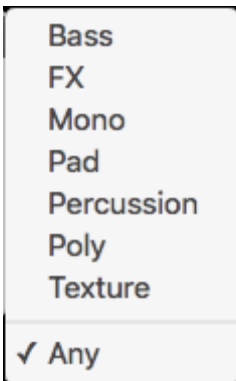


Hidden behind these two buttons is an advanced procedural patch generator for Nostromo. The left button, the die, will run the patch generator and update parameters.



The right button, the wrench, displays a pop-up menu that allows for fine tuning and control of the generator.

Random Type



Selects the type of patch to generate. This selection affects the envelope shapes, polyphony, stereo field, and pitch variation. A type of **Any** will pick one type at random each generation.

Section Mask

<input checked="" type="checkbox"/> Oscillators
<input checked="" type="checkbox"/> Oscillator Sweep
<input checked="" type="checkbox"/> Oscillator Spectrums
<input checked="" type="checkbox"/> Filters
<input checked="" type="checkbox"/> Envelopes
<input checked="" type="checkbox"/> LFOs
<input checked="" type="checkbox"/> FX
<input checked="" type="checkbox"/> Compressor
<input checked="" type="checkbox"/> Main
<input checked="" type="checkbox"/> Modulation Matrix
Select All
Clear All

Selects which sections of the patch to randomize. Selected sections are modified, unselected sections are not.

Random Amount

10%
20%
30%
40%
50%
60%
70%
80%
90%
<input checked="" type="checkbox"/> 100%
Random

Sets the percentage of parameters to be applied after the patch is generated. This allows for incremental morphing of a patch. A setting of **30%** will only apply 30% of the generated patch to current parameters, leaving 70% of them untouched. A setting of **100%** will generate a whole new patch each time. A setting of **Random** will apply a random amount of changes each generation.

Random Complexity

10%
20%
30%
40%
✓ 50%
60%
70%
80%
90%
100%
Random

Sets the complexity of the generated patch. The more complex, the more modulation and options are applied. A setting of **Random** will apply a random amount of complexity each generation.

Modulation Source Pool and Scale Pool

Mod Wheel	Note C
Pitch Bend	Note C#
Breath	Note D
Aftertouch	Note D#
Expression	Note E
Sustain	Note F
✓ Envelope	Note F#
✓ LFO	Note G
✓ Wave Sweep	Note G#
✓ Random Drift	Note A
CV Input 1	Note A#
CV Input 2	Note B
CV Input 3	Voice 1
CV Input 4	Voice 2
CV Input 5	Voice 3
CV Input 6	Voice 4
CV Input 7	Voice 5
CV Input 8	Voice 6
Polyphony	Voice 7
Voice Velocity	Voice 8
Voice Note (Full Range)	Input Envelope Follower
Voice Note (Octave Range)	Compressor Gain
Voice Gate	Select Common
	Clear All

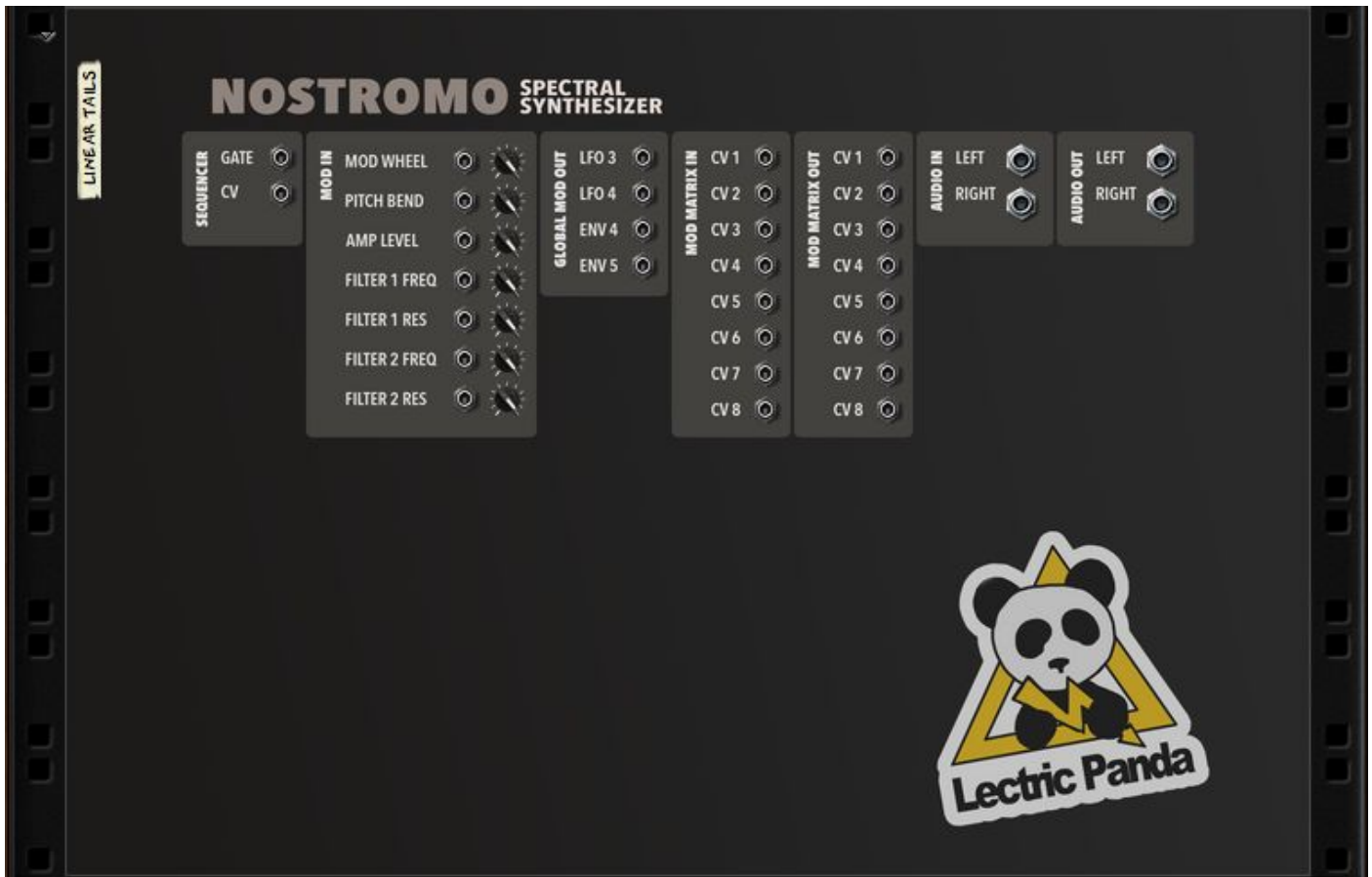
Sets which source and scale parameters are allowed in each random generation.

Modulation Dest Pool

<ul style="list-style-type: none"> Osc Pitch Osc Voice Detune ✓ Osc Pan ✓ Osc Voice Spread Width Osc Level ✓ Osc Filter Select 	<ul style="list-style-type: none"> Delay Time Delay Offset Delay Mod Amount Delay Mod Rate Delay Feedback Delay Dry/Wet
<ul style="list-style-type: none"> ✓ Sweep Gate ✓ Sweep Phase Sweep Key Follow ✓ Sweep Voice Offset ✓ Sweep Rate Sweep Delay Sweep Lag 	<ul style="list-style-type: none"> Reverb Decay Reverb Dampening Reverb Dry/Wet
<ul style="list-style-type: none"> ✓ LFO Gate ✓ LFO Phase LFO Key Follow ✓ LFO Rate LFO Delay LFO Lag 	<ul style="list-style-type: none"> Compressor Threshold Compressor Ratio Compressor Attack Compressor Release Compressor Dry/Wet
<ul style="list-style-type: none"> ✓ Filter Frequency Filter Resonance Filter Env Amount Filter Level ✓ Filter Filter Select 	<ul style="list-style-type: none"> Global Portamento Global Drift Global Stereo Spread
<ul style="list-style-type: none"> ✓ Env Gate Env Delay Env Attack Env Hold Env Decay Env Sustain ✓ Env Release 	<ul style="list-style-type: none"> CV Output 1 CV Output 2 CV Output 3 CV Output 4 CV Output 5 CV Output 6 CV Output 7 CV Output 8
<ul style="list-style-type: none"> Audio In Level Audio In Filter Select 	<ul style="list-style-type: none"> Select Common Select Pitched Select All Clear All

Sets which destination parameters are allowed in each random generation.

Back Panel



Sequencer



CV and Gate inputs allow you to play Nostromo from another CV/Gate device (Matrix, Korde, PSQ-1684). CV controls the note pitch, Gate controls note on/off and velocity.

Modulation In



Direct CV modulation of common parameters.

Modulation Out



Direct CV output of the four global modulation sources, **LFOs 3 & 4** and **Envelopes 4 & 5**.

Modulation Matrix In



Eight CV inputs into the modulation matrix.

Modulation Matrix Out



Eight CV outputs from the modulation matrix.

Audio In



External audio inputs are provided to allow Nostromo to act as a filter and effects device.

Audio Out



Main audio outputs.

Tips and Tricks (V1)

Hidden Parameters

The Sweep LFOs have all the same available parameters as the modulation LFOs, but some are not exposed through knobs. In order to access a Sweep LFO's Key Follow, Delay, and Lag, use the modulation matrix with the constant source 100.

SOURCE	AMOUNT	DEST 1	AMOUNT
100	78	Sweep 1 Key Fo	0
100	47	Sweep 1 Delay	0
100	48	Sweep 1 Lag	0
0	0		0

External/Manual control of the sweep

You can control (manually or externally) the movement of the read position in the spectrum wavetable. One important consideration to remember is that you don't move the actual playhead itself in the table, you move the phase in the Sweep LFO that controls it.

This entails an intermediary step:

1) Set the Sweep LFO to the Ramp Up Waveform (the second one, actually numbered "1"). The ramp starts at -1, where the playhead will be at the far left of the wavetable, and ends at +1, which represents the far right of the wavetable. We'll be scrubbing through this ramp, which, in turn, will move the playhead accordingly:



2) Disable "Tempo Sync" next to the Rate knob, and set the Rate to 0. This is to ensure that the playhead will not move on its own and will only react to whatever source we choose.



3) In the Modulation Matrix, set whatever source should control the sweep to the appropriate "Sweep Phase" destination ("Sweep 1 Phase" for the first oscillator, "Sweep 2 Phase" for the second oscillator or "Sweep 3 Phase" for the third):

SOURCE	AMOUNT	DEST 1	AMOUNT	DES
LFO 3	100	Sweep 1 Phase	0	
	0		0	
	0		0	

In this example, LFO 3 controls the movement of the playhead. This is different from controlling it from the sweep LFO itself, as the sweep LFO is retriggered for each voice (i.e. each note played will start the scrubbing from the same position in the wavetable), while LFO 3, being global, is free-running (i.e. each note played will start the scrubbing from wherever the playhead is at that particular moment). This makes for rich, complex evolving pads, for instance.

From there on, the "Phase" knob of the oscillator acts as a scrubber, i.e. its position directly determines the position of the playhead in the wavetable.

Control of the sweep from the Mod Wheel

This is quite simple: perform steps 1 and 2 as detailed in **External/Manual control of the sweep**, then choose "ModWheel" as the source in the Modulation Matrix. You can now scrub through the wavetable with either the physical Mod Wheel on your keyboard, or Nostromo's Mod Wheel.

SOURCE	AMOUNT	DEST 1	AMOUNT	DES
Mod Wheel	100	Sweep 1 Phase	0	
	0		0	
	0		0	

Control of the sweep from a Combinator

This can be interesting if you wish to synchronise the scrubbing of the wavetable with an external effect, for instance, the opening of a filter, as you can set one Combinator rotary to several destinations.

Perform steps 1 and 2 as detailed in **External/Manual control of the sweep**. Set the Nostromo inside a Combinator (by right-clicking it and choosing "Combine" from the contextual menu). On the combinator, click on "Show Programmer". Select Nostromo in the left pane, and in the Modulation Routing section, set Target for a rotary to "Wave Sweep X Phase" (where X is the number of the oscillator you wish to control). You can then scrub through the wavetable with the chosen rotary on the Combinator.

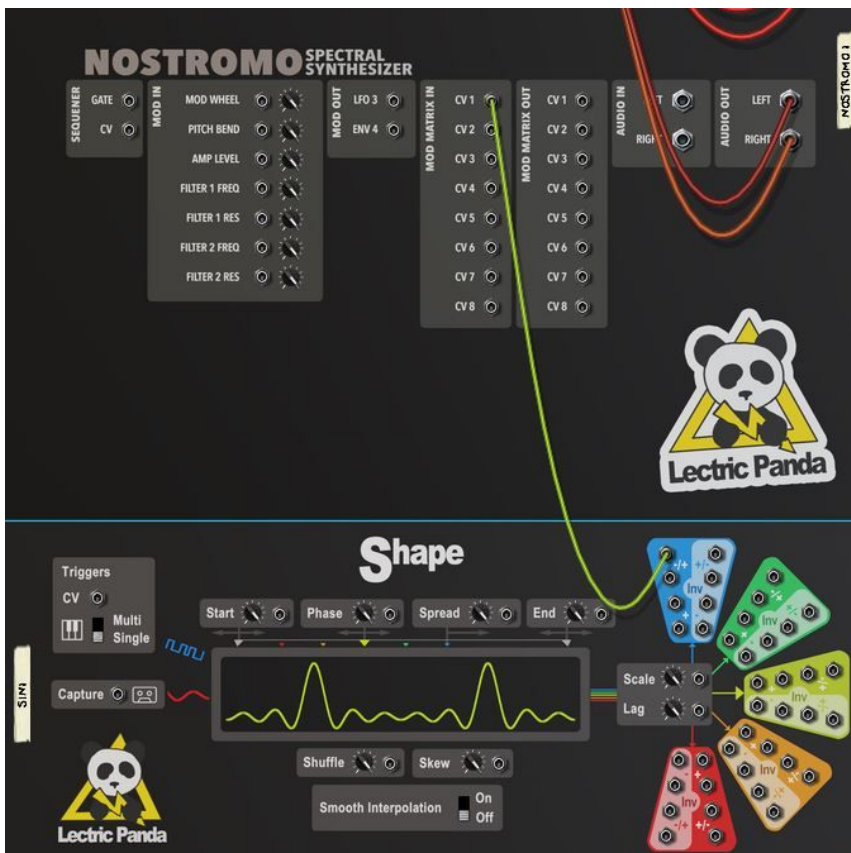
Modulation Routing				
Device: 1		Nostromo 1		
Source	Target	Min	Max	
Rotary 1	Wave Sweep 1 Phase	0%	100%	
Rotary 2				
Rotary 3				
Rotary 4				
Button 1				
Button 2				
Button 3				
Button 4				

Control of the sweep from an external source

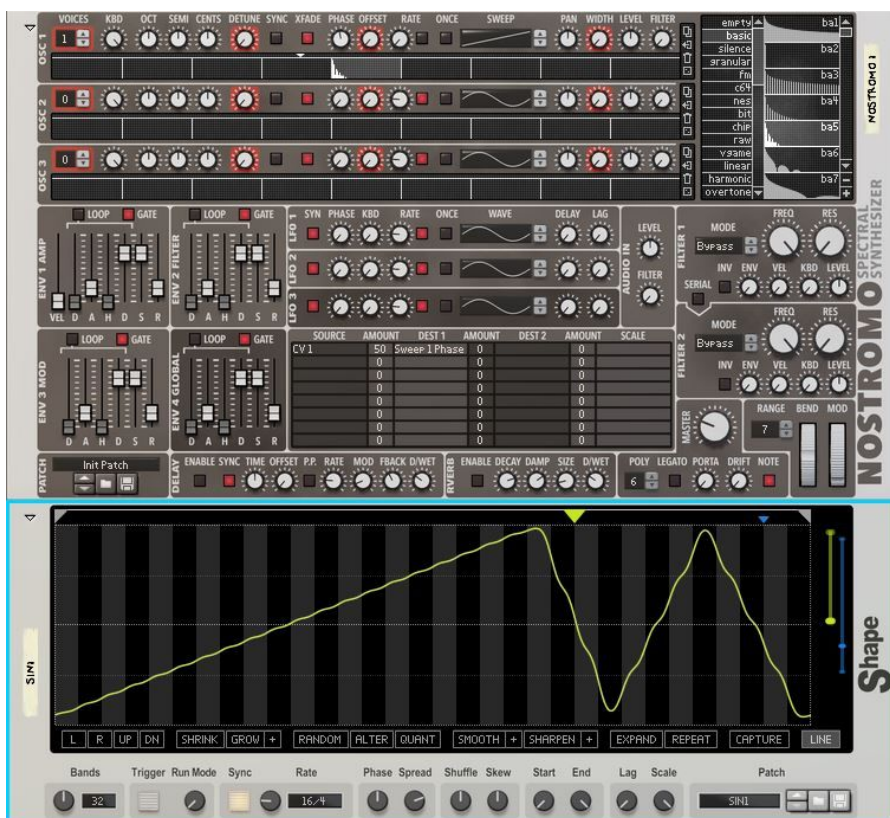
You can also control the sweep from an external CV source, whatever that is: a LFO from another synth, a LFO generator/modulator, a CV output from Synchronous, or even draw your own movement through automation in Reason's sequencer.

As an example, we're going to control the movement of the playhead through Shape (but you can use whatever CV source you wish).

- 1) Perform steps 1 and 2 as detailed in **External/Manual control of the sweep**.
- 2) Add a Shape below the Nostromo.
- 3) Flip the rack around by pressing Tab and connect one of Shape's CV outs to Nostromo's CV1 input:



- 4) Flip the rack back (Tab) and in Nostromo's Modulation Matrix, set the source to CV1, the destination to "Sweep X Phase" (where X represents your chosen oscillator number), and the Amount to 50 (setting it to 100 would double the range, which is not what we want here).

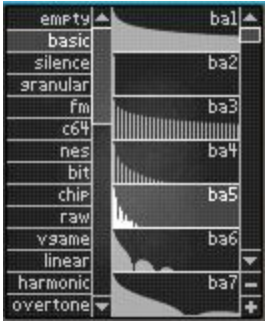


Shape's CV output now controls the position of the playhead. As Shape outputs up to 5 different CVs, you can control all three of Nostromo's oscillators this way, either by setting CV1 to control "Sweep 1 Phase", "Sweep 2 Phase" and "Sweep 3 Phase", or by plugging Shape to three different CV inputs in Nostromo and directing each of these CVs to each oscillator's sweep.

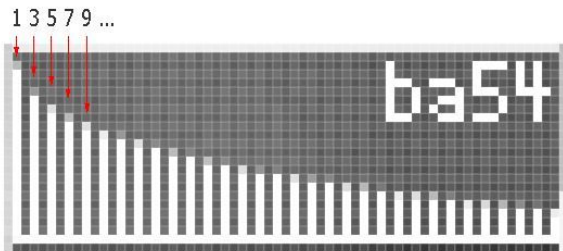
Identifying waveforms visually

2200+ different wave spectrums can seem a little overwhelming at first, but the following tidbit will help you quickly see what the harmonic content of a particular wave is.

In the catalog, each waveform is represented by a thumbnail:



In these thumbnails, each horizontal pixel represents an harmonic of the fundamental frequency. For instance, let's take a closer look at the waveform "ba54", found in the "Basic" category of the catalog:



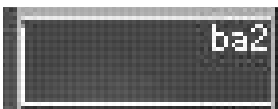
As you can see, the fundamental (the first vertical line on the left) is quite loud. There's no second harmonic (the second vertical line is empty). The third harmonic is present, a little quieter than the first, and so on. All odd harmonics are played, and all even harmonics are silent, while the falloff in volume is a bit less than 6db/octave (i.e. the height of the thirteenth harmonic is about half that of the first): this is a square wave.

Squares and triangles have mainly odd harmonics, while sawtooths have all harmonics present. Sines have just one harmonic and waves with only even harmonics are compounded sines or "complex waveforms".

For instance, "ba8" is a sawtooth: it contains all harmonics with a regular falloff.



"ba2" only has the fundamental playing: it's a pure sine.



"ot35" only has overtones, no fundamental.



This is mainly interesting for waveforms in the "Basic", "Harmonic" and "Overtone" categories, which are mostly "basic" waveforms, as could be generated by a pair of oscillators without any further treatment. While it's more difficult to identify the other complex waveforms this way, you can still quickly check the presence or absence of a particular harmonic when searching for a particular timbre.

The rhythmic half-morph

This trick exploits the fact that when a playhead crosses over from slot 9 to slot 1, no crossfade is operated, even if the XFade setting is On.



- Set "Voices" to 8.
- Sync Off
- XFade On
- Offset on maximum (100)
- Sync rate to tempo and choose an even signature (16/4, 4/4, 1/16...)
- Choose the second LFO sweep (Ramp Up, "Wavesweep 1 Waveform: 1")
- Choose two different waveforms in each slot 1 and 9
- Make sure slots 2 to 8 contain the "empty" waveform (the one that's found in the "empty" category, not the "silence" from the "silence" categories)
- Play a sustained note on your keyboard.

The sound now rhythmically morphs between the two waves, with a sudden jump happening every 1/8th of the chosen time signature, or 1/4th if you set 4 voices (you can adapt this to ternary signatures by settings "Voices" to 3 or 6).

You can also set different waveforms in slots 2 to 8, but the rhythmic effect will be slightly less pronounced.

Modwheel scratch

Some parameters, like the waveform in each slot, cannot be controlled from the Modulation Matrix but CAN be controlled through the Combinator's programmer. Here is an example of how to control the waveform in slot 5, so it can be changed by moving the Mod Wheel on your keyboard.



- Insert a Nostromo in a Combinator.

- On the Nostromo, set the Rate Sync button to Off (the one right next to the "Rate" knob), and the Rate to 0. Set other values (number of voices, detune, pan, filter...) to taste.

- In the Combinator's programmer, select Nostromo on the left pane, and choose "Mod.W" as a source, and "Osc 1 Wave 5" as a destination.

Play a sustained note while moving your Modulation Wheel: The whole catalog scrolls in the fifth slot. You can program it so that it only scrolls through a smaller subset of the catalog by changing the values of the "Min" and "Max" parameters in the Combinator's programmer.

Timbre S&H

This one is similar to the Modwheel scratch in that it scans through all the waveforms in the catalog, but it does it rhythmically by using one of the S&H (Sample & Hold) LFO waveforms.



- Insert a Nostromo in a Combinator.

- On the Nostromo, set the Rate Sync button to Off (the one right next to the "Rate" knob), and the Rate to 0. Set other values (number of voices, detune, pan, filter...) to taste.

- In the Modulation Matrix, set a source as LFO1, the amount to 100 and the destination to CV1.

SOURCE	AMOUNT	DEST 1	AMOUNT	DEST 2	AMOUNT	SCALE
LFO 1	100	CV 1	0	0	0	
	0		0	0	0	
	0		0	0	0	

- In the LFO1 section, make sure Rate Sync is enabled and set the Rate to 1/8. Choose the fifth waveform (numbered 4, as the list starts with waveform 0). The little circle in the upper right means that this is a random waveform which will be different for each cycle.



- In the Combinator's programmer, select the Nostromo on the left pane, and choose "CV In 1" as a source, and "Osc 1 Wave 5" as a destination.

Modulation Routing			
Device: 1 Nostromo 1			
Source:	Target:	Min:	Max:
CV In 1	Osc 1 Wave 5	0	2274
Rotary 2			
Rotary 3			

- Flip the rack around and connect the CV1 from Nostromo's Mod Matrix Out section to the Combinator's CV1

in the Programmer CV In section (click on "Show Programmer" to unfold the device if necessary).



- Flip it back around and start playing.

The resulting sound resembles a traditional S&H sound, except that instead of simply controlling the opening of a filter, it changes the whole spectrum on every beat.

Of course, you can also control the filter in the same way, either with the same LFO or another one, to stack the effects.

Try different tempo rates to suit your tastes.

Acknowledgments

Thanks to Kristoffer Ekstrand / Adventure Kid and the AKWF waveform pack.

<http://www.adventurekid.se/akrt/waveforms/adventure-kid-waveforms/>

Thanks to these individuals, who helped beta test, write this manual, and provided patches.

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