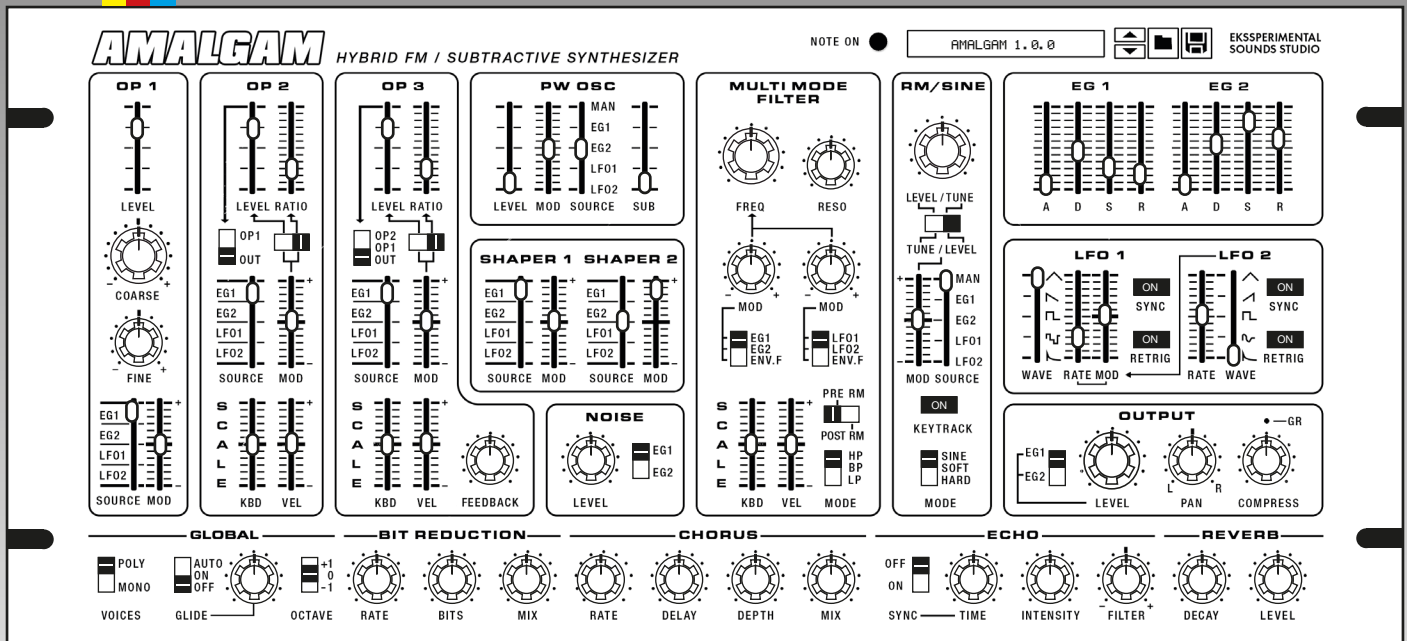


AMALGAM

HYBRID FM / SUBTRACTIVE SYNTHESIZER



V1.0.0 - See addendum for 1.1.0

Quick Guide

TIP! To achieve finer control over knobs and sliders in Reason, hold **SHIFT** while dragging. Also check Preferences so that Mouse Knob Range is set to "Very Precise"

OP 1-3 (FM Operators)

These FM operators can be used as three separate oscillators, carriers or modulators. The roles are defined by the routing; OP2 and OP3 can be routed either to the output or the previous OP(s).

OP2 and 3 are relative to OP1, meaning the tuning of OP1 will affect the frequency of all operators. Their frequency can be offset by set ratios (stepped) from 0.25:1 to 25:1 or freely from 1-250% (equal to 100:1 to 2.5:1). Since the free %-mode is limited to a smaller range it is easier to find interesting harmonies. Since it's extremely difficult to hit the exact right value with the slider the stepped mode makes it easier to find values that are useful for sound design.

A ratio of 0.50 produces a pitch one octave lower, and a ratio of 2.00 produces a pitch one octave higher, and so on. The fractional ratios – 1.73, for example – produce complex waveforms when combined with operators set to other ratios.

Apply modulation to the OPs using the SOURCE, MOD, KBD and VEL sliders. The LFOs and envelopes are unipolar and can be added as positive or negative modulation. The KBD and VEL are bipolar will scale the target value; KBD will raise the value of higher keys and lower the value of lower keys, VEL will scale the value to the velocity so that higher velocity values raise the level and weaker velocity values will lower the level. Negative modulation will invert the behavior. OP3 can be fed back its own signal with the Feedback knob.

On the backside you'll find settings for stepped tuning (set ratios, stepped coarse tune knob) and waveshape settings. Each OP can morph from Sine to Pulse to Saw by 20% step increments between the shapes. Note that aliasing can occur when using other shapes than SINE, and that Pulse and Saw do not perform very well under ratio's of 0.25:1 So, for smooth modulation on these slower rates SINE is recommended!

PW OSC (Pulse width oscillator)

Set the level of the pulse with the LEVEL fader, adjust the pulse width with the MOD and SOURCE. The pulse width can be adjusted from 5-50% manually (MAN) or via the envelopes or LFOs. The SUB fader adds a pulse oscillator 1 octave lower.

SHAPER 1 & 2

Two waveshapers with different character, one is a simpler sine shape and the second is multiple sine waves. Use the waveshapers to alter the shape of the waveform, to produce more complex and extra-abrasive sounds. The amount is applied with the MOD sliders and the value is determined by the modulator set with the SOURCE slider.

NOISE

A simple white noise generator, the level can be controlled with either EG1 or EG2.

Multi Mode Filter

The filter can be set to Low Pass (3 poles) Band Pass (1 pole) or High Pass (2 poles). The frequency cutoff can be set from 20-20kHz. The resonance will self oscillate when turned up and tracks to the keyboard if KBD is set to full positive.

Apply modulation from LFOs and envelopes using the MOD knobs. The LFOs and envelopes are unipolar and can be added as positive or negative modulation. Control the scaling across the keyboard and velocity range using KBD and VEL sliders.

RM / SINE

Ring Modulator and Sine Oscillator. Either LEVEL or TUNE can be modulated with the envelopes and LFOs. The TUNE/LEVEL switch will decide if the LEVEL/TUNE knob or the mod sliders are controlling the tuning or the level of effect. Keytrack will toggle keyboard tracking on or off and MODE decides the basic operation; Sine Oscillator, Soft sync ring mod or hard sync ring mod.

Envelopes

Standard ADSR (Attack Time, Decay Time, Sustain Level and Release Time)

LFOs

Two Low Frequency Oscillators with Retrigger and Sync options. LFO2 can modulate the rate of LFO1.

OUTPUT

Selector for EG1 and EG2, Level and Pan. The compressor will analyse the signal and adjust accordingly. This happens pre-effect section.

GLOBAL

Settings for Monophonic or Polyphonic mode. Glide Off/ON/Auto and time adjustment. (Auto = on overlapping notes)

BIT REDUCTION

Decrease RATE and BITS for a digital lofi sound. If only slightly decreased it can be used for a light noisy hiss.

CHORUS

Classic chorus with settings for Rate, Delay Depth and Mix.

ECHO

Simple echo with syncing possibility.

REVERB

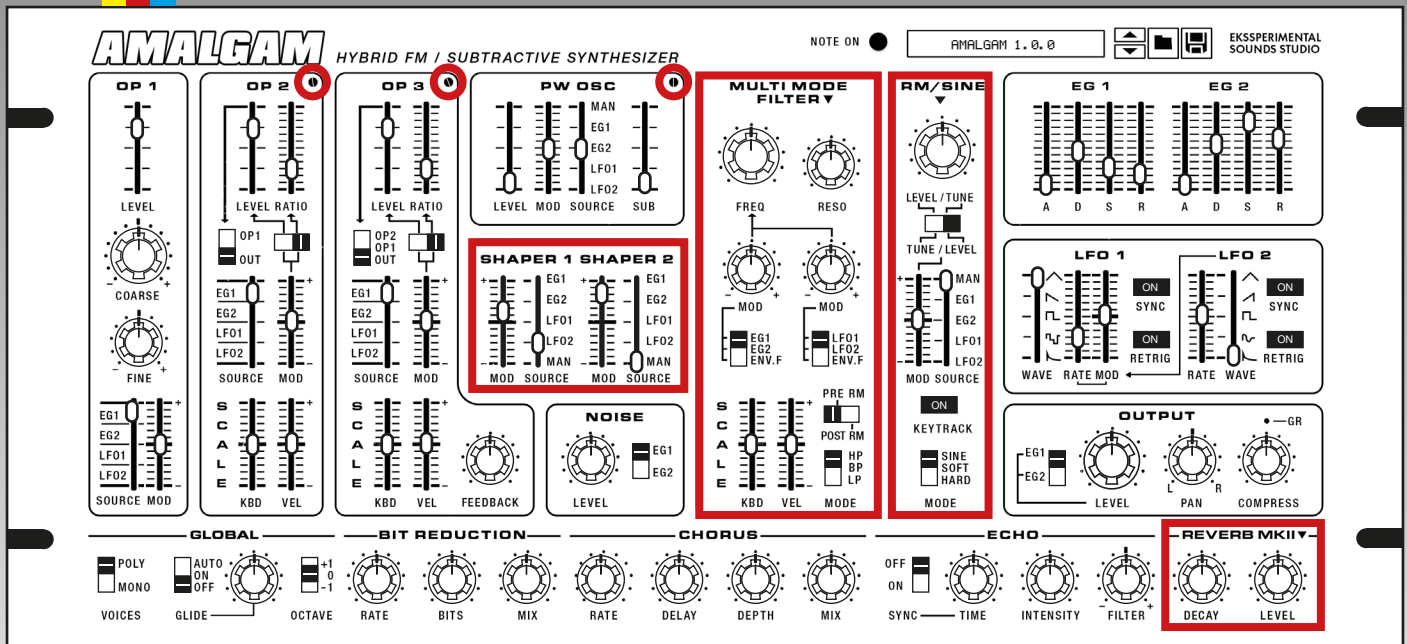
Reverberation effect ranging from small room to large atmospheric sound.

EXTERNAL INPUT

The external audio input is routed through the compressor and effects.

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V1.1.0

Addendum 1.1.0 Update

	Sine + 3 x Sines
	Sine + Diode
	Sine + Tanh
	Sine + Sine
	Tanh + 3x Sines
	Tanh + Diode
	Tanh + Tanh
	Tanh + Sine
	Diode + 3 x Sines
	Diode + Diode
	Diode + Tanh
	Diode + Sine
	3 x Sines + 3 x Sines
	3 x Sines + Diode
	3 x Sines + Tanh
	3 x Sines + Sine

Available waveshapes for SHAPERS

OP 2 & 3 (FM Operators)

New fine-tuning trimmers — also available on the backside as larger trim knobs.

PW OSC (Pulse Width Oscillator)

New fine-tuning trimmer — also available on the backside as a larger trim knob.

SHAPER 1 & 2 (Waveshapers)

These now have MAN (Manual) as a selectable mod source.

Shaper 1 is, by default, a sine shape.

Shaper 2 is, by default, a 3x sine shape.

The shapes can now be changed via a small shape browser on the backside's lower-right corner.

The selectable shapes are:

- Sine
- Sine x3
- Diode
- Tanh
-

These can be set in any configuration — see the table of wave combinations to the left.

Reverbs

Three new reverb models, accessed by clicking the down arrow. The available types are:

Reverb MK1

The original v1.0.0 reverb.

Vintage Spring Reverb

Based on convolution IR sampled from a rare British vintage suitcase synthesizer.

Deep Space

Huge-sounding reverb, great for atmospheric ambience.

Grainy

Light, grainy, kind of lo-fi and delicate, goes from thin and discrete to airy and big.

Filters

There are now 5 new filter models:

STATE VARIABLE

Stepless transition from HP to LP and from NOTCH to PEAK. Smooth and clean.

SALLÉN-KÉY

A famous filter topology used in numerous vintage synthesizers. Gritty and screamy.

COMB

A delay line with feedback and damping. Delay time is displayed as a resonant frequency in Hz.

Feedback: Feeds the delay output back to its input. At high settings, the delay becomes a tuned resonator.

DAMP: Applies a high cut to feedback, reducing harshness.

MIX: Controls the level of the delay output. Can also be phase-inverted (-100) for phaser-like canceling effects.

GRANULATOR

Cuts the audio into overlapping grains and modulates their pitch, position, and more. **Grain Size:** Sets the size of grains in milliseconds.

Density: Controls the number of overlapping grains. Values below 1.0 introduce gaps.

Pitch: Transposes each grain up or down.

DIRECTION: Determines whether grains play forward, reverse, alternating, or in random directions.

RANDOMIZE: Scrambles the grains' pitch, position, level, and pan.

LADDER VCF

The Ring Modulation / Sine OSC can now be replaced with a ladder filter. This is especially useful in combination with other filters to tame the signal further.



AFTER TOUCH

Previously, aftertouch only affected the VCA level with a fixed depth of 50%. Now, it's adjustable from 0% to 100%.

Aftertouch can also be used to modulate the VCF cutoff frequency and the modulation depth of the new RND/MOD function.

RND/MOD

Turn MOD DEPTH clockwise for a regular vibrato effect, or counterclockwise for random drift — perfect for creating organic, warby, tape-like sounds. MOD RATE controls the frequency of the modulation.

POLYPHONY MAX VOICES

Polyphony can now be reduced down to three voices for CPU saving.

You can select from 3, 6, 8, 12 or 16 voices.



CV OFFSET

There are 2 new CV inputs; Pitch Offset and VCA Offset - these can be used to modulate the pitch and amplitude for tremolo/vibrator effects.