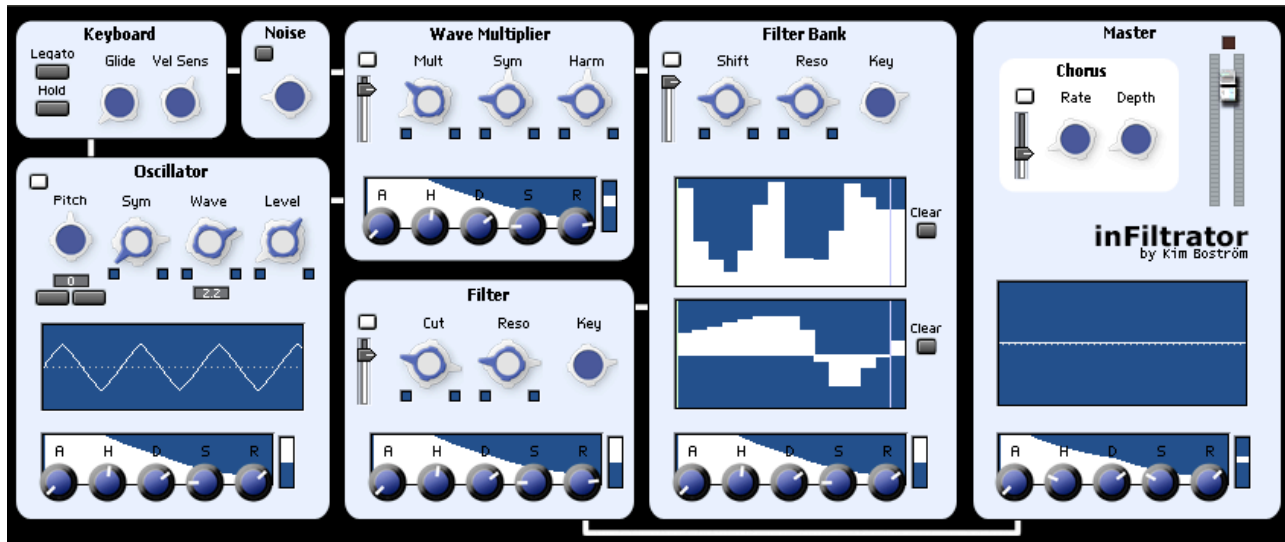# inFiltrator

Synthesizer for creating unusual sounds and soulful distortions.

by Kim Boström, March 2008

Concept

The heart of the inFiltrator are two musically highly effective but surprisingly seldom used modules: a **wave multiplier** and a **filter bank**. Both are extended implementations of the Doepfer modules A-137 and A-128, respectively.
The idea is to first generate a relatively simple waveform, expand its complexity by the multiplier and then attenuate individual frequencies by the filter bank. A downstream P52 filter, master envelope and chorus give the sound a final polishing. The signal path is:

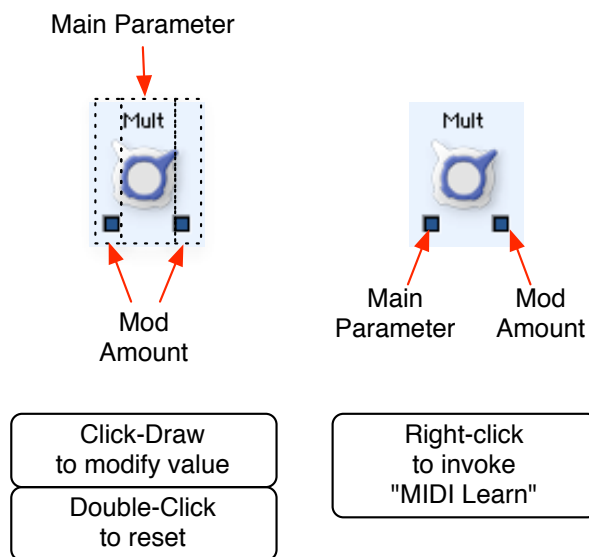The instrument works in Mono and Poly mode, though some snaps sound better in Mono.

Credits

- Andy Wilmer for inspiring discussions. (He's a genuine modular freak!)
- Daniel Scholz, whose Reaktor implementation of the A-128 was the basis for my filter bank.
- Anonymous (maybe Jonathan Style) for the dual knobs which I further adapted to my needs. (His/her original ensemble "ontotheham" is not signed, unfortunately, and I cannot find it in the Library anymore!)
- Don Dailey for his terrific snaps which I included as a separate bank (and added some little variations). Check it out!

Usage of the Dual Knobs

All modules are equipped with AHDSR-envelopes to shape specific parameters.
The operability is eased by the use of Dual Knobs: The inner ring adjusts the main parameter while the outer ring adjusts the amount of modulation by the envelope.
The inner ring is controlled by the middle region of the knob, the outer ring by the left and right regions. Click-draw inside either region to modify the respective value, double-click to reset.
Unfortunately, Reaktor's Mouse Areas, which are needed for the Dual Knobs to work, cannot be controlled by external MIDI signals (Feature Request!). This is why there are two little squares below the knob. Right-click either square and choose "MIDI Learn" to assign a controller. The left square is for the inner ring, the right square for the outer.

Main Parameter

Mult

Mult

Mod
Amount

Main
Parameter

Mod
Amount

Click-Draw
to modify value

Double-Click
to reset

Right-click
to invoke
"MIDI Learn"

Usage of the Insert Controller

All Effects have an activation button and an insert fader. If the button is turned off, the effect is bypassed. If turned on, the fader determines the mix between dry (pre-effect) and wet (post-effect) signal.

The Modules

Keyboard

Legato
Toggle Legato Mode which prevents the envelope from being re-triggered when a new key is pressed while the old key is still held. It works only if the number of voices is set to 1 (Mono Mode).

Hold
Toggle Hold Mode which prevents any re-triggering. Only the very first key triggers the envelope, all following keys affect only the pitch. Works also in Poly Mode, but then the results may be unsatisfying.

Glide Time
The time for a linear glide from one key pitch to the next. Works only in Mono Mode.

Vel Sens
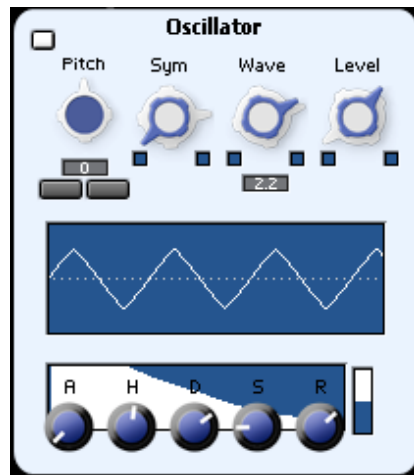Sensitivity to key pressure. When set to 0, any pressure generates full velocity.

Noise

Generates white noise whose volume is set by the knob. The noise is not shaped by an envelope.

Oscillator

Modwave oscillator: generates a periodic waveform which can be morphed between different shapes, and this morphing can be modulated by an envelope.

Pitch
The pitch of the generated waveform. The lower two buttons transpose one octave down and up, respectively.

Sym
The symmetry of the waveform, that is, the relative position of the middle peaks.

Wave
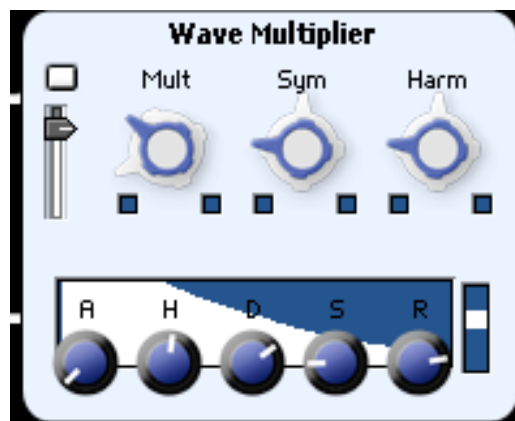The shape of the waveform. Can be morphed between 4 different shapes:

0	Pulse
1	Saw
2	Triangle
3	Sine

Level
Sets the output level of the oscillator.

Wave Multiplier

Based on the Doepfer A-137, this core module compresses and folds the input waveform. Some settings produce bell-like sounds, others create "overdrive" characteristics, from warm punch to aggressive distortion. If combined with the "Level" envelope modulation of the oscillator module, it is possible to create soulful Jimi-Hendrix or wicked Heavy-Metal flavors.
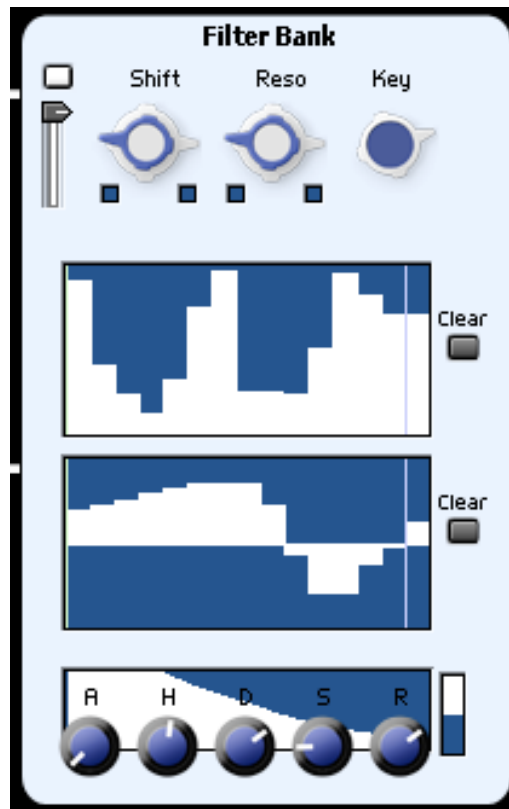
Mult
Multiplicity. Determines the number of added overtones. More precisely, the input wave is iteratively folded back, yielding overtones which are largely 5ths.

Harm
Harmonics. Similar to the Resonance of a filter, this parameter creates high-frequent overshoots.

Filter Bank

Based on the Doepfer A-128, this module splits the input wave into 15 frequencies which are attenuated individually. While the A-128 has knobs, the inFiltrator Filter Bank can be easily operated by manipulating a graphic display of 15 bars. The amount of envelope modulation of each frequency attenuation can be tuned by a second graphic display below. Furthermore, the center frequency and the global filter resonance of the bank can be modified and coupled to an envelope.

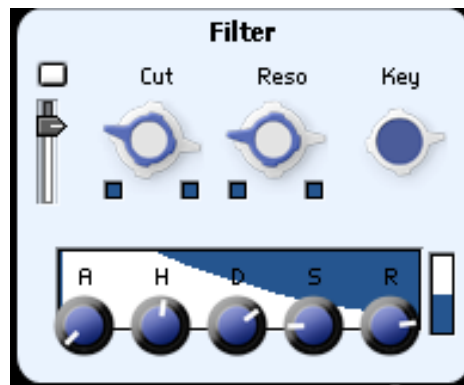*Shift*
Shifts the center frequency of the entire bank.

Reso
The global resonance of the involved filters.

Key
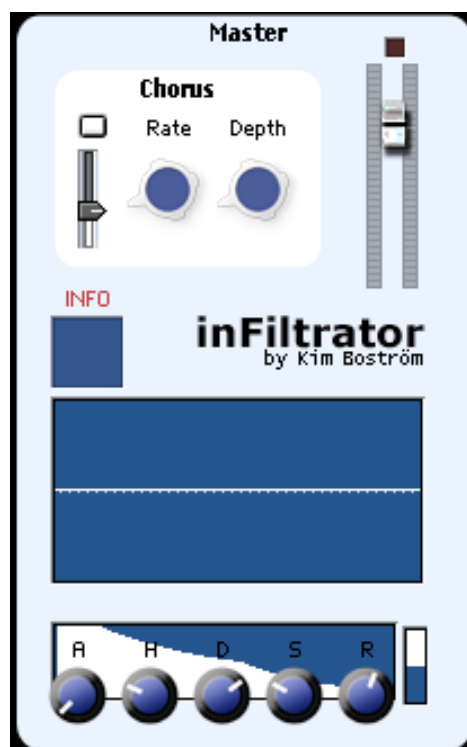Keyboard-Tracking of the Shift parameter.

Filter

A standard (but very good) low-pass filter of the P52-type. The knobs work the usual way, except that the envelope modulation amount of each parameter can be tuned by the outer ring of the dual knobs.

Master

The last module in the signal path optionally adds a Chorus effect and applies an envelope to the global output. A graphic display shows the final waveform.

The "INFO" lamp reveals some info about the instrument when the mouse hovers over it (and "Show Info" is active). But whence you reached here to read this, all info is already in your head. So now go let your soul fly to Voodoo land!