



REAKTOR

VOLUME 1

ELECTRONIC INSTRUMENTS



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INTRODUCTION

Welcome to **REAKTOR ELECTRONIC INSTRUMENTS**.

This CD contains seven versatile instruments designed to inject fresh creativity into techno, industrial, drum and bass, electro, IDM, and electronic productions. Three powerful synthesizers, three unique effects and a drum machine are packed with presets and ready to resonate.

These instruments were designed by REAKTOR experts to take full advantage of REAKTOR's modular capabilities and excellent sound quality. You should first be comfortable with basic REAKTOR operations such as loading ensembles and switching snapshots in order to make the most of these tools.

Naturally, these instruments can be used with all the interfaces that REAKTOR supports: VST, DXi, MOTU, DirectConnect, and ASIO. Your REAKTOR user's guide has more information on using REAKTOR with these interfaces.

Please take a moment to read through this booklet for a brief description of each instrument. You can find more detailed information in the PDF manual on the CD. Note that all instruments make full use of REAKTOR tool tips to explain the exact function of each panel object (knob, fader, sequencer, etc).

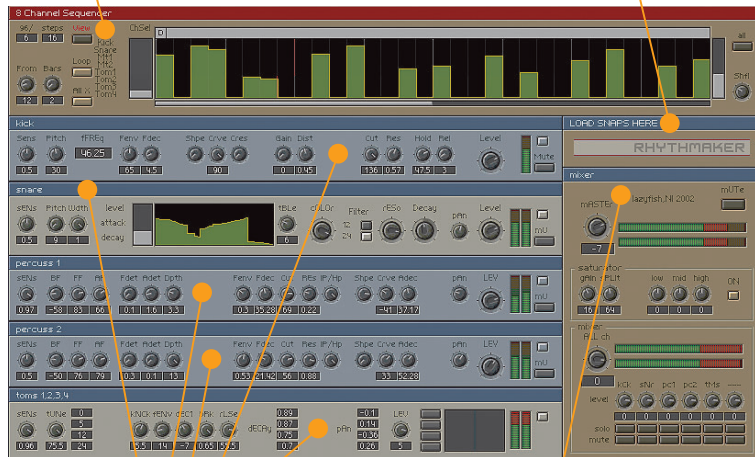
INSTALLATION

Simply drag the contents of the REAKTOR ELECTRONIC INSTRUMENTS CD to your hard drive.

RHYTHMAKER Sequenced Drum Machine

8 channel sequencer

Load snapshots here



Individual percussion synthesizers

Master mixer and saturator

Don't let the name of this ensemble fool you – it's more than just a beat box. Rhythmaker is a complex, eight-channel rhythm sequencer chained to four unique types of drum synthesizers. Each drum synthesis module has extensive controls for modifying and tweaking the sounds, allowing you to create totally new drum sounds, from the subtle to the hardcore. Rhythmaker is also a drum synthesizer: you can play each of the drums over MIDI, from C1 to G1. Make sure that the **LOAD SNAPS HERE** panel is selected when you switch presets in order to change all of the instruments.

► The Sequencer

The event table-based sequencer makes it easy to program beats with variable volume for each drum hit and a shuffle control for swing. The View button switches between an all-channel overview and edit views for individual channels. Each of the sequencer's eight channels can be accessed by clicking on the ChSel scroll bar to the left of the event table and are hard wired to the corresponding drum module.

► The Drum Modules

Kick: The Kick module uses frequency envelope modulation and two different distortion circuits to generate tonally complex and powerful kicks.

Snare: An event table controls the spectral envelope of the synthesized snare.

Percussion 1, 2: Two percussion modules create hi-hats or metallic noises.

Toms 1, 2, 3, 4: This module can create four simultaneous toms, resonant tones, or bass lines.

► Mixer

The mixer features integrated EQ for each channel and a finalizing saturator.

Instrument: Lazyfish

Presets: Lazyfish

TITAN Lead Synthesizer

Oscillators

Filters



Modulators

Effects

Velocity/Keytracking

Titan is the new flagship of REAKTOR synthesizers. Featuring a design similar to the most advanced hardware units, Titan's four oscillators, three envelopes and LFOs, two filters, graphical modulators, and full matrix modulation produce an astonishing range and depth of sound.

► **Oscillators and Filters**

Titan's four oscillators (two single and one dual oscillator) offer a standard array of analog-style waveforms and familiar functions such as detuning, sync, and ring modulation. The oscillators are fed into the dual filter section, which offers a choice of seven filter types per filter. The filters can be routed in series or parallel and feature saturation and carefully adjusted frequency response.

► **Modulators**

In addition to three multi-stage envelopes and three LFOs, two multifunction event tables allow hand-drawn controller shapes. The first event table, T1, can be used as a custom LFO, envelope, or for key tracking. The second event table, T2, is dedicated to key or velocity tracking.

► **Matrix**

Double clicking the Instrument panel brings the comprehensive modulation matrix into view. Even though this screen may look intimidating, it lets you route the LFOs, envelopes, and event table modulators to oscillator pitch, filter cutoff, or oscillator FM amount.

► **Effects**

Integrated stereo enhancer, chorus, flanger, delay, reverb, and three-band EQ enhance the output.

Instrument: Mike Daliot

Sounds: Mike Daliot

Dimension Expander effect by Tim Schwerdtfeger

Oscillators

Cascade Filter

Pitch Options



Envelopes

Output Options

LFO

Grobian is everything you don't want a dog to be: dirty, aggressive, and very loud. But what's undesirable on a leash can really make your music growl. Grobian is a compact, powerful bass synthesizer designed to create driving basslines for drum and bass, industrial, and hard techno.

► **Oscillators**

Grobian features two unique oscillators plus a sub oscillator and a noise generator. The first oscillator can be switched between a stack of seven sawtooth oscillators or a single sine oscillator with bit quantization. The second oscillator is a Pulse (square wave) generator that can be ring modulated. The sub oscillator is always a sine wave.

► **Cascade Filter**

Grobian's filter is very flexible and sounds great. To get the warm, rich sound associated with analog filters, this creative filter uses a neat trick: the saturated output is sent through the filter again after a very short delay. In addition to the usual Cutoff and Resonance controls, you'll notice another large knob to control the delay in the feedback path of the filter. Not only can Grobian's filter self-resonate (a very unusual feature in a digital filter), but the sound remains rich and warm even with very high resonance values (an even more unusual feature in a digital filter!). You can switch between two filter modes: New (sounds warmer) and Old (sounds more resonant).

► **Envelopes**

The two envelope generators in Grobian are both standard ADSR envelopes. EG1 always controls volume, while EG2 can control a variety of parameters, such as filter cutoff or oscillator pitch.

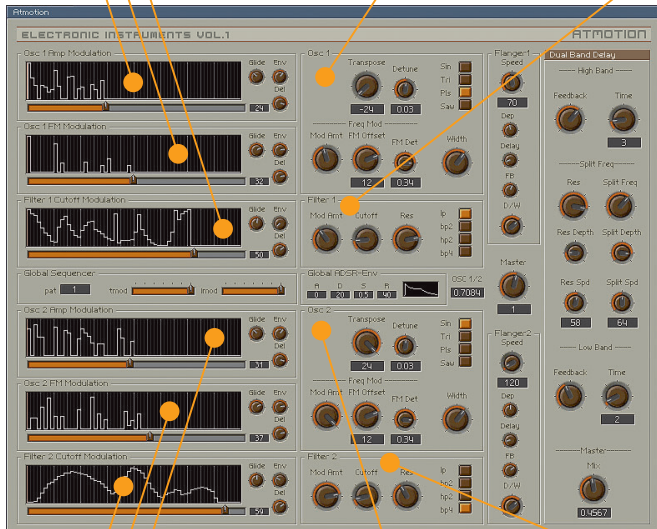
Instrument: Mike Daliot

Sounds: Mike Daliot, Cornelius Lejeune

Sequencers for Osc1/Filt1

Oscillator 1

Filter 1



Sequencers for Osc2/Filt2

Oscillator 2

Filter 2

Atmotion was specially designed to create pads, atmospheres, and special effects. What sets it apart from other pad-oriented synthesizers is step sequencer-based control over the parameters. Atmotion can create dense, rich, atmospheres and rhythmic pads by sequencing filter cutoff, oscillator level, and FM depth. Since Atmotion is controlled by the system clock, remember to start the global clock when checking out its capabilities.

► Oscillators

The heart of Atmotion is a familiar 2-oscillator synth. However, Atmotion's dual filter/flanger architecture, complex filters, and extensive modulation capabilities make it far more unique and expressive. Each of the two oscillators is routed through its own filter and flanger before being mixed into a shared amplitude envelope, chorus and dual band delay. Each oscillator can generate one of four basic waveforms (sine, triangle, pulse, saw) and has its own FM operator along with an independent LFO for pitch and pulse width modulation.

► Filters

The available filter modes include band-pass, high-pass, and five types of low-pass. The Dbl filter engages two serially connected low-pass filters; Cut2 and Res2 adjust cutoff and resonance offset for the second filter. The fb mode allows you to control filter feedback with the FB knob.

► Sequencer

Each oscillator-filter-flanger section can be modulated by three step sequencers, which are hardwired to FM depth, level, and filter cutoff frequency.

Instrument: Martin Brinkmann

Presets: Martin Brinkmann, Eric Young

Envelope Follower

Filter



Distortion

Delay

EnFX contains three distinctly unique takes on the old envelope follower. Not simply confined to the familiar wah-wah filter effect, EnFX also includes an input-modulated delay and distortion. The ability to modulate the effect parameters by the amplitude of any input allows for some radical re/deconstruction of sounds.

► **Envelope Follower**

Each effect contains an identical Envelope Follower section. A peak detector with a Hold-Release envelope is triggered by changes in the input amplitude. You can adjust the sensitivity of the peak detector using the PkRel control. The Release and Hold controls allow you to tailor the response of the shaping envelope. Higher values result in slower volume changes. Lower values – shorter times – result in faster volume decays. The envelope follower generates control signals that control different parameters in each effect.

► **Envelope Follow Filter**

The filter's simplest use could be a dynamic auto-wah, but the input signal can be completely mutilated at more extreme settings.

► **Envelope Follow Distortion**

A dynamically controlled overdrive with pre-distort and post-distort equalizers is modulated by the envelope follower. It can generate sounds ranging from highly destructive distortion to uniquely modulated wah effects.

► **Envelope Follow Delay**

The delay time is modulated by the envelope follower, generating strange, complex pitch shifts, radical time distortions, and curious rhythmic transformations.

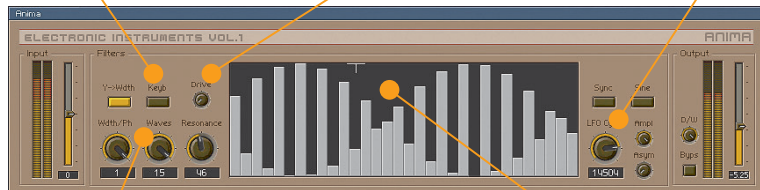
Instrument: Lazyfish

Presets: Lazyfish, Cornelius LeJeune

Activate MIDI Input

Pre-Filter Saturation

LFO



Filter Wave

Filter Array XY Pad

Anima is a resizable array of filters that can either act together in one wave or separately in many waves. All filters are controlled by a single graphic XY pad to musically produce rich phase shifts, synced filter sweeps, and tuned resonances.

► **Filter Bank**

The number of filters in Anima's filter array is set by adjusting Anima's polyphony in either the REAKTOR toolbar or the Anima instrument properties. Polyphony settings from 8 to 64 give the best results. Of course the more filters there are, the more CPU Anima needs. The XY panel immediately shows how many filters are active – each bar in the display represents the frequency and amplitude of a single filter.

Dragging up and down in the main XY display either phase-shifts the filters (Y->Width button OFF), or adjusts the width of the entire filter bank (Y->Width button ON). Left and right motion adjusts the center frequency of the filter bank. MIDI note input also controls the filter bank's center when Keyb is on.

With high resonance values, Anima acts like a tuned resonator, and works especially well with MIDI input. With lower resonance values, Anima becomes the ultimate filter-sweep and phaser machine.

► **Waves**

An LFO modulates the phase of each filter– the effect is like that of a wave in a football stadium, with the volume of each filter rising and falling after each other. The number of waves in the filter bank is set with the Waves knob. The LFO tempo is synced to the system clock – with values in sixteenth notes – when the Sync button is on.

Instrument: Lazyfish, Erik Wiegand

Presets: Lazyfish, Erik Wiegand

LONGFLOW Dub Delay

L and R highpass and lowpass filters

L and R delay time



Feedback gain control

Swap L and R channels

Longflow is rich sounding stereo delay with very long decay times and the ability to modulate both delay time and filter frequency. It uses dual resonant high- and low-pass filters (called LoCut and HiCut respectively) to shape the frequencies of the signal to be delayed. With some tweaking, it's possible to get anything from resonant choruses to deep, dubby, modulating delays to warped time-continuum madness. The top row of knobs controls the left side of the signal while the bottom controls the right. Signal flow advances from left to right.

► Filters

LoCut and HiCut adjust the filters in the delay feedback loop, while Reso controls their resonance. The Rate and Depth knobs set the speed and modulation amount of a sine wave LFO, which modulates the HiCut filters.

► Feedback Gain Control

The Feedback knob does just what you'd expect: adjusts the amount of feedback to the delay. The Lift control sets the amount of amplification applied to low volume parts of signals. This helps to generate long feedback tails by boosting quiet repeats in the delay. Watch your ears and your speakers – this can get really loud!

► Delay Time

You can set delay times in 16th notes using the two Delay knobs. The Rate and Depth controls near the Delay knobs set the speed and amplitude of another sine LFO that modulates delay time. The output of the knob is processed by a mapping function to allow both very short and extremely long delays, all synced to the tempo.

Instrument: Lazyfish

Presets: Cornelius Lejeune

TIPS AND TRICKS

Even though this instrument collection was designed for instant studio use, the instruments themselves can give valuable signal processing lessons. There are no industrial secrets hidden in these instruments. You can open, explore, and study the structures of these instruments to learn why Grobian's filter sounds so good, or how Anima can create a bank of filters out of a single filter.

You can create ensembles that are combinations of different instruments. For instance, you can make a version of Rhythmaker that has six kicks and two snares, with an integrated Anima filter effect.

Not only can different instruments be mixed and matched, but parts of instruments (macros) can also be exchanged and traded. You can use the event sequencers in Atmotion, for instance, to build your own synth where you can choose exactly what parameters are controlled.

When working in VST, it's often a good idea to first make a copy of the instrument you'd like to use in your productions, and to save it with your song files. This way, your song can be accurately recalled even if you later make changes to the original instrument.

Always remember: If it ain't got that swing, it don't mean a thing.

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CREDITS

Instruments Design	Lazyfish, Mike Daliot, Martin Brinkmann
Sound Design	Mike Daliot, Lazyfish, Martin Brinkmann, Cornelius Lejeune, Eric Young
Documentation	Brian Tester, Cornelius Lejeune, Jake Mandell
Project Management	Jake Mandell, Erik Wiegand, Cornelius Lejeune

Native Instruments GmbH

Schlesische Str. 28

10997 Berlin

Germany

Tel.: +49-30-61 10 35 0

Fax: +49-30-61 10 35 35

Native Instruments USA, Inc.

5631 A Hollywood Blvd.

Los Angeles, CA 90028

USA

Tel.: 1-866-556-6487

Fax: 1-323-467-5236

info@native-instruments.com

www.native-instruments.com



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SOFTWARE SYNTHESIS