Torsion hybrid synthesiser

WHAT IS IT

INTRODUCTION

Torsion is a monophonic Audio Unit instrument plugin built upon a unique combination of multiple synthesis technologies and modulation sources, wrapped into an intuitive interface which makes working with it as fun as playing a game. It has a very distinctive, original sound character – and is ready to push your musical creativity in a fresh new direction.

Reinvented classics. At first glance, Torsion's sound structure is similar to a traditional subtractive synthesiser – three oscillators going into a low-pass filter and into an amplifier – and it's certainly as easy to use. But Torsion's oscillators are completely different: they produce simple additive waves based on just a few partials, which are then enriched with lots of new spectral content using a wave transformer, which literally "curls" the wave in real time. To further spice the sound up, it offers a vast array of effects – including frequency shifter, filter FM, delay, and more.

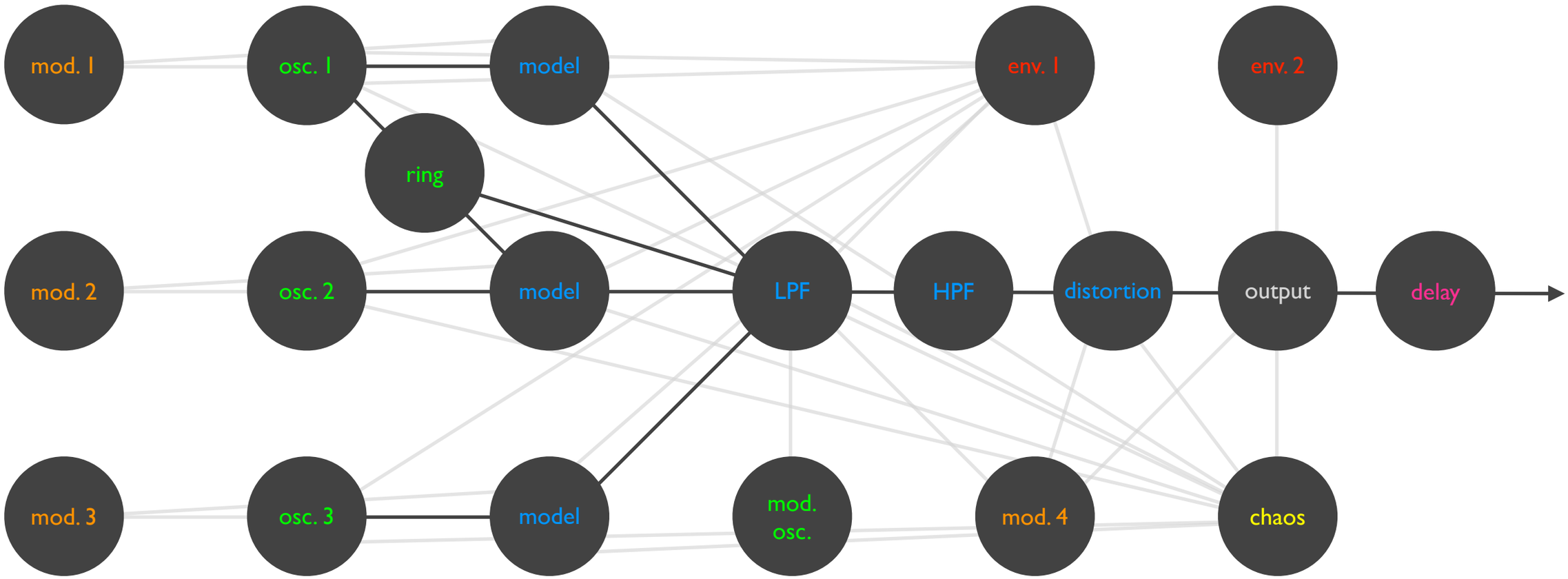
Modulation galore. Torsion features as many as four separate LFO generators - one for each oscillator and one for the filter and output amplifier. In addition to precise synchronisation, each LFO cycle can be self-randomised, which makes the modulation rhythmical yet non-repetitive. There are also two AHDSR envelope generators, as well as a two-dimensional chaos oscillator.

Interactive experience. The interface of Torsion is designed with high-contrast, colour coded elements, which lets you operate the instrument intuitively in just a few minutes. It also includes graphic representations for every building block – oscillator and LFO waveforms, envelope shapes and filter spectrum all change as you modify them, making sound design with Torsion a truly engaging, fun process.

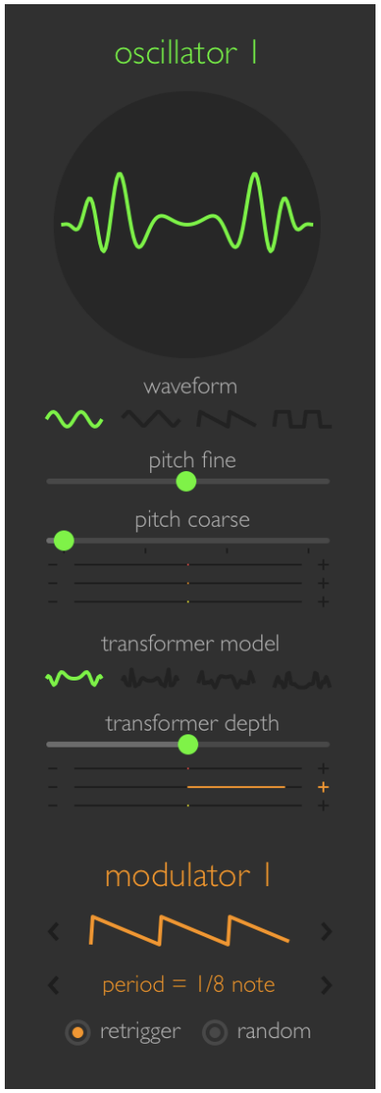
SPECIFICATIONS

– Three oscillators each with four additive waveforms and four wave transform models.
– -24 dB/octave resonant low-pass filter with FM oscillator.
– -12 dB/octave high-pass filter.
– Ring modulator, sample rate and bit depth reduction, saturation, frequency shifter, modulation delay.
– Four LFO generators each with 8 waveforms and per-cycle randomisation.
– Two AHDSR envelope generators.
– Two-dimensional chaos modulation generator.
– Factory patch bank with 170 presets.

Simplified structure and signal diagram



oscillator 1/2/3, modulator 1/2/3



Oscillator waveform: sine, triangle, saw, square

Oscillator pitch fine tune: +/- half semitone

Oscillator pitch coarse tune: 0 to 36 semitones

Pitch modulation by envelope, LFO and chaos

Oscillator pitch coarse tune: 0 to 36 semitones
(hold the "command" key on this or any other slider for default value)

Wave transform model

Transform modulation by envelope, LFO and chaos

Wave transform intensity

LFO waveform: triangle, saw, square, pulse, trapezoid

LFO rate in relation to tempo: 1/64 note to 4 bars

Reset LFO phase on each key press

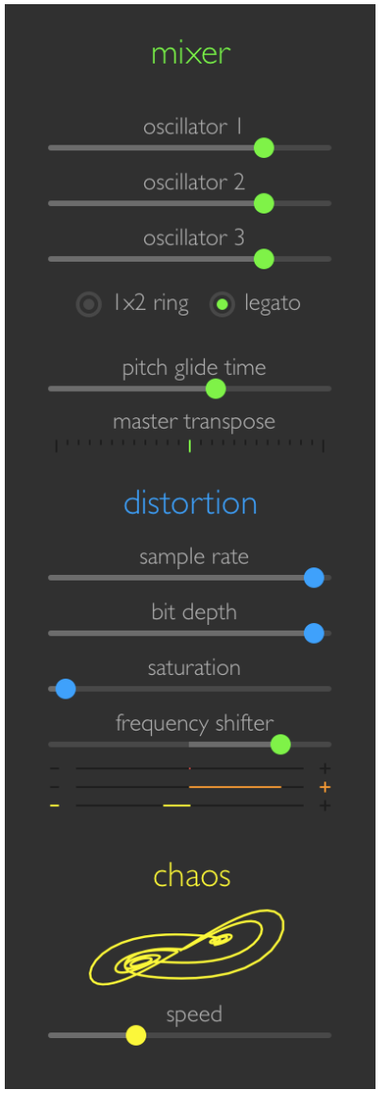
Randomise each LFO cycle

mixer, distortion, chaos

Ring-modulate oscillators 1 and 2

Global pitch transpose: -12 to +12 semitones

Shifter modulation by envelope, LFO and chaos



Oscillator 1/2/3 output levels

Legato turns off envelope re-trigger on each key press

Speed of pitch changes in between different notes

Sample rate reduction

Bit depth reduction

Analog-style signal saturation

Bode frequency shift amount (negative or positive)

Chaos oscillator fluctuation speed

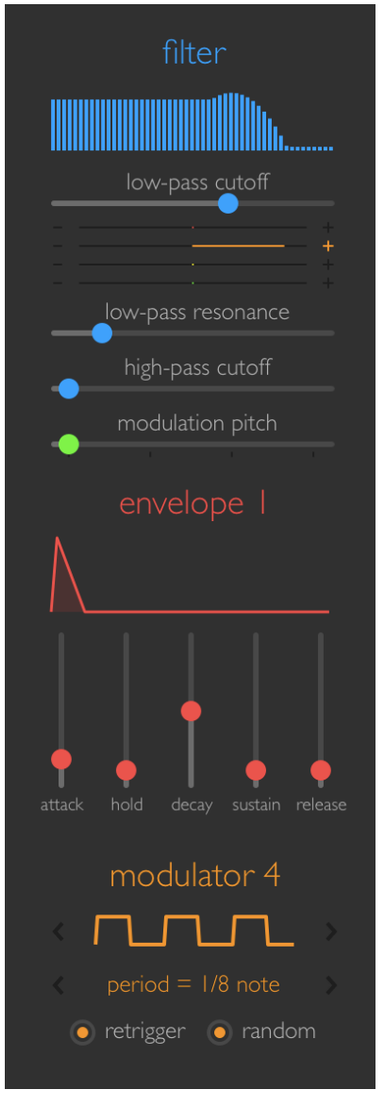
filter, envelope 1, modulator 4

LPF cutoff frequency: 20 Hz to 20 KHz

LPF resonance amount

Modulation oscillator pitch coarse tune: 0 to 36 semitones
(hold the "option" key to adjust continuously)

Reset LFO phase on each key press



Filter display shows approximate filter spectral response based on cutoff and resonance settings

LPF cutoff frequency modulation by envelope, LFO, chaos and modulation oscillator

HPF cutoff frequency: 20 Hz to 20 KHz

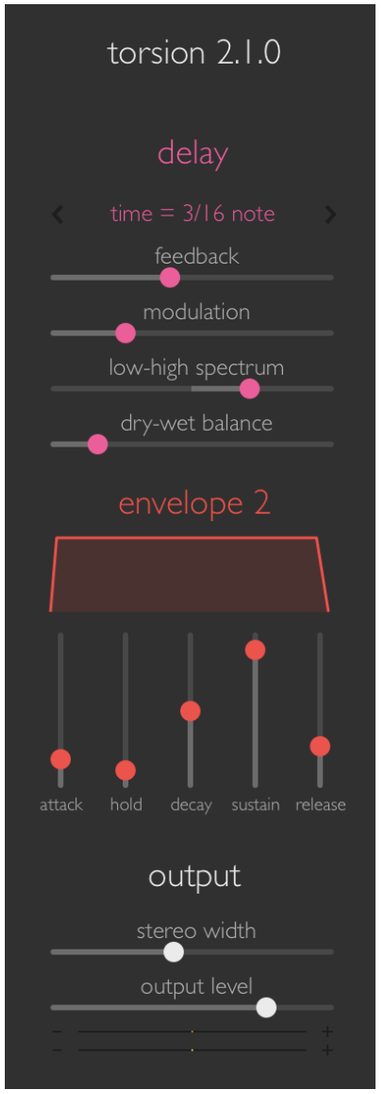
Modulation envelope attack time, hold time, decay time, sustain level, and release time

LFO waveform

LFO rate in relation to host sequencer tempo

Randomise each LFO cycle

delay, envelope 2, output



Delay time modulation depth (mild stereo chorus effect)

Mix balance between dry signal and delay output

Output level modulation by LFO and chaos

Delay time in relation to tempo: 1/64 note to 1 bar

Delay feedback time (tail duration)

Delay tail filter: low-pass (negative value) or high-pass (positive)

Output envelope attack time, hold time, decay time, sustain level, and release time

Spreads oscillator 1 to L and oscillator 3 to R channels

Master output level