

SATYRVS

unique saturation and distortion effects

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Distortion is beautiful.

It has always existed. Awareness began with audio electronics. Feared on the one hand as a result of overamplification of equipment or cheap components, it quickly gained attraction as a valuable technique in music production. Beginning in the early 1960s, the systematic use of distortion through amplifiers or effect devices radically changed the general understanding of harmony in music.

The harmonic basis was not chiefly formed by triads anymore but combinations which are more similar to quartal harmony. Think of power chords which, besides the root note, contain only octaves, fourths, or fifths. Such structures forcefully dominate under distortion, whereas triads lose steam and beauty in the whirls of such frequency mixtures.

Distortions (D) can be described by characteristic curves which show the output amplitude in relation to the input amplitude. A straight line is a simple case of clean gain. Curvature means distortion.

Saturations (S) describe amplitudes which do not cross a specific threshold. In contrast to digital limits, these curves asymptotically approximate the threshold value. This behavior is known from old tape recordings: their characteristics are mostly linear. Beyond a certain amplitude, they begin to distort. It was a stylistic trick to deliberately force recordings into saturation. The sound became a bit distorted but also richer. Low amplitudes remain unchanged, higher amplitudes are distorted towards the limit.

Modulating distortions (M) are distortions which do not approximate a limit when in overdrive. They turn into oscillating waveforms above a certain level and bring modulations into play. They are neither level-dependent nor reversible.

Purposefully applied, beautiful mathematical functions also sound beautiful. The **Fresnel Integral** is such a strong, beautiful function. Used for distortion, it appears like a saturation. Overamplification does not approximate a threshold but leads to a fine modulation. As beautiful and simple the function may be, its calculation is difficult if mathematical accuracy is of importance. An approximation formula generates the same results.

SATYRUS provides a collection of distortion functions designed and programmed by Austrian composer Günther Rabl. DSP technology and plug-in application by Re-Compose GmbH, with branding and distribution by W. A. Production.

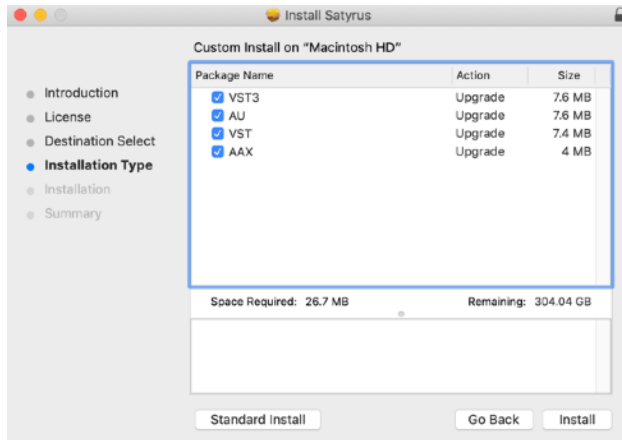
System Requirements

Operating systems: Windows 7 and later (64-bit only), macOS 10.9 and later (64-bit only)

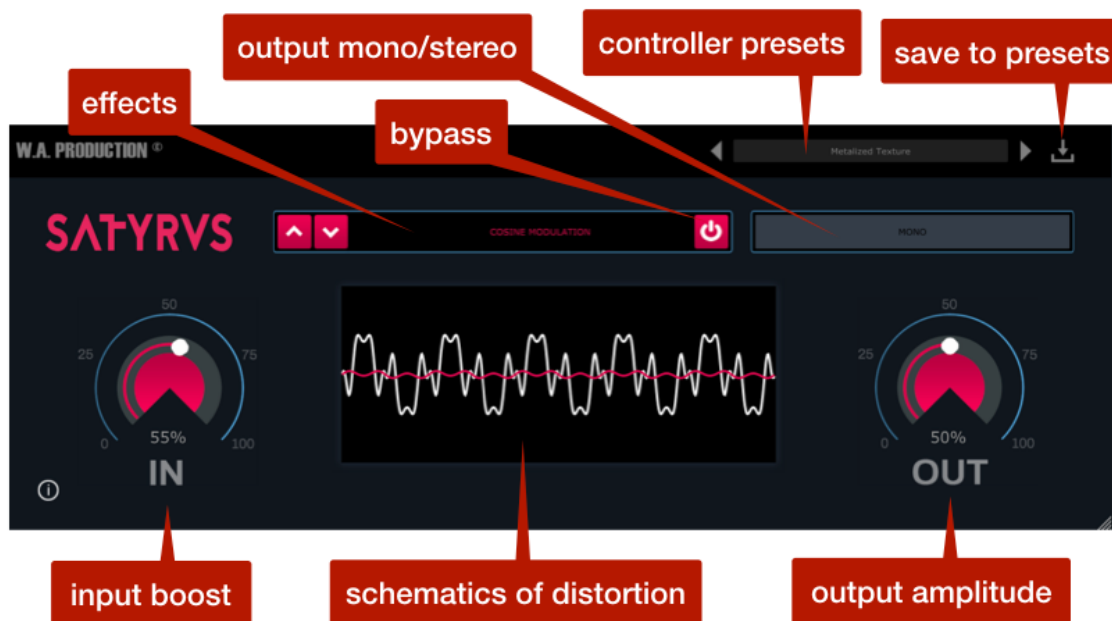
Available interface types: VST2, VST3, AU, AAX

Installation

Unpack your software, start the installer for Windows or Mac, and follow the instructions. By default, all available version formats will automatically be installed. You can also choose which versions you want to install in the process. See the options in the installer window display for custom installation on macOS:



User Interface



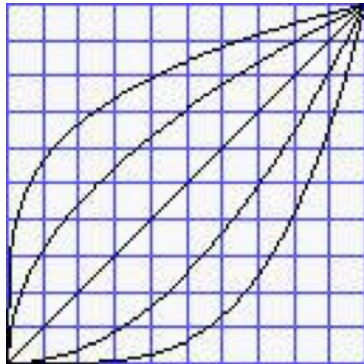
On the left, we have our In knob, which essentially lets you control how much Satyrus affects the sound. As you adjust the In knob, you can see visually via the white line how the saturation or distortion module is affecting the shape of the sound. When playing audio on the track, the red line will also provide you visual feedback representing the sound that is being fed out of the plugin.

Description of Effects

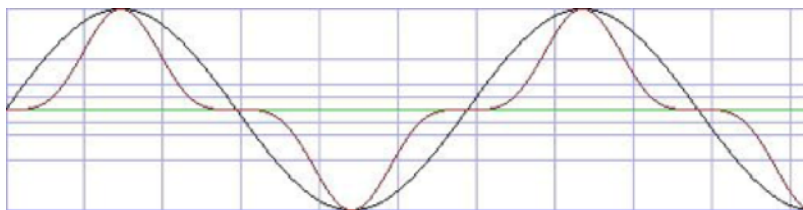
Power Distortion (D)

The king of distortions, with a drastic effect on levels. Depending on the settings, soft ranges are raised or lowered. The spectral characteristics of the distortion remain the same at every level, a potentiation of the amplitude while maintaining the algebraic sign (i.e. positive remains positive and negative remains negative): $\pm A(\text{new}) = \pm A x$, x being an arbitrary exponent. At a value >1 , we are dealing with potentials; <1 leads to root factors; exactly 1 keeps the amplitude unchanged.

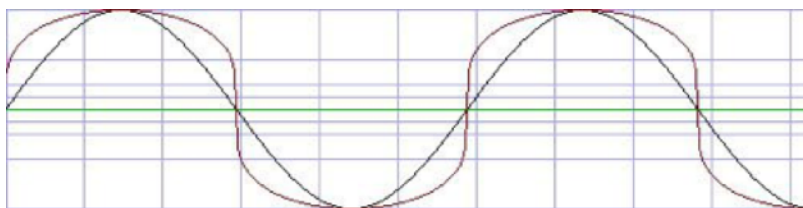
These are typical characteristic curves for this behavior:



This is about characteristic curves and not waveforms. A pure tone (with amplitude 1 at the standardized level) produces the following results:



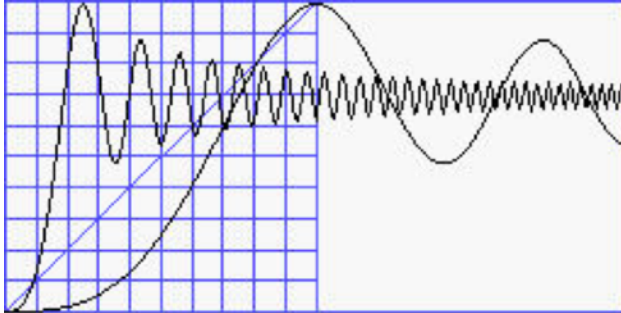
Black: sine wave, red: distortion factor 4



Black: sine wave, red: distortion factor 0.25

Fresnel Distortion (D)

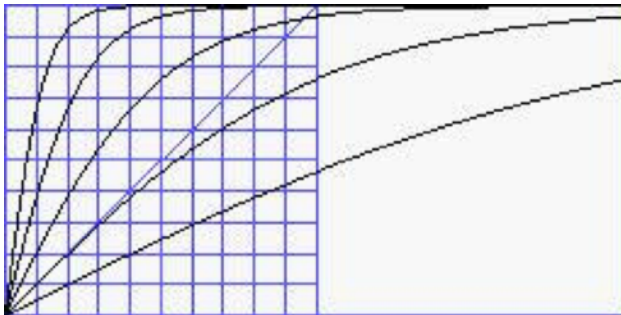
Distortion can be applied to everything, not only to pure tones. In this case, it will create the typical, recognizable combination tones. It will also create modulations due to over-oscillation at wider amplitudes:



Hyperbolic Overdrive (S)

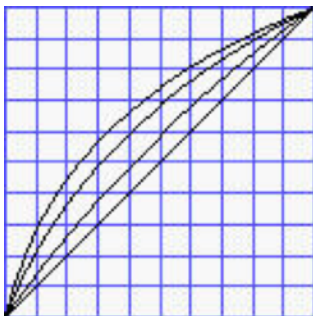
This is the saturation function with the most useful characteristic curves. It is ideal for editing strong and popping *Attack* sound effects with diffuse spectra (more impulse than pitch) such as shots, explosions, thunder, etc. Levels can be multiplied, and the energy will increase. This saturation effect is also valuable when applied more subtly.

Contrary to limiters, which restrict levels and reduce energy, the entire energy here is used for the distortion and does not get lost. This is also very practical for mastering.



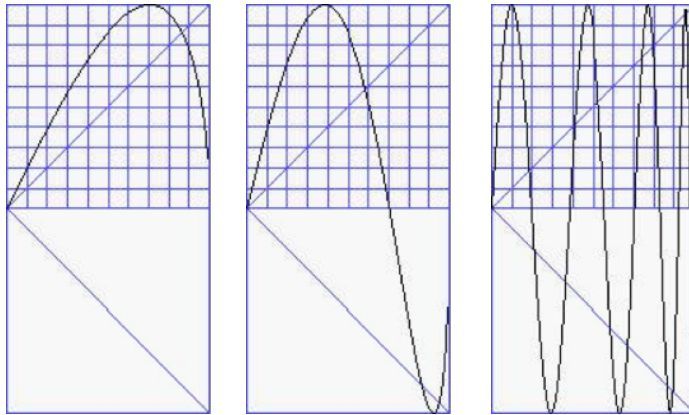
Logarithmic Coloration (S)

A hybrid from distortion and saturation, very useful for lifting vocals.



Circular Projection (M)

One of the most energy-rich and downright brutal distortions, particularly useful for low and deep *Sustain* and *Release* sounds. Low ranges remain mostly unchanged, whereas loud and noisy sounds lead to auto-modulation. Aliasing effects can occur and do not necessarily have to be avoided. That is a part of the game.



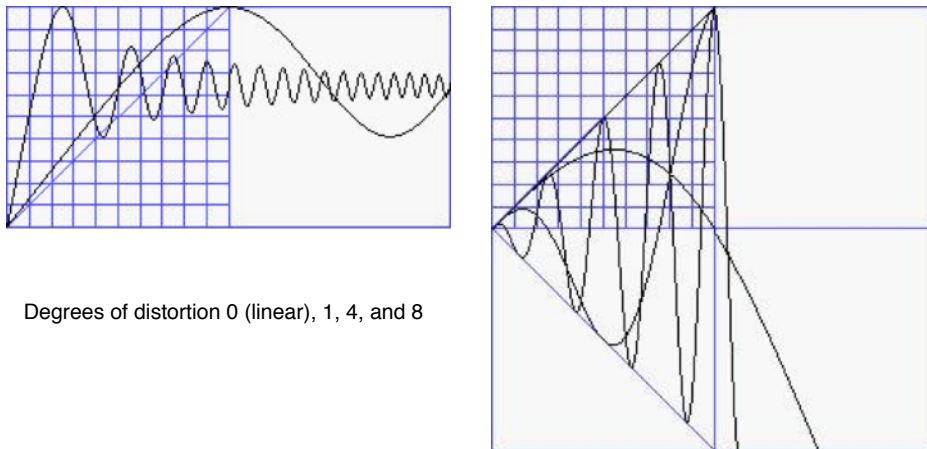
Circular Projection with different gains

Cosine Modulation (M)

Similar to Circular Projection but more subtle, yet strong. This auto-modulation is minimal and approximates a limit.

Fresnel Saturation (M)

The characteristic curves are not as dramatic but also modulating:



Degrees of distortion 0 (linear), 1, 4, and 8

Satyric Crunch (S)

More a product of coincidence from experimenting with the above effects, Satyric Crunch is a peculiar blend of Fresnel Saturation with the typical “crunch” of a distortion.