

DEVASTOR2 MULTIBAND DISTORTION UNIT



User Manual



Overview

Devastor is a multiband stereophonic distortion effect unit. It has two independent signal processing paths (for each channel: L,R).

After loading the plug-in within a host application, the GUI will appear:



Devastor graphical interface

There are two sections:

• Configuration and preset management



Configuration and preset selection section

• Signal processing control section consists of the all remaining controls

Signal flow

This chapter describes the signal path through Devastor. It also explains the basic components of the effect unit and their control parameters.

Basic modules

Internally, Devastor consists of a few basic components. These correspond to the sections on the graphical interface.

Dynamic's flattener

Depending on the value of **Dynamics** knob, this module will equalize levels in the signal's amplitude. Its principle of working is similar to a compressor's operation with auto normalization of the amplitude. However, its control (using one knob) is much simpler than that.



Dynamics knob

Diode clipper

This is the central and the most important element of Devastor. It simulates the behavior of a diode clipper analogue circuit. The signal





distortion is caused by the circuit "clipping" the top and bottom from the audio waveform.



Diode clipper section

Control of this module is performed by following controls:

- **Preamp** Amplification of signal in **Diode clipper**.
- **Threshold** This is the nominal level of amplitude, above this the distortion of the signal occurs.
- Shape Depending on a chosen Clipping curve, this parameter changes its characteristics.
- Clip Clicking the display that shows Clipper's curve, we can switch between 6 available different curves:



Devastor Clipper's curves

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- Tanh Hyperbolic tangent (Tanh)
- Atan Arcus tangent
- Hardclip Linear hard clip
- Crossover
- Asim. Tanh Asymmetric hyperbolic tangent
- Mixed Tanh / Clip Mixed Tanh and Linear hard clip

Two LEDs; **Clip +/**– indicate exceeding the threshold value by **positive** and/or **negative** halves of signal. This module works asymmetrically relative to zero.

Filter

In Devastor, we have three filter units at our disposal. They are independently configurable and are able to work in different configurations (they are connected in parallel, before or after the **Clipper** circuit – see figure below)



Filters' section

For each filter, the following parameters can be controlled:





- **Cutoff** Filter's cut-off frequency
- **Reso/B.Width** Filter's resonance or in a case of band-pass or band-reject filters, it's width.
- Volume Volume of output signal (from the filter).
- Filter type Filter type; LP low-pass, BP band-pass, HP hi-pass, BR band-reject, Off filter off.

Above parameters apply to all filters. Filters can only be connected in parallel, serial or mixed.

Possible filters' and clipper's configurations

Clicking the **Signal Routing** control allows reconfiguring the circuit connections between filters as well as the **Clipper** module.



Filters' and clipper's signal routing

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There are 9 various topologies to choose from:

GUI symbol	Name	Description
	All Pre	The signal is parallely processed by all 3 plugin's Filters . Their sum then is fed onto to the Clipper block.
	1 Pre / 2 Post	Signal is processed by Filter 1 before it gets to the Clipper. Distorted signal then is processed by Filter 2 and Filter 3 simultaneously, the output of which is summed.
	2 Pre / 1 Post	Signal processed simultaneously by Filter 1 and 2, then the sum of their outputs is routed to Clipper. Its output is then processed by Filter 3.







All Post The signal routed through Clipper is being processed by all the 3 Filters parallely.



1 Side / 2 Pre Signal is processed by each of the 3 **Filters** parallelly. After that the sum of the **Filter 2** and **Filter 3** outputs is routed to **Clipper** and eventually summed with **Filter's 1** output.



1 Side / 2 Post Signal processed by **Filter 1** and **Clipper** simultaneously. The **Clipper's** output then is equally fed onto **Filter 2** and **3** inputs. Finally all 3 **Filters'** outputs are summed.





Side / Pre /Input signal is distributed to Filters no 1 and no 2. Filter 2 is then routed to the Clipper, which outputPostthen gets to the Filter 3. Filter no 1 and no 3 are eventually mixed together.



2 Side / 1 Pre Signal is input to every **Filter** equally. **Filter 2** routed to **Clipper**, is eventually mixed with **Filter 1** and **3** outputs.



2 Side / 1 Post Signal is parallelly input to **Filter 1, 2** and **Clipper**. **Clipper**'s output then is routed to **Filter 3**, the output of which is then mixed with **Filter's 1** and **2** outputs.





Master section

- Amplitude of the output signal is adjusted by the **Output** volume knob.
- The **Output meter** shows the current amplitude of the output signal after the adjustment.
- **FX** knob controls proportions between processed and non-processed sound outgoing from Devastor.
- The Devastor's master output can optionally be secured with limiter (optionally enabled by **Limiter** toggle button). It is applied to the mixed **Wet** and **Dry** signals.



Master section

Path of the signal's flow

The input signal goes to the **Flattener**, then, depending on setting of the **Signal Routing** section, it is sent to the group of **Filters** and the **Diode Clipper**. Then, the amplitude of output signal is modified by the **Output** volume knob and optional **Limiter**. And finally the output mixed with dry signal accordingly with the value of **FX** value.



Signal flow



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