



MultiMod

Multiband Modulation Rack
for Waves Distortion Plugins

User Guide



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What is MultiMod?

Thank you for choosing Waves! In order to get the most out of your new Waves plugin, please take a moment to read this user guide.

To install software and manage your licenses, you need to have a free Waves account. Sign up at www.waves.com. With a Waves account you can keep track of your products, renew your Waves Update Plan, participate in bonus programs, and keep up to date with important information.

We suggest that you become familiar with the Waves Support pages: www.waves.com/support. There are technical articles about installation, troubleshooting, specifications, and more. Plus, you'll find company contact information and Waves Support news.

MultiMod is a tool for creating advanced distortion effects. It lets you use up to three Waves distortion plugins in one instance, so that you can create more layered, more complex, more controlled distortion sounds. Insert any combination of Waves distortion plugins (e.g., Abbey Road Saturator, Berzerk, and MDMX Distortion Modules) or effects plugins (e.g., Chorus, Delay, Reverb) and use them together. Each plugin slot correlates to a controllable phase-compensated crossover with perfect matched phase mix control, so you can adjust the frequency range that is being addressed by each of the plugins. Plugin sequence can be swapped instantly, which greatly changes the overall effect. In addition to the three plugin slots, there are modulator slots that enable five different modulators to influence most of the controls in the hosted plugins, as well as the MultiMod frame itself.

Each plugin has its own library of factory presets and artist presets, and the entire MultiMod plugin has presets for building a whole processing framework.

If you already use Waves distortion plugins, there's very little more to learn here, since the plugins are the same. Only the crossover and EQ sections, along with the modulators, are new.

MultiMod is a processing framework; it does not produce audio of its own.



Waves Distortion Plugins

Each Waves distortion plugin has its own purpose and personality:

- **MDMX Fuzz** is the most aggressive MDMX plugin. It can track the distortion signal in octaves, apply dynamics and octaves ahead of the distortion processor, and color the distorted signal. Bottom line: a big, in-your-face distortion effect that lets you go as far as you want.
- **MDMX Overdrive** is similar to MDMX Fuzz, but with less coloring. Overdrive can be gentler than Fuzz, but it's capable of making a very strong effect.
- **MDMX Screamer** is a straight-ahead overdrive generator. It generates subtle to strong overdrive, while holding on to the sound of the instrument or track.
- **Berzerk** is a wide-open distortion tool that lets you build effects from scratch. It combines distortion, dynamics, feedback, and distortion character control with a random generator.
- To bring a “too clean” track to life, add a bit of precise distortion with the **Abbey Road Saturator** plugin. The effect might go unnoticed, but the instrument or track will have more sparkle and will sit better in the mix. Saturator is not shy; when called upon, it can also add real attitude to an instrument.

You can swap a distortion plugin with an effects module to create new, rich sounds. Download the user guides for all of the Waves Distortion plugins on the [Waves downloads page](#).

Waves Distortion plugins are licensed separately from MultiMod.
Unlicensed plugins will not appear in the drop-down Plugins list.



Using MultiMod Interface

The image displays the MultiMod software interface, which is a rack of audio processing modules. The interface is divided into several sections, each with specific controls and labels:

- Populated Plugin Slot:** Located at the top, this section contains three slots. The first slot is populated with the **BERZERK** module, the second is empty, and the third is populated with the **OVERDRIVE** module.
- Access Plugin Menu:** A blue line points to the **+ BERZERK** button in the top left corner of the interface.
- Undo/Redo Load and Save Presets Bypass:** A blue line points to the **Load** and **Save** buttons in the top right corner of the interface.
- Choose X-over or EQ Processing:** A blue line points to the **XOVER** and **EQ** buttons in the bottom left corner of the interface.
- Mod Select and Assign:** A blue line points to the **M1**, **M2**, **M3**, **M4**, and **AM** buttons in the bottom center of the interface.
- EQ Processor:** A blue line points to the **EQ** section of the interface, which includes a frequency response graph and various EQ controls.
- Crossover Processor:** A blue line points to the **Crossover** section of the interface, which includes a frequency response graph and various crossover controls.

The interface also features a central display area showing a circuit board and a **BERZERK** logo. The bottom right corner of the interface displays the **PEAK** and **MIX** meters.



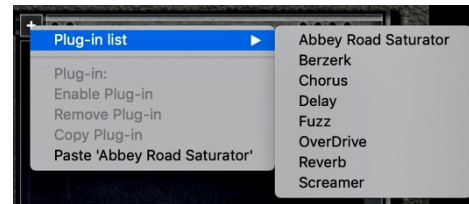
Plugin Slots

Inserting a Plugin

When you first open MultiMod, you will see three instances of Berzerk. To change or add a plugin in a slot.



Click on the small cross in the upper-left corner of any slot. This opens the plugin menu. Select a plugin from the list (below). Only distortion plugins and FX modules are shown.

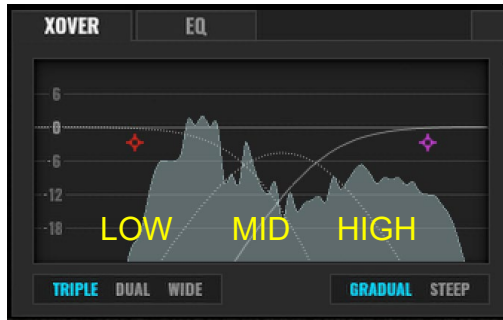


Once a plugin is installed, the Plugin menu provides these options:

Bypass	Bypasses the plugin. You can also bypass with the switch at the top-right side of the plugin.
Enable/Disable	Removes the plugin from DSP processing while keeping a placeholder in the slot. When a disabled plugin is re-enabled, all settings are restored.
Remove	Removes the plugin from the slot. All settings are deleted.
Copy	Copies the plugin and all its settings to the clipboard.
Paste	Pastes the copied plugin information from the clipboard. • If the slot is empty, it will paste the copied plugin and settings to the slot. • If the slot is populated with a different plugin than the copied one, the existing plugin will be replaced with the copied plugin and its settings. • If the copied plugin is the same type as the existing plugin, you will have the choice of pasting only the settings.



Plugin Placement



How plugins are sequenced in the frame has a significant impact on the overall sound.

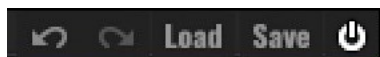
A crossover assigns a certain frequency range—low, mid, or high—to each plugin. There is overlap between the crossovers, but in general, the left plugin will process the lower frequencies, as defined by the crossover. The center plugin processes the midrange signal and the right plugin processes the higher frequencies. The number of crossover points, the frequency, and the slope can be adjusted.

Repositioning Plugins

You can move a plugin from one slot to another. If you are working in the Triple or Dual crossover mode, this will affect—perhaps greatly—what the plugin and its current settings sound like. To move a plugin to another slot, grab and slide the black bar at the top.



Undo/Redo, Load/Save, Bypass

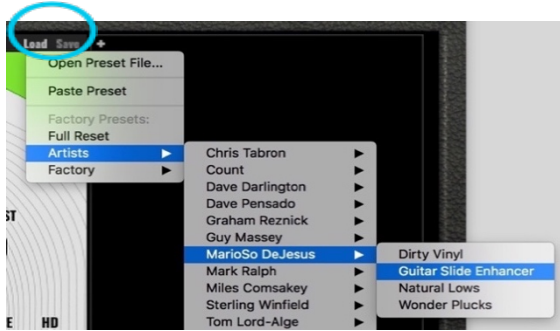


The small panel at the top of each plugin is used to undo/redo plugin actions (16 steps), load and save presets (see next section), and bypass the plugin.



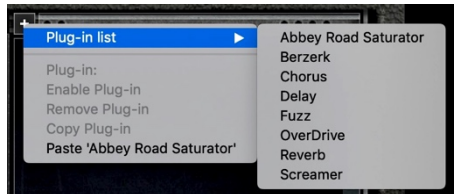
Presets

Use the bar at the top of the plugin to save and load presets, compare settings, undo and redo steps, and resize the plugin.



To learn more, click the icon at the upper-right corner of the window and open the WaveSystem Guide.

Effects



There are three effects processors that you can use to compliment a distortion sound. Insert them in the same way you do the distortion plugins.



Each effect has three controls; the Mix control can always be assigned a modulator.

Every effect has its own drop-down presets list.



Process Panel

The Process Panel at the bottom of the interface is the control section for the crossover between the hosted plugins, the output EQ, and the modulators that can be used to modulate controls throughout MultiMod. Select a mode with the tabs at the top of the Processing Panel.

Crossovers

You can assign each plugin to a specific range of the frequency spectrum in order to process distortion in different ways at different frequencies. You can choose three diverse plugins, one each for low, mid, and high bands. Or you can use the same plugin more than once and apply different settings.



1	Realtime Display	Real-time FFT display of the plugin output signal.
2	Crossover Point	Sets the frequency of the band borders. Can be adjusted on the Graph with the draggable markers or with the Frequency knob.
3	Band Configuration	Configuration: Triple: all Xover bands and their respective processors are active. Dual: one crossover between Low and High bands Wide: no crossover, no phase shift
4	Crossover Sharpness	Sets the steepness of the crossover (Triple and Dual Configuration only).



5	Band Bypass/Solo/Mute	Controls status of the band (Bypass, Solo, Mute). Bypassing a plugin will not completely bypass the process in that range, since some frequencies are shared between bands around their crossovers.
6	Cutoff	Controls the frequency at which the harmonics generator is focused (Wide config only).
7	Harmonic	Controls the number of harmonics generated in the selected band.
8	Mono	The low band can be switched to mono to add LF stability and aid the MaxxBass effect.
9	Band Spatial Control	Adjusts the panning and rotation of the stereo image.
10	Band Gain	Sets the gain of the selected band.
11	Crossover Frequency	Sets the frequency of the band borders.
12	Output Section (common to all processing panels)	1) Mix controls output level and wet/dry mix. 2) Out sets plugin output gain (range: -30 dB to +6 dB) 3) Peak light (-infinity to 0.0 dBFS) Click on the peak light to reset.

CONTROLLING CROSSOVERS

1. Select a Band Configuration. Selecting between them will show you which plugins will be used for processing.
2. Choose a Crossover Slope. The Steep setting results in sharper band boundaries with less overlap.
3. Set the crossover frequencies. You can do this by dragging the graph markers or with the Freq control knob for that band. If you use the Freq control, the frequency value (in Hz) will be displayed in the value box.
4. Adjust the band's gain (Range: -24 dB to +24 dB).
5. Adjust the added harmonics. The Harmonics control controls the amount of harmonic enhancement that will be added to each band. This process varies by band.

Low Band	The original fundamental can be stripped from the input signal and used to create a "missing fundamental." This is the process used in MaxxBass, and it provides extra perceived bass sound without increasing the gain in low frequencies.
Mid and High Bands	In these bands, increasing the Harmonic value adds odd and even harmonics to the signal. This can add warmth, glue, and depth.



You should regularly bypass, solo, and mute the bands in order to best understand how the bands and their plugins are interacting with the crossover.

6. Adjust panning/rotation (stereo component only).



The Spatial control allows for traditional stereo panning and stereo rotation.

1	Stereo Balance Knob Turn the Balance knob in the center to move the source right or left. One channel becomes louder, the other quieter, thus changing the internal balance and imaging. This is the same behavior as with a hi-fi “balance” control.
2	Left and Right Panners (the two small lines at the ends of the blue arc) The two stereo panners let your change the pan values of the left and right channels independently. Moving one panner widens or narrows the stereo image asymmetrically. Move the panners close together to create a near-mono image It is easiest to “grab” the stereo panner by clicking in the space just below it.
3	Stereo Rotation/Stereo Width The blue area between the panners indicates the width and direction of the stereo image. Drag this area to rotate the entire image. This is stereo rotation—moving a stereo image within a soundscape while retaining its image and width. Consider this the stereo equivalent of mono panning.



EQ Section

The EQ section is a four-band paragraphic equalizer placed just prior to the MultiMod output. It lets you color the overall sound and almost all of its controls can be modulated.



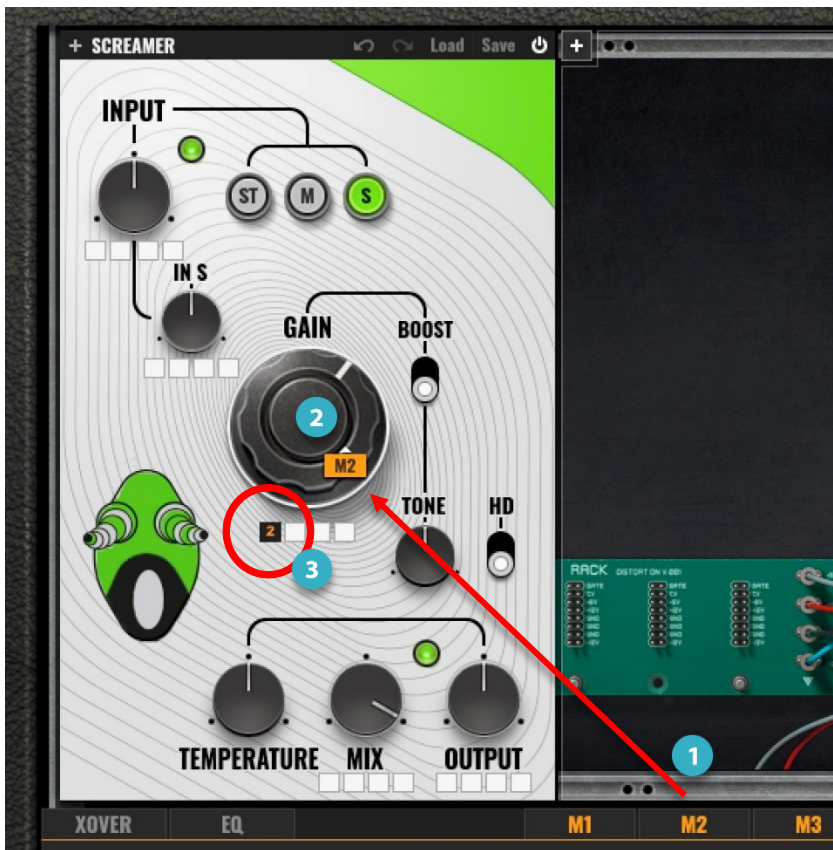
1	Band marker	Grab/move up/down to adjust gain; move left/right to adjust frequency. Band on/off: double-click Toggle through filter types: CMD+click (Mac); Win+click (PC)
2	Realtime Display	Real-time FFT display of the signal as determined by the EQ settings
3	Band on/off	Switches band on or off
4	Filter Type	Click on the value box to toggle between the filter types (per band). Types: bell, low shelf, high shelf, high pass, low pass
5	Band Gain	Controls gain of the band. Range: -30 dB to +30 dB
6	Band Frequency	Sets frequency. Range: 20 Hz to 20,000 Hz, all bands
7	Band Q	Sets Q. Range: 0.26 to 13

Using Modulators

You can assign a modulator to many of the controls in the hosted plugins, the effects processors, the crossover section, and the EQ. You can also modulate a modulator. In fact, a modulator can modulate its own controls. Select a modulator with the tabs above the Process section.



ASSIGNING MODULATORS TO CONTROLS



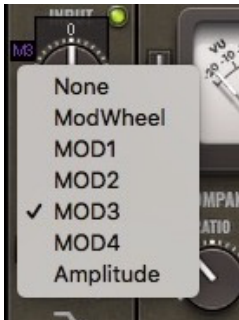
- 1 **Grab and move** a modulator's label. The controls that are available for modulation will be highlighted.
- 2 **Drop** the label of the modulator onto any available control. In this example, "M2" is being assigned to the Screamer's Gain control.
- 3 **Click and drag vertically** over the populated slot to adjust the modulation depth.

Once the modulator is dropped, its ID will appear in the first modulation slot below the control. Each control can assign up to four modulators. A modulator can be assigned to as many controls as you like.





When a control is being modulated, small arcs inside the knob indicate the applied depth for each modulator. The arcs are color-coded to match the modulator label. A dot outside the knob moves in real-time to indicate the knob position while modulated. This reflects the sum of all modulators assigned to the knob.



You can also directly access modulation assignment by right-clicking on a modulation slot. Choose an assignment from the drop-down menu.

To remove a modulation assignment, select “None.”



Modulator Types

There are four assignable LFO/Sync modulators and one assignable AM modulator.

Modulators 1–4 (M1–M4)

These modulators are identical and can be used as LFO or Sequence generators.

TYPE

You can change the behavior of a modulator by switching it between **LFO** and **Sequencer**. Most of the controls remain the same, but certain behaviors are different depending on the Type selection.

- The sequencer's values are quantized to whole numbers between -24 and +24. They represent semitones when the modulator is assigned to "Tune" or "Frequency" and the modulation depth is set to 100%.
- When LFO is selected, "Rate" determines the time it takes to complete a full cycle, whereas in Sequencer, it determines the time it takes to complete a single step.

Range: LFO/SEQ

Shape and Motion Controls

There are several ways to shape an LFO modulator and a Sequencer modulator (LFO shown).



Draw Mode (pencil tool) allows you to manually draw the shape you want.

Erase resets the currently loaded shape to "None."

Browse opens a factory library of LFO shapes and sequencer patterns, depending on the current Type. Click on a shape to replace the one you're currently using.

SAVE (DISK ICON AT THE BOTTOM)

Click on the icon to save the current user-drawn modulator shape to an empty cell. User shapes appear in blue and factory shapes are purple. You can manage and access the saved shapes at:

- Mac: /Users/Shared/Waves/Plug-in Settings/ Plug-In Settings\
PC: C:\Users\Public\Waves Audio\Plug-In Settings\MMod\

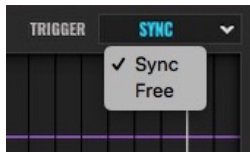


DELETE (TRASHCAN)

Click the Trashcan icon, then click on the user shape you wish to delete. You cannot delete factory shapes.

TRIGGER

Determines when the modulator resets its position. It has two states:



Sync locks the modulator to the host. It syncs to BPM as well as transport position.

Free sets the modulator to be free running, never reset.

PLAY MODE



There are four play modes. Select using the transport buttons at the bottom.

One Shot: the modulator completes a single cycle and stops running.

Loop: the modulator plays continuously in a loop.

Seesaw: the modulator moves back and forth within its cycle.

Hold: the modulator pauses at its current location. You can use the Phase control to alter its relative position.

STEPS (SEQUENCER ONLY)

Sets the number of sequencer steps. Drag up or down over the value box, or manually enter a number.

Range: 2–16 steps

Sound Character Controls

RATE

Sets the rate of the modulator. Display units and range are dependent on the Rate Sync setting.

Range: 0.06 Hz to 30 Hz or 1/64 bar to 8 bars

RATE SYNC ON/OFF (MUSICAL SYMBOL)

Toggles the Rate knob values. When On, the rate of the LFO is calculated by the Host BPM and is displayed in musical notation. When Off, values are displayed in Hz.



PHASE

Controls the starting position of the modulator.

WARP

Warp the speed of the modulator but keeps the overall timing of the cycle. When Warp value is lower than 1, modulation will start at a slow pace and increase its speed toward the end of the cycle. When set above 1, the pace is fast at start and then slows down at the end. Essentially, this is applying pulse width modulation on the cycle of the modulator.

Range: 0.1 to 100 (a value of 1 is linear)

SMOOTH

Applies smoothing to the modulation curve. Low settings result in distinguishable onsets and may result in clicks. High settings smooth the overall modulation curve. In some settings this may result in very low energy.

LEVEL

The overall level of the modulator. When the Level of a modulator is set to 0, no modulation takes place.

Range: 0 to 1



AM Modulator



The AM modulator lets you use the amplitude envelope of the voice signal to manipulate other controls of the plugin. This works much like an envelope follower.

Attack is the time it takes the modulator to rise when positive level values are detected.

Range: 0.1 ms to 1000 ms

Release is the time it takes the modulator to fall back to minimum once an attenuation is detected.

Range: 0.1 ms to 1000 ms

Level is the overall level of the modulator. When this is set to 0, no modulation takes place.

Range: 0 to +2

Output Section



The output section has two controls:

- Plugin output (return to DAW)
- Mix (dry input signal vs. processed signal)

The full-scale meters indicate output level:

- Peak level is shown in the numeric value box.
- Over-level is displayed with red clip lights.
- Click on the meter to clear peak level and clip lights.

