

# MUltraMaximizer



## Overview

MUltraMaximizer is a state-of-the-art mastering multiband brickwall limiter that makes your recordings sound louder with minimum distortion or artifacts and you do not even need to be a scientist to use it!

## Introduction

On opening the plugin window, the main function is the **Input gain** control. As the input gain is raised, the audio signal becomes more limited, which increases the loudness, but also progressively removes the dynamics, which can even lead to distortion if overused. Be careful not to set the input gain too high.

**Peak meters** on the right show the output peaks of the master, which should reach 0dB, but only temporarily. If you do not see them, click the **Meters** button

After the **Input gain** has been set, attention turns to the **Output gain**, which controls the output level and the amount of saturation. This parameter is used to move the output peak meter up to reach the 0dB level. The more it touches the top of the output peak meter, the more saturation and loudness you get, but also the more the sound is distorted.

Finally the **Slope**, controls the frequency balance. This is able to add both bass boom and highs, if needed.

**Saturation panel** contains the parameters of the saturator used on the output signal, and ensures there will be no peaks above 0dB. This can also improve sound clarity and increase the loudness, but as the concept of saturation is about distorting the sound, it should be used sparingly. The saturation can be disabled completely, which results in the output no longer being limited to 0dB and allows the use of an additional single-band limiter if desired.

Presets

### Presets button

Presets button shows a window with all available presets. A preset can be loaded from the preset window by double-clicking on it, using the arrow buttons or by using a combination of the arrow keys and Enter on your keyboard. You can also manage the directory structure, store new presets, replace existing ones etc. Presets are global, so a preset saved from one project, can easily be used in another.

Holding **Ctrl** while pressing the button loads an existing preset, selected at random.

Presets can be backed up by using either the Export button, or by saving the actual preset files, which are found in the following directories:

Windows: C:\Users\{username}\AppData\Roaming\MeldaProduction

Mac OS X: ~/Library/Application support/MeldaProduction

Exported preset files can be loaded into the plug-in's preset store using the Import button. Or the preset files themselves can be copied into the directories named above.

Files are named based on the name of the plugin in this format: "{pluginname}presets.xml", for example: MAutopanpresets.xml or MDynamicspresets.xml. If the directory cannot be found on your computer for some reason, you can just search for the particular file.



### Left arrow button

Left arrow button loads the previous preset.



### Right arrow button

Right arrow button loads the next preset.



### Randomize button

Randomize button loads a random preset.



### Save button

Save button replaces the current preset.



### Panic button

Panic button resets the plugin state. You can use it to force the plugin to report latency to the host again and to avoid any audio problems.

For example, some plugins, having a look-ahead feature, report the size of the look-ahead delay as latency, but it is inconvenient to do that every time the look-ahead changes as it usually causes the playback to stop. After you tweak the latency to the correct value, just click this button to sync the track in time with the others, minimizing phasing artifacts caused by the look-ahead delay mixing with undelayed audio signals in your host. It may also be necessary to restart playback in your host.

Another example is if some malfunctioning plugin generates extremely high values for the input of this plugin. A potential filter may start generating very high values as well and as a result the playback will stop. You can just click this button to reset the plugin and the playback will start again.

## Settings **Settings button**

Settings button shows a menu with additional settings of the plugin. Here is a brief description of the separate items.

**Activate** lets you activate the plugin if the drag & drop activation method does not work in your host. In this case either click this button and browse to the licence file on your computer and select it. Or open the licence file in any text editor, copy its contents to the system clipboard and click this button. The plugin will then perform the activation using the data in the clipboard, if possible.

There are 4 groups of settings, each section has its own detailed help information: **GUI & Style** enables you to pick the GUI style for the plug-in and the main colours used for the background, the title bars of the windows and panels, the text and graphs area and the highlighting (used for enabled buttons, sliders, knobs etc).

**Advanced settings** configures several processing options for the plug-in.

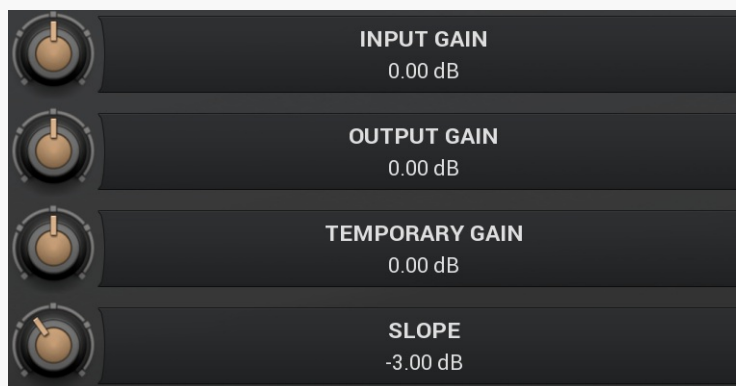
**Dry/wet affects** determines, for Multiband plug-ins, which multiband parameters are affected by the Global dry/wet control.

**Smart interpolation** adjusts the interpolation algorithm used when changing parameter values; the higher the setting the higher the audio quality and the lower the chance of zippering noise, but more CPU will be used.

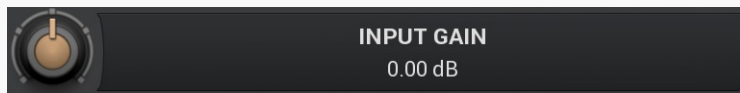
## **WWW button**

WWW button shows a menu with additional information about the plugin. You can check for updates, get easy access to support, MeldaProduction web page, video tutorials, Facebook/Twitter/YouTube channels and more.

## Global parameters

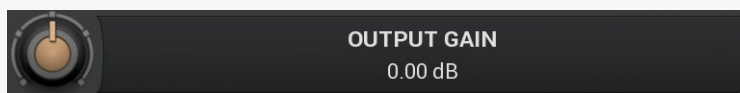


Global parameters panel contains global controls, which are usually relevant to global processing performed either before the signal reaches the crossover and gets split into bands, or after the signals are processed and summed back to the master signal.



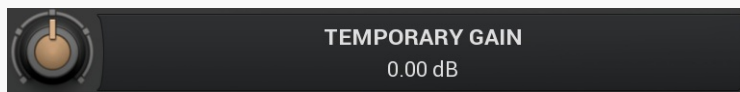
### **Input gain**

Input gain defines the power modification applied to the incoming signal, before it is split into bands.



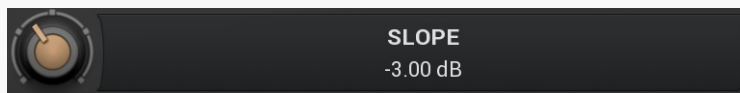
### **Output gain**

Output gain defines the gain applied to the output signal, right after it is summed from the bands, but before the signal is passed into the saturator. By increasing this value you can get more saturation, hence the sound will be louder but still won't get above the 0dB limit.



### **Temp gain**

Temp gain defines a temporary power modification applied to the input signal and then reversed on the output. You can achieve the same effect by setting **Input gain** to a value **G** and **Output gain** to value **-G**.

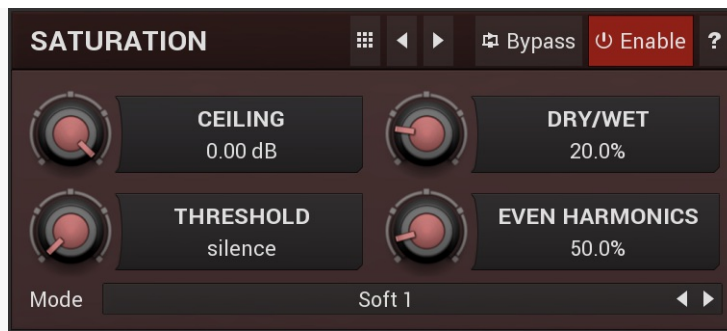


### **Slope**

Slope defines the balance between the band thresholds therefore it basically defines the resulting sound character. A negative value provides more energy for bass frequencies, which is often desirable.

Range: -12.00 dB to +12.00 dB, default -3.00 dB

## Saturation panel



Saturation panel contains parameters of the master effect that is processed after the individual bands are processed and the signal is mixed back together.



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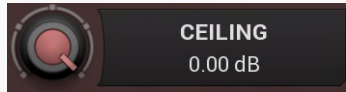
### Right arrow button

Right arrow button loads the next preset.



### Enable button

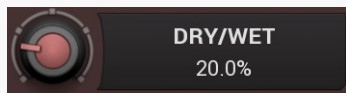
Enable button enables or disables the effect.



### Ceiling

Ceiling defines the gain applied to the output after the saturation, hence this is the maximal level that the output can reach.

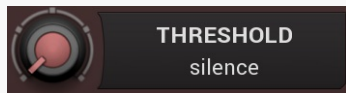
Range: -24.00 dB to 0.00 dB, default 0.00 dB



### Dry/wet

Dry/wet defines ratio between dry and wet signals. 100% means fully processed, 0% means no processing at all.

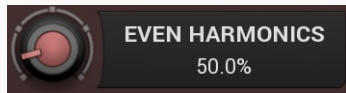
Range: 0.00% to 100.0%, default 20.0%



### Threshold

Threshold determines the minimal signal level above which the effect starts to apply. By lowering the threshold you increase loudness and also distortion.

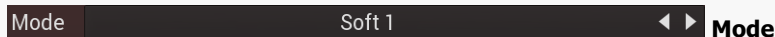
Range: silence to 0.00 dB, default silence



### Even harmonics

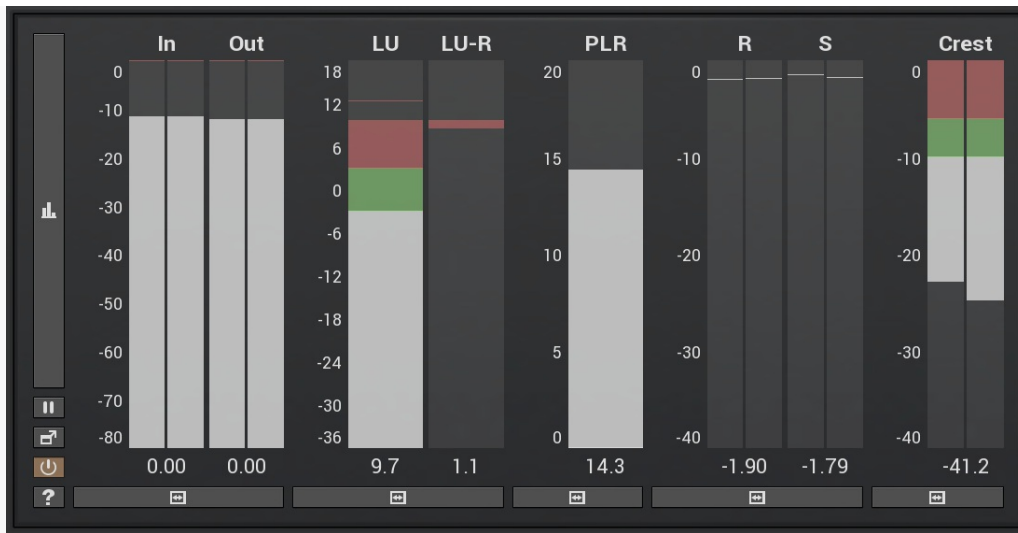
Even harmonics determines the amount of even harmonics added to the signal in addition to the main saturation. The amount of the harmonics is dependent on the saturation signal, unlike the full harmonic control in the **Harmonics** panel, which is completely independent of the actual saturation processing.

Range: 0.00% to 500.0%, default 50.0%



Mode defines the limiting shape.

## Global meter view



Global meter view provides a powerful metering system. If you do not see it in the plug-in, click the **Meters** or **Meters & Subsystems** button to the right of the main controls. The display can work as either a classical level indicator or, in time graph mode, show one or more values in time. Use the first button to the left of the display to switch between the 2 modes and to control additional settings, including pause, disable and pop up the display into a floating window. The meter always shows the actual channels being processed, thus in M/S mode, it shows mid and side channels. In the classical level indicators mode each of the meters also shows the recent maximum value. Click on any one of these values boxes to reset them all.

**Numbered band meters** display the input levels for each band, but also indicate the gain reduction by the colored top part. If the top part is red, it is indicating a gain reduction. If it is green, the band is actually increasing the gain, which usually means expansion.

**In meter** indicates the total input level. The input meter shows the audio level before any specific processing (except potential upsampling and other pre-processing). It is always recommended to keep the input level under 0dB. You may need to adjust the previous processing plugins, track levels or gain stages to ensure that it is achieved.

As the levels approach 0dB, that part of the meters is displayed with **red** bars. And recent peak levels are indicated by single bars.

**Out meter** indicates the total output level. The output meter is the last item in the processing chain (except potential downsampling and other post-processing). It is always recommended to keep the output under 0dB.

As the levels approach 0dB, that part of the meters is displayed with **red** bars. And recent peak levels are indicated by single bars.

**R meter** shows gain reduction for each channel. Negative values, running down from the top, mean that compression or limiting is occurring. The lower the value, the stronger the effect. For maximum transparency you should try to achieve the least amount of gain reduction. Expansion is not indicated in this meter.

**S meter** shows the saturation level for each channel. This basically shows how much signal over 0dB has passed through the limiting section. A limiter can remove all of the peaks above 0dB only if it is in single-band mode and attack is set to 0ms or using the look-ahead + true hold trick. In all other cases, there can and will be peaks above 0dB passing through the main dynamics unit. These peaks are then saturated or clipped and are indicated using this saturation meter. Saturation provides a crisper signal, in higher levels it can cause audible distortion, which may be desired as it brightens the signal. Less saturation provides a cleaner signal. In higher levels you may hear severe pumping however.

**LU meter** shows the output loudness in EBU-18 scale. The loudness metering follows the ITU-R BS.1770-3 and EBU 3341 specifications. The metering units used are LU (Loudness Units) with 0 LU defined as -23 LUFS (LU Full Scale) and you should consider the LU values to be relative - using them to compare the loudness values between different signals. If the difference in loudness between 2 signals is 10 LU, it is approximately 10 dB as well.

Please note that you should still use your ears to judge loudness properly as there is still no accurate model of human loudness perception and every measurement is only an approximation. Loudness perception is also individual.

If you right click on the meter, additional settings will be displayed. Maximum value displays the maximum since the analysis started, rather than the recent maximum. Loudness pre-filtering uses EBU standard filters to simulate human perception. However, you may want to disable this to get more technical measurements.

There are 3 types of loudness measurements, all following the EBU specifications.

**Momentary loudness** uses an RMS sliding analysis window of 400 milliseconds; therefore it shows quick fluctuations in loudness.

**Short-term loudness** works in the same way, but uses a window of 3 seconds, therefore it provides more stable loudness measurements.

**Integrated loudness** shows the overall loudness, hence it is affected by the whole track from the beginning of the playback until you reset it by clicking on the value field. The host may reset it too; it depends on your host.

Please note that the **Integrated loudness** is NOT the same as an averaged loudness, as it ignores quiet passages. Imagine a track which is generally quiet but has a few loud sections. The averaged loudness will be less than the Integrated loudness. Its calculation uses gating to ignore those quiet passages (levels less than 10 LU less than the current ungated level) of the track. Essentially, **Integrated loudness** is a measure of the loudest sections of the track.

**LU-R meter** shows the output loudness range in EBU-18 scale. The loudness meter, **LU**, follows the ITU-R BS.1770-3 and EBU 3342 specifications, so 0 LU (Loudness Units) represents -23 LUFS. The loudness range meter, **LU-R**, essentially describes how dynamic the signal is, measured over a sliding analysis window of 3 seconds. Too low a dynamic range usually means the signal is over-compressed. You should compare the dynamic range of your material with other mastered recordings in the same style.

Green bars indicate that the loudness or range is in the preferred regions, red bars suggest that the levels or range need attention.

**PLR meter** displays the true-peak-to-loudness ratio. It's similar to the crest meters, but based on the modern EBU loudness standard. It ranges from 0 to 20 and the higher the value, the less compressed (more dynamic) is the audio material. It tells you the difference between the maximum peak level and the **Integrated** loudness.

This is very useful when submitting audio tracks to services such as Spotify or iTunes, which normalize the loudness of the audio. Let's show this with an example: You are going to submit a song which has the true peak level of -1 dBTP and integrated loudness of -16 LUFS (which is the usual recommended loudness), so the PLR is  $-1 - (-16) = 15$ . This means that the song requires 15 dB of headroom above the normalization level to play without clipping. The song will play without clipping in iTunes (normalization level -16 LUFS, maximum true-peak level -1 dBTP, hence 15dB headroom), but the song might be turned down (by e.g. Tidal and YouTube), limited (by e.g. Spotify) or clipped when played on a platform with less headroom.

As a different example, you may be working on a cinematic score, with target loudness of -26 LU, and you might have used all the headroom for the requested maximum true peak level of -1 dBTP. The PLR is therefore 25. If you try to submit such a file to iTunes, it will normalize it to -16 LUFS, which means increasing the loudness, but your song requires 25 dB headroom and iTunes provides only 15, therefore it will either be rejected or processed in some way (clipped, limited...). Neither of these options are "good", therefore you will need to provide a different master for this platform.

**Crest meter** shows the output crest factor (calculated as RMS divided by peak level), which essentially indicates how extreme the peaks are in the output waveform. The lower the value is, the more peaks there are in the output, the more dynamic it is. If the value reaches 0dB, then the output is over-compressed and flattened and you

should consider going easier on the compressor and limiter.

The range from 0dB to -6dB is red and you should prevent your master output from remaining in this range as that would mean it is extremely over-processed. The green range from -6dB to -10dB is the range most that recordings are in, usually jumping below the -10dB.

Please note that others calculate the crest factor as the peak level of the waveform divided by the RMS value of the waveform, and the higher the value, the more peaks there are in the output, the more dynamic it is.



### Time graph button

Time graph button switches between the metering view and the time-graphs. The metering view provides an immediate view of the current values including a text representation. The time-graphs provide the same information over a period of time. Since different time-graphs often need different units, only the most important units are provided.

### Pause button

Pause button pauses the processing.

### Popup button

Popup button shows a pop-up window and moves the whole metering / time-graph system into it. This is especially useful in cases where you cannot enlarge the meters within the main window or such a task is too complicated. The pop-up window can be arbitrarily resized. In metering mode it is useful for easier reading from a distance for example. In time-graph mode it is useful for getting higher accuracy and a longer time perspective.

### Enable button

Enable button enables or disables the metering system. You can disable it to save system resources.

### Collapse button

Collapse button minimizes or enlarges the panel to save space for other editors.

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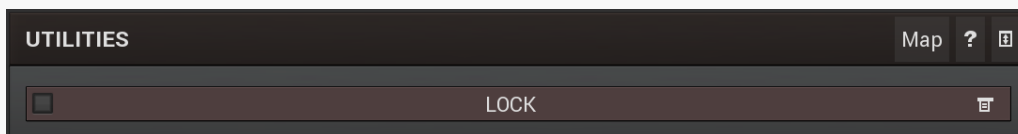
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## Utilities



### Map button

Map button displays all current mappings of modulators, multiparameters and MIDI (whichever subsystems the plugin provides).

### Lock button

Lock button displays the settings of the global parameter lock. Click on it using your left mouse button to open the Global Parameter Lock window, listing all those parameters that are currently able to be locked.

Click on it using your right mouse button or use the **menu button** to display the menu with learning capabilities - **Learn** activates the learning mode, **Clear & learn** deletes all currently-lockable parameters and then activates the learning mode. After that, every parameter you touch will be added to the lock. Learning mode is ended by clicking the button again.

The On/Off button built into the Lock button enables or disables the active locks.

### Collapse button

Collapse button minimizes or enlarges the panel to release space for other editors.

