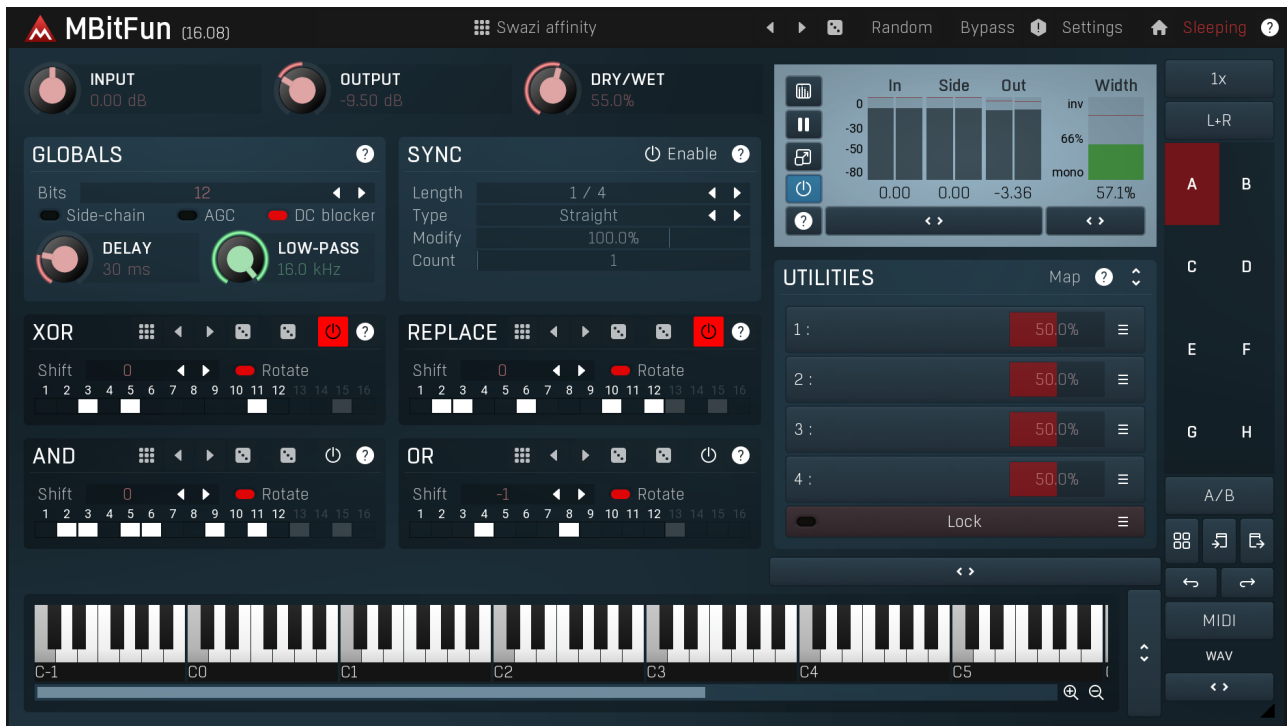# MBitFun

Overview

MBitFun is a serious tool for extreme distortion lovers. It converts the audio into limited fixed-point precision form, from a 1 single bit up to 16 bits per sample, and lets you access each bit, applying several operations.

Presets

Presets button shows a window with all available presets. A preset can be loaded from the preset window by double-clicking on it, selecting via the buttons or by using 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. The arrow buttons next to the preset button can be used to switch between presets easily.

Holding **Ctrl** while pressing the button loads a random preset. There must be some presets for this feature to work of course.

Presets can be backed up by 3 different methods:
A) Using "Backup" and "Restore" buttons in each preset window, which produces a single archive of all presets on the computer.
B) Using "Export/Import" buttons, which export a single folder of presets for one plugin.
C) By saving the actual preset files, which are found in the following directories (not recommended):
Windows: C:\Users\{username}\AppData\Roaming\MeldaProduction
Mac OS X: /Library/Application support/MeldaProduction

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

Please note that prior to version 16 a different format was used and the naming was "{pluginname}presets.xml". *The plugin also supports an online preset exchange. If the computer is connected to the internet, the plugin connects to our server once a week, submits your presets and downloads new ones if available. This feature is manually maintained in order to remove generally unusable presets, so it may take some time before any submitted presets become available. This feature relies on each user so we strongly advise that any submitted presets be named and organised in the same way as the factory presets, otherwise they will be removed.*

 Left arrow

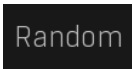Left arrow button loads the previous preset.

 Right arrow

Right arrow button loads the next preset.

Randomize

Randomize button loads a random preset.

Randomize

Randomize button (with the text 'Random') generates random settings. Generally, randomization in plug-ins works by selecting random values for all parameters, but rarely achieves satisfactory results, as the more parameters that change the more likely one will cause an unwanted effect. Our plugins employ a smart randomization engine that learns which settings are suitable for randomization (using the existing presets) and so is much more likely to create successful changes.

In addition, there are some mouse modifiers that assist this process. The smart randomization engine is used by default if no modifier keys are held.

Holding **Ctrl** while clicking the button constrains the randomization engine so that parameters are only modified slightly rather than completely randomized. This is suitable to create small variations of existing interesting settings.

Holding **Alt** while clicking the button will force the engine to use full randomization, which sets random values for all reasonable automatable parameters. This can often result in "extreme" settings. Please note that some parameters cannot be randomized this way.

Panic

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

Licence manager lets you activate/deactivate the plugins and manage subscriptions. While you can simply drag & drop a licence file onto the plugin, in some cases there may be a faster way. For instance, you can enter your user account name and password and the plugin will do all the activating for you.

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.

Global system settings contains some settings for all MeldaProduction plugins. Once you change any of them, restart your DAW if needed, and it will affect all MeldaProduction plugins.

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

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.
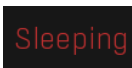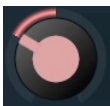
Sleep indicator

Sleep indicator informs whether the plugin is currently active or in sleep mode. The plugin can automatically switch itself off to save CPU, when there is no input signal and the plugin knows it cannot produce any signal on its own and it generally makes sense. You can disable this in Settings / **Intelligent sleep on silence** both for individual instances and globally for all plugins on the system.
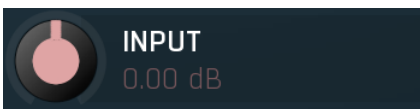
Input gain

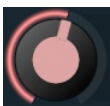Input gain defines the power modification applied to the input signal.
Range: -24.00 dB to +24.00 dB, default 0.00 dB

Output gain

Output gain defines the power modification applied to the output signal.
Range: -24.00 dB to +24.00 dB, default 0.00 dB
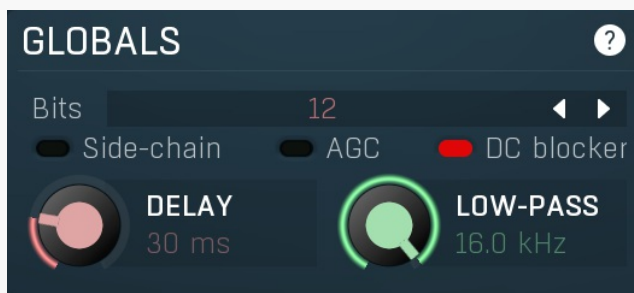
Dry/Wet

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 100.0%

Globals panel

Globals panel controls the global parameters of the bit processor.

Bits

Bits controls the number of bits in each sample that are processed. The lower the number, the lower the accuracy and more lo-fi the sound becomes.
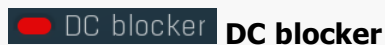Range: 1 to 16, default 8

Side-chain

Side-chain button activates the side-chain input. When enabled, the processor doesn't analyze the regular input and uses the secondary input instead.
Each operation (**XOR**, **Replace**, **AND** and **OR**, each described later) uses one or two input signals - the main input and, optionally, the control signal. The control signal is different from the input if the **global delay** is used, **side-chain** is activated or **shift** (in each operation) is nonzero. **Side-chain** provides a different signal and the other two provide a delayed or shifted version of the input.
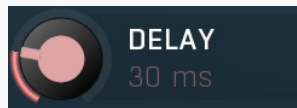
AGC

AGC (automatic gain compensation) enables automatic adjustment of the output volume so that it matches the input volume. Please note that since this is a nonlinear operation, it may cause some distortion on its own. Also note that it takes some time for the AGC to adjust the volume when its setting has been changed.

DC blocker

DC blocker activates the integrated DC blocker that should remove any signal offset often caused by the bit-based processing.

Delay

Delay controls the input delay for the modification signal. The parameter gets overridden by **Sync** if used. If the delay is used, the samples are not processed against itself (e.g. inverting bits in case of XOR operation), but instead these are processed against the delayed signal, whether it comes from the main input or sidechain.
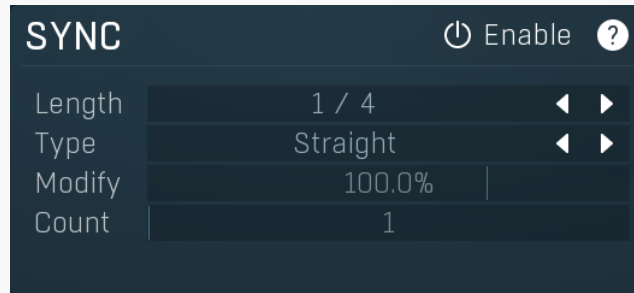Range: 0 ms to 10000 ms, default 0 ms

Low-pass

Low-pass controls the low-pass filter cut-off frequency. The filter is applied only to the processed signal.
Range: 20.00 Hz to Off, default 8000 Hz

Synchronization panel

Synchronization panel contains parameters for the to-host synchronization.

Length
Length defines the note length to be used.

Type
Type defines the note type, such as straight notes or triplets, to be used. Together the **Length** and **Type** determine the actual time/delay.
Example: '1/4 Straight' at 120 bpm = a delay of 500 ms, '1/4 Triplet' at 160 bpm = a delay of 281.25 ms.

Modify
Modify lets you change the sync time, so that it may not be accurate anymore. This can be very musical, since a little inaccuracy is generally quite natural.
Range: 50.0% to 150.0%, default 100.0%

Count
Count defines the number of the units, hence multiplies of the sync length.
Range: 1 to 64, default 1

XOR panel
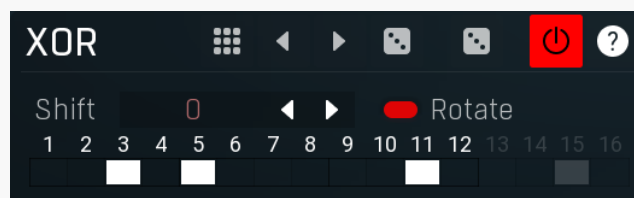
XOR panel controls the XOR operation. XOR operation produces 1 if both inputs are different. The processor operates differently if there is a control signal. Control signal is a signal that is different from the input - it is used if the **delay** is used, **side-chain** is activated or **shift** is nonzero.
If the control signal is NOT used, activating a bit simply inverts it in each sample.
If the control signal IS used, activating a bit inverts it in the sample if the control signal has this bit set.

⠿ Presets
Presets button displays a window where you can load and manage available presets. Hold **Ctrl** when clicking to load a random preset instead.

◀ Left arrow
Left arrow button loads the previous preset.

▶ Right arrow
Right arrow button loads the next preset.

🎲 Randomize
Randomize button loads a random preset.

Random

Random button generates random settings using the existing presets.

Shift

Shift lets you shift the bits in the control signal right or left. In rotation mode this somehow shuffles the bits. If the rotation mode is disabled, this makes the control signal higher or lower.
Range: -16 to 16, default 0

Rotate

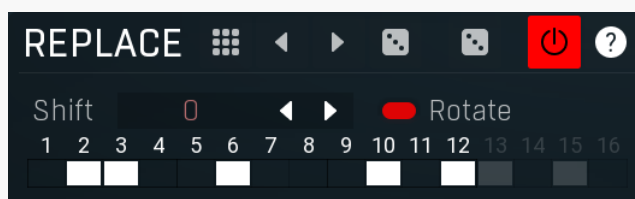Rotate activates rotation mode, in which shifting bits right starts getting the removed ones back from the left and vice versa. This is generally useful, because otherwise these bits would simply disappear.

Replace panel

Replace panel controls the Replace operation. Replace operation replaces selected bits by the bits from the control signal. Control signal is a signal that is different from the input - it is used if the **delay** is used, **side-chain** is activated or **shift** is nonzero.
If the control signal is NOT used, this processor doesn't do anything because the control signal is technically the same as the input.
If the control signal IS used, activating a bit takes the bit value from the control signal. You can think of it as replacing part of the sample by the sidechain/delay for example. If you do not use sidechain or delay, shifting can still make a big difference, because when you shift/rotate the sample value you are changing the bits in the sample to the values of other bits, in some cases you can sort of permutate the bits in each sample.

Presets

Presets button displays a window where you can load and manage available presets. Hold **Ctrl** when clicking to load a random preset instead.

Left arrow

Left arrow button loads the previous preset.

Right arrow

Right arrow button loads the next preset.

Randomize

Randomize button loads a random preset.

Random

Random button generates random settings using the existing presets.

Shift

Shift lets you shift the bits in the control signal right or left. In rotation mode this shuffles the bits in some way. If the rotation mode is disabled, this makes the control signal higher or lower.
Range: -16 to 16, default 0
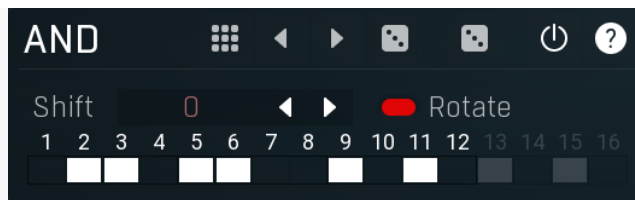
Rotate

Rotate activates rotation mode, in which shifting bits right starts adding those removed ones back in from the left and vice versa. This is generally useful, because otherwise these bits would simply disappear.

AND panel

AND panel controls the AND operation. AND operation produces 1 if both inputs are 1. The processor operates differently if there is a control signal. Control signal is a signal that is different from the input - it is used if the **delay** is used, **side-chain** is activated or **shift** is nonzero.

If the control signal is NOT used, activating a bit lets it survive in each sample. Hence having all bits enabled produces no change, but if no bits are enabled, the output will be silent.

If the control signal IS used, activating a bit lets it survive only if the same bit is also set it the control signal.

⊞ Presets

Presets button displays a window where you can load and manage available presets. Hold **Ctrl** when clicking to load a random preset instead.

◀ Left arrow

Left arrow button loads the previous preset.

▶ Right arrow

Right arrow button loads the next preset.

🎲 Randomize

Randomize button loads a random preset.

🎲 Random

Random button generates random settings using the existing presets.

Shift 0 ◀ ▶ Shift

Shift lets you shift the bits in the control signal right or left. In rotation mode this somehow shuffles the bits. If the rotation mode is disabled, this makes the control signal higher or lower.

Range: -16 to 16, default 0

🔴 Rotate Rotate

Rotate activates rotation mode, in which shifting bits right starts getting the removed ones back from the left and vice versa. This is generally useful, because otherwise these bits would simply disappear.

OR panel
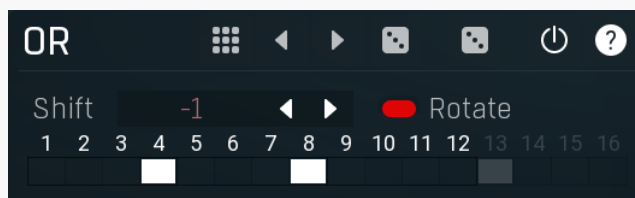
OR panel controls the OR operation. OR operation produces 1 if at least on of the inputs is 1. The processor operates differently if there is a control signal. Control signal is a signal that is different from the input - it is used if the **delay** is used, **side-chain** is activated or **shift** is nonzero.

If the control signal is NOT used, activating a bit simply makes it set in all output samples. Please note that this usually produces a DC offset, so you might want to consider using a high-pass or DC filter.

If the control signal IS used, activating a bit sets it to 1 if it is set in any of the inputs.

⊞ Presets

Presets button displays a window where you can load and manage available presets. Hold **Ctrl** when clicking to load a random preset instead.

◀ Left arrow

Left arrow button loads the previous preset.

Randomize

Randomize button loads a random preset.

Random

Random button generates random settings using the existing presets.

Shift

Shift lets you shift the bits in the control signal right or left. In rotation mode this somehow shuffles the bits. If the rotation mode is disabled, this makes the control signal higher or lower.
Range: -16 to 16, default 2

Rotate

Rotate activates rotation mode, in which shifting bits right starts getting the removed ones back from the left and vice versa. This is generally useful, because otherwise these bits would simply disappear.

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 & Utilities** 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.

In meter indicates the total input level. The input meter shows the audio level before any specific processing (except potential oversampling 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.

Width meter shows the stereo width at the output stage. This meter requires at least 2 channels and therefore does not work in mono mode. Stereo width meter basically shows the difference between the mid and side channels.
When the value is **0%**, the output is monophonic. From 0% to 66% there is a green range, where most audio materials should remain.
From 66% to 100% the audio is very stereophonic and the phase coherence may start causing problems. This range is colored blue. You may still want to use this range for wide materials, such as background pads. It is pretty common for mastered tracks to lie on the edge of green and blue zones.
Above 100% the side signal exceeds the mid signal, therefore it is too monophonic or the signal is out of phase. This is marked using red color. In this case you should consider rotating the phase of the left or right channels or lowering the side signal, otherwise the audio will be highly mono-incompatible and can cause fatigue even when played back in stereo.
For most audio sources the width is fluctuating quickly, so the meter shows a 400ms average. It also shows the temporary maximum above it as a single coloured bar.
If you right click on the meter, you can enable/disable loudness pre-filtering, which uses EBU standard filters to simulate human perception. This may be useful to get a more realistic idea about stereo width. However, since humans perceive the bass spectrum as lower than the treble, this may hide phase problems in that bass spectrum.

Time graph

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

Pause button pauses the processing.

⧉ Popup

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

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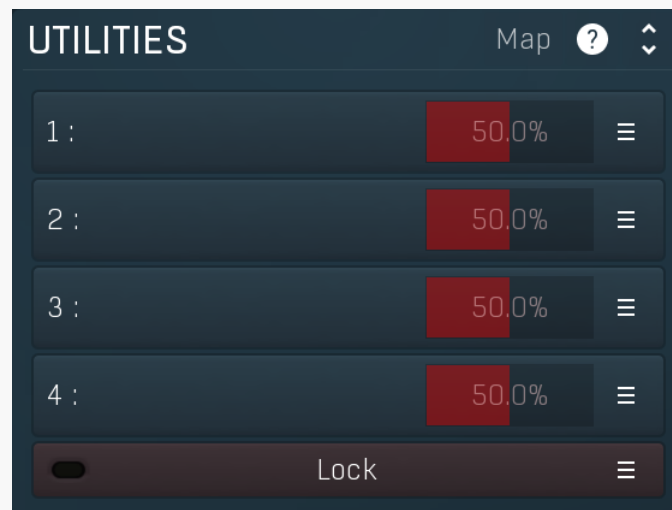
‹ › Collapse

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

‹ › Collapse

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

Utilities

UTILITIES	Map ❓ ↕
1 :	50,0% ☰
2 :	50,0% ☰
3 :	50,0% ☰
4 :	50,0% ☰
⬤ Lock	☰

Map Map

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

Multiparameter

1 :	50,0% ☰

Multiparameter button displays settings of the multiparameter. The multiparameter value can be adjusted by dragging it or by pressing Shift and clicking it to enter a new value from the virtual keyboard or from your computer keyboard.

Click on the button using your left mouse button to open the **Multiparameter** window where all the details of the multiparameter can be set. Click on it using your right mouse button or click on the **menu button** to the right to display an additional menu with learning capabilities - as described below.

☰ Menu

Menu button shows the **smart learn** menu. You can also use the right mouse button anywhere on the multiparameter button.

Learn attaches any parameters, including ranges. Click this, then move any parameters through the ranges that you want and click the multiparameter button again to finish. While learning is active, "REC" is displayed on the multiparameter button and learning mode is ended by clicking the button again.

Clear & Learn clears any parameters currently in the list then attaches any parameters, including ranges. Click this, then move any parameters through the ranges that you want and click the multiparameter button again to finish. While learning is active, "REC" is displayed on the multiparameter button and learning mode is ended by clicking the button again.

Reset resets all multiparameter settings to defaults.

Quick Learn clears any parameters currently in the list, attaches one parameter, including its range and assigns its name to the

multiparameter. Click this, then move one parameter through the range that you want.

Attach MIDI Controller opens the MIDI Settings window, selects a unused parameter and activates MIDI learn. Click this then move the MIDI controller that you want to assign.

Reorder to ... lets you change the order of the multiparameters. This can be useful when creating active-presets. Please note that this feature can cause problems when one multiparameter controls other multiparameters, as these associations will not be preserved and they will need to be rebuilt.

In learning mode the multiparameter does not operate but rather records your actions. You can still adjust every automatable parameter and use it normally. When you change a parameter, the plugin associates that parameter with the multiparameter and also records the range of values that you set.

For example, to associate a frequency slider and make a multiparameter control it from 100Hz to 1KHz, just enable the smart learn mode, click the slider then move it from 100Hz to 1KHz (you can also edit the range later in the Multiparameter window too). Then disable the learning mode by clicking on the button.
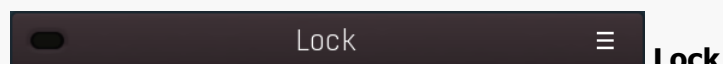
Lock

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