# MLoudnessAnalyzer


## Presets

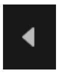
Presets button shows a window with all available presets. A preset can be loaded from the preset window by double-clicking on it, selecting via the buttons or by using your keyboard. You can also manage the directory structure, store new presets, replace existing ones etc. Presets are global, so a preset 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

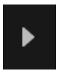
Files are named based on the name of the plugin like this: "{pluginname}.presets", so for example MAutopan.presets or MDynamics.presets. If the directory cannot be found on your computer for some reason, you can just search for the particular file.

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.


## Channel mode

Channel mode button shows the current processing channel mode, e.g. **Left+Right (L+R)** indicates the processing of left and right channels. This is the default mode for mono and stereo audio material and effectively processes the incoming signal as expected. However the plugin also provides additional modes, of which you may take advantage as described below. Mastering this feature will give you unbelievable options for controlling the stereo field.

Note that this is not relevant for mono audio tracks, because the host supplies only one input and output channel.

**Left (L) mode and Right (R) mode** allow the plugin to process just one channel, only the left or only the right. This feature has a number of simple uses. Equalizing only one channel allows you to fix spectral inconsistencies, when mids are lower in one channel for example. A kind of stereo expander can be produced by equalizing each side differently. Stereo expansion could also be produced by using a modulation effect, such as a vibrato or flanger, on one of these channels. Note however that the results would not be fully mono compatible.

Left and right channels can be processed separately with different settings, by creating two instances of the plugin in series, one set to 'L' mode and the other to 'R' mode. The instance in 'L' mode will not touch the right channel and vice versa. This approach is perfectly safe and is even advantageous, as both sides can be configured completely independently with both settings visible next to each other.

**Mid (M) mode** allows the plugin to process the so-called mid (or mono) signal. Any stereo signal can be transformed from left and right, to mid and side, and back again, with minimal CPU usage and no loss of audio quality. The mid channel contains the mono sum (or centre), which is the signal present in both left and right channels (in phase). The side channel contains the difference between the left and right channels, which is the "stereo" part. In 'M mode' the plugin performs the conversion into mid and side channels, processes mid, leaves side intact and converts the results back into the left and right channels expected by the host.

To understand what a mid signal is, consider using a simple gain feature, available in many plugins. Setting the plugin to M mode and decreasing gain, will actually lower or attenuate the mono content and the signal will appear "wider". There must be some stereo content present, this will not work for monophonic audio material placed in stereo tracks of course. Similarly amplifying the mono content by increasing the gain, will make the mono content dominant and the stereo image will become "narrower".

As well as a simple gain control there are various creative uses for this channel mode.
Using a **compressor** on the mid channel can widen the stereo image, because in louder parts the mid part gets attenuated and the stereo becomes more prominent. This is a good trick to make the listener focus on an instrument whenever it is louder, because a wider stereo image makes the listener feel that the origin of the sound is closer to, or even around them.
A **reverb** on the mid part makes the room appear thin and distant. It is a good way to make the track wide due to the existing stereo content, yet spacey and centered at the same time. Note that since this effect does not occur naturally, the result may sound artificial on its own, however it may help you fit a dominant track into a mix.
An **equalizer** gives many possibilities - for example, the removal of frequencies that are colliding with those on another track. By processing only the mid channel you can keep the problematic frequencies in the stereo channel. This way it is possible to actually fit both tracks into the same part of the spectrum - one occupying the mid (centre) part of the signal, physically appearing further away from the listener, the other occupying the side part of the signal, appearing closer to the listener.
Using various **modulation effects** can vary the mid signal, to make the stereo signal less correlated. This creates a wider stereo image and makes the audio appear closer to the listener.

**Side (S) mode** is complementary to M mode, and allows processing of only the side (stereo) part of the signal leaving the mid intact. The same techniques as described for M mode can also be applied here, giving the opposite results.
Using a **gain** control with positive gain will increase the width of the stereo image.
A **compressor** can attenuate the side part in louder sections making it more monophonic and centered, placing the origin a little further away and in front of the listener.
A **reverb** may extend the stereo width and provide some natural space without affecting the mid content. This creates an interesting side-effect - the reverb gets completely cancelled out when played on a monophonic device (on a mono radio for example). With stereo processing you have much more space to place different sounds in the mix. However when the audio is played on a monophonic system it becomes too crowded, because what was originally in two channels is now in just one and mono has a very limited capability for 2D placement. Therefore getting rid of the reverb in mono may be advantageous, because it frees some space for other instruments.
An **equalizer** can amplify some frequencies in the stereo content making them more apparent and since they psycho acoustically become closer to the listener, the listener will be focused on them. Conversely, frequencies can be removed to free space for other instruments in stereo.
A **saturator / exciter** may make the stereo richer and more appealing by creating higher harmonics without affecting the mid channel,

which could otherwise become crowded.
**Modulation effects** can achieve the same results as in mid mode, but this will vary a lot depending on the effect and the audio material. It can be used in a wide variety of creative ways.

**Mid+Side (M+S)** lets the plugin process both mid and side channels together using the same settings. In many cases there is no difference to L+R mode, but there are exceptions.
A **reverb** applied in M+S mode will result in minimal changes to the width of the stereo field (unless it is true-stereo, in which case mid will affect side and vice versa), it can be used therefore, to add depth without altering the width.
A **compressor** in M+S mode can be a little harder to understand. It basically stabilizes the levels of the mid and side channels. When channel linking is disabled in the compressor, you can expect some variations in the sound field, because the compressor will attenuate the louder channel (usually the mid), changing the stereo width depending on the audio level. When channel linking is enabled, a compressor will usually react similarly to the L+R channel mode.
**Exciters or saturators** are both nonlinear processors, their outputs depend on the level of the input, so the dominant channel (usually mid) will be saturated more. This will usually make the stereo image slightly thinner and can be used as a creative effect.

**How to modify mid and side with different settings?** The answer is the same as for the L and R channels. Use two instances of the plugin one after another, one in M mode, the other in S mode. The instance in M mode will not change the side channel and vice versa.

**Left+Right(neg) (L+R-) mode** is the same as L+R mode, but the the right channel's phase will be inverted. This may come in handy if the L and R channels seem out of phase. When used on a normal track, it will force the channels out of phase. This may sound like an extreme stereo expansion, but is usually extremely fatiguing on the ears. It is also not mono compatible - on a mono device the track will probably become almost silent. Therefore be advised to use this only if the channels are actually out of phase or if you have some creative intent.

There are also 4 subsidiary modes: **Left & zero Right (L(R0))**, **Right & zero Left (R(L0))**, **Mid & zero Side (M(S0))** and **Side & zero Mid (S(M0))**. Each of these processes one channel and silences the other.

**Surround mode** is not related to stereo processing but lets the plugin process up to 8 channels, depending on how many the host supplies. For VST2 plugins you have to first activate surround processing using the **Activate surround** item in the bottom. This is a global switch for all MeldaProduction plugins, which configures them to report 8in-8out capabilities to the host, on loading. It is disabled by default, because some hosts have trouble dealing with such plugins. After activation, restart your host to start using the surround capabilities of the plugins. Deactivation is done in the same way. Please note that all input and output busses will be multi-channel, that includes side-chain for example. For VST3/AU/AAX plugins the activation is not necessary.

First place the plugin on a surround track - a track that has more than 2 channels. Then select **Surround** from the plug-in's Channel Mode menu. The plugins will regard this mode as a natural extension of 2 channel processing. For example, a compressor will process each channel separately or measure the level by combining the levels of all of the inputs provided. Further surround processing properties, to enable/disable each channel or adjust its level, can be accessed via the **Surround settings** in the menu.

**Ambisonics mode** provides support for the modern 3D systems (mostly cinema and VR) with up to 64 channels (ambisonics 7th order). Support for this is still quite rare among the DAWs, so this needs to be activated in all DAWs using the **Activate ambisonics** item in the bottom. This is a global switch for all MeldaProduction plugins, which configures them to report 64in-64out capabilities to the host, on loading. After activation, restart your host to start using the ambisonics capabilities of the plugins. Deactivation is done in the same way. Please note that all input and output busses will be multi-channel, that includes side-chain for example.

First place the plugin on an ambisonics track, supported are all orders from 1st (4 channels) to 7th (64 channels). Then select **Ambisonics** from the plug-in's Channel Mode menu. Finally select the **Ambisonics settings** in the menu and configure the Ambisonics order and other settings if needed. The plugins will regard this mode as a natural extension of 2 channel processing. For example, a compressor will process each channel separately or measure the level by combining the levels of all of the inputs provided.

### Copy

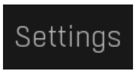
Copy button copies the current settings to the system clipboard. Other presets, oversampling, channel mode and other global settings are not copied.
Hold **Ctrl** to save the settings as a file instead. That may be necessary for complex settings, which may be too long for system clipboard to handle. It may also be advantageous when you want to send the settings via email. You can load the settings by drag & dropping them to a plugin or holding **Ctrl** and clicking **Paste**.

### Paste

Paste button pastes settings from the system clipboard into the current preset. Hold **Ctrl** to load the settings from a file instead. Hold **Shift** to paste the settings to all of the A-H slots at once.

### 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.

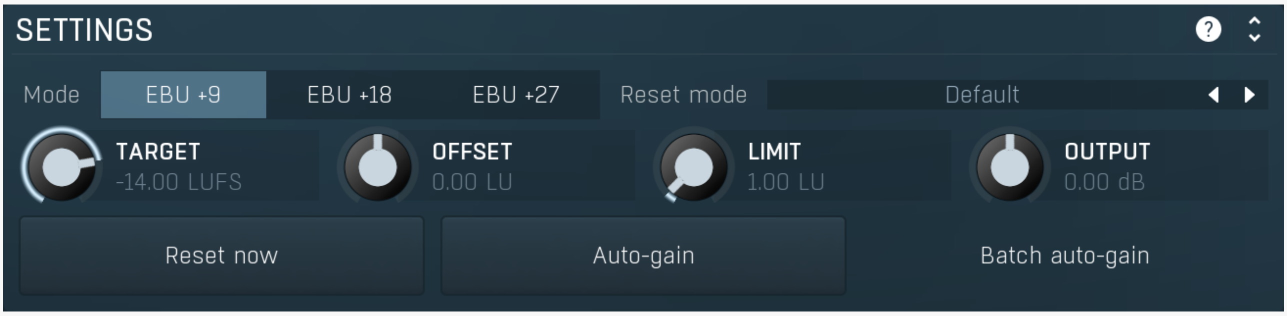
**Global system settings** contains some settings for all MeldaProduction plugins. Once you change any of them, restart your DAW if needed, and it will affect all MeldaProduction plugins.

**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.

# Settings panel

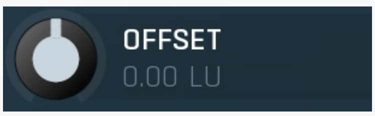



Settings panel contains some global analysis settings and features.

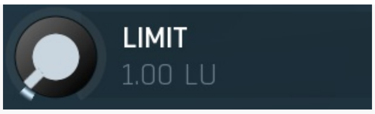

### Mode
Mode controls the current range. Please check the EBU standard reference for more information.


### Reset mode
Reset mode controls when the plugin automatically resets the meters.
**Default** mode makes the plugin reset when the host askes for it by initializing the audio processing.
**No reset** mode makes the plugin ignore playback resets sent by the host. It may be handy when you want to process a whole file using rendering too - hosts tend to reinitialize the plugin after the rendering to ensure a consistent state, which would however reset the meters.
**Reset on playback** is similar to default mode, but additionally it resets the meters whenever the playback is enabled. It may be handy when you actually want to reset the meters every time the playback starts, but your host doesn't do that.


### Target
Target controls the target loudness for the LU meters. By default it is -23 LUFS (the EBU 128 standard), which converts the LUFS units into LU. With an appropriately-set target you can then focus on comparing your loudness to 0 LU.
Range: -60.00 LUFS to 0.00 LUFS, default -23.00 LUFS

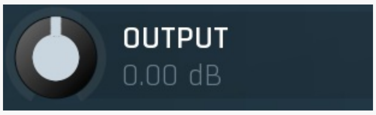



### Offset
Offset lets you move all loudness values up or down and adjust to different loudness standards, such as the K-System.
Range: -40.00 LU to +40.00 LU, default 0.00 LU



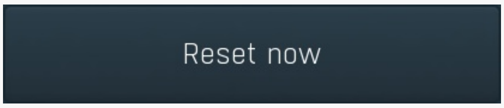

### Limit

Limit defines the green ('acceptable') range on the meter display, both up and down.
Range: 0.00 LU to 20.00 LU, default 1.00 LU



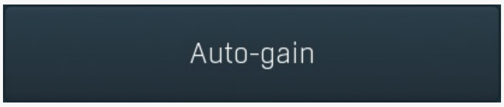

### Output gain

Output gain defines output gain.
Range: -40.00 dB to +40.00 dB, default 0.00 dB



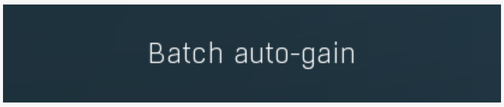

### Reset now

Reset now button resets the meters immediately. You can do the same thing by clicking on the numbers in the meter view.




### Auto-gain

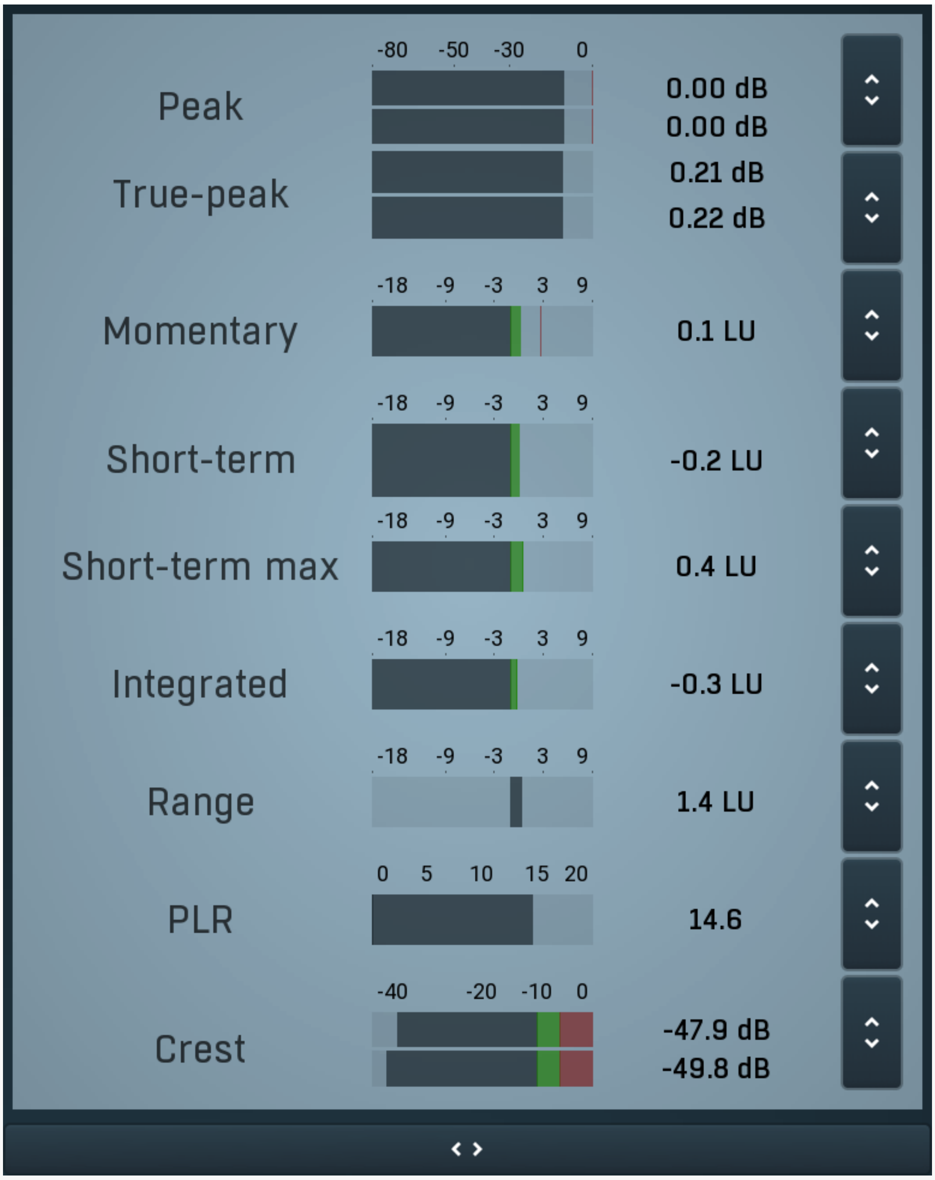
Auto-gain button takes the current integrated loudness value and sets the **Gain** to make the integrated loudness of the result match the specified **Target**. Note that you need to let the plugin spend some time analyzing the audio of course, ideally analyze the whole material.




### Batch auto-gain

Batch auto-gain button lets you batch process files and make the integrated loudness match the specified **Target**. You can either click the button and select a file to process, or drag & drop any set of files onto the button. Note that despite the plugin can read several audio file formats, it will always output WAV files.

# Meter view




Meter view shows several input measurements both as classic level meters and as time-graphs. The **Peak meter** measures the input peak level in a very similar way as any host does in its mixer.

**True peak meter** shows the true peak level. Most digital-to-audio (D/A) interfaces first convert the incoming audio into a higher sampling rate and then generate the output analog signal fed into the audio monitors. The filtering involved in this conversion can cause peaks higher than the original peak level.

True peak level simulates this conversion and displays level in this higher sampling rate. The goal is to avoid peaks over 0dB, otherwise the actual D/A convertor may get overloaded and produce mild clicks or distortion. The usual practice is to use a limiter as the last stage of your processing chain and set the ceiling to say -0.5dB, which is usually enough to avoid the overload. Note that since each convertor is different, the true peak level cannot be correctly measured and different software provides different true peak levels.

**3 loudness meters** are available. 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.

**Loudness range meter** shows the input loudness range. 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.

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

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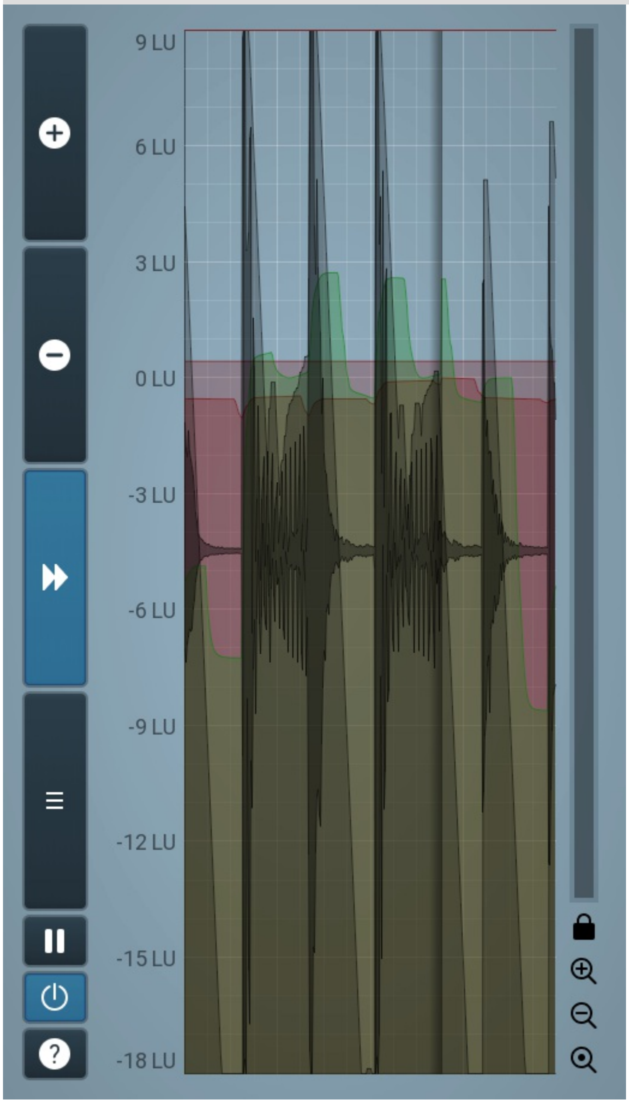


**Time-graph view**

Time-graph view displays the measurements in time.

**Plus**

Plus button increases the time-graph speed (reduces the period that is displayed).

### Minus
Minus button decreases the time-graph speed (increases the period that is displayed).

### Rewind
Rewind button enables or disables the time-graph static mode. In static mode the graphs are fixed and the current position cycles from left to right; otherwise the graphs move from right to left and the current position is fixed (at the right-hand side).

### Menu
Menu button displays the time-graph settings. In this window you can control which graphs are displayed, the speed and other relevant parameters.

### Pause
Pause button pauses the processing.

### 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.