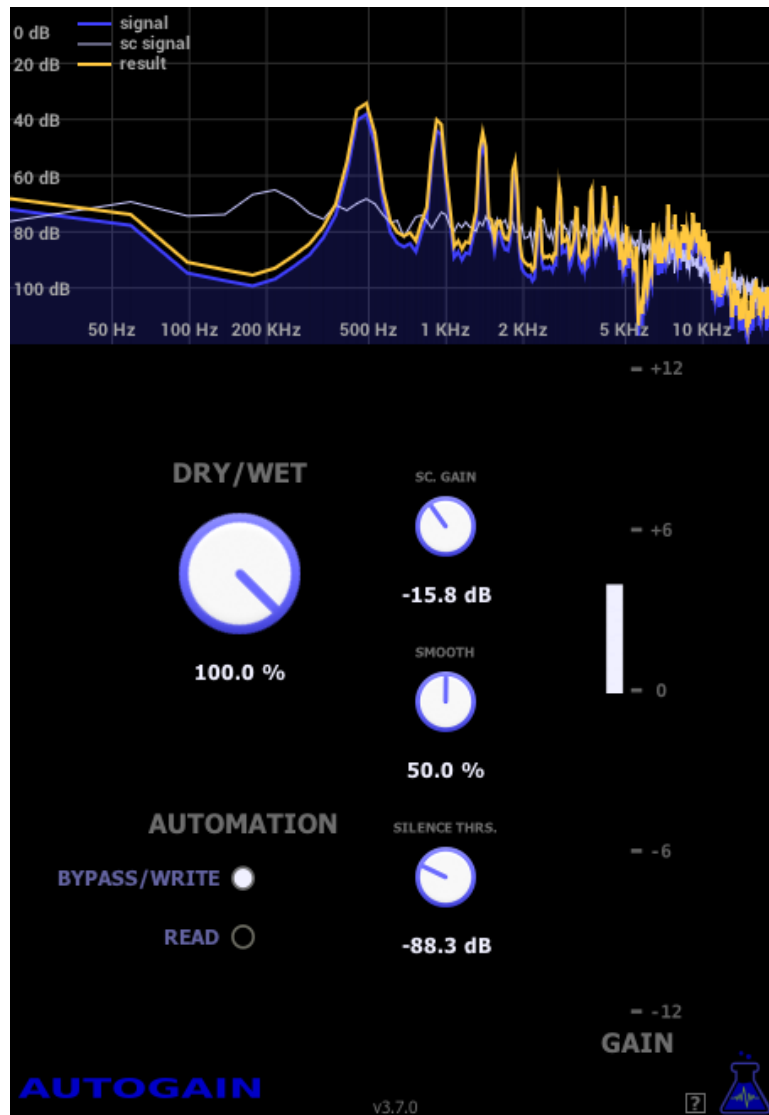# AUTOGAIN

DESCRIPTION

AutoGain is a plugin that allows to follow up the level of a track automatically, namely a gain rider. It allows to detect when a part of a track goes out too much either inside or outside the mix, and adjusts its level so that its position in the mix remains constant over the entire track.

PRINCIPLE

Note : The plugin is designed to use the sidechain feature of the DAW. But if no sidechain input is connected, the plugin will use a constant reference level instead.

The plugin is inserted on the track to adjust and the global mix is received by the sidechain input. By comparing these two levels in real time, the plugin will determine and apply the gain adjustment to make. This gain modification will be written as automation on the track. When the track will be read later, the gain will be adjusted from this automation.

The **AutoGain** plugin can be more suitable than a compressor in some cases, because its processing is more global. If the level grows in a long part of the track then decreases, using a gain rider will avoid to apply a strong compression on the entire track, and then avoid altering the sound too much.

The plugin has the particularity to work in the spectral domain, i.e. that is it not a simple calculation of level. The global mix and the track to process are constantly analyzed in the spectral domain, and an adjustment between both is done by taking the frequencies into account. Indeed, there could be two signals of the same level in dB, but with one signal sounding louder than the other, if a frequency range present in only one of the two signals comes out.

It contains a **DRY/WET (3)** parameter which enables the possibility to adjust the amount of gain correction. This parameter is useful if we find after processing that the sound of the track seems too homogeneous. This parameter can then be adjusted at the end to add a more natural feeling to the track.

EXAMPLE OF USE

The plugin is very well suited for a track containing singing voice. It allows the possibility to render the level more constant, for example if the singer moved away and got closer to the microphone during the sound recording, or simply if the level varies too much during the sound recording.

USAGE
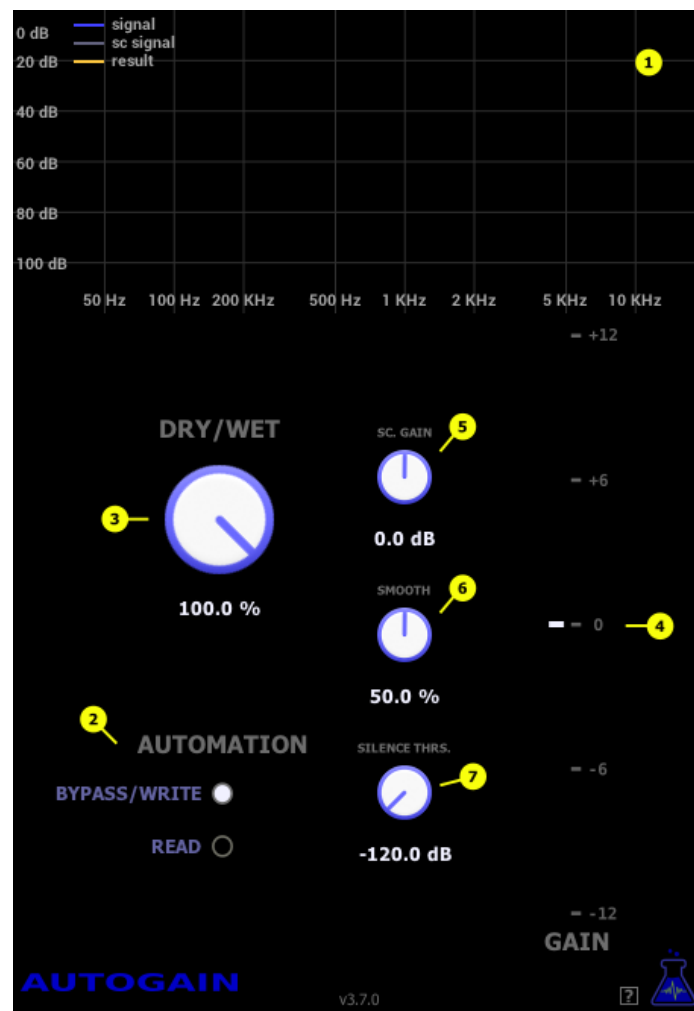
To begin, insert the plugin on the track to adjust.
Then bring the global mix from the sidechain input of the track.

For that purpose, a new track will be necessary (named "mix" for example). All the other tracks except the track to adjust will be sent to this "mix" track.

The output of this "mix" track will be redirected to the sidechain input of the **AutoGain** plugin.

Note : the whole mix can possibly be sent to the sidechain input, including the track to adjust. But in this case, there is a risk of making signal loops in the DAW, and the result will often be less accurate.

The **AUTOMATION (2)** parameter will be set to the **BYPASS/WRITE** value, corresponding to the real time processing of the adjustment of the gain, and to the automation write mode.

The **DRY/WET (3)** parameter will be checked to stay at the value of 100% in order to output only the processing sound.

The **GRAPH (1)** displays the spectrum of the current track, the spectrum of the input global mix, and the result.

The gain meter **GAIN (4)** displays in real time the gain applied to the current track.

The input gain of the sidechain input will be set with the **SC. GAIN (5)** parameter, in a way to roughly make match the SC SIGNAL curve with the SIGNAL curve.

In that way, the average gain rectification will be around 0dB, and the gain meter **GAIN (4)** will alternate between positive and negative values.

The **SMOOTH (6)** parameter adjusts the accuracy of the gain rectification in time.
With low values, the rectification will react very quickly to any level change. With high values, the gain rectification will react more slowly and more globally.

The **SILENCE THRS. (7)** is the threshold above which the sound is processed. It avoids amplifying too much the parts of the track that are almost quiet. For example the parts where there is only background noise, or the breaths in a singing track. This parameter prevents the background noise or the breaths to be excessively amplified to try to keep them in the mix!

After having set the previous parameters, the track can be listened to check that the gain correction is satisfying.

Next, the track will be configured in automation write mode in the DAW, by choosing to write the automation for the **GAIN** parameter of the **AutoGain** plugin. Then play the whole track to make the automation to be written.

The automation would be then possibly lightly adjusted "by hand" in the DAW. Indeed, depending on the plugin parameters setup, and depending on the different latencies in the

DAW, there could be a light shift of the automation in time. This will then be good to adjust it by hand. For this purpose, some DAW provide a "nudge" feature.

Finally, the **AUTOMATION (2)** parameter of the plugin will be set to the **READ** value, and the sidechain could be possibly disabled. The automation mode of the DAW will be also set to read mode.

During the next plays of the track, the automation will be read and the plugin will apply the corresponding gain.

The **DRY/WET (3)** parameter adjust the effect of the gain rectification. With a value of 0%, we get the signal without rectification, and with a value of 100%, we get only the rectified signal. This could be useful if we find that the sound has been homogenized too much and then lacks naturalness after processing.
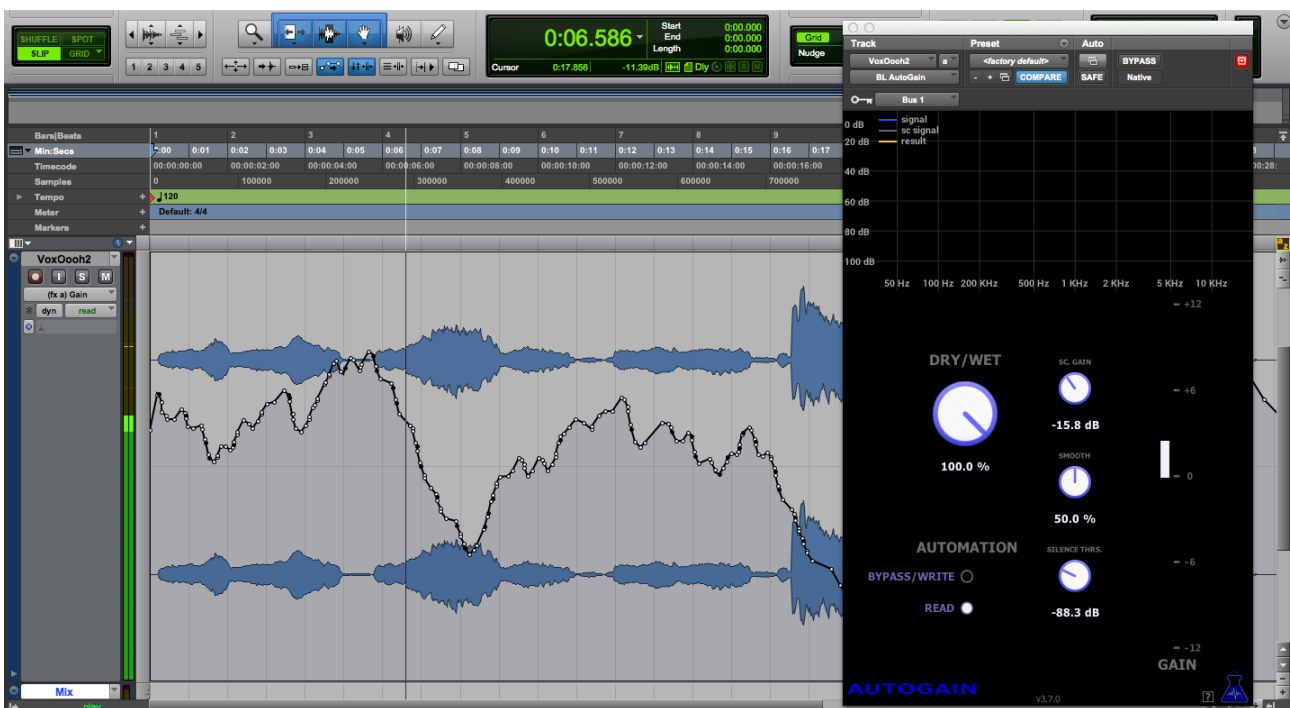
SUMMARY

- bring the global from the sidechain input
- setup the **AUTOMATION (2)** parameter to the value **BYPASS/WRITE**
- setup the **SC. GAIN (5)** parameter
- setup the **SMOOTH (6)** and **SILENCE THRS. (7)** parameters
- make the automation write the **Gain** parameter
- setup the **AUTOMATION (2)** parameter to the value **READ**

FAQ

The DAW warns about a delay problem

Indeed, some DAWs can display a message about the delay because when using the **AutoGain** plugin, some signal loops can be created. Namely the output of the current track goes to the mix, and comes back again be the sidechain input.

To avoid this drawback, the sidechain input will have to be disabled after having written the automation.

But the best solution is to receive from the start all the mix by sidechain, except the track we are processing with the plugin.

We can possibly make a bounce of all the mix except the track to process, import this bounce in a track, and use this track as sidechain input.

The written automation is slightly shifted considering the desired gain variations

Indeed, depending on the setup of the parameters of the plugin, and depending on the path of the signal in the DAW, there can be a slight shift of the automation in time.

To get a better result, we will slightly shift the whole automation "by hand" horizontally in order to have a more accurate result. Some DAWs have the feature of selecting the whole automation and simply drag it horizontally. Some other DAWs have a "nudge" feature.

The sound of the track sometimes saturates

Check that there is enough margins, that all the levels are not too much near the limit of saturation. Indeed, the **AutoGain** plugin will need to increase the gain of the processed track.

Why is it better to write an automation and read it after, instead of processing the signal in real time?

It is better to save the gain modification as automation and read it after because during the mixing task, all the levels will often change. The level of the mix then changes very frequently, more or less, and differently depending on the parts of the mix.

And then if we didn't use automation, the gain correction of the **AutoGain** plugin would change at each new modification of the mix we would make!

The gain level meter is stuck at +12dB or -12dB, what is the solution?

This can come from a too big difference in levels between the global mix coming from the sidechain input, and the level of the current track. The plugin tries to adjust the level, but as the difference is too big, the gain gets stuck at the maximum.
To solve this issue, the **SC. GAIN (5)** parameter must be used to adjust the input level of the sidechain input.