Max DUY

User's Manual

Max DUY

Max DUY is a revolutionary new approach to sound level maximizing, based on the exclusive ILO algorithm.

Main features

- Exclusive ILO (Intelligent Level Optimization) algorithm provides:

  - Seamless level maximizing
  - Zero harmonic distortion even at low frequencies.
  - Unnecessary level scaling and limiting thus improving signal to noise ratio.
  - Release-free operation, avoiding unwanted pumping effect.
  - Overall improvement of signal to noise ratio.

- Easy and intuitive user interface.
- Maximum resolution peak level meters with hold and shift function.
- High signal to noise ratio with internal 48-bit resolution.

Applications

- Sound level optimization for music, film soundtracks, broadcast and multimedia.
- Suitable for the processing of any kind of sound: music, musical instruments, voices or effects, and both individual tracks or final mixes.
- CD mastering.

1. About Max DUY

Max DUY is a revolutionary new approach to sound level maximizing based on our exclusive ILO algorithm. It produces an increase in the perceived level of a signal without artifacts and allows you to process any kind of sound: music, musical instruments, voices or effects on both independent tracks or final mixes. It is even effective on tracks that have already been compressed or limited.

Max DUY doesn't add the pumping and breathing effects sometimes heard in compressors or limiters, and doesn't distort or harm low frequency signals. Max DUY is not a compressor or a limiter, and thanks to its exclusive algorithms it opens new sonic possibilities to both musicians and studios.

2. About ILO

ILO stands for Intelligent Level Optimization. In short the ILO algorithm process provides an increase in the perceived level of a signal without the unwanted artifacts usually produced by compressors and limiters.

ILO features control parameters that are continuously updated sample by sample. The instantaneous output level is the final result of a series of complex calculations taking into account both the sample values and the ILO psychoacoustic model. The result is a perceived increase in level that preserves the dynamics and spectral balance of the original signal.

3. Configuration and system requirements

Max DUY can be configured both as a mono or a stereo device. The stereo mode is automatically selected when it is inserted into a stereo track. In stereo mode both channels are controlled from the same front panel. Two "output level meters" appear automatically when in stereo mode. The stereo mode is transparent to the user and can not be overriden in any situation.

For up to date information about resource allocation on your platform please refer to the ReadMe folder on the installation disk or visit DUY's website at http://www.duy.com

4. External controls

Max DUY's front panel is divided into two main parts: the top push button panel and the plug-in main display.

4.1- Top push button panel

This panel varies according to the the program from which you are opening Max DUY. One common button to all applications is the "bypass" switch. By toggling the bypass you can make a direct comparison between direct and processed sound.

4.2. Bargraph displays

The input and output bargraph displays provide a graphic representation of the level changes involved in the processing. They range from minus infinity to 0 dB. The input level bargraph measures the peak level of the incoming signal. The output level meter measures the peak level of the plug-in's processed signal. A peak hold feature is included. To reset it, click the bargraph.

When Max DUY is inserted into a stereo channel (stereo mode) a second level meter appears below the first one for the Right channel.

4.3. Input level slider

It ranges from -30 to 0 dB. Its default value is 0 dB. You can switch to the default value at anytime by clicking the "'Input level" area while at the same time holding the "Alt" key. You can also make fine adjustments by clicking the "Cmd" key while moving the slider. The fine adjustment procedure is also applicable to the "max" and output level sliders.

4.4. "Max" slider

The "max" slider sets the threshold above which the signal is maximized to 0 dB. In other words it sets the amount of maximizing effect. It ranges from -30 to 0 dB left to right on screen. Default value is 0 dB which produces no maximizing effect at all. Moving the "max" slider to the left increases the maximizing effect. If the input bargraph average reading is near 0 dB the range of useful values for the "Max" slider is narrow and located between -6 and 0 dB. In these cases adjustment is somewhat critical and any higher settings could produce unwanted results. As with all the other sliders you can also make fine adjustments by clicking the "Cmd" key while moving the slider.

4.5. Output level slider

It ranges from -30 dB to 0 dB and determines the maximum peak value of the maximized signal. Its optimum setting will vary if you are processing independent tracks, final mixes or if you are transfering to any external device. In this type of situation the optimum setting will vary according to the machine that you wish to transfer to. This is due to the fact that clip detection on digital and analogue machines is intrinsically different. In analog systems the clipping occurs when an instantaneous peak value exceeds the maximum allowed dynamic range. However in digital machines clipping is detected when the absolute maximum or minimum digital value is repeated over 2, 3, 4 or more samples. The number of samples necessary to be considered clipping depends on the machine.

For this reason when digitally copying to an external device a maximized track could appear as having several clips on it. The solution is very simple. Just reduce the output level by -0.1 dB. The perceived level change will remain unnoticeable. We advice you to follow this procedure every time a master is made.
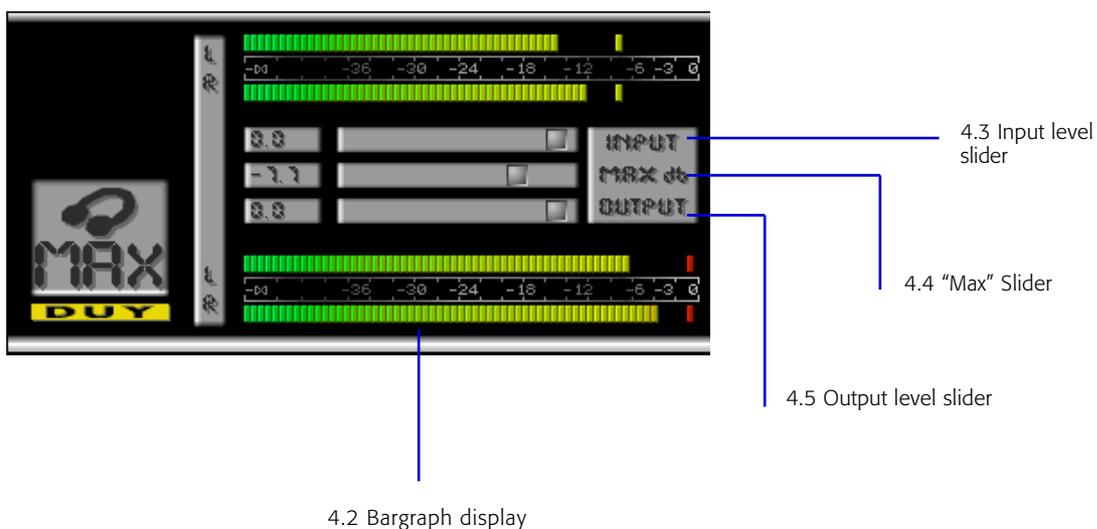
5. How to use Max DUY

Max DUY's adjustment is straightforward. Set the "input", "max" and "output" sliders to 0 dB. Slowly move the "max" slider to the left until you get the desired output level reading. The more you turn "max" to the left, the more the maximizing effect. More maximizing means a greater perceived level increase for a given peak reading. It also means that although the signal's dynamic range has been reduced, the perceived dynamic range is maintained.

The optimum dynamics will depend very much on the source to be processed. Excessive maximizing can lead to distortion so a general rule to follow is to set the "max" slider at a point just before distortion occurs. Thus the maximum dynamic optimization will be obtained.

You can also use Max DUY as a limiter. To do this just adjust the output level every time you make a change to "max" slider so that the input and output bargraphs have the same peak reading.

Max DUY is especially suitable for final mixes, even after some kind of compression or limiting has already been used. The same applies to separate instruments, voices or sound effects. You can even use it simultaneously on separate tracks and a stereo mix of the same song or soundtrack. However care should be taken not to apply Max DUY in mono to a stereo track as the stereo image will suffer.

Max DUY must be inserted after any other processing effect. This rule is applicable to DUY's or any other third party plug-ins.

4.3 Input level slider

4.4 "Max" Slider

4.5 Output level slider

4.2 Bargraph display