



Sonoris Meter VST 2.0

User Manual



Introduction

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Thank you for choosing Sonoris Meter!

What is it?

With this plugin, you can accurately measure peak and loudness levels of audio signals, at one scale. Besides a regular meter scale the Sonoris Meter supports the K-System, from Bob Katz, mastering engineer and founder of Digido mastering studio. During the development period of this plugin Bob Katz was very helpful in providing information. The end product closely follows the K-system specifications, including Leq(A) loudness metering and bandlimited pink noise monitor calibration.

The Sonoris Meter features an oversampling mode. In this mode the meter catches intersample peaks that can cause ear fatiguing sound when audio is played on consumer CD players. Many CD players have inferior D/A converters with little headroom that will distort with samples above the clip level. These peaks occur when the audio is clipped (read squashed / limited) or otherwise digitally manipulated (eg. VSTi's). In oversampling mode the Sonoris Meter models the D/A conversion process and allows for maximizing the level but avoiding this distortion.

At the bottom of the interface a correlation meter can be found. This meter enables the user to monitor the phase relationship between the left and right channels.

About the plugin

All calculations are performed with 64 bit integer math except for the filters.

Basic Operation

Click on a button to active or deactivate the corresponding function. Controls can be changed with the mouse by dragging up or down or by clicking on the small arrows. An added feature is the possibility to adjust the controls with the mousewheel.

Clicking on the meter values above the meter bars resets them. If a clipping incident occurred, the clipping indicator can be reset by clicking on it.

About this helpfile

This helpfile explains all settings and options, as well as basic K-System theory. For more in-depth information please visit www.digido.com.

Have fun!

What is the K-System?

This helpfile is not intended to fully explain the K-System and its backgrounds, but just the basics. For more indepth information, please visit the website of the designer: www.digido.com.

The K-System defines three metering scales, with different headroom. The systems are: K12, K14 and K20. The number defines the available headroom for the set. All measurements are in dBr, in contrast to standard VU or RMS meters. As the name says, it's really a system. Every set depends on a calibrated monitor setting. For example, the K20 set has the standard 83dB monitor level at 0dBr, that's -20dBFS. The K14 has 83dB at -14dBFS and so on. The main advantage is that you always work at the same monitor level, and the chosen set defines how much headroom there is available.

Typical uses for the three systems are:

K20: wide dynamic music / classical / "audiophile"

K14: high fidelity music for home listening, rock, folk, pop etc.

K12: broadcast productions

Features

- Closely follows the K-System, with three metering sets:
 - K12 for broadcast productions
 - K14 for home theatre, pop, rock, folk, etc.
 - K20 for wide dynamic music
- Regular, non K-system scale also available
- High resolution metering of peak and loudness level, on the same scale
- Intersample peak metering mode
- Correlation meter
- Peakhold function with resettable indicators or 10 seconds hold
- Loudness measurement methods: RMS/flat (AES-17) and Leq(A-weighted)
- Pink noise output (left, right or stereo, bandlimited or full bandwidth) for monitor calibration
- Adjustable number of consecutive overs before clipping
- Resettable clipping indicators
- Resettable clipping incident counters
- Low CPU load
- Settings can be saved
- 64 bit resolution

Kxx

Chooses between the following K-System sets:

- Regular scale
- K12
- K14.
- K20

Toggle between sets by clicking on the small. When you choose a different set the metering background changes and the peakhold values and indicators will reset.

Clicking on an active button resets the K-System and enables a regular scale with 0dB at the top.

RMS/Leq(A)

With this buttons you can choose between two loudness measurement methods:

- RMS. This is the standard non-weighted implementation of RMS. Regardless of the samplerate, the bandwidth is 20 Hz to 20KHz (-0.1dB). The RMS calculation window is 1024 samples and metering ballistics are 600 msec. attack and release, as defined in the K-System specification. The 0dB level is calibrated with -20dBFS pink noise.
- Leq(A). This is the first implementation of a K-System meter with Leq. The definition of Leq is: "The level of a constant sound, which in a given time period has the same energy as a time-varying sound". Leq is also used in loudness meters for measuring aircraft noise or industrial noise over a long period. In the Katz proposal the Leq is measured over a 3 sec. interval. This is implemented in the plugin. The (A) stands for A-weighting filter. This filter approximates the loudness sensitivity of the human ear. In practice, you see a nice and rather slow meter, that translates the loudness very well.

Peakhold

When this button is engaged, the small horizontal indicators above the meter bars show the maximum value from the start of the metering. In the other case these indicators reset every 10 seconds.

Calibration

With this button you can decide at what channel the calibrated pink noise (bandlimited 20Hz-20KHz or 500Hz-2KHz) is generated, L, R or L and R. The level is calibrated so that it shows 0dB_r on any K-scale. You can calibrate your monitors at this level to show 83dB on a slow, C-weighted SPL meter. In stereo mode add 3dB.

The 500Hz-2KHz noise signal can give a better and more stable reading on the SPL meter under some circumstances. Please try both options and see what works best for you.

Overs

With this button you can adjust the number of consecutive overs before the clipping lights go on. An over is defined as a sample that has a value of 0dBFS or higher. SAWStudio actually allows signals to go “over”. When clipping occurs the clipping incident counter is incremented. This counter is located next to the clipping lights and is only visible when clipping occurred.

Selecting OS will activate the oversampling mode, see the introduction page. In this mode the number of consecutive overs that cause the clip indicator to go on is 1.

Correlation meter

At the bottom of the meter you see a correlation meter that consists of a row of leds that range from -1 to +1. This meter shows the correlation between the signals of the left and right channels.

If the signals are in phase, the meter shows "1".

If the signals are out of phase, the meter shows "-1".

If the signals are completely uncorrelated, the meter shows "0".

For normal stereo recordings, the meter should indicate a value between "0" and "1". When one of the signals is absent, the meter shows "0", because this is the neutral position. Negative values for a longer time indicate phase problems.

The meter will be disabled if the current loudness is below -60dB.

Options

In the option menu are the following choices:

- BP Pinknoise: when enabled the 500Hz-2KHz pinknoise is used for calibration
- Load presets. This function allows you to recall previous settings stored in a file
- Save settings. This function allows you to save the current settings to a file
- Help: Shows this helpfile (Windows version only)