



## Weiss Series 5 – Firmware – New DSP Features

### The patented Schwese Loudness EQ

#### The Schwede Loudness EQ

The loudness EQ is based on the Equalizer patent of Bernhard Schwede. The idea behind this equalization is based on psychoacoustic grounds.

Mainly the psychoacoustic quantity loudness is eponymous and essential for the EQ design by Schwede. In acoustics this loudness describes the subjective perception of sound pressure. Schwedes EQ design then considers this subjective perception to create a more pleasant playback regarding the sound intensity. The specific design of Schwedes patent is implemented in the presented plugin. Summing up this EQ offers you the possibility to influence playback volume in such a way that the resulting loudness impression becomes more authentic throughout the audible frequency spectrum.

Choose your desired loudness Level via the drop-down menu. These ten different level settings in dB are illustrated with comparisons benefiting an intuitive use of this plugin. Starting at the lowest level at 60 dB you can increase the loudness up to 105 dB.

This plugin is based on the patent: "Equalizer, audio system with such an equalizer and method for equalizing a sound mix" by Bernhard Schwede. His design describes an audio equalizer with a special concept. In general Schwede's algorithm aims the purpose of an aurally linearized equalization of a sound mix. The idea is based on the psychoacoustic characteristics of the human hearing and its anatomy.

Our auditory sensitivity is frequency dependent, which also effects the perception of loudness.

This sensitivity regarding the loudness can cause an unauthentic sound experience when listening at home to audio recordings for example of a concert hall. So Schwede's concept tries to overcome these non linearities of the human sense of hearing with a equalizer design which creates an optimized compensation curve based on the psychoacoustic and anatomical theory.

Basically this equalization consists of seven bands with predefined parameters deduced from Schwede's design. Ten different setting options of the EQ plugin are presented. The users select the EQ setting option depending on the current listening level they enjoy the most with their audio equipment.

These ten options are described with dB levels. Some example comparisons shall illustrate the dB levels. Setting 60dB could be compared with the loudness of a *verbal communication*, 70dB for example with a *vacuum cleaner*. 80dB can be visualized with *street traffic*, 90dB with a *heavy truck* and 100dB with a *sawmill*.



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