

Weiss DS1-MK2

Dynamics Processor

BY BOB KATZ

While I was working as a freelance mastering engineer, I was privileged to use and lust over Daniel Weiss's 102 modular series of dynamics processors at various high-end mastering studios. But after opening my own room, I felt I could not afford the down-payment to get started in the Weiss world. Fortunately, Daniel introduced the one-piece Gambit series of processors a few years ago, opening up a whole new market with the same uncompromised engineering as the 102. The Weiss DS1-MK2 digital dynamics processor continues in that vein, having matured to software revision 2.0 and the Mark 2 double - sampling hardware board containing 40-bit SHARC processors (with the advent of the MK2 the original DS-1, still available, becomes a much cheaper, though fully upgradable, 'entry-level' box).

FEATURES

The DS1-MK2 is a stereo 2RU processor with a handsome cream-colored finish. The "DS" in its title stands for de-essing, which the Weiss does very well, but most mastering engineers use it for simple compression or expansion. Its AES/EBU interface accepts up to 96 kHz sampling, and at 44.1 kHz and 48 kHz it internally samples to double rate, reducing or eliminating the harsh aliasing distortion that gives digital compressors a bad name. The DS1 maintains Weiss's ergonomic "one knob per function" tradition, so that it feels like an analog compressor instead of an awkward computer.

Multiple knobs and a graphical display make it far more expensive

than the typical 1RU processor, but think of the time and headache saved by not digging through esoteric menus! Also, the display changes function as your hand moves to each touch-sensitive knob. Through ease of use, I am able to get more work done faster with the Weiss products – and with better sound than most any other digital processor.

There are 128 user memories, plus two independent backup memories of 128 presets each, so one could keep separate projects on the unit. But in practicality, it is easier to upload and download MIDI Sysex dumps to a computer sequencer. The computer is where I keep my backups, hard disk records of the settings used in each project. As soon as the Weiss is sent a Sysex dump, it immediately goes into "MIDI upload" without any user intervention, part of its ergonomic touch.

IN USE

Pick a function, any function, but usually only one at a time, the only exception being that the safety limiter can be used in conjunction with any of the main functions. And the main functions can be frequency-sensitive. In other words, you can perform one of either: downward compression; upward expansion (a new feature); de-essing; parallel (upward) compression (a new feature) plus safety limiting.

There are some one-button user presets, but it is nearly as fast and far more accurate to dial in the ratio and frequency sensitivity to taste. For standard (downward) compression, set the ratio to greater than 1. The effect can run from the most delicate compression (e.g.

1.05:1, 1.11, 1.17) to severe compression or limiting (1000:1). You change ratios by rotating the stepped ratio knob while watching a dedicated line on the ample LCD, which also displays transfer function and gain reduction. Attack or release times are incrementally adjustable from inconceivably fast (20 μ s) to improbably slow (8 seconds); Weiss always makes sure you have more range than you would ever need. A dual release time definitely forms part of the unit's unique sound. For example, you can set very fast release for instantaneous sounds and slower release for more continuous sounds, which can achieve a natural, yet louder-sounding compression without pumping. A release delay control helps to prevent breathing sounds with noisy sources. Other controls include soft knee, threshold, preview (for look-ahead) and gain makeup, all with flexible choice of range. The compressor (or expander) can be confined to a given frequency range, either high-pass, low-pass or band-pass. This is what allows Weiss's excellent de-essing, or split-band dynamics control, for example, so that a bass instrument will not modulate the whole sound, or reduce the compression on the bass end versus the treble end. Concerning upward compression, I feel that the ear forgives the raising of soft passages more easily than lowering of loud passages. This new software feature, also known as parallel compression, is engaged in the "gain" menu, putting the compressor section in parallel with the "dry" signal, and achieving an entirely different sound. If delicately performed, parallel compression can be extremely transparent, especially useful for classical or acoustic

music. Distortion is reduced by several dB, since part of the signal passes through unprocessed. In essence, adjust the amount of compression by the gain makeup control instead of fiddling with thresholds or ratios. I recommend presetting the compressor's threshold to -50 dBFS, ratio to 2:1, attack to 20 ps, and release to 300 ms or so and leave them alone – simply adjust gain makeup to taste. During musical passages, the compressor section is in gain reduction nearly all the time. As the sound gets louder, gain reduction increases; thus the compressor contributes very little or no sound during loud passages.

Conversely, as the sound gets softer, the compressor raises gain because there is less gain reduction. By using an extremely fast attack (and the built-in look-ahead), transients are preserved, unlike the case with standard (downward) compression. The parallel compressor can be set to a frequency band, turning it into a dynamic equalizer. For example, by confining it to the bass range you can fatten a bass instrument, or to the treble range, which gives presence without making harsh sound at high levels.

Upward expansion, also known as the "uncompressor," was added during a recent software revision, and in version 2.0, the range of ratios was made more useable. Simply set the ratio to less than 1, changing the unit to an expander. Remember to think "backwards" when using this feature; for example, fast attack times increase apparent transients. It is not possible to restore dynamics to hypercompressed material, but you

can add more life to material that has been just a bit overcompressed. However, if overdone, upward expansion can sound as bad as poorly-done compression. For example, low-level passages start to get lost, or sounds seem to "bounce."

Dynamics processing becomes a serious art when using upward expansion in conjunction with parallel compression in another processor (you can always get another Weiss!). Two threshold points hinge the material, one to give a little more life to crescendos and another to prevent the softest passages from being lost.

Another new feature is level control both pre and post-limiter, allowing an adjustable ceiling and even more limiting. However, this limiter was designed to be a safety device, so you can hear it working if you push it to more than 2, perhaps 3 dB of action – it is no competitor for the Waves L2 Ultramaximizer (PAR 8/00). This limiter is not double-sampling and thus sounds a hair better if you work with 88.2/96 kHz material or upsample in front of the Weiss. I suspect if Weiss added limiter autorelease and faster attack a la Waves, it might permit us to get more limiting with less distortion. But let me remind readers that less processing really means more quality, and if the producer lets you get away with a lower-level CD, it will sound better! It is possible to make an excellent limiter by using the Weiss's compressor at 1000:1 ratio, but you lose its compressor or expander functions.

The latest version of the software includes POW-R dither, which I reviewed using a Weiss dithering

processor (PAR 10/99). It bears noting that when the output wordlength is set to 24 bits, the extra-long internal wordlength is converted from floating point and properly dithered down to fixed point, a likely contribution to the unit's purity of tone.

A nice feature is the ability to store a preset to a group of registers or all of them at once. This is useful when many of the songs of an album have a similar sound, and only need slight variation of processing. All memories and processor conditions are nonvolatile.

SUMMARY

The sound of the DS1-MK2 is impeccable. It is the most transparent, refined, flexible and least "digital-sounding" dynamics processor I have ever used. It is indispensable; I use it on over 90 percent of my mastering projects. Perhaps due to its conservative design, it cannot seem to be made to pump very much, and the kind of "punch" it provides is more of the refined party variety than "wham-bam, thank you, ma'am."

Founder of the Digital Domain mastering studio in Orlando, Bob Katz has been a recording and mastering engineer for over 30 years. Inventor of the K-System of metering and monitoring, and the patent-pending K-Stereo and K-Surround processes, he has mastered three Grammy-winning albums. He is also the author of Focal Press Mastering Audio: The Art And The Science.