

# Sony Oxford Limiter

The latest in a line of plug-ins from the Oxford camp and addressing the now all-important role of the limiter in a digital chain, it's available as TDM and RTAS for Pro Tools Mix and HD and RTAS only for Pro Tools LE. **JON THORNTON** reckons it'll certainly make your mixes louder and probably also better.

**A**S CURRENT PRODUCTION TRENDS, rightly or wrongly, give rise to ever hotter mixes, the limiter has become an increasingly ubiquitous tool at all stages in the production process — on individual sources in a mix and strapped across the mix bus at the mastering stage. One of the side effects of this, with conventional limiters and digital devices that employ 'look ahead' techniques, is in the removal of fine level detail or transient peaks — effectively trading transient resolution for overall programme loudness. And as more and more individual samples approach maximum value, the additional spectre of reconstruction or inter-sample errors raises its head. This can happen when frequencies that are related to the sample frequency are reconstructed by the D-AC to represent signal levels in excess of the sample values themselves. As long as the samples remain at the same value between the A-DC and D-AC process, this is not usually a problem. But processing the samples, particularly in a way that increases their value, can cause the D-AC to reconstruct signal levels that are above the theoretical full scale maximum, with the attendant objectionable artefacts. And, as most DAW metering looks at sample values only, these errors are sometimes overlooked.

You'll have to forgive this somewhat lengthy introduction, but it's necessary as these are two areas that Sony Oxford has sought to address in its implementation of a digital limiter plug-in (from around UK£195 +VAT). Pulling it up reveals a familiar looking no-nonsense Sony Oxford GUI, together with some familiar looking, and not so familiar looking parameters. At a basic level, the plug-in breaks into two sections — what Sony Oxford terms 'pre-processing', which is programme levelling as you and I know it, followed by an 'enhancement' section, which provides sample value limiting and overall programme loudness enhancement by modifying dynamics and harmonic content.

Starting with the pre-processing section, the first thing that strikes you is the absence of a threshold control. This is because the threshold is fixed at a nominal value, and an input level control allows signals to be pushed over this threshold as necessary. Sliders give control over attack and release timing for this section together with a variable knee control that governs the onset and slope of gain reduction. The inclusion of an attack time constant, and to some extent the knee variation is somewhat unusual in the context of a limiter, as conventionally as fast an attack as possible would be used, with a relatively hard knee. To understand this, you have to view this section as simply conditioning the signal prior to sample value limiting, which is dialled in using the enhancement slider. This ranges from 0 to 125% in normal operation, with 100% achieving full sample value limiting, and the range above increasing the way in which the harmonic content is affected further,



giving greater perceived loudness but at the expense of additional artefacts.

Because the pre-processing section has its own internal headroom, transients that a longer attack time may let through are not internally clipped, but are passed through to the enhancement section, which ensures that they do not give rise to a clip condition on the output. This sounds strange, but in practice enables the plug-in to preserve a goodly amount of fine transient detail while still increasing programme loudness. And to combat any potential problems with overall volume changes in the programme material, an additional Auto-Gain switch adds a further level of long-term gain control, scaling the levelling function to match the long-term level, and freeing up the time constants to fine tune the dynamics.

This approach does mean that using more musically sympathetic longer attack times requires the enhancement section to be working at 100% or greater to ensure that the output isn't clipped. As this would also mean that the harmonic enhancement is also dialled in to its full amount, which might not be suitable for all programme material, the plug-in is also provided with a Safe mode that can be toggled on and off. When on, this mode ensures that no clip condition can ever exist at the output — in other words it sets sample value limiting to always operate at 100%. But it does this without the harmonic enhancement processing operating, unless the user chooses to dial this in with the slider.

The output level can be adjusted to suit the intended destination, and by default has a meter that shows level based on sample value. This can be switched, however, into reconstruction mode, which then indicates the level that a D-AC would reconstruct for the samples. This allows the output level to be reduced if such an error results in an overload condition, but an auto compensation function is also provided, which automatically dips the output level just enough to compensate for any such error as and when it occurs, enabling maximum loudness to be maintained.

Finally, and in recognition of the fact that the plug-in may well be the last process in a mastering chain, some very flexible dithering options are provided,

including the ability to alter the depth of one of four noise-shaping curves applied to a standard triangular probability density function.

Like any similar process, when used to excess and without care and thought, the Sony Oxford Limiter is capable of completely trashing your audio as well as the next plug-in — either for artistic effect or just through ignorance. But with a little thought and some careful thinking through of what is going on, I found that I could generate significantly louder mixes with less of the harshness and loss of transient detail I'd normally associate with such a process. The enhancement section, too, was more impressive in use than I imagined it would be — although somewhat counter-intuitively (to me at least) seemed to work

better on programme material that had a very broad spectrum and little in the way of space, rather than on sparser mixes or individual sounds with fairly narrow bands of frequencies.

All this is probably best summed by a single fact. I invariably wince whenever I hear the effect of another well known limiter plug — particularly when used to stake a claim in the loudness race. But with this plug, there was a lot less wincing going on, and equally loud, if not louder mixes... ■

**PROS** Allows high degrees of limiting while preserving detail; simple uncluttered GUI; reconstruction metering a useful bonus; good range of presets that help in learning how the plug-in works.

**CONS** Relatively DSP hungry unless you are running an Accel system; not much else except it can send you blind, you know...

**EXTRAS** The Oxford Restoration bundle includes DeClick, DeBuzz and DeNoise plug-ins.



DeClick combines DeClick and DeCrackle and is able to remove large pops and clicks, right through to tiny crackles within one plug-in. DeBuzz has two modes (strong and weak) to minimise signal damage and is able to track any slow drift in the fundamental buzz frequency automatically. DeNoise can automatically track noise in auto mode and can provide traditional Noise Fingerprint capture.

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