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dbx 160SL Stereo Compressor/Limiter

FIELD TEST

by Barry Rudolph

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The word "glamorous" struck me as I pulled the new dbx Professional Products' 160SL Stereo Compressor/Limiter from the shipping crate. Its gleaming 1/4-inch-thick, metallic blue, anodized aluminum front panel, chrome-ringed LED indicators and the custom-machined control knobs on the heavily damped pots let you know that this is dbx's flagship product.

Getting In And Out

The two-rackspace 160SL has two mono compressor channels mounted side by side with stereo coupling and sidechain capability. In sidechain mode, the compressor responds to signals coming into the sidechain return connector rather than the normal input. A short signal path is used for sidechain de-essing or ducking functions. You can hear the confident "click" of a hard-wired bypass relay with a verifying red LED when you select sidechain mode. There is also a hard-wired bypass relay for bypassing the entire unit out of your signal chain. Sidechain connections, like all the audio connections on the 160SL, are by way of gold-plated Neutrik XLRs. Also on the back panel, dbx has provided three push-button switches for each compressor channel: Pin 1, Unbalanced and Ground. The Pin 1 Lift switch lifts pin 1 of the input XLR from all ground references. The Unbalanced switch changes the output of the 160SL from balanced to unbalanced and drops the level 6 dB. (You could also short pin 3 to ground if you want to unbalance but keep the level up.) The Ground switch, when pushed in, references the center tap of the Jensen output transformer to chassis ground. Finally, a stout grounding post is provided and a space for an optional 24-bit AES/EBU and S/PDIF analog-to-digital converter.

With the converter added, there would be three simultaneous audio output streams: analog, AES/EBU and S/PDIF digital.

The input audio signal, after going through a RFI filter, is amplified and then presented to the new dbx V8 VCA module, the "engine" behind the 160SLs dynamic range control. The V8's dynamic range is specified at greater than 127 dB with 0.007% total harmonic distortion at +4dBu output level. Audio then goes to the first stage of the new PeakStopPlus processor called the Instantaneous Transient Clamp. ITC is a soft clamp logarithmic function that ensures the level will not exceed 2 dB over the PeakStopPlus setting. It does this without introducing harsh-sounding artifacts.

To back up a moment, PeakStop was first introduced with the dbx 165A compressor and allows setting up an absolute ceiling for all fast transients that outpace or slip by the compressor's gain reduction setting. This "brick wall" limiting is an important feature for successfully engineering maximum-level digital recordings, radio broadcasts or satellite transponder audio uplinks. The PeakStopPlus process was first introduced with the dbx 1066 unit and improves performance with the addition of a second stage called Intelligent Predictive Limiting. IPL monitors the input signal and "predicts" the amount of extra compression required to keep the output signal below the ceiling set by the ITC. The careful design, combined with proper use of this feature can offer tremendous dynamic range control without sounding too "squashed" and lifelessly overprocessed.

As PeakStopPlus is a fail-safe limiter, it comes last, after the Output Gain control's setting. PeakStopPlus is adjusted with the Stop Level control from 4 to 30 dB (off) and sets the maximum output level, regardless of any other control. There is a bicolored LED indicator that shows when PeakStopPlus is engaged (green) and when peaks are reached (red). The Output Gain control adjusts the output level with up to 20 dBu of makeup gain. The lighted VU meter has two scales: an upper VU scale that's switchable between input and output level, and the lower, fully expanded scale for precise gain reduction measurementa good idea. There is also a Peak LED that lights when you venture within 3 dB (+27dBu) of the maximum output level possible from the 160SL, +30dBu another good idea.

Controls

The Threshold control adjusts the input level above which compression occurs. There is an LED "traffic light" that shows when the signal is below threshold (green), over threshold (red), and (yellow) when the OverEasy mode is selected and the level is in the OverEasy threshold range. OverEasy mode is familiar to all dbx compressor users and offers a "softer" threshold knee than the hard knee threshold setting. If you have arrived at a threshold level setting with OverEasy switched out and then switch it in, you will notice more gain reduction movement on the meter. That's because your previous setting was within the +5dB or -5dB OverEasy window. In this situation, I will typically reset the threshold. I have always used and preferred the dbx compressor for the OverEasy mode for its musicality. The 160SL doesn't disappoint here, as I got tremendous control without excessive pumping and, and now I have a new favorite.

The compression ratio control is smooth and continuous from 1:1 to infinity:1. In OverEasy

mode, the dialed-in ratio setting is not fully reached until the signal has exceeded the OverEasy range and the red LED lights. The Auto button toggles between manual and automatic attack and release times. Auto mode selects the same attack and release times as dbx Models 160, 161, 162, 163 and 164 compressor/limiters. The Auto mode uses dbx's patented RMS level detector circuit with program-dependent, attack/release characteristics to obtain natural-sounding compression or limiting. dbx recommends Auto mode for vocal recording; however, I prefer to tweak around in manual if I have time. Auto mode is great for live situations where you don't have time.

Attack time is defined as the time the compressor takes to respond after program levels have exceeded the threshold setting. The range is from 400 dB/ms (fastest) to 1 dB/ms (slowest). dbx has always expressed the specification in this way. Though precise, the nomenclature can be confusing, especially since there is no established convention among compressor manufacturers as to whether fully clockwise is fastest or slowest. On the 160SL, very fast attack setting (control set to maximum counter-clockwise) will cause the compressor to act like a peak limiter even though RMS detection is used. Release time is defined as the time the compressor takes to return to original levels after the last excursion over threshold. dbx expresses this as 4,000 dB/second for the fastest and 10 dB/second for the slowest.

Specs

With no gain reduction occurring, the 160SL at unity gain is flat from 20 to 20k Hz, +0 or -0.1 dB. If you can accept a deviation of +0 dB/-1 dB, the bandwidth extends from 4 Hz to over 40 kHz. For +0 dB/-3 dB, frequency response is from below 2 Hz to over 200 kHz. Noise is greater than -92dBu unweighted 20 to 20k Hz. Dynamic range is greater than 122 dB, and total harmonic distortion is .008% at +4 dBu using 1kHz tone.

I used the 160SL on a variety of instruments, as well as for overall program control. Because of the unit's transparency, I found it a favorite on vocals, backing vocals, bass synth, bass guitar, guitar and drums. The amount of control available for both specific effects, like spanky drum and guitar sounds, and more classic applications such as vocal recording is unsurpassed by any other previous dbx compressor. The 160SL sells for $2,799, and the soon available analog-to-digital converter module will sell for about $349.

dbx Professional Products, 8760 South Sandy Parkway, Sandy, UT 84070; 801/568-7660; fax: 801/568-7662. Web site: www.dbxpro.com

Barry Rudolph is an L.A.-based recording engineer. Visit his website at: WWW.BARRYRUDOLPH.COM.

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