

SPL Kultube

Stereo Compressor

New equipment from Sound Performance Lab is always worth checking out, as the company always offers unique approaches to complex audio processing with very musical results. Like SPL's Vitalizer and Transient Designer, Kultube—the company's latest dynamics controller—uses a few intuitive, front panel controls to bring a tweaky, computer-based approach to hardware-based processing.

Essentially, Kultube is a solid-state stereo compressor/upward expander with ECC83 interstage tubes running in Class-A that feed Burr-Brown OPA 2134 op amp output amps and optional LL1539 Lundahl output transformers. The addition of tube stages and the “decompression,” or upward-expansion mode, greatly broaden this unit's usefulness from pleasing and subtle stereo mix compression all the way to very extreme squashing and distortion treatments of individual tracks.

KUL UNIT

Housed in a two-rackspace, road-ready steel cabinet, the unit is well-built with sturdy circuit boards, toroidal power transformer, shock-mounted tube sockets with hold-down straps, paralleled XLR and TRS I/O connectors and a multivoltage AC power input. A rear panel slot is provided for an optional AD/DA converter, although my unit did not include one. Kultube uses SPL's proprietary discrete Class-A VCAs for gain control elements. As with the Transient Designer, an envelope representing the audio's instantaneous level is generated and converted to a control voltage for the VCAs. The front panel attack, release and ratio controls modify this envelope for precision control over gain reduction.

Kultube uses a single, large VU meter for all metering. At first, I thought this was unusual for a 2-channel unit, but a lot of great stereo compressors, like the popular SSL FX G384, use a single meter. Kultube's meter reads either gain reduction or output level summed in mono, as well as in-



put levels when the unit is in hardwired bypass. Because Kultube's primary purpose is stereo processing, the channels cannot be unlinked for dual mono use; however, onboard multichannel link facilities can slave any number of Kultube units to a designated master for surround applications. All slaved units' functions—except the Tube Harmonics settings—are controlled by the master's front panel settings, but all slave units' signals are constantly analyzed and used to derive consistent, overall multichannel dynamic processing and control.

The front panel has a row of 10 illuminated switches (meter gain reduction/level selection, analog/digital I/O, hard/soft-knee compression curves, compression/upward-expansion operation, PTC (Progressive Time Control) over attack and release, key-on/key-listen sidechain control, slave/master linking, and a hardwired bypass). Six knobs (Threshold/Ratio/Attack/Release/Gain Make-up/Tube Harmonics) should be familiar to most users, with the exception of the last, which overdrives the tube stage from a pristine 0% distortion to 100% filth. All six controls have very precise, silk-screened front panel scale markings for exact recall of settings. I like this attention to detail and expect it from quality professional gear.

IN THE STUDIO

I inserted the Kultube into some theme-park music sessions I engineered for an industrial music client. It sounded superb across the analog mix bus of an API console. My multitrack source was a 24/48k Pro Tools session. I used the manual attack and release controls with soft knee, as I am leery of presets or “automatic”

compressor modes until I am familiar with what exactly they are doing to the sound.

I first tried the Progressive Time Control on the attack parameter. PTC uses a special circuit that determines the best attack time from moment to moment, and applies an appropriate attack time from 20 microseconds up to 980 ms. With PTC Attack depressed, the Attack control knob goes from a manually set, fixed value into a “depth” or intensity control for PTC's program-adapted attack time values. Think of it as a slope control for the compressor's attack; the compression starts just as quickly, but goes into compression at a slower speed. For music program, the PTC-optimized attack times were generally slower than I might set manually, so I had the best of both worlds: I could adjust on top of the PTC settings for faster attacks, with fewer undesirable side effects. After first setting attack and release manually to my liking, simply pushing the PTC button produced an instantly denser sound with harder transients. This worked beautifully for my theme-park music mixes, which had many stops, starts and huge musical differences, from quiet orchestral interludes to loud rock crescendos. Manually setting a compressor to work well under all these conditions is problematic at the least.

The PTC release button lengthens or shortens the compressor's release time, depending on an instantaneous determination. PTC calculates the average level of the music source so that music program mixes will get longer release times while percussive material gets shorter release times. The release control, when PTC is activated, affects the averaging process by including more or less signals, more or less often, when the release is set faster or

FIELD TEST

slower. After using the unit for many sessions, I found that PTC was the best way to get maximum loudness with minimal negative sonic side effects.

KUL-DE-COMPRESSION

The De-Compression function works as the opposite of compression. When the De-Comp button is pushed, all signals above the threshold setting get louder proportionate to the ratio setting. In the real world, only ratios of 1:2 or lower work well, as higher expansion ratios quickly exceed the unit's headroom capability of +22 dBu. You'll find this out as the make-up gain now works backward, becoming "make-down" gain, and quickly distorts the output if you crank it down too much.

I use the Kultube as a stereo expander on a pair of clean-sounding, but overly squashed ambient drum tracks. Using a ratio of 1:1.3 with a -3dB threshold setting not only saved the record, but at the very least, it saved me from throwing up my hands when the producer asked if I could do anything with these poorly recorded drum tracks we inherited.

KULTUBE HARMONICS

Those same re-animated drum tracks also benefited from the Kultube's unique Tube Harmonics processing. This circuit lets you overdrive the ECC83 tube stage as much as you want without affecting the output level or the settings of any concurrently running compression/expansion processing. There is also no additional noise buildup with Tube Harmonics, which was welcome news, because adding loads of tube bloom usually brings up more noise from another unit patched in the chain. This could be a main reason to buy the Kultube over another solid-state compressor. Beyond simply using it on stereo mixes, I found the ability to try tube distortion quickly on individual tracks—a very creative touch that found enthusiastic approval from producers and artists.

Retailing at \$1,699, Kultube offers a unique combination of processing in a single package. I like the compressor for full mixes, de-compression for drums, and Tube Harmonics for broadening and coloring guitars, vocals and keyboards. It's a great "go-to" box when no other processor—hardware or plug in—will exactly do what is needed.

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