SPL ELECTRONICS TRANSIENT DESIGNER

ANALOG DYNAMICS PROCESSOR

The Transient Designer from German manufacturer SPL Electronics is the latest addition to the company's advanced line of analog processors. Perhaps best known for its Vitalizer dynamically adaptive equalizer, SPL has a history of producing equipment that accomplishes complex and unique sound processing with intuitive controls. The new Transient Designer furthers this mandate.

The Transient Designer offers an alternative way to manipulate dynamic range. The terse manual explains that the "temporal expiry of a signal" can be modified in two primary ways: by accelerating or slowing the transient portion of a signal, and by shortening or lengthening the sustain portion. Unlike a compressor, which "globally" alters the dynamic range of an entire audio signal according to a set of time constants (attack, decay, ratio and release), the Transient Designer uses a level-independent process called Differential Envelope Technology® to maintain identical envelope processing, regardless of input signal level. So the idea of setting a level threshold for the onset of operation, as you would with any compressor, is meaningless. This implies that low-level signals are not altered and that the process is constant and instantaneous.

The Transient Designer splits an incoming signal into two paths for separate and constant processing by Attack and Sustain sections. These processes occur in parallel, are mutually exclusive and do not interact with one another. In the Attack section, the first of two envelope followers looks at the instantaneous dynamic shape of the input signal and produces a mirror image reference envelope. This process occurs within one to two microseconds. The second envelope follower tracks the same input signal waveform but produces a mirror image with a much slower attack portion. If you were to superimpose the two envelopes on top of each other graphically, you will see an amplitude "Difference" area between the two different attack portions. This amplitude difference produces a voltage that is used to control a VCA that passes the signal to the output. The front panel Attack knob mixes or adjusts the amount of this difference voltage. For very short moments, positive attack values as set by turning the Attack control to the right (+) will emphasize the front or attack portion of the signal. When you turn the Attack knob to the (-) or negative direction, a softening or smoothing of attack is obtained. Attack periods can be amplified or attenuated up to 15 dB.

In the Sustain section, the signal path is divided again to feed two envelope followers. The first reference follower faithfully traces the natural signal. The second follower also follows, but with a much slower—or longer—sustain characteristic built in. Again, the difference in voltage between these two envelopes is used to control the VCA. Adjusting the Sustain control on the front panel to the right (+) or positive direction will cause an increase in envelope sustain while negative or (-) settings shorten decay or sustain levels. Sustain periods can be amplified or attenuated up to 24 dB.

FRONT AND REAR PANELS

SPL has made the Transient Designer very simple to operate; only the salient Attack and Sustain parameters are adjustable. Both the Attack and Sustain controls are detented in 1dB steps. This works out perfectly for the ±15 dB of Attack adjustment—one click equals 1 dB. However, as the same type of pot is used for the Sustain control and for the ± 24dB Sustain adjustment range, you will need to rely on the front panel labeling in dB for resetabilty. Signal present LEDs and hard-wired relay bypass switches are provided for each channel.

The single-rackspace Transient Designer offers four channels of processing, or two stereo pairs (each pair of two channels is linkable). The two Link buttons tie channels 1 and 2 together, with one acting as master, and link channels 3 and 4, with channel 3 as master. Linked channels also share bypass switch functionality. SPL highly recommends using the link function when processing stereo signals to maintain a coherent stereo image.

The rear panel has four sets of Neutrik XLR connectors for balanced I/O for all four processors. Instructions for unbalancing inputs or outputs are in the manual. A ground lift switch isolates circuit ground from chassis ground, useful for dealing with ground loops or hum problems. The unit is built in a sturdy steel and aluminum cabinet and has solid printed circuit construction and a 15VA toroidal transformer power supply with a choice of 115-volt/60Hz or 230-volt/50Hz mains operation.

IN THE STUDIO

I tried the Transient Designer in as many situations as possible and, as I expected, the unit excelled in processing percussive sounds. The four channels are great for drum kits, or drum machines when you want to separately "redesign" the transients of

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a snare drum sample or an already recorded real snare drum, kick drum or tom-tom. I was able to make any drum sound or loop take on enormous amounts of attack by just turning up the Attack knob. At +6 dB on the control, mushy-sounding snare drums suddenly started to "smack," but not in the way they often do when a compressor is applied—only the attack was raised, and not the rest of the envelope, which sometimes includes noise or leakage. There is no change in the sound or level except for the hit.

Likewise, when I turned the Attack knob counterclockwise (to the negative), the attack started to disappear just as it would if I had used a super-fast compressor with the fastest attack and release times possible. At full -15dB Attack, all I heard was the decay portion of the snare drum sound that revealed drum snares, room ambience, leakage and noise. Increasing Sustain length by amplifying the decay portion of the snare drum sound worked better than using a compressor because, once the decay finished, I didn't hear any of the extra sound and noise that a compressor usually sucks in.

I found I could control the amount of ambience on an overambient drum loop by turning the Sustain knob counterclockwise—I now have a tool to remove reverb or room tone to achieve drier sounds. This is not the same as tightly adjusted gating or downward expansion; this is more like a damping control, a more musical process. The effect is very noticeable on stereo acoustic guitars where increasing the sustain produces more stereoscopic width or size. Conversely, reducing the sustain made the guitars much drier and "in your face."

(One thing to be aware of when treating drums, and this is stated in the manual, is that the process can produce big increases in peak levels at the output. Check for clipping at the input of your DAT or multitrack recorder and adjust the record level accordingly—I wish an output level control was included on each channel.)

I also tried the Transient Designer on a previously recorded power-electric guitar track. Normally, this type of guitar sound is a highly compressed signal with minimum dynamic range and prolonged sustain. Increasing attack gave the guitar a clearer sound without being just brighter, and the sustain control allowed me to set the amount of space the guitar occupied in my mix.

I also used the Transient Designer in a non-standard setup; I patched the same mono drum loop into two channels. I didn't want a "coherent stereo image," so I did not link the two channels. Channel 1, the left channel, was set for increased attack and decreased sustain. Channel 2, the right channel, was set for decreased attack and increased sustain. The lowly mono drum loop now became a very animated "stereo-ized," panoramic, wacky drum loop effect.

TECH STUFF

The Transient Designer uses a THAT 2181 VCA as its gain controlling element. Nominal input level is +6 dB, with a maximum of +24 dBu. Maximum output level is +22.4 dBu into 600 ohms. Frequency response is rated at 20 to 100k Hz with -3 dB at 100 kHz. Common mode rejection is -80 dBu @ 1 kHz, and THD is .004% @ 1 kHz. A-weighted S/N is -105 dBu. The Transient Designer sells for about $1,100 retail and is made in Germany by SPL Electronics GmbH.

SPL Electronics is distributed in the U.S. by Beyerdynamic Inc., 56 Central Ave., Farmingdale, NY 11735; 516/293-3100; fax 516/293-3288. Web site: www.spl-electronics.com. ■

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