

SPL



CHANNEL ONE

SPL have taken a couple of their classic designs, added a couple of new ones, and come up with a channel strip processor for those who don't like wasting time. PAUL MAC samples the result.

CHANNEL STRIP PROCESSOR

SPL (Sound Performance Labs) is an extraordinary audio company. The operation isn't big, but the products usually turn a disproportionate number of heads. It bases much of its considerable reputation on the constant stream of original and creative products that emerge from its German base. Take, for example, the Transient Designer (now joined by the Transient Designer II) — not an easy process to get your head around, but immensely popular because it is so creative. You could run down the whole SPL product line and apply similar comments.

Channel One might not seem so unique on the face of it. It is, after all, another Channel Strip pre-amp type of rack affair, with mic/line amp, de-esser, compressor/limiter, and EQ. Well, it is actually far more than that, and even discounting the 'extras', the familiar processes are not quite what you might assume. To understand Channel One, it is necessary to have a detailed look at the signal path, and the technology behind it.

No Ordinary Channel

The standard inputs start with the usual microphone and line inputs, plus a high impedance instrument input

on the front panel. There is also an insert point in case you need to add additional processing. The optional 24/96 AD/DA board provides a digital insert that you can use as a fourth input choice if required. However, as the Channel One is a single-channel unit, this leaves a whole channel of conversion unused, so SPL has added another analogue input labelled 'A/D Input 2', which means that you can use the 'spare' channel as a standalone A/D converter. Very useful. You get the option of Lundahl transformers for the I/O if the standard electronics are not to your taste.

After the input, the signal path runs into the hybrid thermionic/solid-state pre-amp, and just to bring that point home, you can see the tube through a strategically placed grill in the front panel. The optional digital input also runs through the tube section after the D/A for 'warming up' before it hits the rest of the processor. There are separate gain controls for the mic and instrument/line inputs and a button to select between the two. 48V phantom power, phase invert, and a 50Hz high-pass rumble filter also sit in the pre-amp section.

The first processing section is the de-esser — and it's no ordinary one. First, it works on the principle of phase

cancellation, rather than compression. The way that SPL explains this is that amplitude and frequency detection circuits constantly identify 'unmusical' sibilance within the signal, copy it, phase invert it, and add that back into the signal. The 'S-Reduction' control merely controls the magnitude of the cancellation.

A couple of issues arise from this process. Firstly, the band affected is extremely narrow, as opposed to many compression-driven devices that have relatively wide bandwidth filtering. In theory, this should limit the damage to the main signal. Secondly, the de-esser has to constantly shift the threshold according to incoming signal. The implication here is that you won't need to compress before the de-esser in order to compensate for poor mic technique or overly dynamic material. All too good to be true?

A Gentle Squeeze

Onward, to the compressor/limiter section, where three controls do most of the work — Gain Reduction, Make-up Gain, and Noise Gate. There are also two buttons, one for switching in the limiting, and one for turning the process on or off.

Again, the technology behind this section is something a little different. First, SPL opted to use two VCAs to take care of the signal, one working on the positive portion of the signal, and the other on the negative. According to SPL, this raises the effective headroom before 'offset noise' (VCA induced) from a typical 20dB, to 40dB. The result is that the VCAs work in a sensible range, even when hard compression is used, which reduces both high-frequency damping and, of course, VCA originated artefacts.

The attack and release time constants are conspicuous by their absence as well — this is because SPL has taken them away from the user, opting for an 'adaptive' method, where they depend on the input signal. The thinking behind this, and other aspects of SPL design, is that signal is unpredictable, which always leads to compromises in the settings. Making them automatic, and program dependent, gives the signal a much better chance of getting to tape in a decent state.

The Noise Gate isn't actually a noise gate in the more commonly understood sense as it is not designed to do any of the more esoteric noise gating effects, such as percussion gating, and so on. SPL makes it clear that this is simply a clean-up device. You won't be surprised, given the description, that again there is adaptive technology at work here. SPL calls it auto-release circuitry, where the unit follows the fall off in level versus time and decides (in so far as an analogue circuit can 'decide'), where the gate should shut, and how it shuts. So, for example, if a singer stops abruptly, the gate should shut smoothly after that point; but if there is a reverb tail to the signal, the gate should follow that tail.

End Of The Q?

The equaliser section is, effectively, a three-band one with a distortion control added onto the end for good measure. Two of the bands, Low and Mid-High, are 'proportional-Q' semi-parametrics. That is, the Q stays proportional to the centre frequency (wider bandwidth for a higher frequency). The Low Band ranges from

30Hz to 720Hz (± 14 dB), and the Mid-High Band from 650Hz to 22kHz (± 12 dB). The third band is named 'Air Band' and is a coil-based filter set at 17.5kHz, with up to ± 10 dB cut or boost. Many producers speak of 'putting air into a track' — now it has a knob all to itself.

The distortion section is included here because it is intended more for enhancement than lo-fi processing, even though it is capable of that. SPL has gone for FET (Field Effect Transistor) distortion rather than the more common diode distortion, which should give the effect a helping of subtlety at lower levels. SPL are keen to point out that this is not meant to be a tube saturation emulator, guitar distortion effect or anything like that — these are better taken care of elsewhere. Two buttons in the EQ section turn the whole EQ section on or off, and place it either pre- or post-compressor.

Last in the chain is the point where the signal splits and feeds both the balanced outputs (XLR or Jack), and the built-in headphone amplifier. It is certainly welcome to see a headphone amplifier on a channel strip — even more so when you note the extra input. This is a stereo 'Playback' input on the back panel that feeds the headphone amplifier directly. Two controls mix the relative levels of the processed signal and the playback signal. One of the most obvious uses for this is to eliminate latency problems for an artist who is trying to track on a tardy disk-based system, but it also saves going to a console or a separate monitor mixer to find an artist feed. The main outputs are fed by an output level control, which has a useful mute switch next to it.

The meter section of Channel One includes four



indicators for 'S-Detect', clipping, signal present, and tube warm-up, with two bargraphs that show gain reduction, and output. The output metering has PPM ballistics, and while the entire scale is marked in dBu, there is an alternative 0dBfs marking at +12dBu, which anybody with a digital target will appreciate.

Before I move on to the practicalities of this unit, it is worth mentioning the detail. That is, SPL has put a quality bit of hardware around the circuit boards, and the controls are all tailored for their function. For instance, cut/boost controls are continuous and centre-detented, frequency controls and gain controls have 40-step resolution with corresponding legending for easy re-set, and all of the compressor section controls and input level controls are continuous and smooth. This kind of thought is not always evident on out-board equipment, so full marks to SPL for putting the effort in. ➤

SPL CHANNEL ONE

HERMAN GIER

One of the minds behind the SPL product line is Herman Gier, Managing Director of SPL. I asked Herman to explain the background and philosophy behind Channel One...

"We started looking at the channel strips on the market, which is a big topic in the States, and we wanted to have a product there. We had a similar product in 1994, called EQ Magix, and at that time we were probably a little bit ahead of the game — channel strips were not on the market.

"Then the Manley Voxbox and all these very expensive products came onto the market, plus all of the low-end products. We looked at it and decided that our niche was a good-looking 2U product that was mid-way — one that costs less than the high-end esoteric channel strips, and in performance and looks, was much better than the low-end stuff.

"We have always been working on music, or adaptive, automation for processing, and we condensed all of this into Channel One — a unit that fulfils the need to record something spontaneously.

"Singers come into a studio, happy, everything fine; and then they have to wait 20 minutes so that the engineers can set up the compressor, de-esser, and things like that. The spontaneity has gone. We are always thinking about how we can help capture something spontaneous and original, right from the start, without making the technology the hindering part of it. It should be there in minutes, and if you over-do something, it shouldn't ruin the signal — that was the idea behind Channel One."

Plugged Up

Hooked up with a microphone, or any deserving input come to that, the SPL Channel One is simple to use, gets good results quickly, and doesn't react too badly when you go for more extreme settings. A good example of this is the distortion control. At one end of the scale it's an enhancer — care is needed if you're also putting the air control to use in the settings, but overall, it is musical. At the other end it is rough, but not ruining. Think of it as a toaster control that stops short of the 'charred remains' position.

The pre-amp section is quiet and kindly, and happy with pretty much any input. The optional AD/DA board wasn't available for the review, so it is impossible to comment on that performance, although if the quality of the analogue is anything to go by, it won't be a disappointment.

The De-esser is a bit of a revelation. You wouldn't believe that a single control could be so effective when presented with a range of material — various male and female vocals all benefited, without losing character. The compressor is also a gem. Don't expect to hear it pumping too much, or to hear the signal suffer. It does a very good job without imposing itself — all the way from a subtle hint to a hard limit. It is also easy to set, and accommodating to wayward input dynamics. A little time spent with this will build

up that all-important trust you must have in a channel strip compressor.

Speaking of trust, it takes faith to use a noise gate that only has one control and purports to do the threshold control automatically. Maybe some users won't feel comfortable with this, but again, it only takes a little time spent with 'guinea pig' signals to reassure yourself.

The filter section is a little unusual: if you follow the idea of 'less is more' you end up without bandwidth controls. Yes, it's a 'proportional Q' EQ, and a very good one at that, although in some instances I missed the extra tweak. In its favour, the designers have not shied away from their responsibilities by leaving you two bands with full bandwidth range; they have selected the ranges, and even 'engineered' different limits on the gain ranges, with satisfying results. The air control is especially welcome.

Conclusion

With Channel One, in some ways you're putting the input signal — your raw material — in the hands of an automated processor, as much of the hard work is done behind the front panel, in the SPL electronics. This takes some getting used to, and when I started using the unit I found myself waiting for Channel One to trip over a stray

dynamic, or cut a vocal in its prime. Suffice to say, it didn't.

It is true to say that a few people will never like the idea of adaptive processing. It is easy to remember early examples of the art that didn't adapt but treated all signals as the enemy. That's the difference here — Channel One works with, rather than against, the incoming signal.

It also works with the operator. Small details, like the extra conversion channel, the mute switch, and the playback input for the headphone amp all add to its 'studio friendliness'. Yet again, SPL have come up with a box that begs the question, 'why didn't anybody think of this sooner?' Definitely recommended. □

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