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Imagine the clock ticking towards zero, the red neon digits reflecting in the unblinking eyes of our hero (Meester Bond?) who is trying not to tremble as he withdraws the deadly core from the neutron bomb/chemical weapon/viral plague dispenser (delete as appropriate). Chances are that the thing in his hands looks not unlike the SPL Gain Station, a chunky, utilitarian piece of technology if ever I saw one. But while the outside might look like a hi-tech 3U brick with handles (106 x 122 x 271mm), the inside is elegant and well thought out.

High-end Mic Preamp

The Gain Station is a stand-alone, single-channel preamp boasting some very esoteric features, including variable-drive tube circuitry, switchable input impedance, and fully-discrete Class-A op amps working with 60V supply rails to deliver unprecedented headroom and output drive capability. While the upper frequency-response limit of a piece of equipment tells you something about how it performs, the slew rate can be a more useful measure, and in this case the amplifier delivers an incredible 200V per microsecond slew rate. If you prefer the more normal frequency-response figures, the Gain Station can manage 1Hz to 125kHz ± 0.5 dB, or 1Hz to

SPL Gain Station

Mic & Instrument Preamp



Not only does this little preamp give pure class-leading performance, but it also has clever dynamics processing on board and an optional built-in A-D converter.

310kHz ± 3 dB. Whichever way you look at it, these figures mean you can expect an exceptional transient response, plus the frequency range is wide enough to do justice to any of the 'Monopoly money' sample rates favoured by the more esoteric user.

The signal path is almost entirely DC coupled, with the exception of the unavoidable phantom power blocking capacitors (and a few capacitors in the tube circuit), and a great deal of attention has been paid to the circuit board layout to achieve minimal signal paths and proper grounding. Relays with gold-plated contacts take care of all the switching functions, and all resistors are 0.1-percent tolerance. Extra shielding has been added to the PSU, which has seven separate transformer windings, each driving its own voltage regulators, and there's a single 12AX7 (ECC83) tube stage that utilises premium MKP foil capacitors where capacitors are unavoidable. This tube stage, which runs

at high voltages for correct operation, may be completely bypassed for a pristine sound, or the amount of tube drive may be adjusted from extremely subtle to quite noticeable saturation.

An integrated limiter prevents the output from overdriving the next piece of gear in line, while a digital output module (not fitted to the review model) is available as a factory-fitted option working at up to 24-bit/96kHz resolution. The design goal seems to have been transparency and simplicity, and because the unit isn't rackmounting it is ideal for desktop use with computer-based systems, as it has a relatively small footprint.

A Look At The Specs

Spec-wise, the noise figure (20Hz to 22kHz, 'A'-weighted) with the tube circuit switched out is -95.4dBu at 10dB gain and -91.8dBu at 30dB gain. Even at 60dB gain, the noise is

SOUND ON SOUND

SPL Gain Station £692

pros

- Excellent clarity and transient response.
- Effective tube stage with variable drive.
- Efficient limiter stage with switchable FET option.
- Digital output option available.
- Huge headroom.

cons

- No word-clock output on optional digital converter.

summary

The Gain Station combines a truly excellent microphone preamplifier with a musically sensitive tube stage, a high-impedance DI box and a very sophisticated limiter. It also has enough headroom to handle virtually any input or to drive any other piece of equipment without straining.

-67.2dBu, which compares well with other high-end designs and equates to an EIN of 127.2dB. The dynamic range (20Hz to 22kHz, 'A' weighted) is quoted as better than 130dB, and there's plenty of headroom both at the input and the output, with both the mic and high-impedance inputs capable of accepting up to +17dBu before clipping. Even with the tube stage switched in, the noise figures are still only 4-5dB worse than without.

The rear panel houses the mic input, on a balanced XLR, plus a dual-purpose high-impedance instrument/line input on an unbalanced jack. I would have preferred a balanced jack output, as this would have saved having to make up (or buy) a balanced XLR to balanced jack lead for use with a patchbay, but that's a small point. If necessary, the XLR output may be used unbalanced by connecting pins one and three of the connecting cable. A further AD In 2 jack is included so that if the optional converter is fitted (which outputs a stereo S/PDIF signal in both coaxial and optical formats), a second Gain Station without the converter can be routed via the otherwise unused digital channel. The digital option, which is based on an AKM converter, also has an S/PDIF sync input (but no word-clock input or output) and can be set to internal sample rates of 44.1kHz, 48kHz, 88.2kHz and 96kHz. A button called AD In 1 Mute kills the feed from the analogue circuitry to the converter if one is fitted, should the digital output not be required. If nothing else, this stops the A/D Overload LED flashing at you! Power is via a conventional IEC socket with a rear-panel power button. A recessed switch selects between 220V and 110V operation. Note that the outputs can supply signals up to +34dBu in level, far more than even the greediest ADC is likely to need! By the same token, care should be taken to start with the Output Gain turned down, so as not to risk damaging connected equipment with excessive signal levels — the maximum output level is getting on for 40V!

Front Panel

There are just three knobs on the front panel, along with six small toggle switches, a handful of status LEDs and a five-section level meter that reads from -30dB to clipping. Clean Gain provides up to 63dB of gain in the discrete, solid-state preamp stage, but note that an optional Lundahl input transformer is available, and if this is fitted then 7dB should be added to the scale values when a microphone is being used. Tube Gain provides up to 26dB of further gain, so when high tube gains are being used, the Clean Gain should be turned down accordingly, unless you wish to deliberately overdrive the unit. When this control is turned fully anticlockwise, the tube stage is bypassed.

Output Level does as you'd expect, and at 0dB the output level will be as shown on the level meter. An extra 6dB of gain is possible via this control, and up to 26dB of attenuation is available. The Output Gain control comes after the limiter, to allow the converters (where fitted) or the connected device, to receive the optimum signal level.

A Source switch selects between microphone and high-impedance (greater than 1M Ω courtesy of low-noise FET circuitry) instrument/line inputs, while the Hi Pass switch brings in a passive 12dB/octave filter at 50Hz. The Phase switch inverts the phase of the microphone input only, via a relay, while a three-way Impedance switch sets the mic input to 10k Ω , 1.2k Ω or 200 Ω . There's no hard-and-fast rule as to which will be best for any given type of mic, so this needs to be set by ear, though most modern microphones should be happy with the middle position. Note that, whatever the mic,

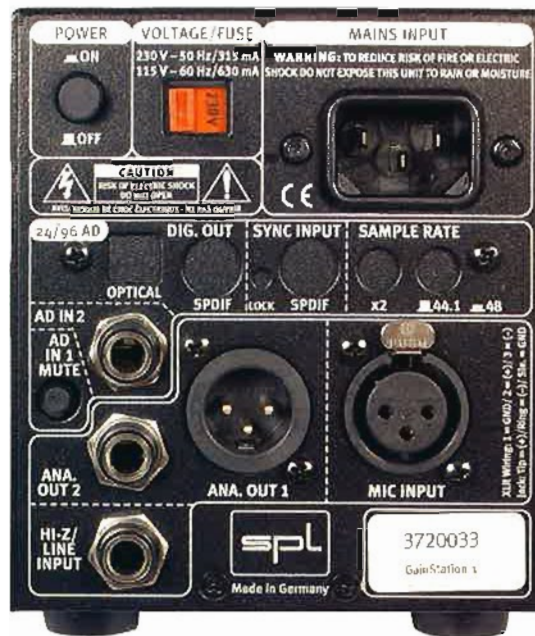
SPL GAIN STATION

▶ the lower the input impedance, the lower the level is likely to be, so you need to compensate for this when deciding which sounds best, otherwise you'll probably just go for the loudest! The Phantom switch engages the internal phantom power source, which is highly regulated for low noise and can provide up to 14mA at a full 48V.

The limiter section offers a choice of peak or FET limiting, or the limiter can be turned off. The FET option operates with the peak limiter rather than instead of it, in order to add a compression-like characteristic. It's probably best to consider FET limiting as more of an effect, and the manual suggests it works well on drum overheads and bass guitar. A limit LED shows when the FET and Peak limiter circuits are applying gain reduction, while an AD OVL LED also shows when the internal converter (if fitted) is being clipped.

There's no user adjustment to the limiter threshold, which is set internally at +20dBu, and the limit LED becomes brighter the harder

transparent as anything I've tried, with excellent resolution of detail and depth. Bringing in the tube circuit thickens the sound up, making it seem more mid-heavy, as you'd expect, but in a nicely subtle and musically pleasant way, unless you work too far towards the high end of the Tube Drive range, where I'd consider the effect to be more suitable for guitars and basses than for vocals. There's enough gain range to create serious overdrive effects if need be, though it's not really what I'd choose to use the Gain Station for. Paying this much for a fuzz box is a bit excessive whichever way you look at it! The limiters are also pretty forgiving, provided that you don't pound the end stops mercilessly by using far too much gain. Even



the limiter is working. It's easy to optimise the level feeding the internal converter option, however, as all you need do is increase the gain so that the limiter LED shows constant activity, the adjust the Output Gain until the AD OVL LED goes off. Once this is done, the appropriate gain can be set using the Input and Tube Gain controls. A similar strategy works when feeding external gear, though this time you need to watch the overload LED on the external equipment, not on the Gain Station. The manual points out that the sound of the Peak limiter is different when the Tube stage is being used, as the limiting process affects the negative half cycles more than the positive half cycles.

Testing Time

I was expecting the Gain Station to be something a little bit special, and it didn't disappoint. I checked it with an Audio-Technica 4033 and a Rode NTK, as well as with my Fender Stratocaster and a Fender bass. As a mic preamp, it's as crisp and

when the limit LED is moderately busy, you probably wouldn't notice the peak limiter vocals, while the FET limiter sounds not unlike gentle compression on the signal peaks.

Used on electric guitar, the Gain Station behaved like a very classy DI box, and this time I found I could utilise more of the tube drive range to warm and thicken the sound without making it sound distorted or gritty. The FET limiter can add a feeling of compression to

the tube warmth, and this works especially nicely on bass guitar. As a DI box, the circuit is very quiet, even when a fair amount of tube drive is added.

The Name Of The Gain

The Gain Station is a super-specified DI box cum mic preamp with integral limiting, and it does its job superbly. The only shortcoming I can see is the lack of a word-clock output on the digital option, because in most systems it's best to clock everything from the A-D converter right at the start of the signal chain. In most instances, clocking via S/PDIF will be fine, but as everything else is so professional, I'm surprised this was left off.

Although not cheap, the Gain Station is still something of a bargain when you take into account its performance, though of course you have to look at the other links in your signal chain before deciding if its benefits are worth the expense. For example, you'd probably want to use it with a medium- to good-quality capacitor mic, not an entry-level

bargain-basement model. Used with a good microphone, the Gain Station has a remarkable transient response, which not only makes plucked instruments and percussion stand out in a busy mix, it also helps to create a clear, solid vocal sound that needs less EQ and compression to make it sit properly within the mix. In this respect, the tube circuit and the switchable mic input impedance are useful in offering the user a choice of tonal colour without getting too excessive. This unit is also very effective as a DI box, where the tube circuit again comes into its own, though in my own experience there are very few occasions where a straight DI'd bass or electric guitar sounds right, as the coloration of the amplifier and speaker is missing.

You could buy a good voice channel with lots of features for the same UK price as the Gain Station, but in my view the money is better spent on a really high-performance microphone amplifier that will allow you to record cleanly and without fuss. The Gain Station offers exactly this, and its quality of performance would be difficult to better by any significant degree at any price. Its tube circuitry also works as it should (rather than sounding all 'smearly' and hyped) and can help coax the sound of a tube mic from a good-quality solid-state model. **EQ3**

Information

- E** Gain Station, £692.08; Gain Station with built-in A-D converter, £762.58; A-D converter retrofit, £352.50. Prices include VAT.
- T** Sonic Distribution +44 (0)1525 840400.
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