

# Benchmark PRE420

Continuing the mission for sonic perfection that it has applied to its converters, Benchmark is now addressing the business of mic preamplification. **JON THORNTON** says the results are remarkable.



**S**YRACUSE-BASED BENCHMARK MEDIA are clearly a company who take audio seriously. I'm not implying here that other manufacturers don't, of course, but everything about Benchmark, from mission statement to documentation to the products themselves is imbued with a dogmatic approach to nothing less than technical perfection. A small example, while most manufacturers would be content to simply publish the tech specs for their offerings as a summary of figures, a full 14 pages of the user manual, including eight pages of actual measurement plots from an AP test set, are devoted to this. Some might feel this is a little excessive for a 4-channel mic preamplifier, but it does set the scene well for what is a truly impressive piece of 1u hardware (UK£1,899 + VAT).

As well as offering said four channels of preamp, the PRE420 also includes an internal stereo mixer, and some simple but useful monitoring functions, making it suited to location recording in addition to studio-bound duties. As you've probably guessed, the intention here was not to build a mic pre with bags of individuality and character, but instead to aim for the least possible colouration and signal degradation between input and output. As such, all inputs and outputs are electronically balanced without a transformer in sight, and there are no pretensions towards thermionic warmth. Instead, a quick peek under the hood reveals a most beautifully designed PCB, with plenty of surface-mount ICs and high spec components. In fact, the PCB itself is important, as it's a multilayer design that creates a three-dimensional shield around all signal traces. Coupled with proprietary RF input filters, this helps to create a device with impressive RFI immunity.

Popping the lid back on, a brief inspection of the rear panel shows mic level inputs on XLRs, with each channel having a direct output also on XLR. The unit's internal mixer delivers a stereo mix output and also a stereo control room feed. The front panel controls are mounted on a reassuringly weighty front plate, and the metal knobs feel equally solid and weighty. Each of the four channels has a gain control, with 41 indented steps allowing precise channel-to-channel matching. By default, the gain range is 22dB to 60dB although comprehensive instructions are included to recalibrate the unit internally to achieve maximum gain anywhere between 50 and 70dB. Three pushbuttons per channel offer a 20dB pad, a

40Hz high pass filter, and phantom power selection. Metering is rudimentary but effective; you get a signal present LED that changes its intensity with increasing signal level, and a red Over indicator that lights up well before either the individual channel or the mix amp have run out of headroom.

All four channels are permanently assigned to the internal mix bus via a pan control on each channel, and a main fader knob at the extreme right of the unit provides overall level control, with its own associated two-LED metering. A separate monitor output is derived from the main stereo bus with its own level control, which feeds the control room outputs at the rear of the unit and a headphone output on the front panel. A small pushbutton on the rear panel can be set so that plugging in a pair of headphones will mute the control room monitor output if required.

Adjacent to the control output volume control are five pushbuttons that give some very effective soloing capability to the unit. Each channel has its own (latching) Solo button, and a further button switches between a mono and stereo solo bus. With either a single or multiple channels soloed, this allows the sources to be heard either pre or post the pan control.

Despite the relative sparseness of features — or perhaps because of it — in use the unit is delightfully quick, easy and intuitive to set up, the metering in particular is one of the best examples of a two-LED system I've come across. Sonically, you are left with two overwhelming impressions. The first is that the unit is extremely quiet on individual channels and the mix bus. Benchmark recommends that unused microphone inputs have the pad engaged to maximise noise performance, but even without you have to struggle to hear any noise-floor with quite healthy amounts of gain on each channel.

The second, and this should come as no surprise, is that this isn't a unit to add any type of sonic signature to the sound. It is extremely transparent sounding on any source, and manages to deal with high harmonics and transients extremely faithfully, but without sounding brittle or harsh. You will want to be careful in choosing what to plug into it, as it is merciless in exposing the inadequacies of some budget capacitor microphones, and some more expensive ones at that.

Weaknesses are few and far between. Some might bemoan the lack of a digital output option, but with a unit of this quality it's likely that a dedicated unit

would be preferable anyway (and Benchmark makes its own if you wanted to keep it in the family). The only thing on my wish list would be some method of linking more than one unit together while keeping a unified stereo and monitor bus, as four channels wouldn't be enough for many applications.

But these are really minor quibbles. Like I said, Benchmark takes audio seriously. While my initial reaction was slight amusement to the perfectionism so much in evidence here, using the PRE420 on a single location recording was enough to wipe the smile off my face. A serious company, and one seriously good piece of kit. ■

## PROS

Impressive piece of engineering; astonishingly quiet and accurate; very useful mixer and monitor section.

## CONS

Four channels may be too few for some with no cascade facility; might be that little bit too revealing and accurate for some tastes.

## EXTRAS

Benchmark's DAC1 USB is a 192kHz, 24-bit, D-AC with 'Advanced USB Audio', which provides high-resolution, bit-transparent playback seconds after plugging into a computer's USB port for the first time. There is no software to install, and there are no system settings that need to be changed. It is compatible with Vista/XP/2000 and Mac OSX.



The DAC1 USB includes high-current output drivers that can be configured to mute upon headphone insertion. The original DAC1 does not include the USB option or special high-current drivers and both options are available in silver, black, and black rackmountable chassis.

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