Sonic Farm Silk Road

Microphone Preamplifier

The latest preamp from Canadian company Sonic Farm is a classy and versatile affair, thanks to its wide range of tonal options.

HUGH ROBJOHNS

I've had a few Sonic Farm products across my test bench in recent years, including the Creamer (*SOS* May 2013) and Berliner (*SOS* May 2016) valve mic preamps. Sadly, I didn't get to try the Silkworm 500-series solid-state mic preamp module, as that pleasure instead befell my colleague Bob Thomas. However, it seems he was very impressed with it (*SOS* October 2014), and that's good to know because the Canadian device that's sat beside me now — the Silk Road dual-channel desktop preamp — is quite clearly derived from the same design. So much so, in fact, that clicking on the 'download manual' button on Sonic Farm's web site delivers the Silkworm's manual!

It's not unusual for manufacturers to 're-house' 500-series modules as desktop or rackmount products. After all, why go to all the trouble of redesigning PCBs when often all that's needed is the addition of a power supply? However, that's not quite what Sonic Farm have done here. The Silk Road clearly employs bespoke new circuit boards, as well as a slightly different control layout and the welcome addition of a configurable high-pass filter. At its core, though, this is the same high-quality solid-state preamp, complete with its fully discrete gain stage constructed from carefully hand-matched transistors, and with a DC-coupled signal path to avoid any possible capacitor distortion and unwanted phase shifts. Of course, the downside of DC-coupling is a risk of internal DC offsets (which can cause asymmetrical clipping) and nasty pops and bangs when switching the output signal (or editing the resulting audio in a DAW). However, a dual-stage DC servo system takes care of all that, and the end result is a preamp which enjoys a fundamentally clean, neutral, and fast character, with extremely low distortion and

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$1800 CAD

PROS

- Fundamentally fast, clean and quiet sound character.
- Vibe mode and selectable output transformer allow a wide range of sonic tailoring.
- Useful high-pass filter options.
- Musical instrument input mode.
- Integrated universal power supply.
- Excellent technical specifications and build quality.
- Handy dual-channel package.

CONS

- The on-off position of the toggle switches is unclear.

SUMMARY

A dual-channel re-packaged and extended version of the Silkworm 500-series module, featuring a discrete transistor gain stage, interesting input impedance variations, and a high-pass filter, along with Sonic Farm's classic feature of selectable transformer or solid-state output configurations.

massive headroom. Having said that, in the traditional Sonic Farm way, this preamp still has plenty of options for introducing some musical colour too, if required.

Road Trip

The Silk Road is constructed as a self-contained desktop unit, housed in a bright-red, brick-shaped steel case with a flexible retracting carry-handle on the top. If you're eyeing a convenient space at the side of your desk you'll want to know that it measures 150 x 110 x 305mm (WHD) and weighs 2.9kg. The rear panel contains four XLRs for the two sets of mic inputs and line outputs, along with the usual IEC mains inlet and fuse holder, plus two small rocker switches for mains on/off and a ground-lift facility. The internal switched-mode power supply module accepts 100-240 Volts AC and generates ±24V audio power rails — and since these are rather higher than those of the Silkworm 500-series module, the Silk Road desktop preamp enjoys a greater headroom margin and higher maximum output level (all the way to a massive +32dBu).

The maximum level for the microphone inputs is an unusually high +30dBu.

Moving to the front panel reveals a veritable forest of miniature toggle switches, each channel bearing no fewer than nine. There's also a rotary gain trim control operated with a white vintage-style knob. The two channels' control sets are clearly separated one above the other, and it appears that the 'off' position for the toggles is towards the right (something the labelling fails to make clear!). »

» Each channel features a quarter-inch unbalanced instrument input socket at the extreme right-hand side (with a 1MΩ input impedance), while to the extreme left of each channel is a pair of toggle switches to configure a 12dB/octave high-pass filter. The upper, three-position toggle selects turn-over frequencies of 80, 160, or 320 Hz, while the lower toggle turns the high-pass filter on or off. This facility does not feature at all on the Silkworm 500-series module (presumably due to panel space restrictions), and it's extremely useful. The published specifications align to my own Audio Precision measurements, the plots for which can be found on the *SOS* web site at: http://sosm.ag/jun16media.

All of the remaining controls are identical to those of the Silkworm, even if some are in different positions. The more familiar functions include an input selector for the rear-panel mic or front-panel instrument connections, a 15dB input pad (pre-transformer), output polarity reversal, and a soft-start 48V phantom power (with red LED indicator). The phantom power voltage measured comfortably within specifications even when delivering the maximum current. An adjacent bi-colour LED provides basic level metering, showing green with variable brightness for a healthy output signal, changing to red at +29dBu as clipping approaches.

Anyone familiar with other Sonic Farm products will recognise the 'OT/SS' switch, which allows the user to route the output signal through either a Cinemag output transformer (with 100-percent iron core) or via a standard solid-state balanced output driver chip. As you'd expect, the transformer output sounds a little rounder and fatter, thanks largely to that iron core, and this effect is sensitive to the output drive level. The solid-state output is, in contrast, very clean and neutral at all levels.

Coarse gain is set with a three-position toggle switch (labelled 'H, L, M') in roughly 18dB steps, although it's worth noting that the 'H' and 'M' modes provide the same gain range for instrument inputs (because the high-gain mode is not appropriate in that case). The conductive-plastic rotary control provides a continuous trim for the selected gain mode over roughly the same range. In this way any required gain can be achieved easily for the mic input between +3 and +67 dB.

For the technically minded, the precise mic input gain ranges are 53.1 to 67.6 dB (H), 37.5 to 52.8 dB (M), and 18.3 to 38.5 dB (L), with the pad switch reducing everything by a further 15dB. In practical terms, the maximum mic input level to generate a +4dBu output is +2dBu with the pad engaged, but as clipping doesn't occur until +32dBu the absolute maximum input level is a whopping +30dBu. The minimum input level necessary to generate a +4dBu output is -63dBu.

The toggle-switch-festooned front panel provides access to all the normal — and some unusual — mic preamp features.

For the instrument input, the H and M settings share the same gain range of 26.9 to 42.1 dB, while the L mode offers 7.6 to 27.8 dB, and the pad is not active on the instrument input. The maximum instrument level for a +4dBu output is -4dBu (gain set to L), and the minimum is -38dBu (with gain set to M or H). Again, given the massive headroom margin, the absolute maximum input level is +24dBu, which is more than enough for any electric instrument.

An unusual feature, borrowed from the Silkworm, is the Vibe switch, which was originally going to be labelled 'character' — apparently there wasn't space on the panel for that so it was rechristened Vibe! It uses capacitor-resistor (CR) networks to alter the impedance of the microphone input in a frequency-selective way. It has three modes, identified as Smooth, Present and Warped (S, P, and W, on the switch), where the 'P' mode provides a nominally flat response. In contrast, the 'S' mode rolls off the extreme highs (giving the impression of warmer lows and mids), while the 'W' mode adds some extra 'air' around 8-10 kHz.

As is always the case with variable input-impedance designs, the effects are most apparent with dynamic (moving-coil and ribbon) microphones, and least audible with capacitor mics or those with active outputs — although the inherent frequency response characteristics of the CR networks will exhibit a much more apparent effect with capacitor mics than more conventional variable-impedance preamp designs would.

As well as altering the frequency response, these CR networks also affect the phase response: 'W' mode introduces considerable phase lag at high frequencies in comparison to 'P' mode, while 'S' mode (green) brings in a noticeable phase lag in the mid band. Engaging the output transformer while in the default 'P' mode (orange) also brings in some modest phase lead at LF and lag at HF, of course.

I tested the input impedance (with phantom power off) for the various Vibe modes using an NTI Minirator and, given the reactive circuits involved, I tested at 100Hz, 1kHz and 10kHz. The default 'P' mode presented an input impedance of 3.5kΩ at 100Hz rising to 5.2kΩ at mid and high frequencies. So it's not quite the 8kΩ mentioned in the handbook, but still usefully higher than most stock mic preamps. Switching to 'S' mode, the impedance remained at 3.9kΩ at 100Hz but fell dramatically to 760Ω at 1kHz and 560Ω at 10kHz. The 'W' mode values were 3.6kΩ at 100Hz, 4.1k at 1kHz, falling sharply to 470Ω at 10kHz. These radically different input impedances at different frequencies alter the loading on a dynamic microphone's capsule, and thus affect its frequency response, and that effect is compounded by the frequency dependent responses

of the CR input networks themselves. Not surprisingly, the pad switch reduces the input impedance for all Vibe settings, and engaging phantom power brings the input impedance back to around 2.2kΩ for every mode (because of the extra phantom feed resistor loading).

Checking the distortion measurements, the Silk Road produced 0.01 percent THD when generating an output level of +24dBu (at 1kHz), regardless of which output mode was selected. Reducing the test frequency to 100Hz revealed a THD+N figure of 0.05 percent for the solid-state output and a much higher 0.26 percent for the transformer, which is entirely as expected... and desired!

In Use

The Silk Road preamp is, as I've come to expect of Sonic Farm, very well-designed and constructed and performs to exemplary standards. Whereas most of the other SF products are clearly designed to impart some musical colour onto the microphone's signal, the Silk Road is fundamentally a much more neutral device, although the ability to select an iron transformer for the output allows some vintage character to be dialled in, and that is supplemented by the 'S' and 'W' Vibe modes which tailor the signal even more strongly. So in reality, the Silk Road offers six distinctly different sound flavours — many of which will also vary interactively with your dynamic microphone collection!

Whereas the valve-based Sonic Farm preamps I've reviewed rely heavily on various flavours of harmonic distortion for their sonic interest, the Silk Road is much more about frequency sculpting, which opens alternative doors to sonic creativity.

There's no doubt at all that the Silk Road dual preamp is an unusually versatile and very high-quality preamplifier, exhibiting all the qualities we normally associate with discrete transistor designs. It's fast and clean, quite API-like in many ways, yet the use of Cinemag input and (selectable) output transformers, combined with the switchable Vibe tonalities provide everything from clean, snappy and modern sounds to coloured, smooth and distinctly 'vintage'. The instrument input is also very clean and quiet, but certainly not bland or sterile in any way.

The only niggle I would raise — but one which may well not apply to other potential customers — concerns the aesthetics of its forest of toggle switches and their ill-defined on/off positions. Nevertheless, I enjoyed using the Silk Road very much indeed. In fact, of all the Sonic Farm preamps I've tested to date this is probably my favourite and the one I'd be most likely to buy myself, as it's ideally suited to the kind of classical and acoustic work I prefer.

Alternatives

Surprisingly, I can't think of many dual-channel solid-state preamps with instrument inputs in a desktop-format, let alone any with discrete transistor gain stages or the tonal versatility of the Silk Road!

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