

preamp on the right, and the output gain knob and meter at center. A three-LED meter indicates signal present, average level, and clipping. A three-way switch combines AC power and 48V phantom switching.

On the back panel are an IEC power connector and fuse, an XLR mic input, a 1/4-inch TRS balanced line input, and a 1/4-inch insert that accesses the summing signal. Two separate tube-stage outputs are provided—a +4 dBu balanced XLR and a -10 dBV balanced 1/4-inch—and you can use them simultaneously for a variety of signal-splitting duties. An additional input and output on the back allow you to link multiple 2BA-221 units, creating a modular monophonic mixer with multiple outputs, inserts, and one final tube output stage.

### Test Tracks

In studio testing, I found each section of the 2BA-221 to have unique and very useful characteristics. The line-in had plenty of gain, even with a -10 dBV CD-player input. Line-level signals were processed cleanly, with subtle smoothing of the high end and a beneficial mid-bass boost heard on a range of music mixes.

The 2BA-221's DI input contributed a warm, thick tone to electric bass that compared favorably to favored DI/preamps such as the Peavey VMP-2 and Langevin DVC. For guitar, however, the DI was rather dull and certainly not as exciting as the Langevin or Grace 101.

In contrast to its mellow DI input, the 2BA-221's solid-state mic preamp sounded bright and aggressive. Compared with the relatively uncolored Grace 101 and FMR RNP, the 2BA-221 exhibited a hefty bass punch as well as incisive highs that never got too harsh. Compared with stock mixing-board preamps, the Summit was definitely lively, dynamic, and detailed.

Paired with an AEA R84 ribbon mic (ribbons being especially sensitive to preamp impedance), the 2BA-221 even came surprisingly close in character to an expensive Focusrite Red-series preamp. The Summit's major differences were its higher noise floor and a bit of harshness in the upper midrange.

Practically speaking, the Tube Output control functions as a boost, passing clean, useable gain at its counterclockwise setting and adding subtle gain and coloration

up to the knob's one o'clock position. When turned further clockwise, output increases dramatically, reaching roughly +20 dB at maximum. In this overdrive range, tube distortion will vary according to the level of the input signal. The 2BA-221 never sounded fuzzy or unpleasant when driven hard, even when the red clipping indicator was continuously on.

This 2BA-221 was a lot of fun to put through its paces, though the lack of decibel or unity-gain calibrations on the knobs was frustrating. In addition, with the condenser and ribbon mics I tested, the impedance control had just two operative settings—rather dull below a threshold around nine o'clock, and uniformly focused throughout the rest of the clockwise range—instead of a spectrum of timbre adjustments.

### Sonic Hand Warmer

Minor quibbles aside, the 2BA-221 is a bargain and a versatile problem solver for studio or stage. Consider the unit's potential for submixing with electric cello, bass, acoustic guitar, or other instruments that combine miked and direct outputs. As a mic preamp, Summit's latest creation has a lavish set of features and impressive audio credentials. It can also be used as a tone box for mild and effective tube coloration when processing any of its input sources. With the 2BA-221, Summit Audio has proved yet again that great things do indeed come in small packages.

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#### Overall EM Rating (1 through 5): 4

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## PRIMERA TECHNOLOGY

### Bravo Disc Publisher

By Gino Robair



The CD-R is the musician's currency for demos and small-run releases. However, creating and applying good-looking labels significantly slows the process of mass-producing CD-Rs. Primera



**The Primera Bravo Disc Publisher combines a high-speed CD-R duplicator and four-color printer in one device.**

has come up with a relatively low-cost solution with the Bravo Disc Publisher (Mac/Win, \$1,995), a turnkey system that will duplicate and print up to 25 CD-Rs at a time. In addition, the Windows version offers a Kiosk Mode, which allows you to duplicate 50 discs at a time, and Primera sells an optional 50-disc catch bin (\$49.95) for the finished discs.

### Automatic for the People

Slightly larger than a desktop printer, the Bravo Disc Publisher prints one disc while burning another, and you can determine whether the printing happens before or after burning. You can also tell the duplicator to verify each disc before burning it (although the verification process adds extra time to duplication). Discs that fail the verification process are dropped down a chute that leads from the center of the unit. I chose to burn my discs first to weed out bad media before spending the ink. The Bravo Disc Publisher also lets you do burn-only and print-only runs.

The Bravo Disc Publisher has a 52x CD-R duplicator, which can burn a 700 MB disc in about three minutes. The four-color ink-jet printer offers 2,400 dpi resolution, and the printing process takes only a couple of minutes, depending on the print mode and image you use. A robotic arm moves the media from start to finish, and while the printing and burning takes place, your computer shows you the status of each process.

Primera also offers the Bravo DVD Publisher (\$2,495), which handles CD-R and



DVD±R media (DVD-R only on the Mac). However, the maximum speed of the CD burner on that unit is 16x, and the DVD burn speed is 4x.

**Plug and Play**

The Bravo Disc Publisher comes with everything you need to get up and running quickly. Windows users get Sonic PrimoDVD 2.0 for burning and SureThing CD Labeler for printing. On the Mac side, Charismac Engineering Discribe 5.1 is the burning application and Magic Mouse Discus Labeler is the graphics program. The burning programs let you create audio and data discs.

For the most part, the bundled programs offer only basic functionality. Fortunately, Discribe lets you set the amount of time between tracks on audio CDs. You can use third-party burning and graphics software with the Bravo Disc Publisher, but when you do, you forfeit the use of the robotic arm.

The Bravo Disc Publisher requires discs with an ink-jet printable surface, and eight blanks are included for testing purposes (I needed only two to calibrate the review unit). Primera sells printable blank CD-Rs in quantities of 50 and 500, but compatible third-party discs are also available. With the purchase of an adapter kit (\$199), the Bravo Disc Publisher can also process three-inch, rectangular, and hockey-rink business-card CD-Rs.

The minimum system requirements for Windows users are a Pentium III/450 MHz and Windows 2000 or XP. Mac users need a G4/700 MHz computer and OS X 10.2. Both systems require 258 MB of RAM, a minimum of 2 GB of hard-disk space, and FireWire and USB ports. I tested the Bravo Disc Publisher using a Mac PowerBook G4/1.33 GHz.

**The First One's a Snap**

It was easy getting the Bravo Disc Publisher up and running. The manual is thorough, showing you how to install the drivers, design and print a label, and burn a disc. Templates are also provided. The calibration routines are explained well and are easy to perform. When I called Primera's tech support to get a few questions answered, the service was excellent. Fax and e-mail technical support are also available.

Once everything was sorted out, the Bravo Disc Publisher ran without a hitch. My first

run—a set of four 73-minute CDs with a four-color label—finished in 18 minutes (less than 5 minutes per disc). And through all subsequent runs, things have gone smoothly: I haven't had a CD-R rejected during the verification process, and the finished discs played on compatible players.

I was also very pleased with the printing quality, which is a major improvement over adhesive labels. My only qualm is that the blank discs occasionally have blemishes, which stand out if you are printing a stark design.

**Burning Desires**

With the Bravo Disc Publisher, Primera has brought high-quality CD-R duplicating and printing into the realm of the personal studio. Although it excels at producing large runs of CD-Rs, it's great for customizing individual discs for demo purposes. Once you use it, you'll wonder how you got along without it.

**Overall EM Rating (1 through 5): 5**

Primera Technology, Inc.; tel. (800) 797-2772 or (763) 475-6676; Web [www.primera.com](http://www.primera.com)

**SEVEN WOODS AUDIO**

**Ursa Major Space Station SST-206**

*By Larry the O*



**S**even Woods Audio's original Ursa Major Space Station SST-282 from the late 1970s was a multitap delay-based echo, ambience, and reverb device. Its newest incarnation, the SST-206 (\$1,395), uses a Motorola DSP56311 chip to faithfully recreate all of the earlier Space Station algorithms (and key front-panel controls), and it adds a new Room algorithm that is completely different from the other Space Station programs.

At first glance, the SST-206 is quite a surprise: what appears to be a nicely designed wood-sided remote control unit turns out to be the entire device! At 5 inches wide and 6.5 inches long, the diminutive SST-206 takes up less space than a paperback novel.

A single cable carries the power line along with the AES/EBU digital audio I/O; there's no analog I/O and no power switch. If your AES/EBU and AC connections are in



**The compact Ursa Major Space Station SST-206 from Seven Woods Audio offers vintage reverb and echo effects through its digital I/O.**

opposite directions, the cable fan-out may not be enough; it was barely adequate in my studio. The SST-206's only displays are sets of LEDs that indicate the selected operating mode, audition delay pattern, and input level. Nothing else is needed because there are no presets, and the unit does not offer MIDI, footpedal, or other controller inputs.

There are, however, plenty of knobs, and they mostly conform to the functions and even the color coding of the original Space Station. In some cases, though, the knobs are redefined for use with the Room program.

**Inner Space**

The Space Station architecture is based on the clever use of 24 delay taps: 15 are time modulated and are used to generate the reverb, 8 (the Audition Delay Taps) are arrayed in pairs and provide the algorithm's outputs, and 1 is used for echo. You can choose from 16 tap configurations for different qualities and decay ranges. When combined with the choice of SST Echo or SST Reverb mode, that yields quite a bit of variety. The front-panel controls, including four that set the relative levels of the Audition Delay Tap pairs, enable even further contouring.

The SST-206's specifications are somewhat unusual. The unit is designed to operate at 48 kHz and also supports 44.1 kHz. It can, however, work at rates varying from 32 to 96 kHz with a few caveats: in