

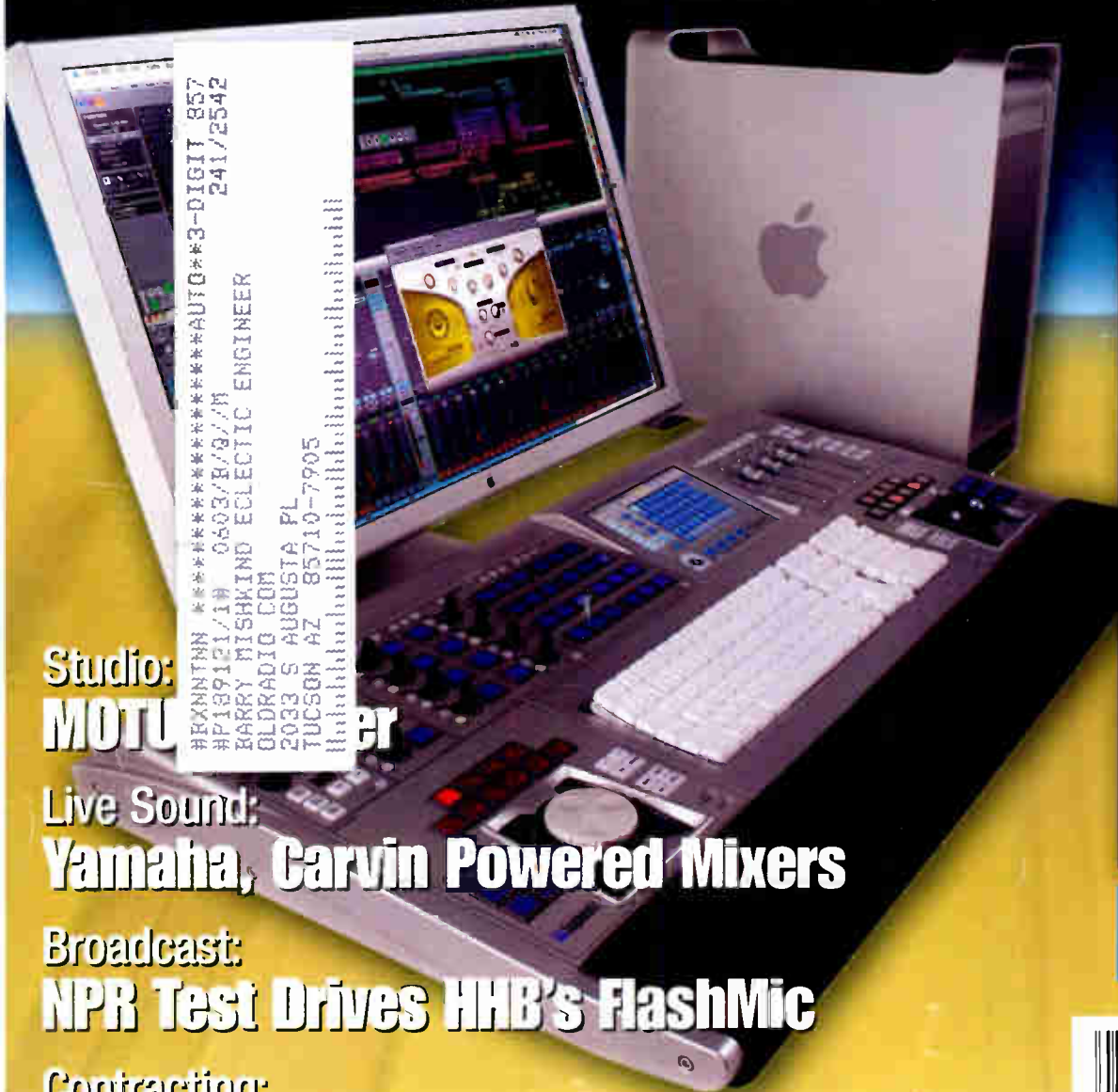
SEPTEMBER 2006

# ProAudio Review

The Review Resource for Sound Professionals

First Look:

## Euphonix's Intuitive MC Media Controller



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Live Sound:  
**Yamaha, Carvin Powered Mixers**

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**NPR Test Drives HHB's FlashMic**

Contracting:  
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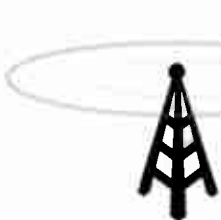
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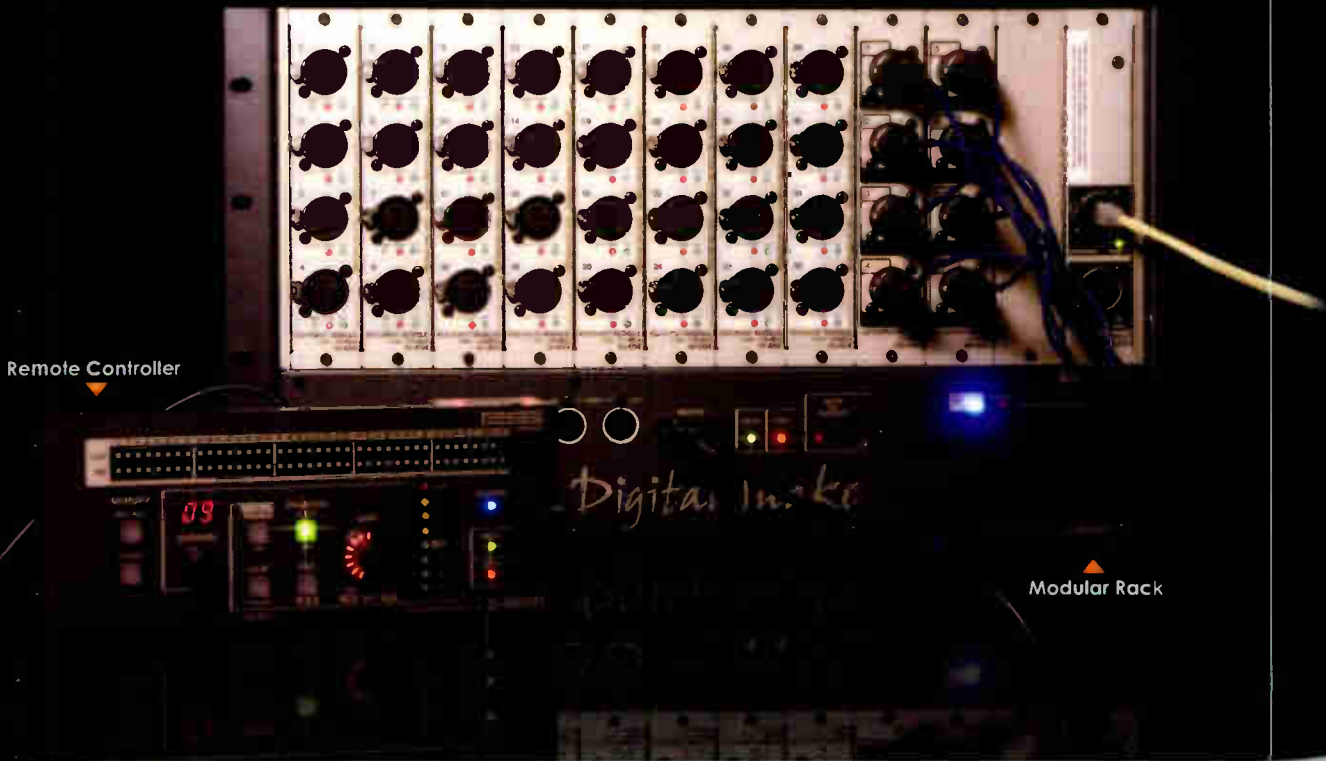
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The Review Resource for Sound Professionals

September 2006 | Vol. 12 Issue 9



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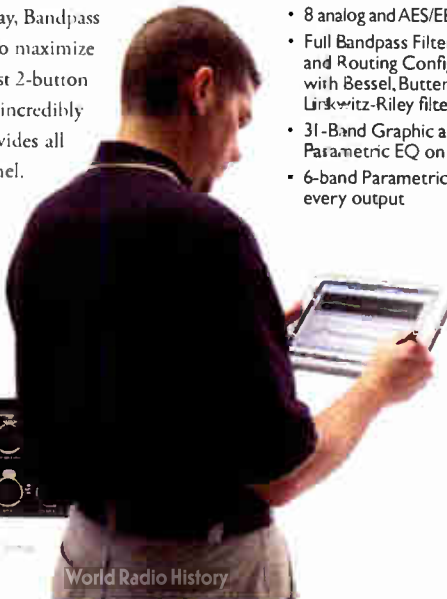
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# FROM THE PUBLISHER

John Gatski

## A New Energy and a New Look

We here at IMAS Publishing, the parent company of *PAR*, are all excited about the debut of our new redesign, implemented with this issue. In its 11 years of publishing, *PAR* has gone through a variety of aesthetic presentations, but this one is the best, yet.

The new look — with new *PAR* logo, easier-to-read text, eye-pleasing graphics and modern presentation — is all part of our effort to improve our service to the end users who buy professional audio products.

Our ramp-up began last year when we launched the digital edition of *Pro Audio Review*, (go to [www.proaudioreview.com](http://www.proaudioreview.com)), allowing thousand of end-users to get the magazine delivered straight to their computer. The second phase of the improved *PAR* was the addition of Features and Reviews Editor Strother Bullins last month. And now we have the implementation of the new look.

Within upcoming issues, there also will be new content in the magazine. We are, of course, continuing and even expanding our number of reviews, especially in the ever-growing project studio and live sound/contracting niches. We also have added extra digital measurement capability with acquisition of a Prism dScope for more bench testing of converters, computer interfaces, digital consoles and processors testing.

In the October issue, readers will see our new feature series' debut: "Behind the Scenes — Pro Audio," an in-depth look at the companies and the genesis of their successful products. The feature will include interviews with the design engineers and the creative staff members who were instrumental in creating these products.

Other new content planned for debut in our October AES preview issue will be the launch of the "Software/Plug-In News" page, which Managing Editor Brett Moss will keep updated each month with the latest info and new software updates. Select software updates will even be downloadable right

from the page in the digital edition. Pretty darn cool!

So read up. It's a whole new *PAR* look, but with the same great, industry end user reviews — and a lot more.

### POWER OF REVIEWS

*Pro Audio Review* is about products. Product reviews, of course, are the mainstay of what we do, but sometimes even I am surprised at how influential they are, and how they can change a preconceived perception of a product. And I review the stuff.

As an example, Dr. Fred's evaluation of the M-Audio Sputnik microphone: When it was originally pitched for us to review, I mentally lumped it into the better-than-average, Chinese-made microphone category, but probably nothing special.

When I read Dr. Fred's glowing, (bordering on gushing) rave review of the mic, however, his steadfast recommendation of the Sputnik convinced me that I need to get this mic.

I have not heard it, but his opinion of the mic's capability turned my casual "It's probably okay" first impression into one of extreme interest. Objective, product reviews are powerful testimonials. I will let you know if it as good as Dr. Fred says it is.

### LATIN MUSIC INDUSTRY AND PAR

I received an e-mail the other day from Angel Hernandez, Latin singer Marc Anthony's musical director, owner of two studios and an accomplished trumpeter and guitarist.

He said that *Pro Audio Review* was his favorite pro audio magazine. He told me that a lot of Latin music studios and their engineers want to read real-world, honest evaluations about the gear they will be spending their money on.

"With *Pro Audio Review*," he told me. "There is no fluff. Just solid product reviews written by people like me."

It is nice to know that the folks who are buying the gear do appreciate us.

*John Gatski is publisher/executive editor of Pro Audio Review. E-mail him at [jgatski@aol.com](mailto:jgatski@aol.com).*

# ProAudio Review

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# Letters

## A GREAT RACK?

Flipping through my new issue of *Pro Audio Review*, I came across a half page color ad for the new Joemeek oneQ, which features a set of bustier-clad, pushed-together breasts.

Sure, I can handle the tongue-in-cheek "silky smooth to rock hard" verbiage, but "Great Racks" along with the photo? This makes me not only not take your gear seriously, it makes me not even consider buying it. It's not much, but I've spent about \$7,000 during the past six months for this little place.

I understand ad revenue is the bread and butter of most publications but do you really need the money this badly? I'm not the only female *Pro Audio Review* reader. Men might be annoyed by the as well. I imagine *Pro Audio* isn't the only place this ad ran. You got

my attention, but is this the kind of attention you want?

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## A MASHIE OR A NIBLICK?

I just read your review of the dbx DriveRack 4800 by David Rittenhouse in the July, 2006 issue.

I learned a lot of interesting details about the new DriveRack... Its new powerful 96 kHz DSP... Its pen tablet interface, its myriad equalizers. I also learned that the new DriveRack is much nicer than the old one. All very interesting.

There is one small detail that I did not learn from the article. What is a dbx DriveRack? And what would I do with it if I had one?

**Phil Mastman**  
Sandlot Pictures, Inc.

*PAR responds* - dbx labels it a "Complete Equalization and Speaker Management System." Does that clarify it?



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## Feedback

We want to hear from you. Send your comments to [jgatski@aol.com](mailto:jgatski@aol.com). Please include name, city, state and job title and firm in the email. For product submissions, contact Brett Moss at [bmoss@imaspub.com](mailto:bmoss@imaspub.com).

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World Radio History

Source Code: PAFJ

by Mel Lambert

# Euphonix MC Media Application Controller

**E**uphonix is a company that has always moved against the stream. Back in 1988 it created Crescendo, one of the world's first affordable digitally-controlled analog consoles, and then set its sights on the heady world of all-digital offerings. But it also peered deeply into its crystal ball and foresaw the growing importance of digital audio workstations, whose native PC-based engines were destined to offer processing power which rivaled that of custom-designed cores with home-grown ASICs or off-the-shelf chips sets. So, quickly realizing that consoles were destined to follow alternate pedigrees, the Euphonix design team developed a highly flexible control protocol that could serve two purposes.

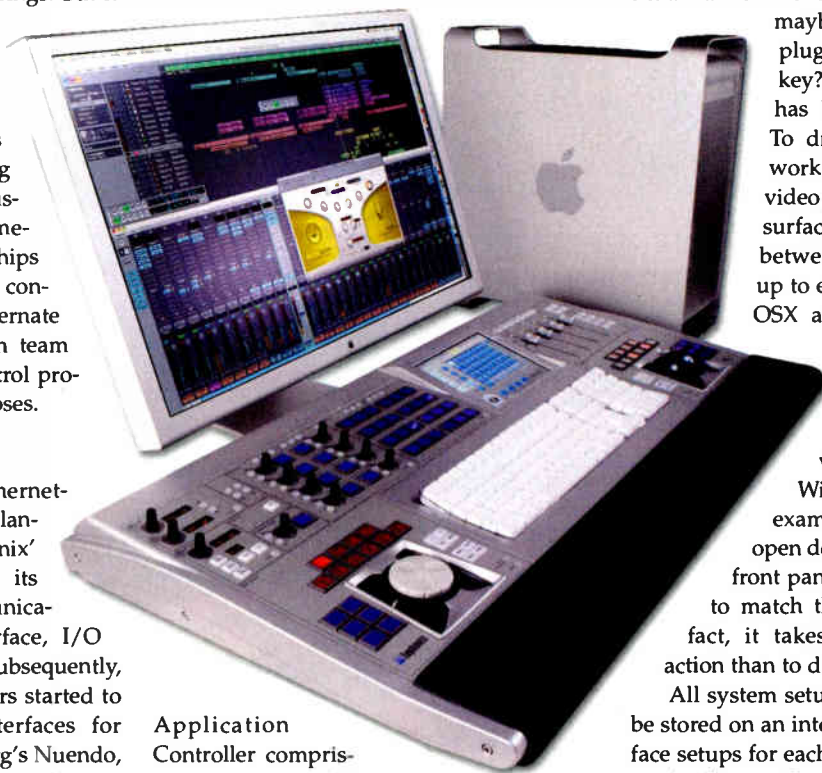
## EUCON PROTOCOL

Primarily, EuCon - the Ethernet-based protocol and command language - was used within Euphonix' System 5 digital consoles and its variants to streamline communications between the control surface, I/O racks and processing engines. Subsequently, a number of DAW manufacturers started to develop EuCon-compliant interfaces for their systems, including Steinberg's Nuendo, Merging Technologies' Pyramix and, most recently, Apple's Logic Pro. Euphonix, unlike most other console controller manufacturers, believes in open architecture solutions.

In response to the widening acceptance of EuCon for DAW command, Euphonix has brought to market the new MC Media Application Controller, which is designed to serve as a standalone unit or, more likely, to be installed within a System 5 Digital Production Console as a System 5-MC configuration. But the company has not overlooked other command protocols; the MC is just as happy talking to a DAW via familiar Digidesign HUI and Mackie Control protocols. (Interestingly, Euphonix has elected to translate high-speed EuCon commands to

virtual MIDI ports within the attached DAW. By using Ethernet and EuCon for such MIDI protocols, the firm achieves dramatically enhanced control compared to standard MIDI connections.)

In terms of hardware, the MC Intelligent



Application Controller comprises an array of 56 programmable LCD SmartSwitches that can generate keyboard commands, nine touch-sensitive knobs for plug-in and processor control, a quartet of assignable, touch-sensitive faders for controlling track levels, a touch screen that provides fast access to the unit's programmable features, a trackball and a handy jog wheel, plus a surround-sound monitor system. Eight soft knobs on the MC can be used for controlling plug-ins of EuCon, HUI and Mackie Control-savvy workstations.

LCD SmartSwitches next to each knob indicate the knob function; under EuCon, Nuendo VST plug-ins each control position and designation can be customized. (One

example being a setup that provides all compressors with a threshold knob positioned in the same place and, for example, named 'c-threshold.')

A ninth control knob is available for any cursor-selected parameter. MC also includes Studio Monitor Pro, an ASIO and WDM-based application that provides full 7.1-channel surround sound monitoring. SMP supports multiple loudspeaker outputs with individual level, dim and talkback.

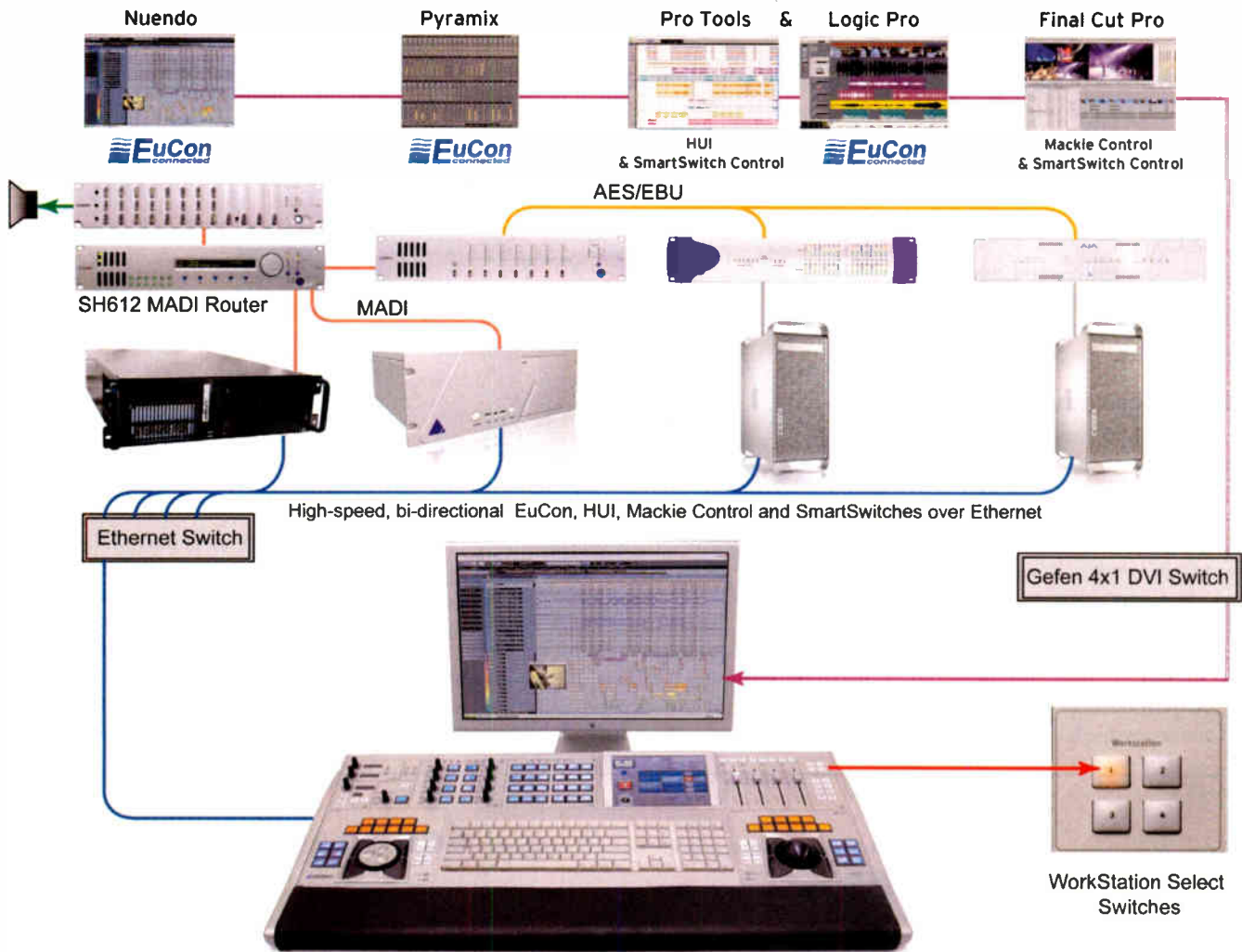
## MULTIPLE APPLICATIONS

As will be rapidly apparent, audio projects often involve the use of more than one editing or workstation application, in addition to regular OSX or Windows-based programs. (Who out there doesn't need to check e-mail at least every couple of hours? Or

maybe download a hot new plug and authorize an iLok key?) This is where Euphonix has been particularly smart. To dramatically improve our workflow during sound and video sessions, the MC control surface lets you switch quickly between applications and/or up to eight DAWs, across either OSX and/or Windows simply by pressing a button. (It's the same basic paradigm we are familiar with from conventional PC programs; Windows' control-tab, for example, cycles through each open document.) And, of course, front panel controls are remapped to match the active application. In fact, it takes longer to explain the action than to do it; a true breakthrough.

All system setups and user libraries can be stored on an internal hard drive. MC surface setups for each application are saved to an Application Set; the unit is supplied with several built-in default sets for popular applications and users can start with a copy default, modify it to suit their way of working and store the result. Sets can be built for any program, ranging from the prosaic, such as MS Word, Internet Explorer and MS Entourage, to audio/video applications such as Pro Tools, Sound Forge, GigaSampler, Final Cut Pro HD and After Effects.

Impressively, the MC Intelligent Application Controller offers a total of four levels of control: keyboard and mouse for instant access to conventional applications using the full-sized keyboard and trackball and/or a jog/shuttle wheel set for left- or right-handed operation; LCD SmartSwitches



that can be set to output user-defined key-stroke commands with icon-based names or designations; HUI and Mackie Control over Ethernet to control Pro Tools, Digital Performer, Final Cut Studio etc.; and EuCon-enabled applications such as Logic Pro, Nuendo or Pyramix (the latter via Merging Technologies' OASIS protocol). As I discovered, under the latter mode all user control options move into overdrive, with high-speed bidirectional communication that allows the MC surface to access virtually all workstation functions. Now the on-surface jog/shuttle wheel, for example, comes into its own as a real-time control for trimming heads and tails of edit segments, adjusting a fade head or tail, repositioning a sound element, zoom a view, track slipping and much, much more. (Cubase SX users can upgrade to Nuendo and then purchase the Nuendo EuCon adaptor to provide MC compatibility.)

### CONTROL SURFACE

The MC's elegantly laid out control sur-

face literally bristles with useful features and displays, together with a remarkable number of control elements. In addition to the 56 programmable SmartSwitches plus eight Soft Knobs for processor and plug-in control, a single assignable Soft Knob with companion SmartSwitch can be set to follow any currently selected parameter. HUI and Mackie Control, as might be expected, offers full fader level and touch sense, pan adjustment, aux send control, solo, plug-in selection and parameter control, record arm, automation from the faders and eight soft knobs, plus metering. Tracks also can be scrolled and bank switched to the four dedicated faders (alternatively replaced with twin-motor joysticks), complete with an array of six strip control buttons. The integral Studio Monitor Pro surround monitoring includes a surprisingly flexible monitor matrix, with individual loudspeaker controls and solo modes.

Used on its own with a companion array of one or more DAWs, the MC Intelligent

Application Controller packs as many command functions as you are probably ever going to encounter. Drop the beastie into a Euphonix System 5 frame and the combo develops some serious horsepower. Now, in either a mixed HUI/Mackie Control or EuCon environment (or both), the combination of full assignability from the System 5 channels strips and the centralized control of plug-ins and other DAW functions put a unique amount of processing and mixing power in front of the user.

The resultant System 5-MC Integrated DAW Controller adds S5 channel strips; a stand-alone MC can be upgraded to a System 5-MC by adding between eight and 48 channel strips on either side of the centrally located Controller within a S5-MC frame. When used with EuCon or HUI applications, S5 channel strips offer enhanced mix control with faders, eight assignable knobs and a high-resolution screen for displaying meters, track names, routing, and EQ or pan graphs.

**EUPHONIX** continues on page 12 ►

Operationally, S5-MC functions like a conventional assignable digital console, except that now all mixing and processing is implemented within the attached DAW Engine, with full access to third-party plugins and virtual instruments. Under EuCon or HUI/Mackie Control various level faders, EQ, dynamics, pan, editing and other processing functions can be mapped to on-surface controls, while master DAW functions are implemented from the MC unit.

**INTEGRATED WORKSTATION**

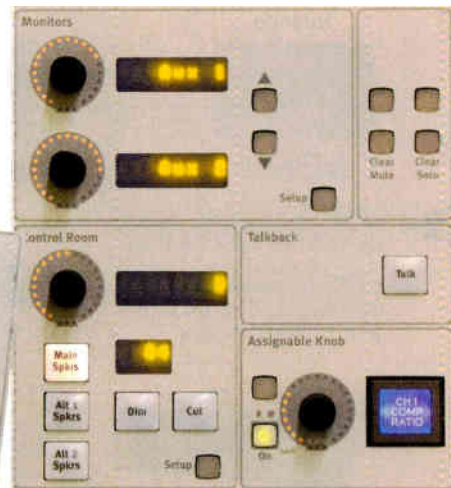
A base System 5-MC Integrated Workstation Audio Mixing System includes eight channel strips, an MC center section, Studio Monitor Pro and a dual-AMD Opteron workstation running Nuendo EuCon, a custom version of Steinberg's Nuendo 3. The configuration can be expanded with additional channel modules and a larger frame, as well as Euphonix converters and routers.

S5-MC is particularly appropriate for music and audio post facilities that use DAWs

exclusively, and which need a cost-effective DAW control surface that offers the user features and visual feedback of a high-end console. The combination also



forms part of a larger end-to-end solution that includes integration of any EuCon-aware applications with current System 5 consoles used in post, music, broadcast and live ven-



ues. Consider, for example, the ability to start a sound-design project in Steinberg's Cubase; move to Nuendo for enhanced, multi-element editing; add a Pyramix workstation and an MC controller for integrated DAW control; then move onto a System 5-MC to develop mix levels for a complex music track with sampled and synthesizer voices; and eventually transition to a larger System 5-F film con-

**EUPHONIX** continues on page 56 ►

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There's never been an audio recorder like the Sony PCM-D1. Musicians have hailed its 96 kHz/24-bit uncompressed audio. Recording professionals love the sound quality of the on-board stereo mics and mic preamps. Bloggers and journalists appreciate the intuitive design. Because the PCM-D1 records WAV files to 4 GB of on-board memory, there are no moving parts and no self-noise for the mics to pick up. You won't worry about running out of power or capacity in the field, thanks to field-replaceable AA batteries and Memory Stick PRO™ High Speed media. Even the case is superb: one millimeter-thick titanium with a finish about ten times harder than aluminum. Reviewers have called the PCM-D1 "impressive," "a gem," and "a home run." We call it a whole new way of audio recording.

Find out more at [www.sony.com/proaudio](http://www.sony.com/proaudio).

**"IMPRESSIVE."**

- John Carroll, Pro Audio Focus, December 2005

**"A GEM"**

- Lorenz Rychner, Recording Magazine, April 2006

**"A HOME RUN"**

- Frank Beacham, Radio World, February 15, 2006

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**THE NEW WAY OF BUSINESS™**

# BROADCAST

The latest news and products

## NEW PRODUCTS

### HOLOPHONE H3-D Microphone



The H3-D from Holophone is the latest in the company's line of surround sound microphone solutions. Based on the more expensive H2-Pro the H3-D is essentially a turnkey 5.1 surround sound miking system. Like its predecessor it utilizes a "head" with six mics strategically implanted. A 15-foot Monster brand cable handles the phantom powered signal. The H3-D's head can be mounted on a mic stand or suspended upside down from above. It is compatible with any brand of multichannel mic preamps. Handgrips and windscreens are optional.

**PRICE:** \$1,695

**CONTACT:** Holophone | ☎ 416-362-7790 ↪ www.holophone.com

### ZAXCOM ZFR100 Recorder



Seemingly indistinguishable from its digital wireless mic transmitter boxes, Zaxcom has developed a Flash media-based recorder and slipped it into the miniature boxes. The ZFR100 is a battery-operated (AA) handheld recorder utilizing Flash media. Calculations indicate that it will hold up to 12 hours of BWF or MP3 files on a 2GB Flash card. A bonus important to broadcasters and film/TV location sound techs is that the ZFR100 handles timecode via an internal timecode generator. It will also lock to an RF timecode signal generated by a video camera.

**PRICE:** \$995.

**CONTACT:** Zaxcom | ☎ 973-835-5000 ↪ www.zaxcom.com

### LINEAR ACOUSTIC LA-5170 Audio Metadata Analysis System



A few years ago the asking about a "metadata data analyzer" would have brought a puzzled look to the face of even the most knowledgeable

broadcast engineer. How times have changed. The latest in digital multichannel audio for broadcast now requires metadata data analyzers such as the Linear Acoustic LA-5170. The 1RU unit monitors and analyzes 30 parameters such as Dolby E specs, timecodes, etc. An Ethernet port links the LA-5071 to a Windows computer for remote operation and in-depth metadata analysis.

**PRICE:** \$5,750

**CONTACT:** Linear Acoustic | ☎ 717-735-3611 ↪ www.linearacoustic.com

### DAYSEQUERRA M4SE HD Radio Tuner

While TV broadcasters take on new issues such as digital multichannel sound, radio broadcasters have to look at the new kid on the block – HD Radio. As more broadcasters equip themselves for HD Radio transmission they'll need a way to monitor that output – at the station and on the road for demo



or signal monitoring purposes. To the rescue is DaySequerra's M4SE HD Radio Tuner. Built upon legendary DaySequerra performance, the M4SE handles AM and FM bands. Features include a headphone output, 20 station presets per band and 5.1 surround sound compatibility.

**PRICE:** \$2,595.

**CONTACT:** DaySequerra | ☎ 856-719-9900 ↪ www.daysequerra.com

New Century Productions wrote a nice check to Calrec when it outfitted its newest HD mobile truck, NCP-VIII, with a 72-fader Calrec Alpha digital broadcast console with Calrec's new Bluefin technology. Dome Productions up in Canada also took delivery on a 72-fader Calrec Alpha for its newest mobile HD truck, Trillium Alpha. At MSNBC's studios in Secaucus, New Jersey, a pair of 64-fader Alphas were installed in the space of 48 hours.

Shure wireless systems were used throughout the Academy of Country Music Awards show. UHF-R systems were the base with



KSM9 handheld transmitters were popular. A similar system was used by

American Idol winner Taylor Hicks during his AI victory performance (see picture).

Getting the wireless systems checkered flag at the Indianapolis 500 was Lectrosonics.

Lectrosonics UDR200C receivers and UM250C transmitters were used by the house audio system. Sound engineer Gary Holland, working with Ocean Futures Society, has been using Lectrosonics URC411A Digital Hybrid Wireless systems for taping of the society's nature programming.

Harris is providing Brazilian broadcaster Radio Globo with new AM transmitters and DEXSTAR HD Radio excitors.

Tokai Television Broadcasting in Japan took delivery on a Studer Vista 8 console for its new HD broadcast studio. All-Mobile Video



of Manhattan also took delivery of a Vista 8 but this one was for its new mobile truck, Titan. See picture of the 72-fader board.

# HD-P2

## NEW! Portable HD stereo recorder with timecode

FRONTIER  
DESIGN

*"Most feature-filled pro unit under a \$1,000."  
- Pro Audio Review, March 2006*



The pro solution for challenging live and on-location applications, the **HD-P2** records at up to 192kHz/24-bit resolution to Compact Flash media. Audio files are instantly available to your DAW through the built-in FireWire connection. There are 2 XLR mic pres and a built-in mic for interview situations, an instant re-take feature, and a time code input for syncing with external devices.

This is no consumer-grade recorder masquerading as a pro unit—it's a true high-definition stereo recorder for anyone who needs the best possible recording, wherever the work takes you.



- ▶ Records at up to 192kHz/24-bit resolution to Compact Flash media
- ▶ 2 XLR mic inputs with 48V phantom power
- ▶ Broadcast WAVE files instantly available to DAW via FireWire connection
- ▶ Time code input for synchronization and time-stamping audio files
- ▶ Supports pull-up & pull-down sample rates
- ▶ Records for up to 5 hours using AA batteries
- ▶ Ergonomic, rugged design for easy use
- ▶ **CS-P2** full-featured carrycase now available



[www.tascam.com](http://www.tascam.com)

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by Rich Rarey

# HHB FlashMic DRM85

NPR tests broadcast's hottest new grab 'n go ENG package.

"So let me ask you," the boss's boss said skeptically, eyeing the HHB DRM85 FlashMic box under my arm. "What happens when you have to record a mult feed, or when you're at a stakeout and you have to keep recording and waiting for something to happen - how are you going to check [recording] levels? Won't you be out of luck using that FlashMic?"

I didn't know. I'd just received the DRM85 (\$1,399), but after a few hours exercising it I had some answers for him. "Yeah," I said. "It's a good device, and sure, it has some limitations, but for a grab 'n go ENG package, it's very impressive."

## FEATURES

HHB has packed a full-featured Flash recorder into a microphone body, added a Sennheiser mic capsule, 1GB of memory, a USB port, and powered the whole system with two AA batteries. The DRM85 is a compact audio tool, great for those professionals and serious amateurs who need to make quick monaural recordings. At a light 13 ounces, it won't cause arm and shoulder fatigue, either.

Is it a large memory stick with microphone

or a microphone with memory? The heart of the DRM85 is a Sennheiser omnidirectional condenser mic capsule, the published polar response of which shows an even sphere at voice frequencies. It has a published frequency response showing a 10 dB bump at the 5 kHz - 7 kHz range. A 12 dB/octave rolloff at 100 Hz can be engaged in boomy or windy environments.

Headphones are plugged into the standard 1/8-inch stereo mini jack on the microphone's base, and allow source monitoring and listening to track playback in both ears.

The DRM85 controls are very simple: three buttons and a spring loaded jogswitch. The three buttons control "transport" functions of record, play, and stop/menu. The jogswitch acts as a soft-selector for dialing amongst menu items, and for adjusting the record and headphone levels. The status of the FlashMic is easily seen in a small backlit LCD display on the side of the body.

That's it. Simplicity. In fact, the FlashMic has a pre-record buffer feature whereby the 10 seconds of audio prior to pressing the record button are recorded to the audio file. Truly a metaphysical feature.

One has two choices of audio format: Linear PCM (WAV) or ISO MPEG1 Layer2 (MP2), at three sampling frequencies 48 kHz, 44.1 kHz, or 32 kHz. Both are popular audio formats, and the data-compressed

MP2 format is robust and tolerant of multiple transcodings.

Using the 1GB internal memory, recording times range from three hours (WAV, 48kHz sampling) to over 18 hours (MP2, 32 kHz sampling, bitrate 128 kbps). There's no problem recording different formats on the memory card, so one can choose a better quality format for critical audio, and later in the day choose a lower quality format to get more recording time, such as for a stakeout.

Getting the audio out of the FlashMic is simple too: plug the provided USB cable into the base of the FlashMic, and the other end into your Mac or PC. The computer recognizes the FlashMic as a USB Storage device and presents the file tree as just another removable drive. Click 'n drag the audio out of the FlashMic onto your computer's drive and get to editing!

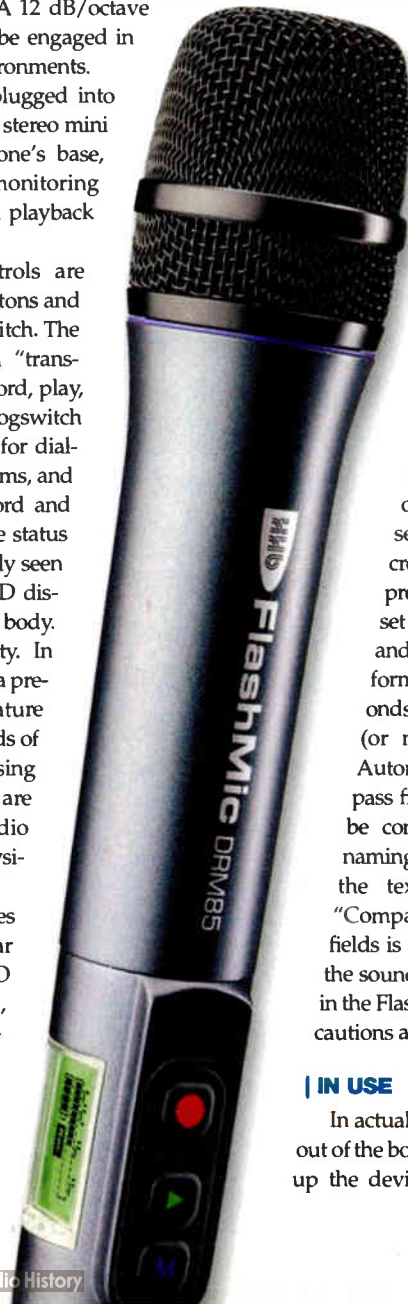
The latest firmware revision even enables the FlashMic to operate from the computer's USB port power, so even if the mic's AA batteries are removed, you can still access the audio.

The complicated part - audio encoding selections, file naming conventions, and the like - can be revealed or concealed to the user depending on how the nine user-defined presets are configured.

Since the FlashMic is a CPU-like device, HHB has included a CD-ROM for your PC or Mac, containing a simple preset configurator application for creating and uploading the nine presets into the FlashMic. Each preset specifies over a dozen recording and audio properties for the mic. File format, sample rate, number of seconds to hold in the pre-record buffer (or none), manual record level or Automatic Gain Control (AGC), high-pass filter, even the LCD backlight can be controlled. Just as important, file naming conventions can be specified, the text of the "Reporter Name," "Company Name" and "Description" fields is embedded in the data chunks of the sound file. The configuration is stored in the FlashMic as a plain text file, but HHB cautions against editing it directly.

## IN USE

In actual use, I took the DRM85 FlashMic out of the box, pressed the jogswitch to power up the device and after the short boot up



## FAST FACTS

### APPLICATIONS

Broadcast, location, studio, live sound

### KEY FEATURES

Omnidirectional pattern; condenser element; 1 GB Flash memory; USB port

### PRICE

\$1,399

### CONTACT

HHB/Sennheiser USA  
☎ 860-434-9190  
🌐 www.hhbusa.com



process completed, pressed the record button, and the FlashMic obediently began recording, the LCD display counting down the remaining recording time. A small red LED in the microphone base also lights up when in record - the LED can be toggled on and off by pressing and holding the play button while in record mode - useful when you don't want others to see the red recording light.

The default setting uses AGC for level control. Pressing and holding the record button while in record mode "locks out" the transport and power buttons to prevent accidental stops. Pressing and holding the record button unlocks the transport and power buttons. A brief press of the record button places a marker - a "data flag" - in the file for easy locating later. When I opened the file in CoolEdit, the markers were visible at the top of the waveform. After recording, press stop, and the file is quickly closed. I listened to the file in headphones by pressing play and shuttled around the file by turning the jogswitch "forward" or "backward." The headphone level was too loud, so I pressed and held the jogswitch until the display showed "phon," and turned the level down by moving the jogswitch backward.

Before taking the FlashMic out for a record-

ing, I decided to copy some music files into it, because it was more convenient to carry them to work in Flash memory than to burn a CD-R. I imitated the file naming conventions and listened to the files by selecting them from the FlashMic menu. Of course the 44.1 kHz WAV files were stereo, so the monaural FlashMic interpreted them at half the sampling speed - but no matter, I only wanted the convenience of a memory stick.

For the audition recording, I set the FlashMic to 44.1 kHz linear, AGC on and rolloff engaged, started recording, and began the commute to work. The recording captured a range of sounds from a commuter train - exterior and interior, shouting picketers, jack hammers, traffic and random city sounds. The preamp section is clean, the mic capsule's response is good, except for plosives at extremely close range. A light breeze was blowing and I carried the mic, capsule down, as I walked and did not detect wind noise. When I reached within 20 feet of the jack hammer site, the AGC protected against peak distortion, and is surprisingly fast - the jack hammer sounding more like staccato snare drum beats. I was pleased to hear the AGC was easy on voice, without fatiguing compression. In listening back, I think the recording would

have sounded more natural without the rolloff engaged - voices to my ear sounded a little thin, even closely miked.

Although I had no problem accessing the FlashMic's directory structure with my home PC, I couldn't access the files on the office PC. There was no guidance from the HHB site or the FlashMic manual, but it became apparent that my office PC was missing the file "usbstor.inf" that contains USB-device IDs for the PC's USB hub driver to locate and then load the USB storage port driver, usbstor.sys. By allowing the PC to search the Windows Update (uses your Internet connection) the file was located and automatically installed. Thereafter, the FlashMic was recognized as a removable drive.

I noticed from the [www.hhbusa.com](http://www.hhbusa.com) site that my FlashMic's firmware was out of date, so I downloaded the update, unzipped it and dropped it into the FlashMic's root directory. After stopping the USB connection, I disconnected the FlashMic from the PC, and power-cycled the FlashMic. On reboot, the FlashMic's LCD showed "Update" and the new firmware was installed. No fuss, no loss of audio files. HHB recommends a reformat after a firmware

HHB continues on page 59 ►

available now



## TRIDENT™ SERIES 8T CONSOLES

incredible legendary Trident sonics  
made in england  
by the original Trident designer

16 channels, 4 band Series 80 EQ \$3500  
meterbridge \$1100 extra (other frame sizes available)

details from: [mix8T@tridentaudio.co.uk](mailto:mix8T@tridentaudio.co.uk)  
011 44 147 481 5300  
[www.tridentaudio.co.uk](http://www.tridentaudio.co.uk)



# CONTRACTING

The latest news and products

## NEW PRODUCTS

### ATLANTIC TECHNOLOGY 10 CSB Subwoofer



Atlantic Technology's 10 CSB is a powered subwoofer designed for corner-mounting. The corner-mounting concept is aimed at hiding the subwoofer and increasing its base response. The onboard amplifier generates 180W for the 10-inch down-firing woofer. It's all packaged in a paintable cabinet.

**PRICE:** \$899

**CONTACT:** Atlantic Technology | ☎ 781-762-6300 ☞ www.atlantictechnology.com

### DAN DUGAN SOUND DESIGN Model E Automatic Mixing Controller

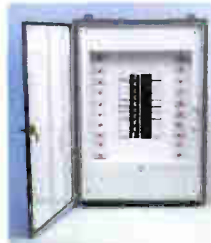


The Model E Automatic Mixing Controller from Dan Dugan Sound Design is designed to act as a noise gate without any of the problems of gating. The rackmountable (1/2RU) Model E is an eight-channel unit but is linkable up to 64 channels. Each channel features an LED meter, bypass and mute switches and interfaces with a mixer via a 1/4-inch TRS jack.

**PRICE:** \$2,995

**CONTACT:** Dan Dugan Sound Design | ☎ 415-821-9776 ☞ www.dandugan.com

### EQUI=TECH Model 20WQ Wall Cabinet System



A bit more sophisticated than a power strip from the hardware store, Equi=Tech's 20WQ is a 200 Amp balanced power system with room for 20 circuits but in a compact wall-mounted compartment. The toroidal transformer features Equi=Tech's Q technology for clean voltage and current. GFCI and surge suppression are standard.

**PRICE:** \$14,289

**CONTACT:** Equi=Tech | ☎ 541-597-4448 ☞ www.equitech.com

### ROLLS RS80 Tuner



The RS80 from Rolls is an AM/FM tuner with 40 station memories. It is a single rack unit with RCA and XLY inputs and outputs. It also has a signal deviation meter, level control, 1/4-inch headphone jack, LCD screen and remote control. A nice touch is RDS compatibility.

**PRICE:** \$330

**CONTACT:** Rolls | ☎ 801-263-9053 ☞ www.rolls.com

### LOWELL LPT Series Pull and Turn Racks



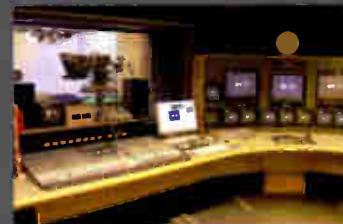
The LPT Series Pull and Turn racks from Lowell utilize a sliding locking turntable base for turning a standard rack 60 degrees or 90 degrees to access the rear. Available in depths of 19 inches or 23 inches and heights of 17.5 inches, 21 inches, 28 inches, 36.75 inches or 36.75 inches (21 RU) the LPT series can handle upwards of 300 pounds of equipment.

**CONTACT:** Lowell Manufacturing | ☎ 800-325-9660 ☞ www.lowellmfg.com

September **Syn-Aud-Con** seminars will be held in Las Vegas (Sept. 16 – 19) and Chicago (Sept. 18 – 21). See [www.synaudcon.com](http://www.synaudcon.com) for more info.

Cranes Roost Park in Altamonte Springs, Florida has added a **FiberPlex** LightViper fiber optic digital snake to be used with its "floating stage."

**Allen & Heath** has been busy placing consoles and iDR install DSP systems around the world. The Fabric night club and British Telecom's Group Communications dept. each took delivery on 32-channel GL4800 consoles (see picture of the BT console). Also in jolly olde England, an iDR system was installed for the new "Stealth" roller coaster at Thorpe Park in



Surrey. An iDR system was part of a refurbishment of Chieti, Italy's G. d'Annunzio University' main auditorium. In Purmerend, Holland the new P3 multipurpose venue has its own 32-channel GL4800 along with a 40-channel ML4000 console and a 16-channel GL-2800, plus an iDR system.

Budapest's Festival Theatre, part of the new Palace of the Arts complex, has installed 20 **Meyer Sound** speakers – CQ-2, UPM-1P, UPA-1P cabinets and 700-HP subwoofers. In a completely different direction, Ben Hill Griffin Stadium at the University of Florida has added Meyer Sound MSL-6, CQ-2 and SB-1 speakers along with 700-HP subs. A remodeling of the Colorado Springs Fine Arts Center found homes for Meyer Sound CQ-1, CQ-2 and MM-4 speakers and USW-1P subwoofers.

**Symetrix's** SymNet system is part of a new audio distribution system at the University of Tennessee's Thompson-Boling Arena. The 196-channel system utilized 18 SymNet Express Cobra units.



# HEAR what you've been MISSING

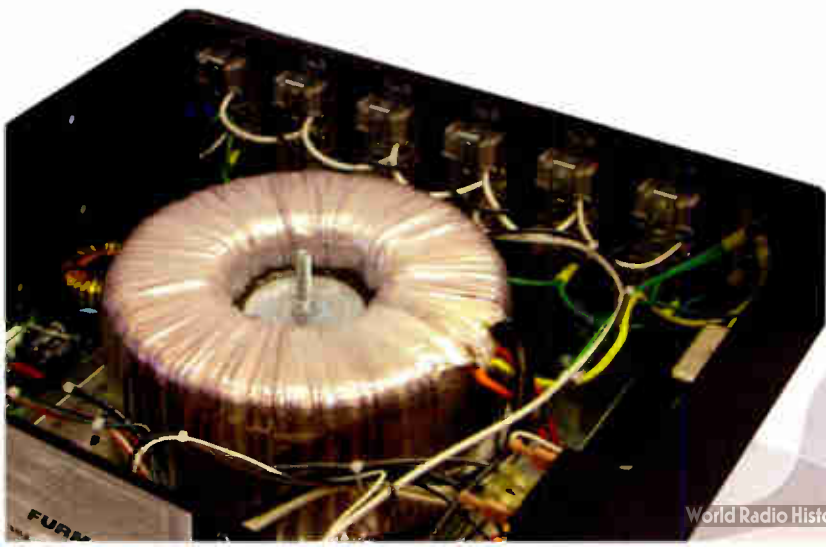
You may use balanced audio to reduce signal noise, but for a truly noise-free system, you must balance your power as well.

As many recording engineers know, AC noise can be hard to defeat. That's why Furman designed the IT-20 II Balanced Power Conditioner. It completely reworks your incoming AC to provide completely clean, pure, noise-free power to your sensitive equipment. Featuring the only true isolation transformer on the market, the IT-20 II will unveil the lower level harmonics and upper partials masked by AC line noise. And with total isolation from ground, it's the only power conditioner that will break ground loops to completely eliminate noise... period.

See us at AES booth #211

## IT-20 II Features:

- Ultra low-noise balanced isolation transformer provides over 80dB of common mode noise reduction from 20Hz-20kHz assuring the lowest noise floor possible.
- Furman's unequalled Linear Filtering Technology (LiFT) provides well over 40dB of differential mode noise reduction from 100kHz-1GHz.
- GFCI protected outlets with ground lift switch to eliminate AC hum and ground induced noise.
- Series Multi-Stage Protection (SMP) for unsurpassed, worry-free protection from surges and spikes.
- Automatic Extreme Voltage Shutdown (EVS) protects against dangerous wiring faults.



by **Wayne Becker**

# QSC PLX1804 Power Amplifier

A lot of clean power at a great price can be found in this box.

**BENCH TEST** | Page 25

QSC has been known for making quality power amps for many years. I recently got a hold of the PLX1804, a member of the PLX2 series line of amplifiers. These amplifiers utilize a switching power supply, are compact and lightweight and there are six amplifiers in this series.

**| FEATURES**

All of the PLX2 series have an active inrush current limiting circuit that eliminates the need for power sequencing. The information that ships with the unit states that an internal protection circuit is used to maintain the operation of the amp under extreme conditions. According to the information, if distortion is present, it will cause the clip LED to light and if it is continually overdriven the internal circuit will reduce the volume to minimize the distortion and stress to the amplifier. Two are 4 ohm-minimum output types (the 1104 and 1804) and four are 2 ohm-minimum impedance types with bridging capabilities (1802, 2502, 3102 and 3602).

The PLX1804 is not very heavy, about 26 pounds, and only two rack spaces high. The front of the amp is a clean silver panel with only the power switch on the left and the input con-

trols on the right. The input gain controls have 21 detents for accurate settings. In the same panel the power, signal present and clip LEDs are preset as well. The back of the unit contains the input interface consisting of both balanced XLR and TRS 1/4-inch jacks. The output connections are Speakon connectors only. The power cable and breaker are to the far right of the amp. Overall, the unit feels beefy, consistent with standard QSC amplifier construction.

The unit is ready to rackmount out of the box and comes with stick-on rubber feet if you choose to set it on the floor or a tabletop. Finger grips are incorporated in the front end design of the amp for easy handling. The fan pulls air through the amp from back to front, so keep that in mind when racking the unit. And fans aren't the quietest I've heard, so be sure it's in a place where it's not interfering with sound in the room.

**| IN USE**

Connecting to the amp is pretty straight forward. I used a CD player and MP3 player as a source and JBL two-way speakers for room sound. I have to say I'm not a fan of the Speakon-only output connectors. If you have an older set of speakers, or if the speakers you have don't have Speakon connectors, you have to make/get an adaptor and that's just a pain and another possible point of failure. It can't cost that much more to put a pair of terminal posts or 1/4-inch connectors on the back. From a contracting point of view, this severely limits the amp's potential use in installed systems.

But how does it sound? Pretty darn good! I pumped through everything from classical

to 1970s rock, punk and hip hop. I even tried to drive the thing into distortion to hear the auto volume reduction kick in, and couldn't. Maybe if I short out the leads? Seriously though, the amp behaved very well and sounded good on just about everything I threw at it. I cranked the unit up to the max and it never even broke a sweat.

**| SUMMARY**

For a street price of about \$700, this is great deal of clean, reliable power for the money. It would be nice to see other ways besides Speakon connectors for the output, but they do have other models with binding posts, and bridged outputs, however those



cost about \$200 more. I guess I'd just like to see some consistency throughout the line in case you have to switch out an amp or use another model in a pinch.

*Wayne Becker is vice president of sales for Communication Systems, Inc. and has worked in the pro audio and systems integration business for 23 years. He also owns Westwires Digital USA, a music production and consulting company based in Allentown, Penn. He can be contacted at wbecker@systemsbycsi.com.*

**PRODUCTPOINTS**

- Lightweight
- Internal overload protection
- Lots-o-power for low bucks
- Only Speakon connectors on outputs

**SCORE**

Typical QSC - lots of clean power, solid build and no worries about performance.

## FAST FACTS

**APPLICATIONS**  
Installation, live sound

**KEY FEATURES**  
Four-channel; gain controls; cooling fans

**PRICE**  
\$919

**CONTACT**  
QSC Audio | ☎ 714-754-6175  
↳ www.qscaudio.com

# BENCH TEST

## QSC PLX1804 Power Amplifier

### BENCH MEASUREMENT DATA

#### Maximum Power (1 kHz, 1% THD)

8 ohm loads 600 W, 27.8 dBW  
4 ohm loads 940 W, 29.7 dBW

#### Dynamic Output Power

8 ohm loads 756 W, 28.8 dBW  
4 ohm loads 1250 W, 31 dBW

#### Dynamic Headroom

8 ohm loads 1 dB  
4 ohm loads 1.2 dB

#### THD+N at near rated power (20 Hz - 20 kHz)

8 ohm loads < 0.03% @ 500 W  
4 ohm loads < 0.09% @ 700 W

#### THD+N at 10W output (20 Hz - 20 kHz)

8 ohm loads < 0.03%  
4 ohm loads < 0.04%

#### Damping Factor, 50 Hz re 8 ohm

186

#### Output Impedance at

50 Hz	43 milliohm
1 kHz	46 milliohm
5 kHz	87.7 milliohm
10 kHz	156.3 milliohm
20 kHz	296.6 milliohm

#### Frequency Response

8 ohm loads  
20 Hz - 20 kHz +0.00, -0.4 dB  
-3 db < 10 Hz, 138 kHz

#### Input sensitivity for 0 dBW/8 ohm

-23.6 dBu, 51 mV

#### Input sensitivity for rated output, 325W/8 ohm

1.5 dBu, 0.92 V

#### Voltage Gain, 8 ohm load

55.4X, 34.9 dB

#### Input Impedance

20 kilohm

#### A - Weighted noise

163 uV, -84.8 dBW

#### A - Wtd S/N re: rated power, 325W/8 ohm

110 dB

#### Channel Separation, 20 Hz - 20 kHz

Chan 1 > 2 > 78 dB  
Chan 2 > 1 > 61 dB

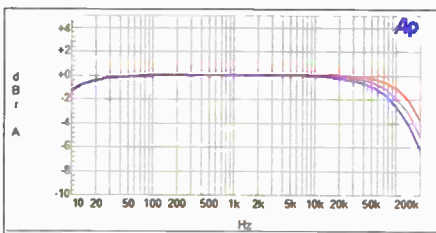
**Notes:** Unless otherwise noted or implied, all

measurements are made with 8 ohm loads from the balanced inputs with the volume set to maximum. Both channels driven for all distortion and power measurements. Measurements made on one channel are made on channel one.

### BENCH MEASUREMENT COMMENTARY

The QSC Audio PLX1804 is a medium powered unit in the current QSC PLX2 line. Utilizing a switch mode power supply, the output stage uses QSC's exclusive Class H topology resulting in higher efficiency over the full output power range.

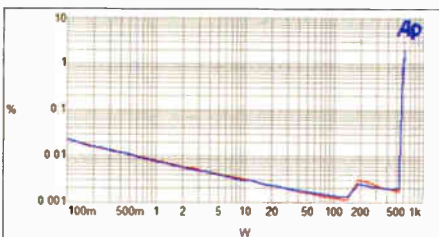
Frequency response as a function of open circuit, 8 ohm and 4 ohm loading is plotted in **Figure 1**. There is a little bit of low frequency rolloff and the high frequency response is a



**Figure 1** Frequency response at the 1W/8 ohm level as a function of output loading. Red = Open circuit, Magenta = 8 ohm, Blue = 4 ohm.

noticeable function of load. The overall high-frequency bandwidth is quite wide at about 150 kHz with an 8 ohm load.

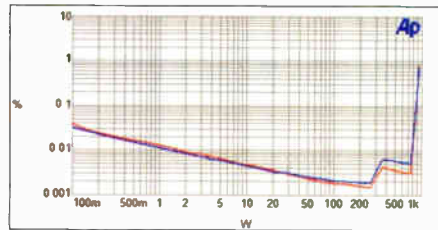
THD+N for a 1 kHz test signal and for 8 and 4 ohm loading in the stereo mode are shown in **Figures 2 and 3** respectively. THD+N as a function of frequency and power is shown in



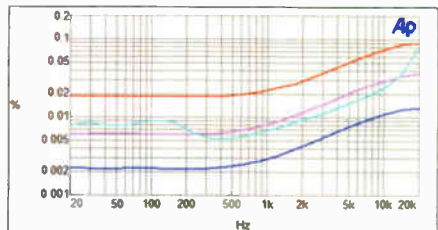
**Figure 2** THD+N of 1 kHz signal vs. power output for 8 ohm loading. Channel 1 = Red, Channel 2 = Blue.

**Figure 4** for 4 ohm loading and at power levels of 1W, 10W, 100W, and 700W. There is the typical rise in distortion at high frequencies that many amplifier designs exhibit.

A noise and distortion spectrum for a 1 kHz test signal at a 10W power level into 4 ohm

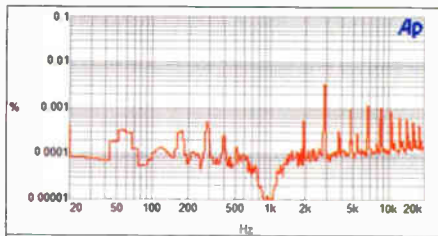


**Figure 3** THD+N of 1 kHz signal vs. power output for 4 ohm loading. Channel 1 = Red, Channel 2 = Blue.



**Figure 4** THD+N vs. frequency at different power levels for 4 ohm loading. Red = 1W, Magenta = 10W, Blue = 100W, Cyan = 700W.

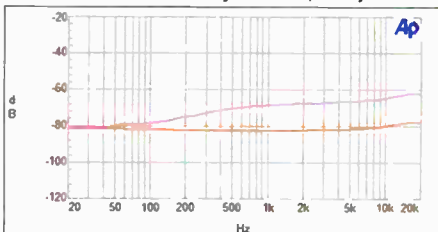
loads is plotted in **Figure 5**. AC line harmonics are low and signal harmonics are dominated by the third with the second harmonic being down



**Figure 5** THD+N spectrum of 1 kHz 10W/4-ohm signal

indicating good signal symmetry at this power level.

Channel separation is shown in **Figure 6**. Unusual is the relatively flat frequency charac-



**Figure 6** Channel separation. Red = Ch1 > Ch2, Magenta = Ch2 > Ch1.

teristic of the separation as opposed to the usual capacitive coupling rise with frequency behavior.

- Bascom King

by Mel Lambert

# Harman HiQnet Control Protocol

System integration offers significant advantages for many of us working in the production, broadcast, live sound and installation industries. By considering functionality at the overall system rather than component level, we are ensured that our selected control surfaces will offer an enhanced degree of connectivity with remote units and, in turn, offer attractive plug-and-play integration. But that goal requires some advanced thinking in terms of control protocols and connectivity architecture.

As will be readily appreciated, the Harman Pro Group has a vested interest in enabling system components bearing its component brands to communicate with one another. If a Studer production console can be used to interrogate and subsequently control a remote bank of Crown power amplifiers and connected JBL loudspeakers, for example, in addition to an AKG wireless microphone system, a dbx DriveRack loudspeaker management system or a BSS Audio Soundweb London audio distribution rack, then the end user is guaranteed a level of operability that cannot be matched by systems which do not offer a collective consciousness.

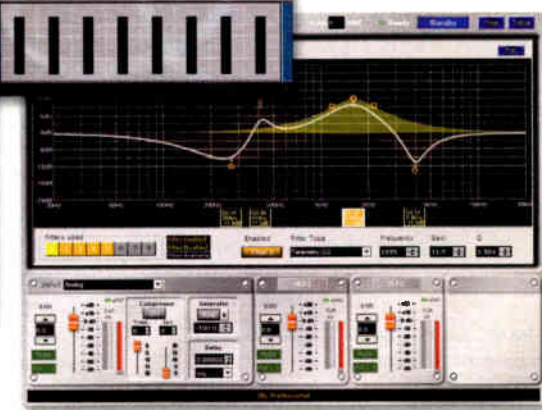
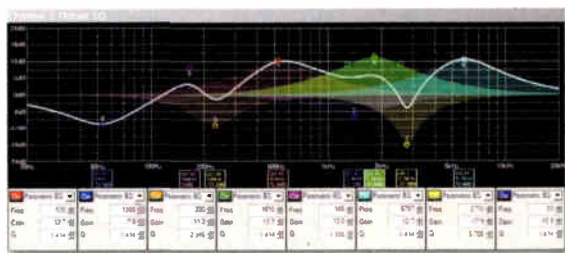
But more than an advanced audio networking protocol for system contractors, tour sound operators and consultants, the Harman HiQnet integrated network protocol is positioned as a single platform for full connectivity and control, enabling designers to configure versatile and intelligent topologies. As a result, its proponents claim, high-performance sound systems can be more sophisticated in their functionality, yet less complicated to configure, operate and maintain.

## CONNECT AND CONTROL

According to Rick Kreifeldt, VP of Harman's System Development and Integration Group (SDIG), a recently formed engineering department responsible for development of the proprietary HiQnet protocol, "With HiQnet we're enabling systems professionals to connect and control the individual components

of an entire system across multiple brands. A user can instruct all components of a system - loudspeaker controllers, power amplifiers, intelligent amplified loudspeaker, etc. - from a single interface such as a Studer Vista 8 Production Console's graphic display or remotely via an Ethernet connection and a laptop or desktop computer to make parameter changes, either switching between preset program values or inputting specific new parameter values. HiQnet's event logging capability simplifies system maintenance and repair scheduling, and can be viewed from either a PC or directly on a console GUI.

To date, Harman reports that over 22,000 HiQnet-compatible devices have been sold, worth in excess of \$24 million. Recent installations include Melbourne Cricket Grounds, Australia; The EDGE at the Aotea Centre, Auckland, New Zealand; The MaRS Discovery District, Toronto; Canada's Common Wealth Center, Lloydminster; Stade De Suisse Stadium, Berne,



more effectively and, in doing so, build better systems that provide their customers with additional value."

HiQnet will also be added to some of the existing HPG-brand products via firmware upgrades. In the future, all new digitally controlled Harman Pro products will be HiQnet-capable. The protocol accommodates several data transfer modalities over any major networking modality, individually or collectively, and has been optimized for multiple computer and multiple users, with specific modes of operation for both tablet and desktop PCs.

Many aspects of HiQnet's operation and functionality have been designed to simplify day-to-day operation. For example, it is possible to implement simple preset configura-

Switzerland; Hong Kong Stadium; Gibson Amphitheater at Universal CityWalk in Los Angeles; Toby Keith's Big Throwdown II Tour; and Greek Theater, Los Angeles.

Canada's Common Wealth Center incorporates two arenas and a number of environments connected via a HiQnet-based network using BSS, Crown and JBL Pro products. "The ability to page to any zone, as well as having both local and central control of the individual zone volumes, was paramount," says Wayne Rabidoux from Allstar Show Industries, the firm that designed and installed the sound system. The new installation includes 18 JBL AE Series loudspeakers throughout the facility, and 20 Control 25T

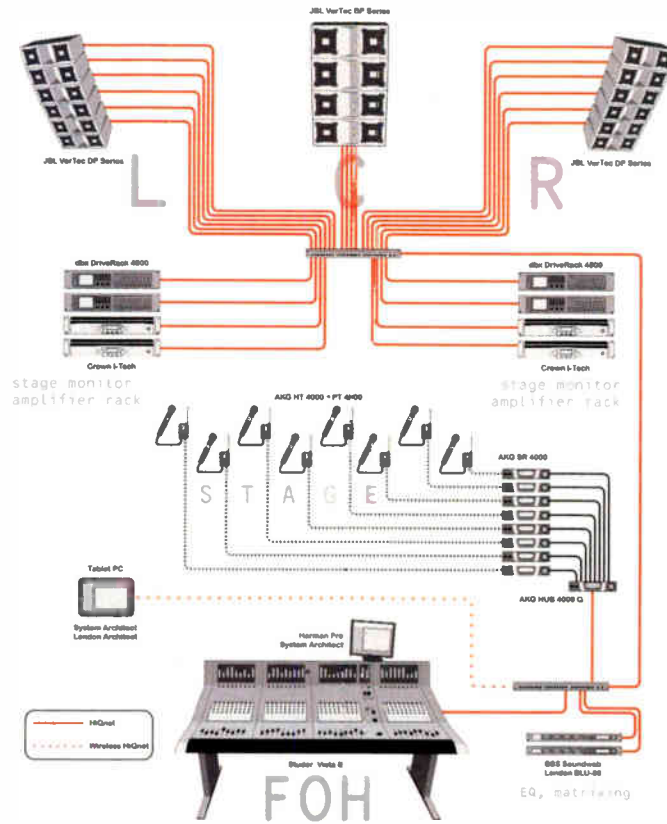
surface-mounted loudspeakers installed around the running track. All zones are powered by Crown CTs600, CTs1200 and CTs2000 amplifiers and controlled from four BSS Soundweb London units using HiQnet London Architect software. Equipment racks are interconnected with fiber optic cable.

## HIQNET SYSTEM ARCHITECT

To simplify HiQnet-based system design, Harman offers a number of software tools and applications. HiQnet System Architect enables a system to be configured and controlled from this comprehensive core PC application into which can be loaded device-specific plug-ins developed by each Harman Pro brand. The control software not only includes all the necessary editing of device and system parameters but also offers a user interface for routing networked audio. To assist with this function, HiQnet is also capable of wrapping around the transport medium employed by third-party networked audio protocols, such as CobraNet. HiQnet supports a variety of advanced transport layers, including Ethernet, USB, RS232 serial plus CobraNet and will carry up to 64 channels of streaming audio (at 96 kHz sample rates), with more than 65,000 HiQnet nodes within a single system; wireless 802.11b and 802.11g topologies are supported.

In addition, HiQnet's compliance with the Universal Plug and Play (UPnP) standard enables HiQnet devices automatically to negotiate HiQnet network addresses between themselves and assignment of device IP addresses when used on an Ethernet network.

"HiQnet System Architect is designed for both off-line and on-line use," Kreifeldt explains. "It enables system configuration of installation or tour sound systems prior to uploading settings. In addition it is also optimized for wireless tablet PC, enabling



the technician to walk the venue and address all system components. The built-in custom control panel designer enables the system designer to configure control pages specifically for the venue operators and can be designed for touchscreen PC use."

At the spring 2006 NSCA Show, Harman Pro Group unveiled several new products with HiQnet connectivity, including Crown CTs 4200 and CTs 8200 amplifier models with built-in HiQnet and CobraNet networking capabilities. NSCA also saw the launch of the Crown XTi, CDi and DSi Series amplifiers and the launch of the JBL Professional's 12-model, HiQnet-enabled VP Series.

HiQnet System Architect contains all of the tools necessary to connect together system components and implement an application-specific control topology from microphone to loudspeaker. The software is based upon a drag-and-drop interface to configure all devices and route

audio across the entire network. Customized control interfaces for multiple computers and touch screen control are possible, with built-in security and remote access. Control interfaces can be personalized without the need for a secondary application. Design can be implemented using a pre-installed library of controls and backgrounds or created by the user. Multiple connection methodologies, such as USB or Ethernet, can be used simultaneously to route networked audio.

Users can configure and control all devices in the system from multiple, password-protected computers running System Architect. New devices can be updated with System Architect via the application's constructed plug-in architecture that enables each brand to use its expertise in interface design for a specific device type. Soundcraft Vi6 and Studer Vista Series consoles can

**HARMAN** continues on page 54 ►

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by David Rittenhouse

# TOA SR-S Series Line Array

It seems that nice things now come in thin packages...

Line array is a term now that is talked about as much as the ever-increasing price of gas. So you may ask "Why is TOA, an installation-based company, even flirting around line array technology?" Well, in the original derivative of line arrays, column speakers, you are using a linear source from closely spaced drivers that in the early years were in almost every install box to be found. Now with modern improvements in processing and crossovers it would be a shame not to reharness this and market it to the install arena and hopefully improve boardrooms and lecture halls everywhere.

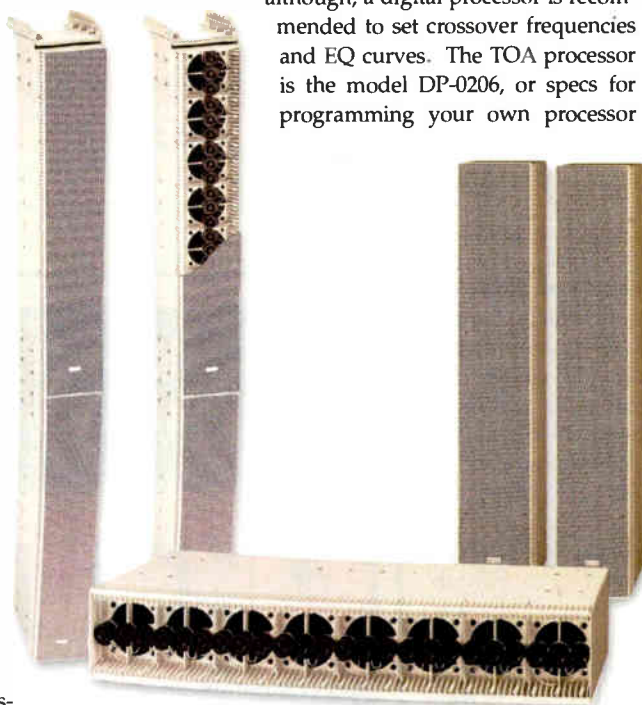
## FEATURES

The TOA SR-S Series, slim line series speakers are offered in two configurations: the SR-S4L (\$1,554), which is a straightforward linear design; and the SR-S4S (\$1,656), which is a slanted 10 degrees-vertical design. Both are full range or biamp, when using a processor. Coverage angles are stated at 90 degrees horizontal for both boxes. Frequency response is rated at 70 Hz to 20 kHz when in biamped operation. Power handling is rated at 600W continuous at 8 ohms and a sensitivity of 94 dB (1W, 1 meter).

Each cabinet is loaded with eight 4-inch woofers and 24 1-inch high frequency tweeters. These are lined up in a narrow column that is only 160 mm wide by 895 mm tall. It is this close spacing that allows the linear projection to achieve the true physics of a line array. This also allows uniform sound pressure that resists attenuation with distance. In turn, because output levels do not become higher in proximity to the cabinets this allows a more

consistent resistance toward feedback. Both configurations are wired with terminal and Neutrik Speakon connections.

In order to run the cabinets in biamp mode you do need to make an internal wiring change. This, however, is quite simple; although, a digital processor is recommended to set crossover frequencies and EQ curves. The TOA processor is the model DP-0206, or specs for programming your own processor



can be found in the owners manual. The SR-S Series options include weather-resistant models, multiple mounting hardware options including wall mount, and standmount and a 70V transformer. The cabinets only weigh 16 kg (35.2 pounds). TOA has backed this product with a five-year warranty.

## IN USE

TOA sent me one of each, L and S, to play with. This was already an interesting prospect, in many ways, due to the nature of the product. These are intended for permanent installation; yet I was going to have to return these to TOA. So I thought, let me beat these up

around our shop and through various conditions and environments. So, first things first, after unboxing the cabinet it was straight to the bench to run them full range with my standard Steely Dan tracks.

The speakers sounded wonderful even in single amp (full range mode). I was surprised with the natural vocal presence of the cabinet with out any EQ. Looking through the manual I found the recommended processor settings for both full range and biamp mode. Now, you do not need a DSP for full range operation but the recommended setting is a 5 dB boost at 16 kHz with a Q factor of 1.414 and a HPF (12 dB) at 60 Hz. With this input running through a dbx 4800, the SR-S4L sounded good. The biggest noticeable aspect was it seemed a bit "biting" in the 7 kHz - 8 kHz range. When I ran a standard Shure SM58 through it I was happy with the vocal projection and clarity that you do not find it a conventional cabinet, let alone a ceiling-mounted speaker that you see as a standard so much in the installation world.

In biamp mode with the correct processor settings I found smoothness and well-rounded projection as well as the standard 3 dB increase. Biamp mode was the best of all with less of a "bite" in the upper high end. Some minor EQ was required for me to make the cabinet a little friendlier to playback sources and the room /warehouse. Basically, I boosted 250 Hz and 500/630 Hz 3 dB to bring back some "beef" in the vocals in order to project at 80 feet. Due to the physics of line arrays, the feedback rejection and ability to tune the room was quite easy and efficient without any major "hacking" of the EQ that can ruin the vocal quality and produce the lovely tunnel effect that you hear from an

TOA continues on page 41 ►

## FAST FACTS

**APPLICATIONS**  
Installation

### KEY FEATURES

Two way; eight 4-inch woofers; 24 1-inch tweeters; line array configuration; biampable

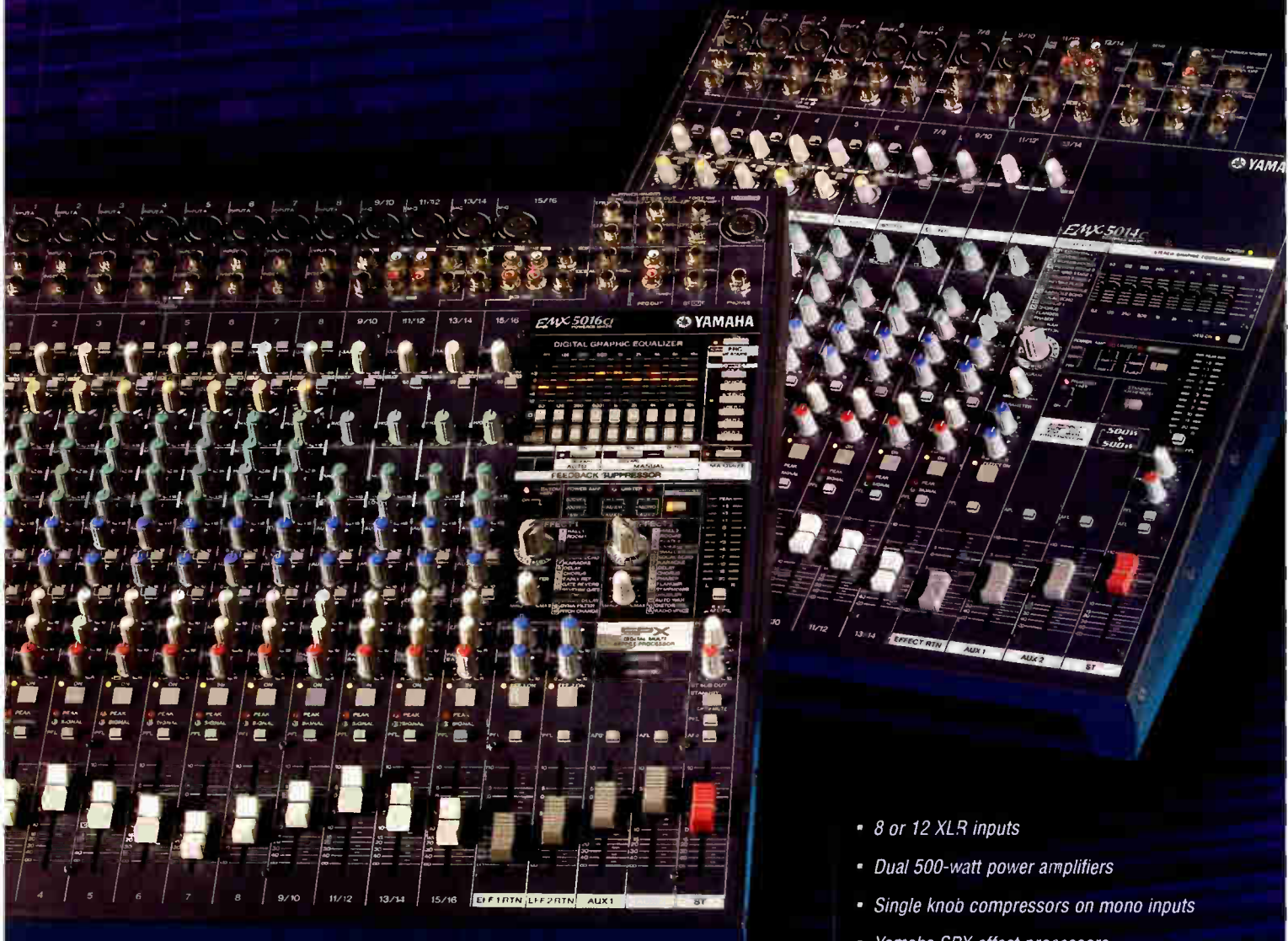
### PRICE

SR-S4L - \$1,554, SR-S4S - \$1,656

### CONTACT

TOA Electronics | ☎ 800-733-7088  
🌐 www.toaelectronics.com





- 8 or 12 XLR inputs
- Dual 500-watt power amplifiers
- Single knob compressors on mono inputs
- Yamaha SPX effect processors
- Super lightweight; rack-mountable

# LOUD & CLEAR

Although more convenient and user-friendly than separate components, powered mixers have rarely, if ever, been considered sonically superior. That was before the EMX5016CF and EMX5014C, Yamaha's newest—and most technically advanced—models.

Their unique and easy-to-use features, such as auto-EQ, feedback locator/suppressor, input/output compressors, YSP processing and quality SPX effects deliver clean, high-impact audio previously reserved for the pros.

A durable, lightweight chassis makes these mixers easy to carry and affordable pricing makes them easy to buy. So, to see just how loud and clear your system can sound, stop by your favorite Yamaha Live Sound dealer for a wallet-opening demo.



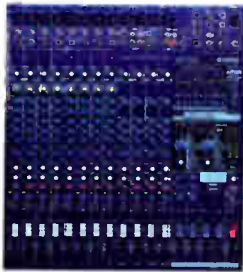
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# LIVE

The latest news and products

## NEW PRODUCTS

### YAMAHA EMX5016CF Powered Mixer



Yamaha's EMX5016C is a 16-channel rackmountable mixer with twin onboard 500W amplifiers. Features include dual master digital graphic EQs, three-band channel EQ, input compressor, multiband maximizer, dual effects engines and a feedback eliminator. effects include reverb, chorus, flanger and phaser.

**PRICE:** \$1,249

**CONTACT:** Yamaha | ☎ 714-522-9011 ↻ [www.yamaha.com/proaudio](http://www.yamaha.com/proaudio)

### SENNHEISER SK 5212 Bodypack Wireless Transmitter



You might have to squint to see Sennheiser's new bodypack wireless transmitter, the SK 5212. Designed for unobtrusive theater and broadcast applications, the SK 5212 operates within the 450 MHz – 960 MHz range and it has an onboard two-stage low-pass filter, backlit LCD screen, infrared synchronizing with Sennheiser's NET 1 Network System.

**PRICE:** \$3,600

**CONTACT:** Sennheiser USA | ☎ 860-434-9190 ↻ [www.sennheiserusa.com](http://www.sennheiserusa.com)

### NADY SYSTEMS VHM-7 Bushman Torpedo



Looking like a bumper bullet off a 1950s car, the VHM-7 Bushman Torpedo from Nady was designed to be a harmonica and vocal microphone. Nady developed the microphone with harmonica-maker Bushman Music Works. The VHM-7 has a cardioid pattern and a dynamic element and ships with a chrome mic clip.

**PRICE:** \$99

**CONTACT:** Nady Systems | ☎ 510-652-2411 ↻ [www.nady.com](http://www.nady.com)

### GEMINI SOUND CDT-05 Hybrid Turntable



The days of hauling around the turntable AND the CD player are numbered. Gemini Sound has married the two in the CDT-05 Hybrid Turntable. The CDT-05 is a LP record platter and a CD player all in the same box. The form factor matches that of a turntable. The turntable is a direct drive model with a high-torque motor for instance start. The CD player will play CDs, CD-Rs, CD-RWs and MP3 discs. CD features include cue points, pitch bend, variable pitch and RAM buffer. When a record is not on the platter it will operate as a scratch surface for the CD.

**PRICE:** \$1,180

**CONTACT:** Gemini Sound | ☎ 732-738-9003 ↻ [www.geminiidj.com](http://www.geminiidj.com)

Philadelphia-based Celtic fusion band Na'Bodach is using **Neutrik** XLR and speaker connectors on its club run.

Eighth Day Sound used **Dolby** Lake Processors in handling sound for the Bonnaroo Music and Arts Festival in Manchester,



Tenn. in June. See picture of Eighth Day Sound's Justin Zur with his processors.

The Dubai Aviation Club is not a theme restaurant tucked into a mall but an actual venue (and tennis club) in Dubai. Local contractor Sun Light and Sound used 20 **JBL** Vertec VT4888 cabinets and 18 VT4880 subwoofers for a recent Lionel Richie concert. Powering were **Crown** MA3600 and MA5002 amps with **dbx** DriveRack 480s and **BSS** FDS-366 processing systems. For the Festilac 2006 event in Geneva French contractor Digiteac used JBL Vertec, VRX and VP series speakers. Crown I-Tech amps provided the power with **Lexicon** and dbx and BSS Omnidrive processing. Vertecs were also on-site for San Diego's Summer Pops Series – contracted by Power Plus Sound & Light.

A bit to the north in Indio, Cal. the Coachella Valley Music and Arts Festival utilized **Turbosound** Aspect speakers, **Sennheiser** Evolution wired and wireless mics. Filling a big truck, Bauder Audio Systems of Horsham, Penn. took its new 48-box Turbosound Aspect system to the Cape May Jazz Festival and then to the graduation ceremonies at Temple University.

The Globe-News Center in Amarillo, Texas, home of the Amarillo Opera, Amarillo Symphony and the Lone Star Ballet is the recipient of a **Soundcraft** Series FIVE console.

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## Hear the Power of Technology

by Wayne Becker

# Yamaha EMX 5014c Powered Mixer

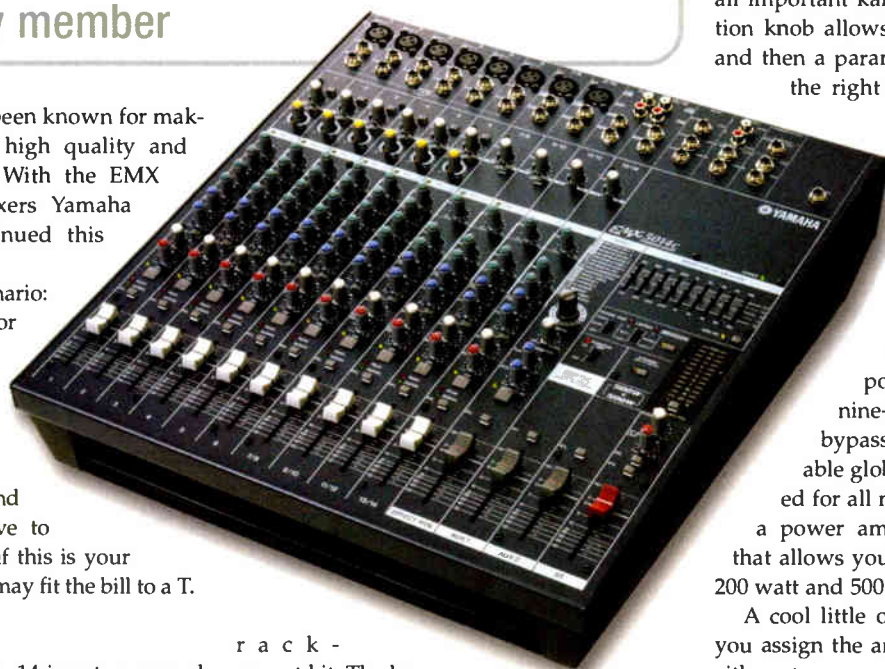
Easy-to-use, great sonics embody latest  
EMX family member

Yamaha has always been known for making products that are high quality and packed with features. With the EMX series of powered mixers Yamaha appears to have continued this tradition.

We all know the scenario: We have a small venue or event that requires a system to amplify a small band or group, but you want quality sound, easy setup, flexible routing and effects and the less pieces you have to schlep, the better. Well, if this is your short list, the EMX 5014 may fit the bill to a T.

## FEATURES

The EMX 5014 is a 14-input powered mixer with a two-channel power amp, and selectable power output of 500 watts, 200 watts or 75 watts per channel. This compact little brute weighs only 22 pounds. It is Yamaha gray/blue in color and can be rack-mounted using the separately sold RK5014



rack-mount kit. The layout of the mixer looks very clean and straightforward. At the top of desk are the connections for I/O: eight mic XLR inputs, six TRS line inputs, two stereo TRS or RCA inputs, a TRS +4 dBu external effects send, two TRS +4 dBu aux sends, a record out on a pair of RCA jacks, a stereo pair of TRS +4 dBu sub outputs, a stereo pair of TRS +4 dBu main outputs, a foot switch jack for muting the effect and a phones jack.

The channel strip section is just below with six mono inputs channels and four stereo channels. Each of the mono channels has a 26 dB pad switch, gain control, 80 Hz high-pass filter switch, a compressor control knob, a feedback channel indicating LED, and an EQ section with 10 kHz shelving, sweepable mid section from 250 Hz - 5 kHz with a  $\pm 15$  dB cut/boost and a 100 Hz low-band shelving filter. The strip has two aux sends and a pre/post-fader switch for sending to the Aux 2 bus. Aux 1 is prefader. An internal effects level send, a pan, a channel on button, a peak and signal present LED (red and green respectively), a PFL switch and the channel fader complete the strip.

The stereo channels have gain control, 80

Hz high-pass filter, a fixed filter for high, mid and low (the mid is fixed at 2.5 kHz), then aux, effects pan, channel on, peak and signal present LEDs, PFL and fader just like the other channels.

Next to the right is the internal effects channel strip. Here you can select one of 16 available Yamaha SPX quality effects programs ranging from halls, plates, rooms, chorus, flanger, auto wah distortion and the all important karaoke echo. A simple selection knob allows the selection of the effect and then a parameter knob lets you dial in the right amount of effect. You can

send the effects to Aux 1 and Aux 2 and, of course, an on/off switch to allow the engaging of the effect.

There is a master fader to control the effect return. In the last section, to the far right, you have a power LED followed by a nine-band graphic EQ with a bypass switch. There is a switchable global phantom power provided for all microphone inputs. There is a power amp selection output switch that allows you to select between 75 watt, 200 watt and 500 watt power output.

A cool little output selection matrix lets you assign the amp outputs to channels for either stereo operation (main fader) Aux 1 and mono (main and monitor) or Aux 1 and Aux 2 (two completely different outputs). There is a special Yamaha-developed circuit called the YS processor that contours the output for non-sub output usage. Engaging this switch activates the process, which enhances bass frequency content and the result varies depending on the speakers used. There is a Channels 1 - 6 standby switch that allows you to mute the mic input channels and lights up to let you know it's in use. An LED bargraph meter can be assigned to the stereo output or AFL/PFL. A phones control, subwoofer output PFL and AFL switches and the master stereo fader are also offered.

On the back end of the unit are the connections for the speakers. Both Speakon and 1/4-inch jacks are provided. The power cable is removable and the power button is located just inside of the AC cable jack.

The Feedback Channel Locating (FCL) system indicator LEDs at the top of each channel light if the corresponding channel goes into feedback is a pretty neat concept and nice for a novice. Like the single control compressor, there are many features and controls on this board geared toward the

## FAST FACTS

### APPLICATIONS

Live sound, contracting

### KEY FEATURES

14 input channels; nine-band master graphic EQ; Feedback Channel Locating; SPX effects; compressor; twin 500 watt amps

### PRICE

\$899

### CONTACT

Yamaha | ☎ 714-522-9011  
☞ [www.yamaha.com/proaudio](http://www.yamaha.com/proaudio)

novice user to help them get a good mix and maintain the quality and control of the sound. I also like that the unit features a range of inputs and outputs that allow it to be integrated into larger systems. Insert patch points on the mono input channels and aux and effect sends allow you to route the mixer's signals to external signal processing and/or monitor systems as required.

I have to say that I really liked the layout of this mixer. It is remarkably lightweight for having two 500 watt amps built in. I especially like the topside headphone jack and separate control. The unit is fairly quiet considering there are two fans, with the fans only ramping up as the amps heat up. In the idle state, the fans won't be the loudest thing in the room. The knobs and buttons aren't the sturdiest I have ever felt - not like some of Yamaha's other larger boards - but they certainly seem able to take years of tweaking and pressing. All the jack connectors seem top-notch and able to withstand repeated abuse.

I also like the built in handle to the case for transporting the unit. You can probably even figure out a way to wrap the cord around the handle so that you don't even need the box, but I'd get a soft cover case for it.

#### | IN USE

I used the unit to do a show for a small ensemble in a church sanctuary. The room was about 60 feet x 100 feet with typical dry-wall walls, hard floor tiles and acoustical ceiling tile - not the best-balanced room acoustically. The band was made up of two vocalists, an acoustic guitar, a keyboard and a wireless handheld microphone.

I connected the mixer to two, two-way 200 watt speakers on stands. I selected the 75 watt amp mode as that was sufficient enough to fill the room for the gathering. Setting up the system was very intuitive and we were ready to go in no time, although the effects channel took a little fiddling and figuring out. The compressors on the mic channels, although not a dexterous variety, proved to be very handy. I used the built-in effect. The room sound for the vocals was very nice. Most of the effects seemed to sound very nice and useful.

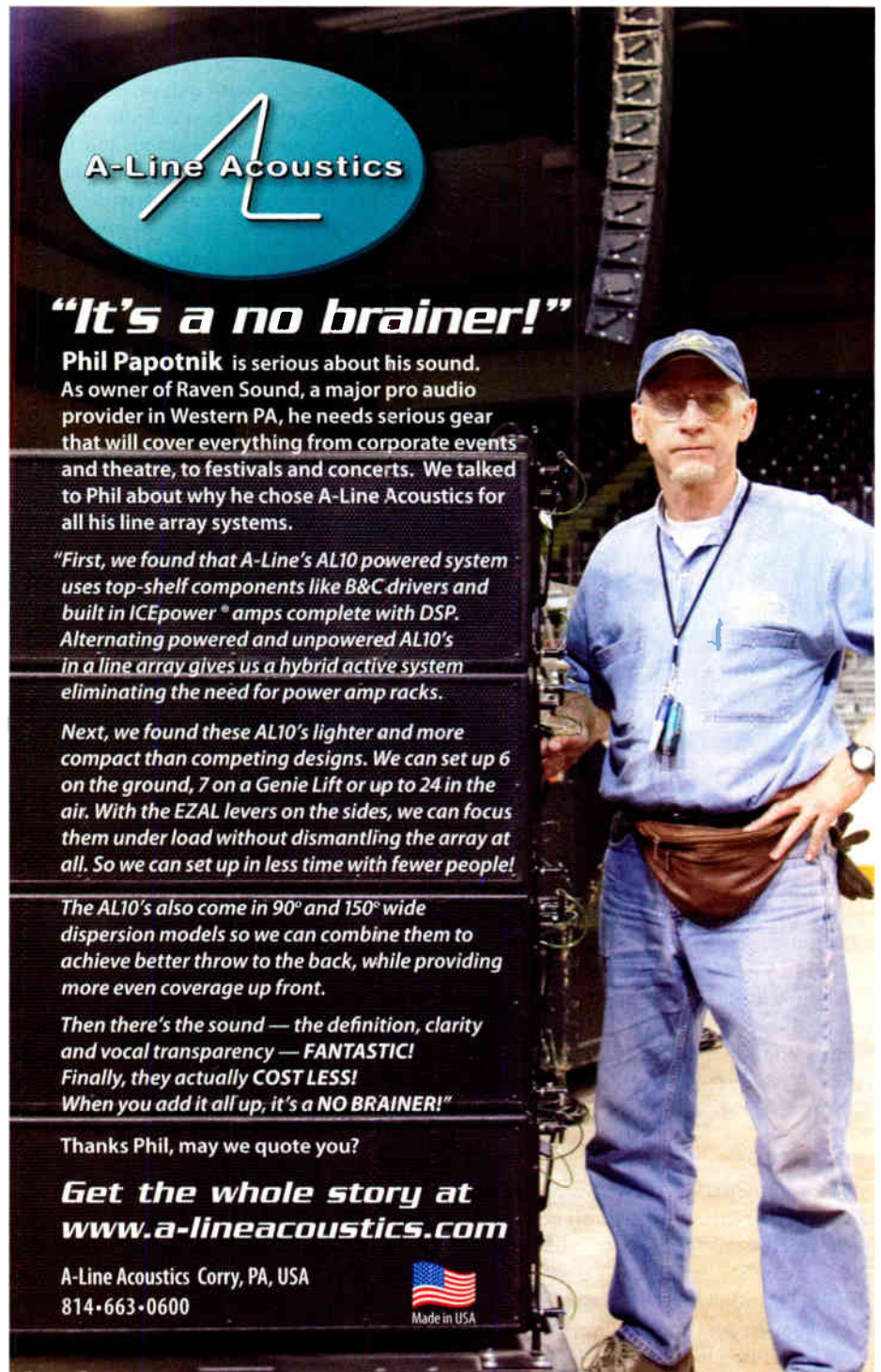
Although the venue was not large, the board did handle the requirements and allowed us to provide quality sound in a room with a less than desirable acoustic signature. Everything went smoothly and the event was a success. I also think that it's prudent to add that the manual provided was well written and easy to follow in a pinch. I always like seeing a signal flow chart, something that is not always available in other manuals.

#### | SUMMARY

I would recommend this powered mixer to anyone requiring quick, clean, reliable sound. The intuitiveness of the unit along with its flexibility allow the user to have quality sound for small bands or speaking engagements, without having to spend a whole lot of cash. The board is worth its price just for the price of the mixer and power amps - let alone the built in effects, compressors and output controls.

I would like to thank Tim Madeira for his help in this review.

*Wayne Becker is vice president of sales for Communication Systems, Inc. and has worked in the pro audio and systems integration business for 23 years. He also owns Westwires Digital USA, a music production and consulting company based in Allentown, Penn. He can be contacted at [wbecker@systemsbycsi.com](mailto:wbecker@systemsbycsi.com).*



**A-Line Acoustics**

**"It's a no brainer!"**

**Phil Papatnik** is serious about his sound. As owner of Raven Sound, a major pro audio provider in Western PA, he needs serious gear that will cover everything from corporate events and theatre, to festivals and concerts. We talked to Phil about why he chose A-Line Acoustics for all his line array systems.

*"First, we found that A-Line's AL10 powered system uses top-shelf components like B&C drivers and built in ICEpower™ amps complete with DSP. Alternating powered and unpowered AL10's in a line array gives us a hybrid active system eliminating the need for power amp racks.*

*Next, we found these AL10's lighter and more compact than competing designs. We can set up 6 on the ground, 7 on a Genie Lift or up to 24 in the air. With the EZAL levers on the sides, we can focus them under load without dismantling the array at all. So we can set up in less time with fewer people!*


*The AL10's also come in 90° and 150° wide dispersion models so we can combine them to achieve better throw to the back, while providing more even coverage up front.*

*Then there's the sound — the definition, clarity and vocal transparency — FANTASTIC! Finally, they actually COST LESS! When you add it all up, it's a NO BRAINER!"*

Thanks Phil, may we quote you?

**Get the whole story at [www.a-lineacoustics.com](http://www.a-lineacoustics.com)**

A-Line Acoustics Corry, PA, USA  
814-663-0600



by Scott Burgess

# Carvin RX1200 Powered Mixer

Cost-effective powered mixer.  
Still made in the USA.

Every beginning FOH engineer has visions of working that big stadium gig, sitting at a console that would make a commercial jet pilot jealous and cranking thousands of watts through a stack of speakers bigger than your house. Experience quickly

effects processors, with independent returns to the mains and the two monitor channels. A "music break" button mutes the first 11 channels, allowing announcements or background music to come through while the rest of the band gets reset. Stereo tape in and tape



shows, though, the more streamlined your rig, the longer your back and your wallet will last. The new generation of powered mixers is just the answer for smaller gigs, allowing the engineer to pack everything needed in the back seat of the sedan and leave the stacks at home.

The Carvin RX1200 is one of the latest entries in this field. A compact and versatile unit, it boasts some very useful features, plenty of power, and the well-known Carvin name. Already mounted in a sturdy Road Warrior case, this unit is ready for action.

## | FEATURES

The tightly-packed front panel includes 12 channels, each equipped with both phantom powered microphone and line inputs. The first six line inputs can be switched to mic inserts, allowing compressors and the like to be used post mic preamp, like on larger consoles. Two busses feed onboard 24-bit

out complete the connections.

There is no headphone output or solo function on this unit, which makes it a bit more difficult to diagnose problems with the individual inputs. This is not unusual for mixers of this size, however, and resourceful use of the peak indicators and other functions can certainly make up for it.

As for the powered part of the mixer, there are four separate channels, each sporting 300 watts RMS into four ohms. Two are assigned to the mains and one each to the two monitor busses. The back panel carries both Speakon and 1/4-inch connectors for each channel, as well as insert points for effects. All four output channels are also available as line level feeds on the front panel. There is also a mono line out, which can be used for powered subs, with or without the 120 Hz switchable low-pass filter.

Weighing in at about 30 pounds (50 with the road case), the unit is easy to transport as

well as being quick to set up. The case does not have any room for additional gear such as a wireless microphone receiver, but if you needed to move the mixer to a different box, the case could certainly handle other equipment.

For those who don't need the full array of features on the RX1200, it comes in two other flavors, the RX800 (an eight-channel version, which has a more spacious front panel) and the RX1200R, an unpowered version that ships without the road case.

## | IN USE

We hooked the RX1200 up to our Bag End TA-5000 speakers to serve as the PA system for the after-dinner dance at our annual black tie benefit – just the sort of small gig these units are made for. A jazz combo provided music and, of course, there were speeches. The room normally serves as our building's main lobby, is made of concrete and stone, which always makes clear reinforcement a challenge. Fortunately, the irregular shape and high ceilings work in our favor. There were just over 250 people in the room, which nearly filled it.

The speaking came through clearly and the graphic equalizer was up to the task of shaping the sound to the room. When the combo came on, we needed clear sound that wouldn't drown out the conversations. We decided to run just the horns and vocals through the mixer, leaving the rest acoustic. The RX1200 did its job, with plenty of headroom for getting the soloists heard above the rhythm section. In fact, the unit was so easy to operate, I headed off to finish some of the cleanup and let the musicians tweak things themselves.

CARVIN continues on page 59 ►

## FAST FACTS

### APPLICATIONS

Live sound, sound reinforcement, contracting

### KEY FEATURES

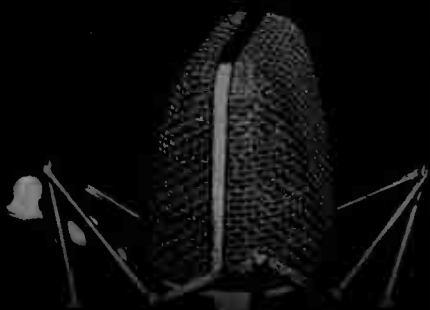
12-channel; four output channels; onboard 24-bit effects; four seven-band master graphic EQs; music break function; four 300W amps

### PRICE

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by Tom Young

# My Thoughts on In-Ear Monitors



**S**I recently had a second experience with in-ear monitor technology. Although I have been a sound engineer for almost 30 years, this technology is somewhat new to me and the artists for whom I have worked. However, knowing Marty Garcia since the late 1970s when he mixed monitors with shows in Atlantic City for Todd Rundgren and Stevie Wonder made an impression regarding the future of this technology. I have always been curious as to the potential long-term effects of this technology having witnessed the hearing loss of performers using conventional stage monitoring over the years.

I would be remiss if I didn't tell my first story regarding this technology. I was working for Frank Sinatra and his son Frank Jr. had a notion that outside of using teleprompters for lyrics, he could feed Frank the vocal through an in-ear monitor to keep him on the lyric. Impressions were made of Frank's ears and we rented the Mechanic Theater in Baltimore, MD, bringing in a full orchestra one day prior to a gig at Merriweather Post Pavilion. While renting the space, we tried the experiment. For anyone not knowing Frank's personality let's say each day was a new experience. I went into the dressing room with the ear monitors and he said, "What the hell is this?" Frank Jr. said, "We are trying to create less of a need for you to use the prompters." Frank said, "I am doing the best I can and if you need another singer I heard Vic Damone isn't working too much." That was the end of using in-ears for Sinatra.

### IN-EARS, IN ACTION

Fast forward to 2006. I had just completed a television/film project with Tony Bennett celebrating his 80th birthday, directed by Rob Marshall (Chicago/Memoirs of a Geisha), that required period mics from Tony's career and speakers not in the shot. Again in-ear monitors came up in production meetings as an option. Interestingly enough I not

only pursued in-ears as an option but got Tony agreeable to be fit with ear impressions. As it worked out the show was being shot in HDTV so the look of wearing in-ears became an issue and it was decided that we would stay with traditional monitors being placed outside the camera shot.

Later, I had the opportunity to see first hand the production of Tim McGraw and Faith Hill at Madison Square Garden in New York City. Tony Bennett was asked to sing a song with Tim McGraw that has been recorded as a duet on his upcoming album. Both of these acts use in-ears exclusively and I was a little surprised when walking into the arena to see all the consoles (Yamaha PM1D and DiGiCo D5) setup in the hallways and not in the main arena. However since they were all using in-ear monitors there was no need to hear the room and the engineers do not have to compete with the level of the PA so they become isolated like in a control room.

I have since had conversations with several engineers that mix in-ear monitors for national acts and was curious as to the level the artists use while performing. Like most acts using traditional stage monitors when on tour performing night after night the levels seem to increase with hearing fatigue. With in-ears the sound is so close to your ear drum that this same fatigue has the potential of long-term damage. Almost all engineers I talked to confirmed my suspicions that acts are monitoring at dangerous levels. One engineer said that when he listens to his RF pack at the same level as his act each night, his ears are ringing at the end of the night. There is no doubt that in-ears have helped singers preserve their voice night after night. But just like the past where acts used conventional stage monitors at extreme levels the end result is hearing loss. I wonder if the results with in-ears will be the same, maybe at an even faster alarming rate.

*Tom Young is the live sound engineer for Tony Bennett.*

## BUYERS SERIES:

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S-3 Peterson

S-5 Sonic Studio

S-7 Sony Media  
Software

## Digidesign Pro Tools|HD

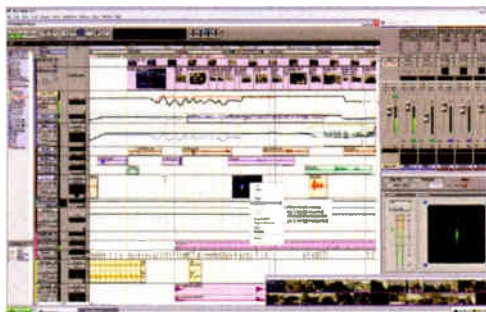
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Building on our strobe tuning expertise, Peterson Tuners is proud to present, StrobeSoft™. For over 60 years, Peterson tuners has been a staple in professional sound rigs and referenced in recording studios all over the world. The unparalleled accuracy of strobe tuners allows users to not only be 20 to 30 times more accurate than the best needle or LED tuner but also permits users to pinpoint the subtler shades of altered temperaments and tunings with razor-sharp accuracy. Owners of our hardware-based Virtual Series™ tuners will be right at home with StrobeSoft while new-comers to strobe tuning will be amazed at how easy it is to get better sounding instruments after just one use.

Using the power of your computer, StrobeSoft provides a software-based strobe tuner on Mac Universal and Windows XP/2000 platforms that provides 0.1 cent tuning resolution without having to add any special hardware to your system. Just plug in and tune guitar, bass, violin, cello, pedal/lap steel, banjo, Dobro®, and other instruments using one of our 27 built-in tuning instrument presets that include standard tunings or select from a list any one of more than 50 alternate tunings for various instruments. Brass and woodwind instruments can be chromatically tuned to precision as well with StrobeSoft. Your alternate tuning not a preset? No problem. Program presets on an unlimited basis and recall them later with a few clicks

StrobeSoft Suite also comes loaded with nearly 40 Sweetened™ tunings like our classic GTR® and BAS® settings for guitar, bass, violin (perfect fifths) and more. These “sweetened” presets can be applied to your standard tuning to further allow clarity and brightness when playing certain chords. Sweetened presets address problems inherent in the instrument without narrowing down your ability to play in a lot of keys. These presets will make the strings more consonant and eliminate the need to retune or tweak the tuning afterwards. Additionally, StrobeSoft offers full support for Buzz Fieten® equipped instruments by providing presets for open string and intonation settings built-in.

Just like our hardware tuners, StrobeSoft offers

manual note select, automatic note detection, and selectable transpose and drop settings. A wide adjustable Concert A (340 Hz – 540 Hz) range to allow tuning to recordings that have different reference frequencies or tune to instruments that do not use the typical 440 Hz reference is available. There are also 12 selectable temperaments that cover standard equal temperament, meantone, and well-tempered scales built-in to suit a particular instrument or to attain different tonal colors. Selectable sample rate up to 96kHz, spectrum analyzer, and oscilloscope are standard features.

StrobeSoft requires a computer running Windows XP/2000 or Mac Universal with at least 30MB of space for full installation. No special sound card is required to achieve optimum tuning results. With an MSRP of \$149.99USD, the only reason to sound out of tune now is because you want to!

### Peterson History:

In 1948, 10 years after the invention of the Strobe Tuner, the Chicago-based Peterson Electro-Musical Products commenced building instrument tuners. Led by Dick Peterson, a pioneer of solid-state electronics, its first product was the Model 150 in 1952.

With rock musicians’ increasing fascination with all things technical, and the accompanying strive for excellence and perfection in the music community; the Strobe Tuner began to be a common sight on stage and in the recording studio.

Many will recall first seeing the mysterious flickering dials behind such luminaries as the Grateful Dead, The Who, Pink Floyd, Frank Zappa, Jimi Hendrix, Neil Young, et al. It also took its place as a must-have in the road cases of professional touring crews, which still remains today.

Nearly 50 years later, in 2001, combining the time-proven advantages of the stroboscopic display with battery-powered portability in a hand-held format, Peterson introduced its Virtual Strobe™ Series of tuners. The Virtual Series of tuners can boast of a 65 year-old legacy, as the Strobe Tuner continues to dominate as the professional choice of musicians, technicians, manufacturers & educators worldwide.

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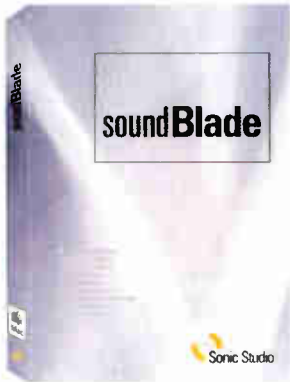
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## Celebrated Workflow, Unquestioned Fidelity



Sonic Studio, a name synonymous with mastering and restoration, pioneered high fidelity digital audio on the desktop as far back as 1980. Seminal audio technologies and workflow methods created or first commercially debuted on Sonic digital audio workstations include:

- Waveform displays
- Four point editing model
- Multitasking DSP
- Integrated 9-pin machine control
- SDIF-2 interface
- Integrated CD prep
- 24-bit AES/EBU I/O and storage
- Integrated DDP delivery
- 96 kHz and 192 kHz single & dual wire AES/EBU I/O
- Double precision internal processing
- DVD-Audio & DSD production

Over the years, Sonic workstations have been adopted worldwide by film and recording studios, major labels and high end mastering houses. As a testament to their landmark design, many of our original DAWs are still in service. To this day, two of every three commercially released CD titles are mastered on "Sonic," and we continue to build on that experience with the next generation of software tools. Each has features that add real value while sonically preserving the performance.

### PreMaster CD

As a follow-on to Sonic Studio's DDP production application, a first for Mac OS, we decided to create a low cost, high reliability premastering app that would revolve around replication and CD delivery—PreMaster CD was born. Combining streamlined editing with our industry standard PQ marking engine, PreMaster CD redefines DIY pre-mastering for Mac audio aficionados everywhere.

### soundBlade

Our newest application, soundBlade, leverages a decade and a half of studio know-how with the power and simplicity of Core Audio to produce a versatile mastering DAW. Whether you choose your own hardware interface or our purpose-built Series

300 for hardware DSP and lowest latency, you have a streamlined product designed for classical engineers whose editorial chops run deep. Of course, all of our premastering goodness is in there too, with AU and VST support so your beloved plug-ins stay in the mix.

### nexStage

The nexStage line provides a bridge between PCM and DSD, two worlds of high fidelity with often a wall in between. nexStage breaks down that wall, with SACD authoring, premastering and transcoding from PCM to DSD and back. Any sample rate, either data type: it's your choice. We even have an AudioSuite plug-in that lets you move your mix directly into SACD-ready DSD, right from Pro Tools.

### NoNOISE

In addition to our production and post lines, Sonic Studio also owns restoration. Our NoNOISE repair and enhancement toolset, along with our precise editing model, means more film sound tracks

have been restored with our tools than any other platform. Now, with the migration of film and TV archives to DVD, HD DVD and BD, NoNOISE continues its key role in the digital distribution of motion picture properties.

Sonic Studio continues to lead the industry in fidelity, value and ease of use. Our product lines address the needs of the world's most discriminating audio professionals, delivering powerful PCM

and DSD origination, editing and post processing, plus in-depth premastering for CD, SACD and emerging high density distribution formats.

Workflow, fidelity, value - the basis for everything we do. The Sonic Studio range remains the standard bearer for professional audio production. That's why top engineers and record labels continue to trust the transparency.



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**nexStage**

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# Celebrated workflow, Unquestioned fidelity

## soundBlade



soundBlade: a host-based, stereo mastering application that enables you to define the most efficient, sonically superior way of working without digging for menu commands or resorting to other tools. It combines ease of use and exceptional value with features that speed day to day tasks.

soundBlade, running natively on the stable and secure Mac OS X, relies on Core Audio for default I/O so hardware lock-in is eliminated. For in-depth signal manipulation, soundBlade offers shell-less AU and VST plug-in support, and either type can be used in any order in the signal path. The application also combines Sonic Studio's famed EFM™ and four point editing capabilities with our SSE™ real time audio engine for the finest native fidelity money can buy. For still better sonic quality, coupled with hardware accelerated DSP processing, soundBlade integrates with our optional, Series 300™ DSP I/O Processors.

Combining our benchmark premastering experience with the processing, restoration and editing that discriminating mastering engineers have been asking for, soundBlade is the right addition to complete your studio's audio arsenal.



Call your local Sonic Studio representative to arrange for a working trial in your studio or drop by [www.sonicstudio.com/PAR](http://www.sonicstudio.com/PAR) for a demo download and more information.

## Sony Builds a Better DAW with ACID Pro 6



In the world of music creation software, few would disagree that ACID is a true original in every sense of the word. You might go even further and suggest that ACID actually changed music, and be absolutely correct in some respects, especially with regard to workflow speed and the amazing outreach that ACID has achieved over the years in its many assorted flavors. Jaw-dropping when it was unveiled nearly a decade ago, ACID continues to inspire and with the release of ACID Pro 6 we are treated to an ACID platform that delivers an integrated DAW experience.

Of course, the addition of enhanced options always raises the specter of increased complexity. The sheer simplicity of ACID is and always has been one of its primary virtues, and Sony clearly sustained this advantage in its development of ACID Pro 6. The result is a DAW environment that offers easy multitrack recording, advanced audio editing, a tight MIDI implementation, and (of course!) the supremely delightful spell of its original real-time loop crunching magic.

Multitrack audio recording software abounds. Sony's ACID Pro 6 multitrack implementation does what you'd expect of any good DAW, but the big news is that now you can enjoy the freedom of having your multitrack engine purring away fully articulated with the code that made ACID famous in the first place. When you dial Sony Sound Forge into the equation, it sums to a DAW experience that just might give purist loopers the urge to arm some audio tracks and get busy, while legacy linear folks succumb to the temptation of throwing up a gaggle of freshly roasted loops "just to see what happens" — ACID has something for everyone.

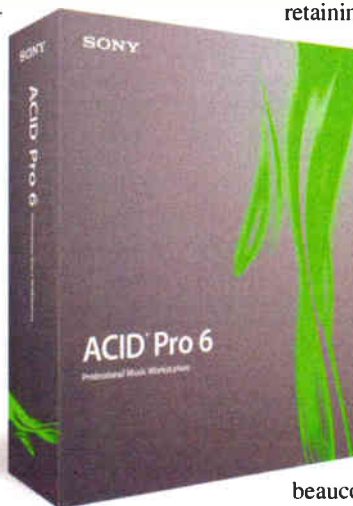
### New Functions

The new MIDI functionality built into ACID Pro 6 allows you to do your thing on attractive piano rolls and drum grids that you can edit right alongside all your audio tracks and loops. Snappy envelopes and drawing tools, the ability to freely sling your sequences around on the timeline, a host of global operations, and comprehensive VSTi parameter support are all available at all times along with everything else. Get started with the included special edition of Native Instruments KOMPACT sampler and its custom two-gigabyte sound set, and/or drop your own one-shots directly onto the NI engine to create and save your own instruments for sequencing in ACID.

In ACID Pro 6, full DAW functionality has been folded into the rock-solid ACID software paradigm with the goal of making it all happen while still retaining the lightning quick, mind-into-matter workflow that ACID users swear by. New features like multiple media events per track and the ability to copy and paste whole vertical sections of complicated arrangements are typical of what you'll discover as you begin digging into all the new bells and whistles.

As usual, the new version comes standard with fresh sounds to get you started (in addition to the hefty KOMPACT library). Sony also maintains its legacy of loyalty to registered customers by supplying beaucoup buckets of free downloadable content (now featuring exclusive KOMPACT instruments), easy registration, and some of the best tech support in the business. This is the frosting on the cake that makes buying and using ACID Pro 6 one of the most compelling choices for all musicians and producers who work in the DAW milieu.

With the release of ACID Pro 6, a seamless DAW experience with the original ACID pedigree is now available to producers of every stripe and forte. With a blend of audio tracks, MIDI sequences, and time-warped loops, interacting on a single platform and visible on a single screen, veteran ACID aficionados have a real reason to celebrate, and all newcomers to this venerable, revolutionary, and freshly reinvented platform are in for a real treat.



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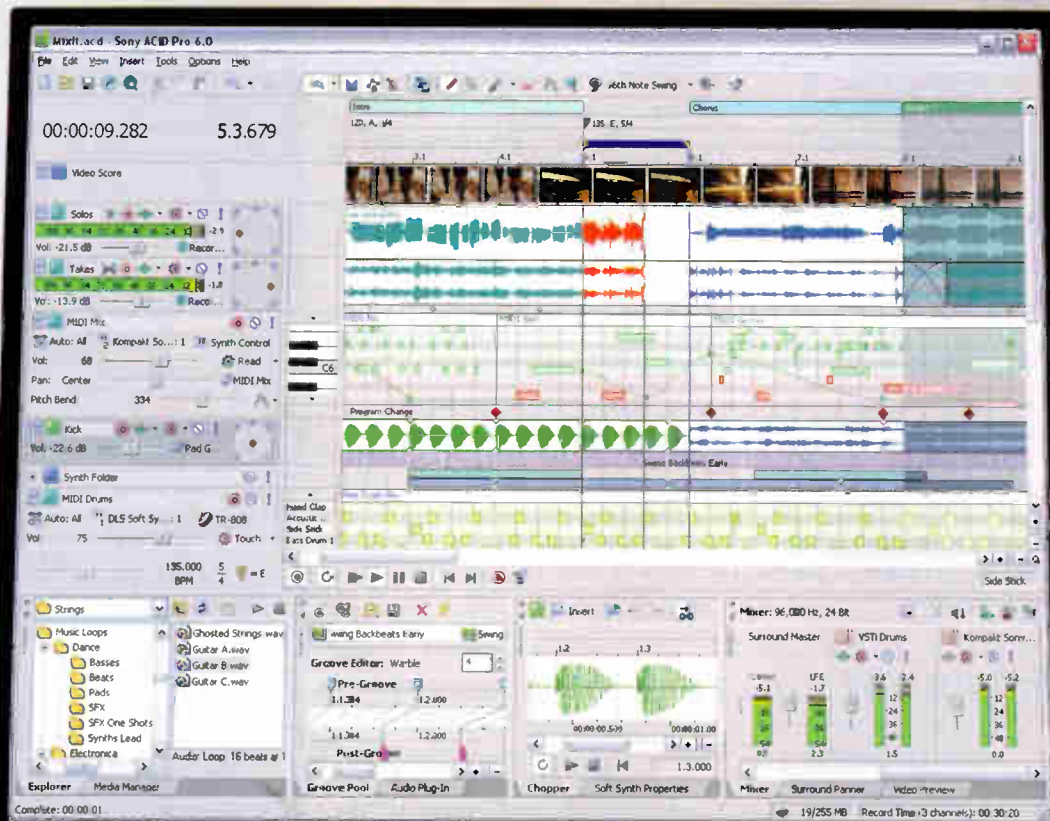
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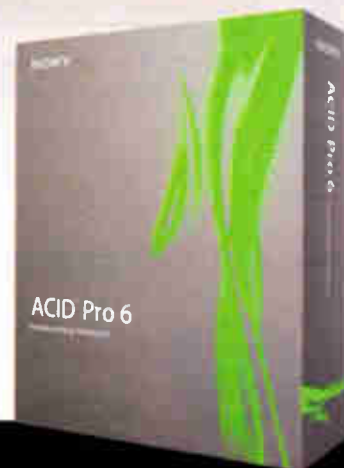
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# INTRODUCING ACID PRO 6



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## **SMK4061** Stereo Microphone Kit

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**DPA**   
MICROPHONES

by John Gatski

# Mytek Stereo 96 DAC Digital Audio Converter

Mytek has a winner in its first shot at the budget converter market.

Mytek digital products have been trickling into to the high-end recording market for more than 10 years. Although not as highly visible in terms of marketing as, say, Prism Sound or Apogee Electronics, the products have a dedicated client base.

BENCH TEST | Page 38

## FEATURES

Priced at \$995 retail, the Mytek is a 1/3-rack space, two-channel DAC that operates up to 96 kHz, 24-bit word length. The



The Stereo 96 DAC reviewed here is one of Mytek's recent series of products brought in at under \$1,000 and offering good performance, a compact size and just the right amount of features.

## FAST FACTS

### APPLICATIONS

Studio, post production

### KEY FEATURES

Two-track; 24-bit 96 kHz playback, AES/EBU, two S/PDIF and TOSlink inputs; SuperLock jitter reduction circuitry

### PRICE

\$995

### CONTACT

Mytek Digital | ☎ 646-613-1822  
 ☞ www.mytekdigital.com.

ruggedly built unit front panel sports logically laid-out front panel controls, including volume control, input selector, SuperLock sync control, (a reclocking circuit that upsamples to 192 kHz), headphone jack and on/off switch. Separate LED indicators show input selection (TOSlink, AES, S/PDIF 1 or 2), SuperLock circuit engagement, whether emphasis his present and a modest LED, four-segment level meter.

The back panel includes the four digital inputs and balanced out puts, as well; as IEC power cord input. The Mytek is ruggedly built and exudes a high-end European feel. Inside, Mytek uses a complement of very good parts selection including AKM converter chips, high quality transformer, and electrolytics. A 220V/120V switch allows for U.S. overseas operation.

I must commend Mytek's flawless board layout quality. There is no cheap, mass production here. Everything is soldered clean as a whistle and perfectly lined up, I could not find a bent connection anywhere on the board and all the wires were neatly wrapped and shortened to proper length. The Polish factory that assembles these products does excellent work.

## IN USE

I connected the output of several sources to the Stereo 96 including a TASCAM HD-P2, Lynx L22 sound card from an Apple G5, and the output of several DVD-Audio players. I made a number of acoustic guitar recordings at 96 kHz sampling using a Benchmark ADC-1 with a TASCAM DVRA-1000, the internal converters of a TASCAM DVRA-1000, the internal converters of a portable Flash-card based TASCAM HD-P2 and the A/D on the Lynx L22 sound card.

For separate comparison, I used my Benchmark DAC-1 as well as the player DACs, including the reference TASCAM DV-50 DVD-A SACD player with its upsampling DAC. The components were all connected to my reference listening system: a Legacy/Coda high-current balanced preamp, Pass X-350.5 amp and Legacy Focus speakers.

In listening to guitar, the Stereo 96's audio revealed excellent presentation in sound stage, timbre and detail without the hardness of cheap converters I have auditioned (they usually skimp on the analog section and power supply).

Via the balanced outputs, I found the Stereo 96 to be slightly less present and open when

## PRODUCTPOINTS



- Reasonable price
- Relays high res audio satisfactorily
- Well-built
- Lots of connections



- Runs hot

## SCORE

*A full-featured high quality 96 kHz DAC that can be used as companions for new generation digital recorders with digital output.*

directly compared to the Benchmark DAC-1 converter. The headphone amp sounded a bit harder as well. These impressions were slight and only when doing direct comparisons at matched levels. On its own, the Mytek is a very good sounding converter, and, unlike the Benchmark, it has an off/on switch.

The Stereo 96 made a great companion for the TASCAM HD-P2 portable as a step-up monitoring DAC (although it sells for more than the entire TASCAM unit), in remote locations. Other uses include digital monitoring through digital outputs of computer

MYTEK continues on page 55 ►



01:18:21:19



Soundfirm - Mix B

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# BENCH TEST

## Mytek Stereo 96 DAC Digital Audio Converter

### BENCH MEASUREMENT DATA

#### [DIGITAL/ANALOG I/O]

#### HEADPHONE OUTPUT LEVEL

At 0 dBFS digital input level

High impedance loading 3.1V, 12 dBu

Both channels loaded with 50 ohm  
115 mW, 2.4V, 9.89 dBu

#### OUTPUT IMPEDANCE

Line outputs 150 ohm

#### TOTAL HARMONIC DISTORTION

22 kHz measurement filter

44.1 kHz, 96 kHz Fs

< 0.003%, 20 Hz – 20 kHz

80 kHz measurement filter

44.1 kHz, 96 kHz Fs

< 0.005%, 20 Hz – 38 kHz

#### LINEARITY ERROR

44.1 kHz, 96 kHz Fs

+ 1.0/-0 dB 0 to -115 dBFS

< +10.0 dB @ -130 dBFS

#### SIGNAL TO NOISE RATIO

44.1 kHz, 96 kHz Fs

Wideband 71.5 dB

A-weighted 108 dB

#### DYNAMIC RANGE

44.1 kHz, 96 kHz Fs

110 dB

#### QUANTIZATION NOISE

44.1 kHz, 96 kHz Fs

-98 dBFS

#### CHANNEL SEPARATION

44.1 kHz, 96 kHz Fs

Ch1 > Ch2, Ch2 > Ch 1

95 dB 20 Hz – 5.0 kHz

> 55 dB @ 20 kHz

#### JITTER REJECTION

44.1 kHz, 96 kHz Fs

1 UI 500 Hz sine jitter,

0 dBFS 1 kHz signal, THD+N

SuperLock off -70 dBFS

SuperLock on -95 dBFS

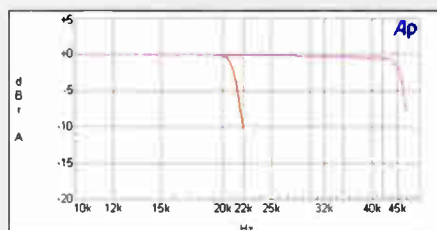
**Note:** Measurements were made at 44.1 kHz and 96 kHz and with bit depth of 24 bits. Outputs were balanced and digital input was via AES/EBU XLR connection.

### BENCH MEASUREMENT COMMENTARY

The Mytek Digital Stereo 96 DAC is a small compact D/A converter operating with sample rates and bit densities up to 24-bit/96 kHz.

It has a "SuperLock" feature that is said to eliminate the effect of interface jitter.

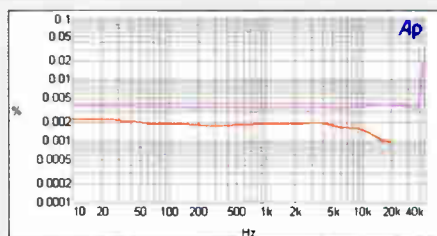
Frequency response for the sampling frequencies of 44.1 kHz and 96 kHz is shown plotted in **Figure 1**. With frequencies extended down to 10 Hz, there was no rolloff at the low



**Fig. 1** Frequency response at 44.1 kHz, 48 kHz, & 96 kHz Fs. Red = 44.1 kHz, Magenta = 96 kHz.

frequency end. With a 600 ohm load, the output dropped 2 dB over the frequency band.

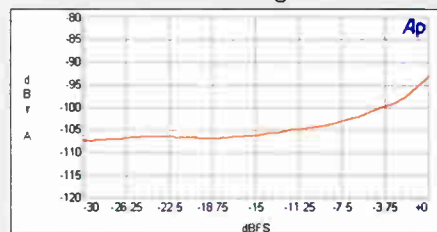
Total harmonic distortion plus noise in a 22 kHz measuring bandwidth as a function of signal frequency and sampling frequency was virtually identical for all sampling frequencies. A plot of distortion vs. frequency at a sampling frequency of 44.1 kHz in a 22 kHz BW is shown in **Figure 2**. Also shown in the figure is



**Fig. 2** THD+N vs. frequency and sample rate. Red = 44.1 kHz, Magenta = 96 kHz.

a plot of distortion vs. frequency with the measurement bandwidth opened up to 80 kHz with the 96 kHz sampling frequency.

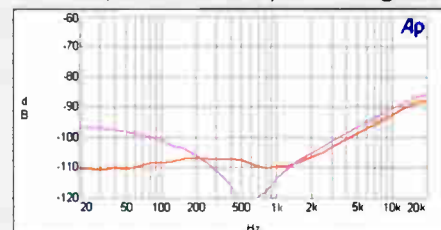
THD+N of a 1 kHz test signal as a function



**Fig. 3** Typical Total harmonic distortion plus noise as a function of signal level at 96 kHz Fs.

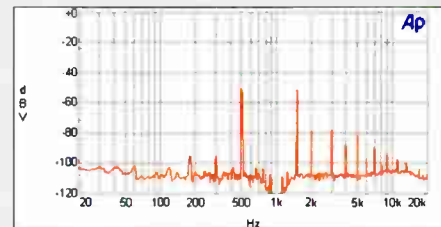
of level down from 0 dBFS full scale is shown plotted in **Figure 3**. Results are essentially the same for all three sampling frequencies.

Channel separation was essentially independent of sampling frequency but not direction. A plot of separation for the two testing directions, L > R & R > L is plotted in **Figure 4**.



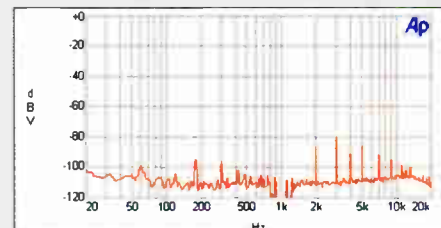
**Fig. 4** Channel separation vs. frequency. Red = L > R, Magenta = R > L directions.

Several new measurements of the effects of jitter were made. The first was to inject a 500 Hz sine wave jitter at 1 UI (Unit interval) and to see the effect of this in the distortion of the output when passing signal. **Figure 5** shows the resulting distortion effects in a



**Fig. 5** Spectrum of full scale 1 kHz signal with 1 UI of 500 Hz sine wave jitter added to data stream, with SuperLock off.

spectrum of a full scale 1 kHz signal. The 500 Hz and 1.5 kHz tones are caused by the added jitter. This plot was taken with the SuperLock feature turned off. With it turned on, the effect of the added jitter is removed as shown in **Figure 6**. Most impressive! Note



**Fig. 6** Spectrum of full scale 1 kHz signal with 1 UI of 500 Hz sine wave jitter added to data stream, with SuperLock on.

also, the signal harmonics are reduced a little with the SuperLock engaged.

- Bascom H. King

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\*VSX 26 model MSRP

by Russ Long

# AEA R92 Ribbon Microphone

Smoother, extended response from the latest Wes Dooley ribbon design.

Anyone who has heard of AEA knows that they have long been a leader in the world of ribbon mics. I bought one of my first ribbons (a Coles 4038) from them back in '95 and have since watched them develop into one of the world's top premium microphone manufacturers. The relatively new R92



expands the sonic possibilities of ribbon mics. Compared to its older brother the R84, it has a further extended high end response, less proximity bass boost and excellent wind blast protection.

## | FEATURES

The R92 "Big Ribbon" Microphone is designed for close-miking amplifiers, instruments and vocals. It is optimized for distances of 6 - 12 inches from the sound source and has an extended high frequency response and reduced bass proximity effect compared to other ribbon mics.

The mic is a pressure-gradient bidirectional (figure 8) ribbon microphone. The 1.8 micron thick aluminum ribbon is 4.7 mm wide and 59.7 mm long. The mic's sensitivity

is greater than -55 dBV/Pa and it can handle SPL peaks greater than 135 dB. The mic's frequency response is 20 Hz - 18 kHz ( $\pm 3$ dB) and it has an output impedance of 270 ohms.

The nature of the R92's design causes the microphone's front and rear pickup lobes to be slightly different sonically. The front lobe is the "crisp" side. It offers clean and realistic high end detail. The rear lobe is the "smooth" side. It has more of the classic ribbon high end rolloff that handles harsh transients in a distinguished and pleasing way. The R92 has a solid bass reproduction and it extends to the lowest audible bass frequencies. The mic's design includes an elastic shockmount, which provides excellent isolation, flexibility of mic positioning. The mic I reviewed had a polished anodized finish that has since been replaced by an anodized gray and black matte-finished aluminum. I just got my hands on an R92 with the new finish and it looks truly stellar. You'll never want to put it away. The mic ships with a two-meter cable that terminates into a male XLR connector and a foam-lined durable plastic carrying case. The mic has a one year parts and labor limited warranty.

## | IN USE

My first opportunity to use the R92 was while tracking a Tracy Silverman album at Nashville's Ocean Way studio. I put the mic to work on Flecktone Jeff Coffin who played sax on the project. The mic immediately sounded wonderful and except for some slight compression, required no processing. I used it to record baritone, alto and tenor saxophones and in each instance had good results. The mic has a smooth treble and solid bass response and it accurately reproduces the transients.

I always enjoy using ribbon mics to capture drum ambience and the R92 is no exception. It does a wonderful job in this situation. In addition to my normal room mic placement (about 10 - 12 feet from the kit) I experimented with

placing the mic closer to the kit (about 4 feet away) but positioning it where instead of pointing toward the kit, having the kit in the mic's null plane. This along with a few decibels of Distressor Nuke created a wonderful sounding ambient space. I also had good results using the mic to record various percussion instruments including shakers and tambourines. I love having the sonic differences between the front and rear lobes. It is almost like having two different microphones in one. I preferred the sound of the front lobe on the shaker but the rear lobe on the tambourine.

Probably more than any other ribbon mic that I've experienced, the R92 shines on vocals. The mic is clear and warm and while I found that I always needed to add a bit of top end, the mic takes EQ better than most dynamic or condenser mics. By this I mean that there aren't any of the phase artifacts that I often encounter when applying radical equalization to some mics. Even though the mic has a good built-in pop filter I found that when recording vocals I still needed an additional pop filter. When recording vocals, acoustic guitar or any other potentially low volume sound source the R92 (like every other non-active ribbon mic) has a relatively low output. To be used effectively, I found that it needs to be matched with a high impedance, low noise mic preamp that has at least 60 dB of somewhat clean gain.

Ribbon mics shine on electric guitars and the R92 is no exception. While the mic can't take as much gain as a Royer Labs ribbon it still leaps and bounds beyond the old Coles 4038. The mic doesn't have as much beef as the Royer either (which is probably a result of not being able to place it as close to the speaker cabinet) but it has a wonderful warm sound that works well with virtually any electric guitar tone.

## FAST FACTS

### APPLICATIONS

Studio, broadcast, post production

### KEY FEATURES

Figure 8 pattern; ribbon element; internal pop filter; swivel shockmount

### PRICE

\$900

### CONTACT

Audio Engineering Associates |

☎ 626-798-9128

🌐 [www.ribbonmics.com](http://www.ribbonmics.com)



## | SUMMARY

The AEA R92 is a wonderful microphone. I've been a huge fan of ribbon mics for well over a decade but if anyone ever told me that a ribbon could capture high frequencies the way the R92 captures high frequencies, I would have called them a liar. Before now a frequency response that extends up to 19 kHz was unheard of in a ribbon mic but the R92 has changed that. Its top end is wonderfully pristine. You truly have to hear it to believe it. While \$900 is not cheap it certainly is well within the reach of most studios and in this case it is worth every penny.

Nashville-based Russ Long has been a producer, engineer and studio owner since the late 1980s. His credits include the hits "Kiss Me" and "There She Goes" by Sixpence None The Richer, albums by Wilco, Newsboys, Third Day, Over the Rhine, Dolly Parton and DC Talk and songs from the soundtracks to motion pictures such as *Girl Interrupted*, *Here On Earth*, *Jonah*, *How To Lose A Guy In 10 Days*, *The Second Chance* and *She's All That*.

## | REVIEW SETUP

Apple Macintosh 2 GHz Dual Processor G5 w/2 GB RAM; Digidesign Pro Tools 7.1; Lucid Gen-X-96 clock; PMC AML-1 monitors.

## CONTRACTING

### | Review

TOA Continued From Page 24

improperly tuned system or just a bad engineer. I did find that the minor time adjustment in the processor settings to be beneficial, but noticed that, depending on the room you are in, and the degree of reflections these speakers can make or break you on that important high end install.

## PRODUCTPOINTS



- Great clarity
- Small, compact
- 0 degrees and 10 degrees cabinets



- Some tweaking needed
- Multiple hardware configurations and extensions plates
- Only in white

## SCORE

Overall a great product for a needed market.

## | SUMMARY

Overall, I found this to be a great leap in technology for TOA and a smart move in improving the standard of installs. I, unfortunately, did not have the mounting hardware or the extension plates to use this system in more ways; but from what I was able to do and hear I was very impressed. If all installs in churches, gyms and lecture halls could have a sound system that sounded like this and got the sound to where it was needed, hopefully the stereotype of the mic always feeding back in the movies will one day be washed away.

David Rittenhouse is a live sound engineer at RCI Sound Systems.

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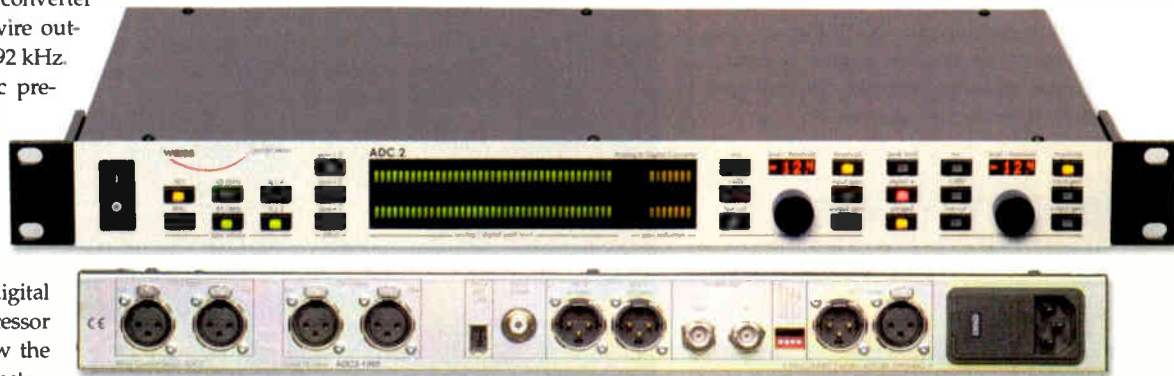
by Alan Silverman

# Weiss Engineering ADC2 Analog-to-Digital Converter

Daniel Weiss doesn't disappoint with this high-powered A/D converter

Weiss Engineering's latest edition of their venerable ADC hews to the company's purist philosophy. The unit is quite nearly a digital straight wire with gain. The converter supports single and dual-wire outputs at sample rates up to 192 kHz. Included are a pair of mic pre-amps and a digital compressor/limiter derived from the company's highly regarded DS1 dynamics processor, enabling the ADC2 to function as a complete front end. AES digital inputs, the dynamics processor and POW-R dithering allow the unit to be used for simple mastering applications as well.

Devices AD797 low-noise op amps, in a minimalist topology of only four op amps per channel. Analog input level is passively con-



## FEATURES

The ADC2's mic and line inputs share a common amplifier, consisting of Analog

## FAST FACTS

### APPLICATIONS

Studio, location, post production

### KEY FEATURES

Two-channel; 24-bit; up to 192 kHz sample rate; digital limiter; POW-R dithering; single/dual-wire

### PRICE

\$6,500

### CONTACT

Weiss Engineering | ☎ -41-44-586-58-84  
 ☞ www.weiss.ch

trolled by a switched array of vacuum-sealed gold contact relays permitting sensitivity settings from -54 dB to 0 dB in 1 dB steps. Channels can be controlled individually or ganged for stereo operation. The minimal number of gain stages and the passive level control insure very low coloration of the input signal before conversion. Input to the ADC2 stays fully balanced right up to the converter chips, which are AKM 5.6 MHz delta-sigma types. Two converters per channel are used in a correlation technique that improves signal-to-noise by 3 dB over a single-converter design. A digital level control, ranging from -100 dB to +18 dB, is available post-conversion for further gain adjustments. Steps of 0.2 dB are implemented for fine control and changes are click-free and zipperless.

A 40-bit floating point DSP module provides the engine for digital gain, precision metering (with peak-hold) and the compressor/limiter. The latter is a two-stage dynamics processor consisting of a variable-threshold 2:1 compressor and a 1000:1 peak limiter with a fixed threshold at 0 dB full-scale. To push the limiter, set the digital gain control

above 0 dB. As in the Weiss DS1 compressor, release times are adaptively varied from fast to slow depending on a look-ahead analysis of the input. These values are user adjustable on the DS1, but are fixed at 30ms and 400ms, respectively, in the ADC2. The same time constants are applied in the limiter section. Attack time is fixed at 0.315ms and there is overall system delay of 1ms. Dynamics processing can be set for linked-stereo or dual-mono operation.

Rounding out the feature set are sync-source selection, low-cut filters and 48V phantom power for the mic inputs, analog/digital input selection, and POW-R dither (with auto-black) for 16-bit output. A rear panel DIP switch sets the wire mode and the sync termination mode. Simultaneous AES and S/PDIF outputs are on the rear panel and a FireWire port is planned.

## IN USE

The ADC2 was first sent out on a live stereo session for a Manhattan-based audiophile record label. The unit was configured for 192 kHz sampling in single-wire mode and connected to a location Sequoia system through a LynxStudio AES16 sound card. The unit received the same feed as the label's own reference converter. Back at my mastering room, I put up the files for comparison. The ADC2 recording sounded excellent except for a very subtle artifact in the highs. It came to light that there was a low-level clock noise in the ADC2 files. Oscillator tests revealed that the clock noise only occurred when running the ADC2 at 192 kHz in single-wire mode. At all other speeds and modes the signal was clean. I notified Daniel Weiss and a short time later he wrote that they verified the problem and corrected it by shaving a few instructions from the unit's firmware. An EPROM was sent that put the issue fully to rest.

The next set of tests involved comparisons of the analog playback of an audiophile SACD played through a Meitner professional DSD

WEISS continues on page 44 ▶



# RAD-360

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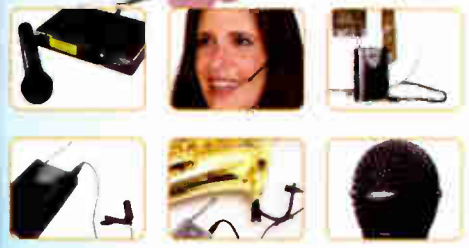
When you first use the RAD-360 UHF Wireless, you'll be tempted to see how far you can go before it actually drops out. Go ahead. Get it out of your system. It will most likely be somewhere between 500 and 1000 feet, depending on your location and line of sight.

The RAD360 is a complete solution for all of your wireless needs, whether it be Live Music, Fixed Installations, Presentations, or Houses of Worship. Handheld systems feature the OM series dynamic mics, critically acclaimed for their clarity, off-axis rejection, and ability to achieve high levels of gain before feedback without distortion. Bodypack systems feature a variety of lavalier and headset microphones, as well as instrument systems for guitar, flute, harmonica, and brass.

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#### Main Features

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DAC against various A/D-D/A converter loops. A particularly useful SACD for this purpose is Mark O'Connor's *Hot Swing*, featuring Jane Monheit and Wynton Marsalis, because of its great vocal and instrumental sounds tracked directly to DSD. Using a Meitner Switchman II and a set of Y-cables, level-matched comparisons could be made between the source and up to three A/D-D/A chains. Although it's not a single variable test, it realistically reflects workflow and gives a sense of the colorations, or lack of same, characteristic of each designer's work. One of the benefits of writing for *PAR* is the opportunity to put a great variety of high-end gear through its paces. In the test were Weiss, Lavry Gold, LavryBlue, Digital Audio Denmark AX24, Mytek 8x192 and UA2192 – all excellent converters. The Weiss chain sounded virtually neutral with only a very slight op-amp signature. While some converter sets seemed to subtly color the low/mid/high frequency balance of the source, the Weiss was quite faithful to the input. I would place it in the top two for accuracy.

The ADC2 was then sent to Avatar Studios, here in Manhattan, for a series of mix sessions

with Grammy winning jazz engineer Jim Anderson. The mixes later came to Arf! for mastering. First up was a new album of highly energetic modern jazz by keyboard virtuoso D.D. Jackson. Mixing was done on an SSL analog desk fed by Pro Tools |HD and captured to a second system by the ADC2 at 24/96. The mixes sounded like ideal analog in that there was no sense of grain or harshness. This impression was confirmed by the artist, himself an audiophile. The mixes took mastering EQ easily.

The second project was a Flamenco set featuring a highly respected Spanish female vocalist, Martirio, backed by piano, guitar, trumpet, clarinet, bass, drums and percussion. The apparent transparency of this set was stunning. Jim later told me that Avatar's house engineers were extremely impressed with the converter and the studio's owners eventually purchased an ADC2.

When the unit returned home, I set up an informal mic preamp test with an artist named Anja, a young woman possessed of one of the most powerful and beautiful voices I've heard in all my years of studio and mastering work. A vintage M49 mic was split to an Amek 9098,

a Telefunken V72 restored by Oliver Archut of TAB-Funkenwerk, and the ADC2's mic inputs. Anja sang loud enough and high enough to make any mic preamp quiver, not to mention the engineer. The 9098 seemed to fold under the harmonic intensity, the V72 coasted with richness and air, and the ADC2 performed gracefully under the pressure. The mic preamp in the ADC2 captured Anja's sound cleanly and smoothly with little color added.

## | SUMMARY

The ADC2 is a sophisticated, audiophile-quality converter with a musical soul. Transparency and pristine sound are its hallmarks. The onboard digital compressor/limiter, unlinked independent channel operation, mic preamps, digital inputs, and POW-R dithering enhance versatility. Weiss Engineering has an uncanny knack of building equipment that is both sonically neutral, yet imparts a sense of refinement and elegance. The ADC2 carries on in that tradition. As with all things Weiss, it's hard to go wrong.

*Alan Silverman has recently remastered The Kinks' complete RCA and Arista catalogs for hybrid SACD and was an album-of-the-year nominee at the 2004 Latin Grammy Awards for mastering Lagrimas Negras by Bebo Valdes and Diego El Cigala.*

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by **Stephen Murphy**



# A Few of My Favorite Things

The Michigan-based company started modestly in 1993 with its Y-Mouse adapter line. Over the ensuing years, the company has emerged as a leader in “human interface hardware.”

For the studio, the really trick tools are found in P.I. Engineering’s X-keys

**S**ad but true, last month’s column marked the completion of the four-part “Building the Perfect Beast” series on configuring and tweaking a cutting-edge XP-based multiprocessor workstation. This month I’ll look at some of my favorite peripheral products that replace, stick on top of, or sit beside your computer keyboard.

The purpose of these products is, generally speaking, to make our lives spent camped in front of computers a little brighter.

## KEYS TO SUCCESS

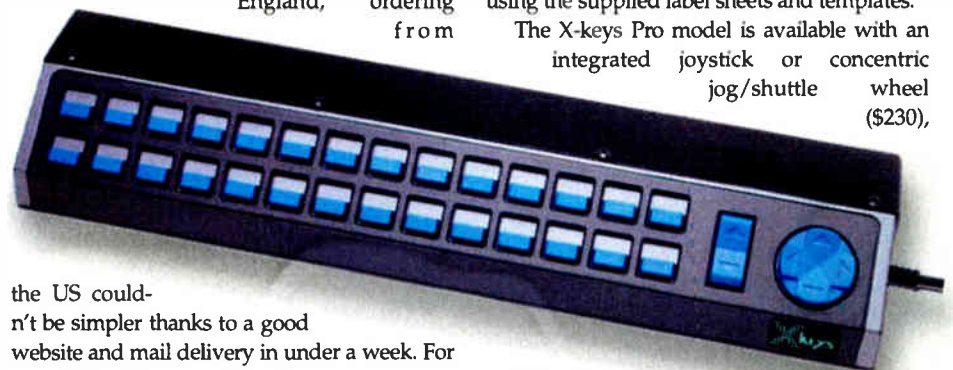
On the low end of the investment scale, but providing a high return, are products from a UK-based company called Editors Keys (the apostrophe is left out to save you money!). The company makes a wide range of inexpensive (\$18.99) keyboard shortcut sticker sets for many audio, video and graphics applications.

Editors Keys has developed key sets for

labeled, multicolor keycap stickers that affix easily to the designated keys via a handy application guide. New for Editors Keys is a transparent Logic Pro set that allows placement of the stickers anywhere for those who have customized their keyboard shortcut layouts.

I’ve personally used Editors Keys key sets and can attest to their quality and usefulness. For under \$20, these resilient, waterproof vinyl stickers provide at-a-glance access to all those shortcuts you never bothered to memorize.

Despite the fact that the company is in England, ordering from



The X-keys Pro model is available with an integrated joystick or concentric jog/shuttle wheel (\$230),



the US couldn’t be simpler thanks to a good website and mail delivery in under a week. For more info, visit [www.editorskeys.com](http://www.editorskeys.com).

For those willing to invest the cash and/or lacking the patience and steady hands required to apply shortcut stickers, there are a few companies that market custom color-coded keyboards ready for use with audio applications. One such company that has been recommended by several colleagues is Logic Keys. The company offers keyboards for two top audio post-production programs: Pro Tools and Nuendo. Several keyboard options are available (standard PS/2 and USB keyboards, “multimedia” keyboards and Apple-style keyboards) and prices range from around \$100 to \$140. For more info visit [www.logickeyboard.com](http://www.logickeyboard.com).

## PIECE OF THE PI

You gotta love P.I. Engineering, and not just because its slogan is “The No Slogan Company.” P.I. Engineering is one of those rare companies that infuses its product lines with genuine creativity, flexibility and an accessibility that appeals to DIY-ers, and at the same time provides ready-to-use functionality for those needing an out-of-the-box solution.

making them perfect for surround panning and transport duties. Another of my favorites for audio controller applications is the aptly named Button Panel (\$90). This sleek little unit is outfitted with two rows of 14 buttons each plus a rocker switch (perfect for zooming) and four-way navigation pad, all mounted on the angled front of an attractive desktop housing.

The X-keys buttons can be programmed to do nearly anything you can think of, so it is inevitable that the longer you use an X-keys controller, the more creative and complex (and thus labor-saving) your uses will become. Programming the buttons and controllers is exceedingly simple for basic tasks such as launching key command shortcuts, zooming, transport control and even strings of keystrokes. For complex tasks, such as performing complex functions not provided for by your audio application, a comprehensive GUI macro programming suite called MacroWorks is included.

One of the beauties of the X-keys controllers is that you are in no way limited to default

nearly every popular audio workstation program and clearly makes it a point to stay current with the latest software versions and product ranges. Available audio workstation key sets include Steinberg Nuendo/Cubase, Cakewalk Sonar, Digidesign Pro Tools, Propellerheads Reason, Sony Vegas and Apple Logic Pro.

The standard key set package comes on a single sheet and provides 60 or more clearly

**STUDIO SENSE** continues on page 55 ▶

## AURORA INTERFACE OPTIONS

### AES16

PCI card offers direct connectivity via PC or Mac to all 16 digital I/O channels with remote control. Includes Aurora software mixer for added routing and 64 channels of metering.

### LT-ADAT

Expansion card provides up to 16 channels of ADAT Lightpipe I/O at 48 kHz. Supports higher sample rates using S/MUX. Permits format conversion between ADAT, AES/EBU and analog I/O.

### LT-HD

Expansion card provides digital input and output in a format that is recognizable by Digidesign® ProTools | HD®. Operates with all HD-compatible versions of ProTools. Supports up to 32 I/O channels at sample rates up to 192 kHz.

### LT-FW

Expansion card available Fall 2006. LT-FW provides a 16 channel cross platform FireWire® interface.

### LYNX TWO-AURORA INTERFACE

Cabling kit gives LynxTWO and Lynx L22 owners direct connectivity for up to 16 channels of Aurora I/O.

### 1824 AURORA TRIM OPTION

Aurora 16/1824 and Aurora 8/1824 models feature +18 dBu and +24 dBu full scale trim settings, which replace the +6 dBV and +20 dBu full scale trim settings of standard models.

# If you're looking for coloration from an Aurora Converter



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*Lynx*  
STUDIO  
TECHNOLOGY

by Stephen Murphy

# MOTU Traveler FireWire Audio Interface

MOTU serves up a quality A/D I/O via the well-traveled FireWire interface.

MOTU (Mark of the Unicorn) has for years been a mainstay of the high-feature, lower-cost computer interface market. I have often marveled that the company can, with clockwork frequency, consistently outdo its previous offering, and indeed most of its competition, by packing even more features into its reasonably priced rack-mount interfaces.

I suppose, given its track record, I shouldn't have been surprised at all when MOTU released the Traveler (\$895), which significantly ups the ante over

its closest predecessor, the 828mkII. The Traveler adds AES/EBU I/O, two more mic/instrument inputs (four total) and sample rate support up to 192 kHz. As the name

All of the Traveler's onboard controls are located on its front panel. From the left are controls for the four mic/instrument inputs, consisting of four phantom power switches and four continuous rotary encoders for controlling input gain in 1 dB increments (push to engage -20 dB pad). Just above the front panel headphone jack is a dual-function headphone output/main output level control (push to select). Next come a set of six continuous rotary encoders for controlling the Traveler's onboard mixing and setup functions and accompanying 2 x 16-character LCD screen. Rounding out the front panel is a window bank of LEDs that display input levels (four LEDs per channel) and output activity (one LED) of the eight analog, S/PDIF and AES I/Os. On the right of the



## FAST FACTS

### APPLICATIONS

Studio, location, post production

### KEY FEATURES

192-kHz/24-bit rackmount or portable FireWire audio interface with standalone mixer operation; powered by FireWire bus, A/C adapter or 4-pin battery pack; 4 mic/line/instrument and 4 line-only analog inputs; 8 analog line outputs; AES, S/PDIF and ADAT optical digital I/O; Mac and PC compatible; includes CueMix Console and SMPTE Console software; AudioDesk Mac recording software; word clock I/O; MIDI I/O; SMPTE I/O via user-designated line level audio jacks

### PRICE

\$895

### CONTACT

MOTU | ☎ 617-576-2760  
 > www.motu.com

implies, the Traveler is also free to roam outside the studio, thanks to its ability to be powered by the FireWire bus or battery packs — all this and MOTU still managed to shrink its width by three inches over the 828mkII so it can conveniently fit in laptop-style carrying cases.

### FEATURES

The MOTU Traveler is primarily a multi-channel analog and digital I/O FireWire computer interface cross-compatible with Mac (through OSX 10.4x, Intel Core Duo) and Windows (2000/ME/XP and x64) computers. Thanks to its front-panel LCD screen and encoder knobs plus built-in CueMix DSP software, the Traveler can also function as a standalone 20-input mixer.

The single-rackspace Traveler gives users the option of traditional mounting via the included rack ears, or leaving them off for desktop and portable operation. Its light metal alloy chassis measures 14.75 x 9 x 1.75 inches and weighs in at under four pounds.

window, single LEDs display ADAT I/O activity, MIDI I/O activity, clock and sample rate status.

Every millimeter of space on the rear panel is utilized for the Traveler's myriad I/O connections and descriptive labeling. From the left are XLR jacks for AES/EBU I/O, two FireWire ports and two BNC connectors for word clock I/O. Next comes ADAT-S/PDIF optical inputs and outputs plus a 9-pin ADAT sync/transport control port, and two RCA jacks for coax S/PDIF I/O. The Traveler's eight analog outputs (+4 dBu) are on TRS 1/4-inch jacks, as are its four line-only inputs (inputs 5-8, -10 dBV and +4 dBu switchable). Four XLR/TRS combo jacks provide for the line/instrument/mic level inputs that correspond with the front panel input controls.

Due to the lack of available rear-panel real estate, the Traveler's MIDI input and output jacks are located on the right side of the unit, alongside its external A/C adapter (includ-

MOTU continues on page 58 ►



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by Strother Bullins

# “Real-Amping” With Michael Wagener



forts of DIY recording have their place, though, mainly in regards to getting great performances. “It’s nice to not have the pressure of a studio,” he offers. “And for vocals, a bedroom can actually be a good thing. You can get away

**F**or many musician/recordists, it’s a way-too-familiar DIY session scenario: great songs, great performances, and cheap sounding guitar tracks. Maybe you’re using a pretty lame amp emulation system. Or maybe you’re using the same DAW as everybody else with a guitar and amplifier endorsed by your favorite strummer who possesses “the” sound you regularly strive for. However, do

star guitar sounds.

It’s simple. Record a clean DI guitar track to your DAW, send Wagener both the song’s rough mix and its guitar DI file, then anxiously wait for the good producer to work his magic. Only a few days later - probably as you listen back to your guitar track that has drasti-

with recording vocals in the bedroom without the neighbors trying to get you evicted. But with guitar or electric bass, it’s a whole different story.”

## THIRTY-PLUS AMPS, ALL WORKING FOR YOU

The impetus of “Real-amping” was a realization during a common glance at Wagener’s 30-plus guitar amplifier collection at Wireworld, his private recording facility located on the outskirts of Nashville. “I’m sitting in the studio, staring at the towers of amplifiers that I have sitting there, and think, ‘I’ve got to use those for something new,’” Wagener recalls. “I know that many guitarists aren’t happy with the sound

that they’re getting with a plug-in or an emulation box. I thought, ‘What if they record a DI track, send it to me, and then I send them back a track or two of ‘Real-amping?’ It gives them an opportunity to have a great guitar sound – a sound that pushes some air – on their records.”

Along with air, users of Wagener’s “Real-amping” service will also be pushing some mighty fine microphones, preamps, compressors, EQs and whatever else this guitar sound guru might decide to add to the recipe. However, Wagener stresses that he is there to simply serve the song, doing what is best suited for the song per the request of the client.

“When I do records, I switch through a whole bunch of amps to see what sits best in the track,” Wagener explains. “That’s also what I do with this. Of course, I need a general idea from the person who sends me the tracks – ‘We want a U2 direction; we want a Metallica direction,’ and so on. They are the producers and engineers, but I am making sound decisions. They can trust me, though - I’ve worked on a few records!”

you really have equivalent guitar amplification, microphones, signal chain options, and the physical environment to even get close to that lofty aural goal of recreating, for instance, Angus Young’s tone on *Back In Black*? And even if you do, how long are you going to be able to record before the neighbors call the cops?

This is where Michael Wagener - a 50 million-plus album-selling producer/engineer, gear-stuffed studio owner, and certified guitar tone expert - comes in. He’s here to help you - yes, you - just as he helped folks like James Hetfield, Zakk Wylde, and Ty Tabor create signature tones. The best part? You don’t have to leave your home studio (or have a Metallica-sized budget) to get super-

cally improved via “Real-amping” (Wagener’s own term for his electric guitar re-amplification, miking, and recording process) - you may realize that you have just spent the best \$100 of your life.

“A bedroom is not suited for a recording environment,” understates Wagener on the subject of tracking amplified guitars. “You need acoustically treated spaces and the ability to make some noise. If playing loud is required, that’s what you have to do. Guitars through a plug-in just don’t come alive as they should. With this, I want to cater to a community that doesn’t have a lot of money, but realizes that they need a better tone - real tone.”

Wagener does fully admit that the com-



## PREPARE TO BE "REAL-AMPED"

While your guitar tracks may be flying from your studio's DAW to Wireworld's DAW and back again, the "Real-amping" process is all quite simple to prepare for and do, insists Wagener. "Obviously you have to have some kind of a DI box," he instructs. "A standard DI, as long as it's not something for \$10, should do the job. You want it to be as uncolored as possible - no EQ or compression - and no digital overs. Keep it at -12 dB and add a click at the beginning of the track. Later you can realign the click from the 'Real-amping' files with the original DI track." (Currently, Wagener is working on a transformerless DI specifically built for the "Real-amping" process, which may be ready for the NAMM 2007 convention.)



Wagener can use AIFF, WAV, "or whatever" files you want to send him as long as the guitar track is consolidated to one file. Then, getting both the files and the fee to him is just a few clicks away. "I have set up an FTP site to upload the files to, which is a very easy process. I can then upload the completed files to the same site. It's password protected, so no one else can access your file. You can even pay with PayPal."

What you get back from Wagener may even provide you with more production options that you realized were possible. "I'll send back three tracks recorded with different amps," he says with pride. "One will be a bit cleaner, the other a bit dirtier, and a room track. They'll be phase-aligned, and can be mixed together or used separately based on what works best for the song. Even if the room sound isn't big enough, a bit of reverb can be added to make it huge, if you

want. There are a lot of possibilities for the tracks that I send back."

If you're bored or discouraged with what you're getting, possibilities are exactly what you need. And this way, a platinum-selling producer and guitar production consultant - essentially what you're hiring via "Real-amping" - gives you those possibilities.

Wagener sums it up quite simply: "Sometimes I can diddle around with plug-ins and emulators and say, 'Yeah that's pretty

good.' Then, I hook up an amplifier: 'Never mind.' There's nothing like the real thing."

Everything you need to know about Michael Wagener's "Real-amping" service is listed here: <http://www.michaelwagener.com/html/realamp.html>. What's not can be easily addressed by the man himself. Contact him via e-mail at [wireworld@comcast.net](mailto:wireworld@comcast.net).

*Strother Bullins is Reviews and Features editor for Pro Audio Review.*

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by Dr. Frederick J. Bashour

# M-Audio Sputnik

Dr. Fred offers effusive praise for M-Audio's orbitally descriptive new microphone.

Since I own so many tweaked-out vintage vacuum tube mics, I'm generally regarded as a microphone snob. When one gets accustomed to well-maintained U47s, M49s, and C24s, "lesser" mics rarely satisfy. However, I have found a few newly-manufactured models worthy of adding to my collection; in *PAR's* August 2003 issue, for example, I raved about the AEA R84, and I still love what it does to certain voices and, when used in combination with a pair of Schoeps M221Bs or Neumann KM 54s, to solo violin and most brass and woodwind instruments.

All of which brings me to a rather new name in microphones: M-Audio and their newest mic, Sputnik.

## | FEATURES

Think Neumann U67/M269. Large vacuum tube microphone, three polar patterns selectable on the mic body, special cable connecting to a large external power supply, and a big shock mount/stand adapter — that's basically what you get when you purchase a Sputnik. Oh, yeah, M-Audio supplies it all in a nice aluminum flight case and includes a cute black sock to cover the Sputnik when not in use.

## FAST FACTS

**APPLICATIONS**  
Studio

**KEY FEATURES**

Lollipop-style; tThree polar patterns; 1-inch gold-evaporated Mylar diaphragm; vacuum tube; ships with power supply, cable, aluminum flight case

**PRICE**  
\$699

**CONTACT**

M-Audio | ☎ 626-633-9050  
📧 www.m-audio.com

Appearance-wise, the mic has a "lollipop with fat stick" shape reminiscent of M-Audio's Solaris mic, but that's where the similarity ends. The capsule is quite different. For one thing, it has more proximity effect and a much greater depth of field; in other words it still maintains its resolution quite a distance from the source. The Sputnik's capsule features a 1-inch, 3-micron evaporated (not 'sputtered') gold Mylar diaphragm. The body's finish is not dull matte like the Solaris but rather shiny polished nickel over brass that, to my taste, is not as aesthetically pleasing and accumulates fingerprints easily. It's also completely cylindrical and rather fatter than the gracefully tapered Solaris' body.

Of course there's lots more stuff inside Sputnik, including the same miniature military 6205M pentode tube used in another great-sounding modern tube microphone, the 3/4-inch diaphragm Groove Tubes GT40. And Sputnik's output transformer, located at the very bottom of the body, looks very hefty. Otherwise, the Sputnik amplifier features a 10 dB pad and 80 Hz second-order high-pass filter, both switchable — as are the three polar patterns — via tiny (perhaps too tiny) toggle switches. While mounting the Sputnik in its sturdy shockmount, I had to be especially careful not to touch those toggle switches by mistake. At any rate, it's a good idea to check them periodically to ensure that they're where you think they should be since, even with the

low end rolled off, there's still plenty of it!

The power supply has red Cyrillic lettering on it, continuing the "Sputnik" theme, and is considerably smaller than the old-fashioned Neumann or AKG supplies to which I'm accustomed.

## | IN USE

The first time I plugged Sputnik into a channel in my Crane Song Spider mixer and spoke into it I was absolutely floored! I've talked into many a mic in my days, and I'm pretty familiar with what the various models do to my squeaky, nasal voice. Obviously, my 47 makes me sound larger and more macho than any other, but this Sputnik was darn close!

A few days later, my college professor friend John decided to take the plunge and purchase several high quality mics to record his family's acoustic band as well as the gamelan percussion instruments he teaches about, so we spent the next month doing shootout after shootout. Using his own and his wife's voices, his vintage acoustic guitar, and his daughter's violin and singing voice (as well as the members of my own family band), the final

shootout compared his "finalists" from the "affordable section" of the Dr. Fred mic collection: my Gefell 930s, Sputnik, and GT40s, along with a new \$995 cardioid tube mic from California he had just purchased from a large Internet MI retailer, on the strong recommendation of the salesperson. (Back at the university at which he teaches, he had already compared these mics with the lower-priced Neumann and AKG solid state models).

Much to his consternation, my Sputnik beat his new \$995 mic hands down in every single category; its sound was larger, brighter, had much higher resolution and sounded much more "alive." And the GT44s trumped my 930s, which really surprised me (I use both pairs for different applications, but had never directly compared them). But everyone agreed that the Sputnik was the



best mic of the group for everything we threw at it. The next day John returned that more expensive tube mic and ordered a pair of Sputniks (as well as a pair of new GT40s). So now, between us, we own three Sputniks! And, by the way, they sound identical.

Over the past several months, I've continued to use my own Sputnik almost ever day, and continue to be amazed at the large, clear, and warm sound output from this \$699 mic. Although cardioid is its most useful pattern, omni sounds very good — very much like cardioid minus the proximity effect. I've used figure 8 for duets as well as for half of an M/S pair (with my 47 as the other half). Now there's a huge sound!

Let me make no bones about it — the M-Audio Sputnik is my new favorite microphone. Compared directly with my three-micron Stephen Paul-modified U47 and M49s, it sounds very similar from the midrange on down. The high end, on the other hand, is brighter and clearer than those two and is actu-



### SUMMARY

In my opinion, anyone searching for a high-quality tube microphone can begin and end their search with Sputnik. I predict it's destined to join that select group of "go-to" mics upon which knowledgeable engineers rely. It really does have that "magic."

*Dr. Fred Bashour holds a Yale Ph.D. in Music Theory and currently performs as a jazz pianist and church organist. During the past 25 years, he has received credits on hundreds of recordings released on over a dozen labels. He has also been a regular contributor to Pro Audio Review since its second issue.*

## PRODUCTPOINTS



- Wonderfully flattering sound
- Big low end
- Warm mids
- Crystal-clear highs



- Toggle switches feel a bit weak

## SCORE

*Of all the mics I've tested in the past ten years, it's my microphone of choice under \$2,000.*

ally reminiscent of the edge-terminated diaphragms in my AKG C 24 — a fact I find particularly fascinating, since the Sputnik capsule is center-terminated, in the "Neumann manner." And yes, it's made in China, although designed and voiced by M-Audio engineers in the Los Angeles area. To my ear, its clarity of resolution in the high end sounds very close to a 1.5 micron M-269 — razor-sharp, with no smearing or harshness whatsoever.

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**HARMAN** Continued From Page 23

serve as system masters running System Architect on a laptop computer or even the front-of-house console's system core.

## CUSTOM CONTROLS

Custom control panels include Network Wizard that guides the user through the network configuration process; Re-populate Venue that interrogates the system and auto-

matically loads connected devices into the workspace; Grouping Wizard that provides group control of gain, mute, delay and metering of selected devices; Venue Recalls that combines individual device presets into a single or master preset; Access Control that handles security settings both for design files and device front panel controls and Firmware Update. The interface design can be further

refined with tab windows, window panels, bitmap images and vector shapes.

In terms of the major difference between Harman's offering and competitive protocols, Kreifeldt says that "HiQnet has been developed by a cross-brand initiative combining years of experience at each division into a single unified protocol optimized for sound systems. At this time we are only rolling out HiQnet among our different divisions."

"For many years I have been seeking ways where all parts of the audio chain can be controlled as a truly integrated system," says Roland Hemming, an independent systems designer/consultant and formerly with Live Business International. "Harman [has] a clear vision, a number of new ideas and the resources to finally achieve this extremely complex task."

Michael Abbott, a leading audio coordinator, system designer and consultant for several TV shows and live events, including the Grammy Awards and CBS Television's "Survivor," considers that HiQnet will change the way users approach system design. "I work with 10 to 15 systems a year," he stresses, "and I'm always in search of a way to unite the variety of technologies

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- Crown DSi Series (New - 3 models)
- Crown MacroTech/CTs compatible PIP Lite, USP3, and USP3/CN (19 models)
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- Crown I-Tech series (3 models)
- Crown XTi Series (New - 3 models)
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- JBL LSR4326P
- JBL LSR4328P
- JBL LSR4312SP
- JBL VP Series (New - 12 models)

More from: <http://hiqnet.harmanpro.com>

– consoles, amplifiers, networking technologies, audio processors – all on a single platform. HiQnet does just that, finally giving the operator the horsepower and control they need.”

“The industry has waited a long time for this,” says Dave Shadoan, president of Sound Image, a Southern California-based designer and integrator. “The beauty of HiQnet is that it brings all the separate, independent components under the control of a single user. There are a lot of graphic user interfaces out there but they are always product specific. HiQnet give the operator complete control of a system at his fingertips.”

By way of an example, HiQnet recently made its touring debut with country music singer Toby Keith’s Big Throwdown II Tour, using systems provide by Sound Image. According to Shadoan, “HiQnet technology enables the highest levels of integration and control by systemizing much of the work associated with running a successful tour such as this. What is essential is that the protocol [be] 100 percent reliable and almost completely transparent, which saves us time, money and much anxiety.”

The tour featured 72 JBL VerTec VT4889 cabinets and 40 VT4880 line-array subwoofers. Configured by HiQnet System Architect, the system was powered by Crown I-Tech 8000 amplifiers with front-of-house EQ via six dbx DriveRack 4800s controlled by System Architect running on a wireless tablet PC.

Cost control was also part of HiQnet’s strategic initiative. “For instance, a common set of JBL speaker-tuning files can be loaded into any suitable product for consistent performance,” says Kreifeldt. “Once a user has created a set of parameters that work for a given project, it can be dealt with as a macro, applicable to any other system from a single GUI, such as a laptop computer.”

“HiQnet was developed for systems and tour professionals,” Kreifeldt concludes. “HiQnet removes a level of complexity from the systems design process by providing integrators with a singular protocol for integration and control, thereby eliminating the biggest speed bump of all in the building of audio systems.”

*Mel Lambert has been intimately involved with production and broadcast industries on both sides of the Atlantic for more years than he cares to remember. Now principal of Media&Marketing, a Los Angeles-based consulting service for the professional audio industry, he can be reached at mel.lambert@MEDIAandMARKETING.com; 818-753-9510.*

## STUDIO | Review

MYTEK Continued From Page 36

locations. Other uses include digital monitoring through digital outputs of computer sound cards, and as an outboard converter for other high-bit rate components, such as the Alesis MasterLink. I like the Stereo 96’s simplicity, and it has some nice features including the two S/PDIF inputs.

### | SUMMARY

It took me a while to get a review unit from Mytek (second product from the company in 10 years), but I am happy to see that the dedication to high quality design is still a priority. The company marketing and promotion is pretty low key, so you may have to hunt a bit to find them. I look forward to reviewing and measuring their A/Ds in the near future — especially the battery-powered 192 kHz version.

*John Gatski is the publisher of Pro Audio Review.*

## STUDIO SENSE | Column

STUDIO SENSE Continued From Page 46

shortcut key layouts as with standard labeled keyboards. They can also be custom programmed and quickly switched to be used with the variety of software applications we typically use during the course of our work.

For the more DIY-inclined, P.I. Engineering also sells individual components such as the X-keys matrix board, a variety of buttons and foot pedals, and a USB switch interface for connecting up to twelve real-world contact-closure type devices for triggering computer functions. Using these tools, you could create anything from talkback and recording footswitches to remotely located recording/headphone mix control panels or even an entire custom control surface. Put your creative mind to work and visit [www.piengineering.com](http://www.piengineering.com).

*PAR Studio Editor Stephen Murphy has over 20 years production and engineering experience, including Grammy-winning and Gold/Platinum credits. His website is [www.smurphco.com](http://www.smurphco.com).*

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The primary role of the MC Media Application Controller as standalone or incorporated into a System 5 Digital Production Console is for running the companion DAW and handling all of the myriad tracking, editing, mixing, transport and monitor control functions that form a critical part of a high-pressure session. Everything is clearly laid out on the surface and easy to find; after just a few minutes of use you develop a sixth sense about what control is handling which specific function. It is quite dazzling how instinctive DAW control becomes when you have a reasonable number of dedicated and assignable controls beneath your fingers. Usefully, the track ball and shuttle/scrub wheel control panels can be swapped for left or right-hand working and the bank of four assignable level faders swapped out for a pair of horizontal panpots – if you are using a companion console, the ability to automate a complex panning move – is a very handy function for surround projects.

All in all, the Euphonix MC Media Application Controller represents a dramatic development for users that want to drive a current-generation DAW and take advantage of its built-in DSP power. By centrally locating all of the mix and processing functions from a well laid-out, assignable work surface – and implementing a variety of command protocols – Euphonix really has developed a better mouse trap. All functions are extremely intuitive and integrate fully with the DAW’s mixing, processing and editing functionality. Connected to EuCon-aware applications such as Nuendo and Pyramix, MC provides unrivalled high-speed Ethernet control integration — a truly remarkable development.

Mel Lambert has been intimately involved with production and broadcast industries on both sides of the Atlantic for more years than he cares to remember. Now principal of Media&Marketing, a Los Angeles-based consulting service for the professional audio industry, he can be reached at [mel.lambert@MEDIAandMARKETING.com](mailto:mel.lambert@MEDIAandMARKETING.com); 818-753-9510.



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## STUDIO | Review

MOTU Continued From Page 48

ed) and four-pin XLR battery pack connectors. A switch selects between FireWire bus power and external sources.

### | IN USE

Installation of the MOTU Traveler software and hardware on a PC running Windows XP Pro was simple and went without a hitch. The unit functioned perfectly with the computer's built-in FireWire interface. Be sure to check out MOTU's notes on FireWire chipset compatibility, as there are some known problems (that affect many manufacturer's audio interfaces) with certain chipsets. Also be sure to download the latest driver/software install package and firmware from the MOTU site, as there have been a number of fixes and feature enhancements added since the unit originally shipped.

With the exception of a free Mac recording application called Audiodesk, (which is essentially a light version of MOTU's Digital Performer Mac software), I am very pleased to see absolute parity between Mac and PC Traveler support, including MIDI and ASIO2/GSIF2 drivers (even XP x64 support), and MOTU's FireWire Audio Console, CueMix Console, and SMPTE console. MOTU also provides setup instructions and tips in the Traveler's printed manual (thank you!) for using the interface with popular Mac and PC audio applications including Logic, DP, Sonar and Cubase and Nuendo.

Best of all, I found the included software applications – especially the CueMix console – easy to use and absolutely intuitive. As a regular user of an RME Fireface and corresponding TotalMix console and routing matrix software, I was quite envious of the CueMix's graphic interface.

All of the functions found in the Traveler's accompanying software apps can be accomplished using the unit's hardware encoders and two-line LCD display, though, as to be expected, not without significantly more effort and some measure of confusion. It's nothing that can't be mastered, however. Just expect to put in some extra effort learning all the paths and shortcuts required of hardware-only operation.

The Traveler is capable of producing four discrete mixes of all the analog and digital inputs (20 total) to be sent to the analog outputs/headphone output in four stereo pairs.

In addition to, of course, recording the discrete inputs directly to recording software (Nuendo, in this case), I was able to route a stereo mix directly to a stereo track using the recently added "Bounce Back" function.

Also added in a recent update is a talkback/listenback function that lets you designate two mic inputs as dedicated control room and recording room communications mics. Corresponding software controls enable talkback/listenback functions, including an adjustable monitor level dim function. Something else I really liked about the Traveler was its ability to instantly recall CueMix levels (including mic input levels!), which came in really handy when switching from one session client to another and back again the next day.

The sound quality of the unit's 192-kHz/24-bit A-to-D (64X oversampling) and D-to-A converters was excellent, and compared favorably to other similarly equipped converters on hand, including RME and Universal Audio and even approached Lavry quality. Very impressive.

The four mic preamps were definitely of high quality and proved to be quite pleasing and capable on several critical recordings, including classical guitar and solo violin. Unlike the converter quality, I could hear a discernable difference between the openness of Lavry and API preamps and the slightly narrowed sound of Traveler. Still, the preamps were highly impressive given the cost of the unit, and easily beat out other similarly priced FireWire interfaces/control surfaces on hand.

### | SUMMARY

Try as I might, I just could not find anything to dislike about MOTU's Traveler. Between its impressive performance as a high-quality multichannel FireWire interface and standalone mixer, plus its application as a portable recording rig perfect for video location jobs (thanks to its built-in SMPTE reader/generator and standard 4-pin battery pack operation), the Traveler qualifies as one of those few products of which I can comfortably say you can't go wrong having on hand. Highly recommended!

*PAR Studio Editor Stephen Murphy has over 20 years production and engineering experience, including Grammy-winning and Gold/Platinum credits. His website is [www.smurphco.com](http://www.smurphco.com)*

## BROADCAST | Review

HHB Continued From Page 17

update, so I dragged all the audio files onto the PC, and power-cycled the FlashMic while holding the record, play and stop buttons. The display prompted for a Y/N? confirmation, and then the reformat wiped and recreated the directory structure.

It took 8 minutes to copy my 290 MB recording (a 53-minute recording) onto my PC and I was ready to edit - although technically, I could have edited the file in-place on the FlashMic's directory - it seemed more efficient to delete the file from the FlashMic so its memory would be cleaned out and ready it for its next assignment.

### | SUMMARY

Some colleagues chafe at the notion of the FlashMic's nonre-

movable 1GB Flash memory, believing that reporters should be able to squirrel away expensive Flash memory cards in their desk "just in case they have to hear an old interview," others chafe that the FlashMic has no external input, and can't be used to record mult feeds. I maintain the FlashMic instills a sense of discipline over one's files and is meant to complement a reporter's kit - not replace it entirely. It's an impressive, well-performing audio tool. Easy to use, flexible and sounds good and at home in this new digital world.

*Rich Rarey is an engineering supervisor at National Public Radio and a contributor to Pro Audio Review.*

## LIVE | Review

CARVIN Continued From Page 30

The last feature to check out was the effects. Being able to add a little reverb or chorus can be just the thing to polish up the sound, and the RX1200 proved capable here as well. We set the unit up in our studio, again using the Bag End speakers, and plugged in a vocal mic and a Roland HandSonic percussion controller. Getting the effects into the mix was a simple matter and a tour through the presets showed a number of useful sounds. The parameter settings are simple, but give control over the essentials, such as decay for the reverb or depth for the flange. The sound of the processors is suitable for basic PA work, and if you require anything more advanced, the inserts make it easy to add that in as well.

### | SUMMARY

This little unit proved to be versatile and capable. At a street price of around \$800, it would be a solid, economical core for any small PA system. The built-in monitor amplifier channels and effects just add to the list of possible applications.

All in all, the Carvin RX1200 is a great little box, packing a bundle of features into a compact, portable package. If you're looking to get in and get the job done, have a look at the RX1200.

*Scott Burgess is the Audio Production Manager for Central Michigan University School of Music. He has more than 80 album credits, including four Grammy winners.*

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## ARCHITECTURAL ACOUSTICS WS 802T In-Wall Speaker

**FEATURES:** Two-way; 8-inch polypropylene woofer; 1-inch dome tweeter; ABS plastic frame; metal grille; 70V transformer; ships with mounting hardware.

**CONTACT:** Architectural Acoustics/Peavey at 601-483-5376, aa.peavey.com.



## ELECTRO-VOICE EVID C8.2 Ceiling Speaker

**Features:** Two-way; 8-inch polypropylene cone woofer; 1-inch coaxially-mounted titanium-coated Mylar tweeter; 110 degree pattern; powder-coated steel grille; 70/100V or 8 ohm operation; ships with mounting hardware.

**PRICE:** \$295.

**CONTACT:** Electro-Voice at 952-884-4051, www.electrovoice.com.



## JBL Control 321C Ceiling Speaker

**FEATURES:** Two-way; 12-inch Kevlar woofer with coaxially mounted 1-inch tweeter; ships with mounting hardware.

**PRICE:** starts at \$395.

**CONTACT:** JBL at 800-852-5776, www.jblpro.com.



## TURBOSOUND TCS-C50T Ceiling Speaker

**FEATURES:** Two-way; 180 degree pattern; 5-inch woofer; ferrofluid-cooled tweeter; 16 ohm or 70V/100V operation.

**PRICE:** \$172.

**CONTACT:** Turbosound/Sennheiser USA at 860-434-9190, www.turbosound.com.



## VELODYNE SC-IW In-Wall Subwoofer

**FEATURES:** Two-piece design; vertical-firing woofer.

**PRICE:** \$999.

**CONTACT:** Velodyne at 800-835-6396, www.velodyne.com.



## COMMUNITY Cloud 6 Ceiling Speaker

**FEATURES:** Two-way; 6-inch woofer with coaxially mounted

.75-inch aluminum tweeter; Air Gap Technology cooling; 70V transformer; aluminum can.

**PRICE:** \$165.

**CONTACT:** Community Loudspeakers at 610-876-3400, www.loudspeakers.net.



## SLS PRD8COM Ceiling Speaker

**FEATURES:** Two-way; 8-inch Kevlar cone woofer; coaxially mounted NEO-3 PDR neodymium ribbon HF driver.

**PRICE:** \$398.

**CONTACT:** SLS Loudspeakers at 417-883-4549, www.slsaudio.com



## YAMAHA Installation Series

**Features:** Three-way, two-way systems and subs; 18", 15" and 12" woofers; Finnish birch cabinets woofer; 14-gauge steel grilles.

**PRICE:** starts at \$700.

**CONTACT:** Yamaha at 714-522-9011, www.yamaha.com/proaudio.



## QSC AD-CI52ST/CI52T Ceiling Speaker

**FEATURES:** Two-way; 5.25-inch weather-resistant fiberglass cone woofer; 1-inch HF driver; 90-100 degree pattern; paintable trim; ships with mounting hardware.

**PRICES:** AD-CI52ST (shallow can) - \$168; AD-CI52T - \$152.

**CONTACT:** QSC at 800-854-4079, www.qscaudio.com.



## TOA F-122CU Ceiling Speaker

**FEATURES:** 5-inch full range driver; 180 degree pattern; paintable surface; compatible with 8/16 ohm, 70V, 25V systems; ships with mounting hardware.

**PRICE:** \$204.

**CONTACT:** TOA Electronics at 800-733-7088, www.toaelectronics.com.



## OAP AS-122 Speaker

**FEATURES:** Two-way; 12-inch woofer; 1-inch tweeter; steel internal skeleton.

**PRICE:** \$1,150.

**CONTACT:** OAP Audio Products at 800-788-1627, www.oapaudio.com.



## SOUND ADVANCE SA2C Flat Panel Speaker

**FEATURES:** Full range Planar Diaphragm Technology 21-inch x 14-inch flat panel driver; taps at .5W, 1W, 2W, 4W, 8W, 16W, 32W; paintable surface.

**PRICE:** \$600.

**CONTACT:** Sound Advance at 800-592-4644, www.soundadvance.com.



## MATRIX AUDIO DESIGNS C-Series Ceiling Speakers

**FEATURES:** Two-way; 8", 6.5" woofers; coaxially mounted tweeters; optional remote control module.

**PRICE:** starts at \$180 per pair.

**CONTACT:** Matrix Audio Designs at 888-485-9959, www.matrixaudiodesigns.com.



## PRO ACOUSTICS SD4 Pro Omnidirectional Ceiling Speaker

**FEATURES:** Four 6.5" full range drivers; 360-degree pattern; polystyrene frame; fits standard 2' x 4' drop ceiling grid.

**PRICE:** \$279.

**CONTACT:** Pro Acoustics at 254-698-4042, www.proacousticsusa.com.



## TANNOY iw62 In-Wall Speaker

**FEATURES:** Three-way; 6-inch Tannoy DualConcentric woofer; 6-inch mid/bass driver; Tannoy SuperTweeter HF driver; metal grille.

**PRICE:** \$909.

**CONTACT:** Tannoy North America at 519-745-1158, www.tannoy.com.



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## SONY SRP-X700P Digital Powered Mixer

**FEATURES:** Four microphone inputs; two mic/line inputs; two slots for



wireless mic receivers; onboard wireless mic antenna divider; A/V switcher with HDTV-compatible video inputs; two-channel 150W @ 4 ohms digital amplifier; Sony Control-S protocol; USB port.

**PRICE:** \$2,500.

**CONTACT:** Sony at 800-472-7669, [www.sony.com/professional](http://www.sony.com/professional).

## RANE MA 4 Multichannel Amplifier



**FEATURES:** Four-channel; onboard dynamics; high-pass filters; optional 70/100V transformers; 100W per channel.

**PRICE:** \$1,399.

**CONTACT:** Rane at 425-355-6000, [www.rane.com](http://www.rane.com).

## ARCHITECTURAL ACOUSTICS PZS 140RA Multi-Zone Mixer/Amplifier

**FEATURES:** Four-zone; five input channels; mic/line



level controls, two-band EQ, zone assignment per input; threshold, paging controls; 48V phantom power; cooling fan; 35W output per zone; 25/70V or 4/8 ohm operation.

**CONTACT:** Architectural Acoustics/Peavey at 601-483-5376, [aa.peavey.com](http://aa.peavey.com).

## DBX ZonePro 640 Digital Zone Processor



**FEATURES:** Four zone; gate, EQ, dynamics, delay, AGC, de-esser, compressor, feedback suppression per channel; paging, ducking controls; crossover controls; Autowarmth; delay; parametric EQ.

**PRICE:** \$1,299.

**CONTACT:** dbx at 801-568-7660, [www.dbxpro.com](http://www.dbxpro.com).

## DYNACORD DRM 4000 Mixer/Router



**FEATURES:** Eight audio inputs; two outputs; level controls per input channel; ducking priority controls; limiters; optional remote control.

**PRICE:** \$1,500.

**CONTACT:** Dynacord/Telex at 952-884-4051, [www.dynacord.com](http://www.dynacord.com).

## QSC CX108V Amplifier

**FEATURES:** Eight-channel; PowerWave switch mode power



supply; QSControl DataPorts; clip limiters; 50 Hz/75 Hz high-pass filters; bridgeable channels; 100W @ 70V; DC, ultrasonic, infrasonic, short circuit, thermal protection.

**PRICE:** \$1,760.

**CONTACT:** QSC at 800-854-4079, [www.qscaudio.com](http://www.qscaudio.com).

## LECTROSONICS DM84 DSP Auto Matrix Mixer

**FEATURES:** Eight inputs; four



outputs; six filters and compressor per input; nine filters plus compressor/limiter per output; USB port; LecNet-compatible; linkable.

**PRICE:** \$2,295.

**CONTACT:** Lectrosonics at 505-892-4501, [www.lectrosonics.com](http://www.lectrosonics.com).

## INTELIX MZP Multi-zone Paging and Program Distribution System

**FEATURES:**

Modular system; up to 128 input channels and 128



output channels; trigger programming; ducking, paging controls; Ethernet port; PCMCIA slot.

**PRICE:** starts at \$2,789.

**CONTACT:** Intelix at 866-462-8649, [www.intelix.com](http://www.intelix.com).

## LAB.GRUPPEN C 20:8X Multichannel Amplifier

**FEATURES:**

Eight-channel; high-pass filter;



Class D; twin variable-speed cooling fans; NomadLink; 250W per channel output; 70V/100V-compatible.

**PRICE:** \$3,095.

**CONTACT:** Lab.gruppen/TC Electronic at 818-665-4900, [www.labgruppen.com](http://www.labgruppen.com).

## AUSTRALIAN MONITOR ZRM4 Zone Routing Mixer



**FEATURES:** Six inputs; four outputs; EQ, filter, phantom power; ducking/priority controls;

onboard tone/chime generator.

**CONTACT:** Australian Monitor/Sennheiser at 860-434-9190, [www.australianmonitor.co.au](http://www.australianmonitor.co.au).

## TOA A-9120DH Matrix Mixer/Amplifier

**FEATURES:** Modular



system; eight input channels; two-channel output; level controls; DSP mic preamp, telephone paging, ambient noise control modules; 120W @ 70V per channel.

**PRICE:** \$1,516.

**CONTACT:** TOA Electronics at 800-733-7088, [www.toaelectronics.com](http://www.toaelectronics.com).

## YAMAHA XH200 Amplifier

**FEATURES:** Two-channel; variable-speed cooling



fan; bridgeable; 200W per channel; 70V/100V-compatible.

**PRICE:** \$899.

**CONTACT:** Yamaha at 714-522-9011, [www.yamahaca.com](http://www.yamahaca.com).

## SYMETRIX Zone Mix 760



**FEATURES:** 12 inputs; six outputs; high-pass filter, parametric EQ, compressor, limiter, AGC, delay, feedback suppression; ducking controls; Ethernet port; remote control via PC.

**PRICE:** \$1,499.

**CONTACT:** Symetrix at 425-778-7728, [www.symetrixaudio.com](http://www.symetrixaudio.com).

## PHONIC AMERICA ZX4 Zone Mixer

**FEATURES:** Four-zone; three stereo



line inputs; one paging mic input; mic level control; two-band EQ; ducking control; emergency priority override.

**PRICE:** \$219.

**CONTACT:** Phonic America at 800-430-7222, [www.phonic.com](http://www.phonic.com).

## ELECTRO-VOICE MA-1212 Mixer/Amplifier

**FEATURES:** 12 mic/line inputs; level



controls per input; 24V phantom power; telephone paging input; treble, bass controls; 120W amplifier.

**PRICE:** \$580.

**CONTACT:** Electro-Voice at 952-884-4051, [www.electrovoice.com](http://www.electrovoice.com).

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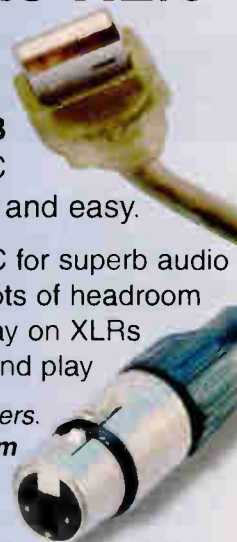
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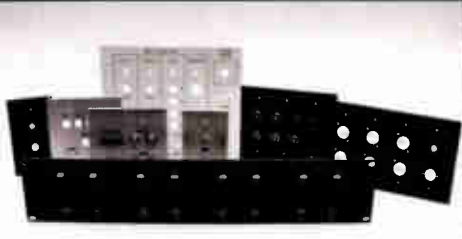


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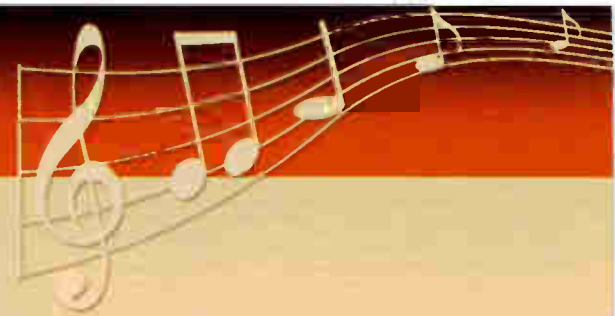
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## “Tanis” | Lynam



**SINGLE:** “Tanis”

**ALBUM:** Slave To The Machine (DRT Entertainment/Universal)

**DATE RECORDED AND MIXED:** Summer 2005 Synchronmesh Studios in Birmingham, Alabama. Re-mixed Summer 2006 by Machine

**PRODUCERS:** Jason Elgin and Jacob Lynam

**ENGINEER:** Jason Elgin

**MIXERS:** Jason Elgin (original version, MySpace mix, and audio-for-video mix) and Machine (album and radio mix)

**MASTERING:** Roger Lian at Masterdisk in New York City

**SINGLE SONGWRITER:** Jacob Lynam

**CONSOLE:** “Heavily modified” Oram BEQ-32

**RECORDER:** Pro Tools|HD with four Digidesign 192 I/O

**MONITORS:** ATC SCM20 ASL Pro and Yamaha NS-10

**VOCAL MICROPHONE:** Manley Reference Cardioid

**VOCAL CHAIN:** Great River MP-2NV Mercenary Edition, Manley Labs ELOP Limiter, Crane Song HEDD 192

**OTHER PROCESSING:** Neve 33609 compressor/limiter, Manley Labs Massive Passive EQ, Empirical Labs Distressor

**PLUG-INS:** Crane Song Phoenix, Waves C4 multiband compressor

## ENGINEER’S DIARY

*Strother Bullins is Features and Reviews Editor for Pro Audio Review.*

Lynam, an arena rock-style indie band from Birmingham, Alabama, is now experiencing some of its favorite era’s “bigness.” As of August 2006, the first single from Slave To The Machine - entitled “Tanis” - is generating enough buzz to land the band at #19 on the Billboard Heatseekers chart.

“It’s a big deal for us,” confirms Jacob Lynam, the youthful leader of the rock trio whose members share a surname. But they’re not really brothers. They’re just clever.

“MySpace has helped us tremendously,” Lynam continues. “Five years ago, we were playing little clubs for 12 people. Slowly we built our fanbase to where every club show is a big club show, sold out. Now we’re doing gigs, like, opening for Poison/Cinderella in front of 14,000 people.”

For Lynam’s obviously Def Leppard/Robert John “Mutt” Lange-influenced sound - think Pyromania and Hysteria - producer and engineer Jason Elgin generously piled on the vocals, guitars, and every hook imagined between the studio team of he and Jacob Lynam. “He always had radio in mind for it,” explains Elgin of Lynam’s production motivations. “Oh, and putting in as many hooks as we could fit into a three and a half minute space. That was the main thing.”

Originally recorded for a self-released CD, “Tanis” garnered attention from Universal subsidiary DRT Entertainment and soon, another mixer was remixing the song for its inclusion with a batch of new songs for the first Lynam label-supported release. “We try to make everything larger than life,” explains Lynam on the motivations behind a label requested (and rather compressed) remix by noted producer/mixer Machine. “We stack the vocals. We do it all. But - for radio and what’s current now - the label wanted it to be a little less polished and rawer. That was their change.”

While plenty of first class recording gear was used for the project, three specific microphones played a most notable role in the process, together giving Elgin room to stretch and manipulate the guitar tracks: the Royer Labs R-121, the Blue Mouse, and an AKG C 414 off-axis with a Little Labs IBP. “I love the Royer because I can dump EQ on it and it never breaks up or gets harsh,” says Elgin. “The Mouse gave me the FET 47 thing without putting an expensive 47 in front of an amp. The 414 was used just for an effect - for EQ.”



*Jason Elgin and Jacob Lynam*

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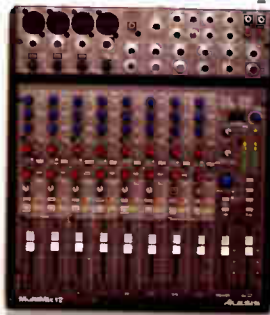
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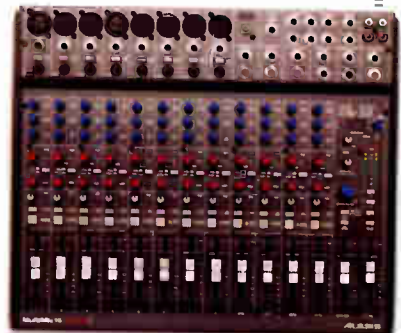
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