JUNE 2008

ProAudio Review

The Review Resource for Sound Professionals

Installation Spotlight!

Newark's Prudential Center

s Issue!

- Rokit G2
  Sound, Great Price
- cy Studio
  Pinpoint Accuracy Passive
- New Microphones
  Berliner, Heil and Cascade
- Studio Monitors
  Buyer's Guide

KRK Rokit G2 P10

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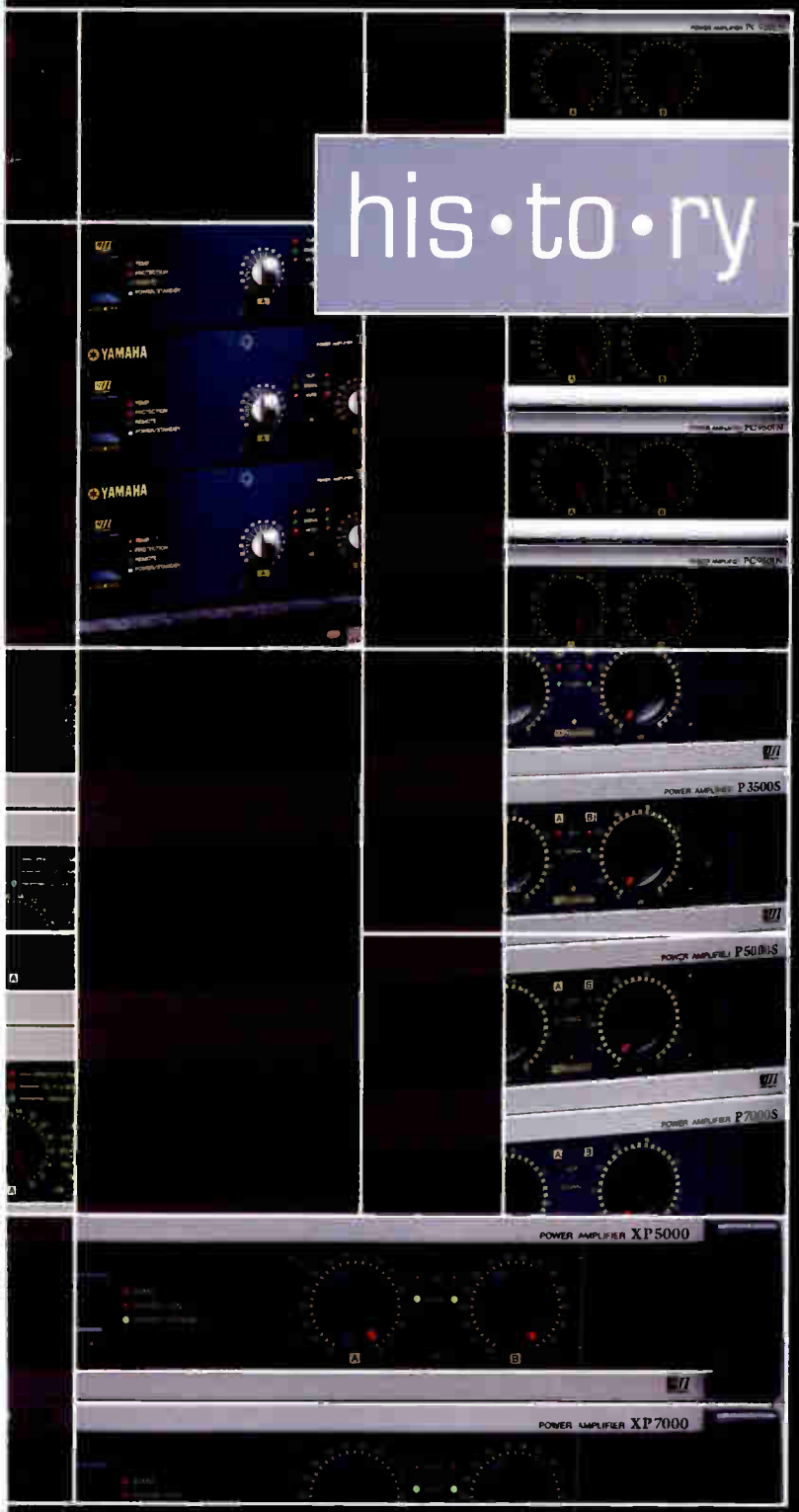

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–noun, plural –ries
1. The branch of knowledge dealing with past events.

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FROM THE PUBLISHER

John Gatski

Integrating Trade Shows

With the multitude of trade shows and conventions these days, it's good to see the incorporation of InfoComm and NSCA into one larger, more efficient trade show. The show gets underway June 14 in Las Vegas.

Many of the sound-only systems integrators and the AV systems professionals are interested in the same products, and this show — with a combination of great venue in 'Vegas and the hundreds of manufacturers showing their products — make it a much easier show to manage. From the costs of traveling to the time it takes to attend different trade shows at different times, it makes much more sense to put these two in one place.

Although it will contain a shared expo of manufacturer booths, NSCA and InfoComm are still separate organizations and will continue to have their own education seminars, sessions and selective meetings. The organizations are different, just shared efficiency for all.

As a trade magazine covering many shows during the year, an integrated trade show makes our lives easier in covering the latest products under one roof — gotta love that! I could think of a couple more trade shows that need some integration.

If you are attending the show, stop by the NewBay Publishing booth, C2026, and say hello. We will have representatives at the show from several of our titles including PAR, Pro Sound News, Systems Contractor News, Government Video and TV Technology.

SPEAKERS AND POWER

With the domination of self-powered speakers in pro audio, Heather Johnson has compiled an interesting Q/A with speaker manufacturers and amp manufacturers discussing the merits of self-powering speakers as well as using the old passive speaker/separate amp formula, the once-upon-a-time way to monitor.

There are some really good powered monitors out there these days, from high cost, big power/driver models to the utilitarian Asian-made compacts, there are models for every need. Self powering and onboard electronics' advantage is that the speakers sound can be tailored very specifically for their intended environment, and usually they can be produced at a lower price — especially with some of the newer, efficient amp technologies.

But I still like separates. I own a few pairs of self powered speakers and have tested a bunch of them over the years, but my primary system still has separates.

I know a lot of mastering engineers who swear by them. So at PAR, we still review both kinds speakers and an occasional set of passives (mostly from the audiophile side) and separate amps. Amplifier technology has continued to evolve — from classic Class A/AB bipolar and MOSFET output with traditional power supplies, to improved Class A output, to super efficient digital amps. Heck, I have a singled-ended stereo amp, all Class A, that has only two active devices per channel, producing only 7 watts to each channel, but amazingly transparent.

John Gatski is publisher/executive editor of PAR. His basement studio is filled with a wall of amps numbering 10 strong, including a classic Macintosh MC275.

Feedback

We want to hear from you. Send your comments to jgatski@aol.com. Please include name, city, state and job title and firm in the email. For product submissions, contact Strother Bullins at newproductsPAR@earthlink.net.

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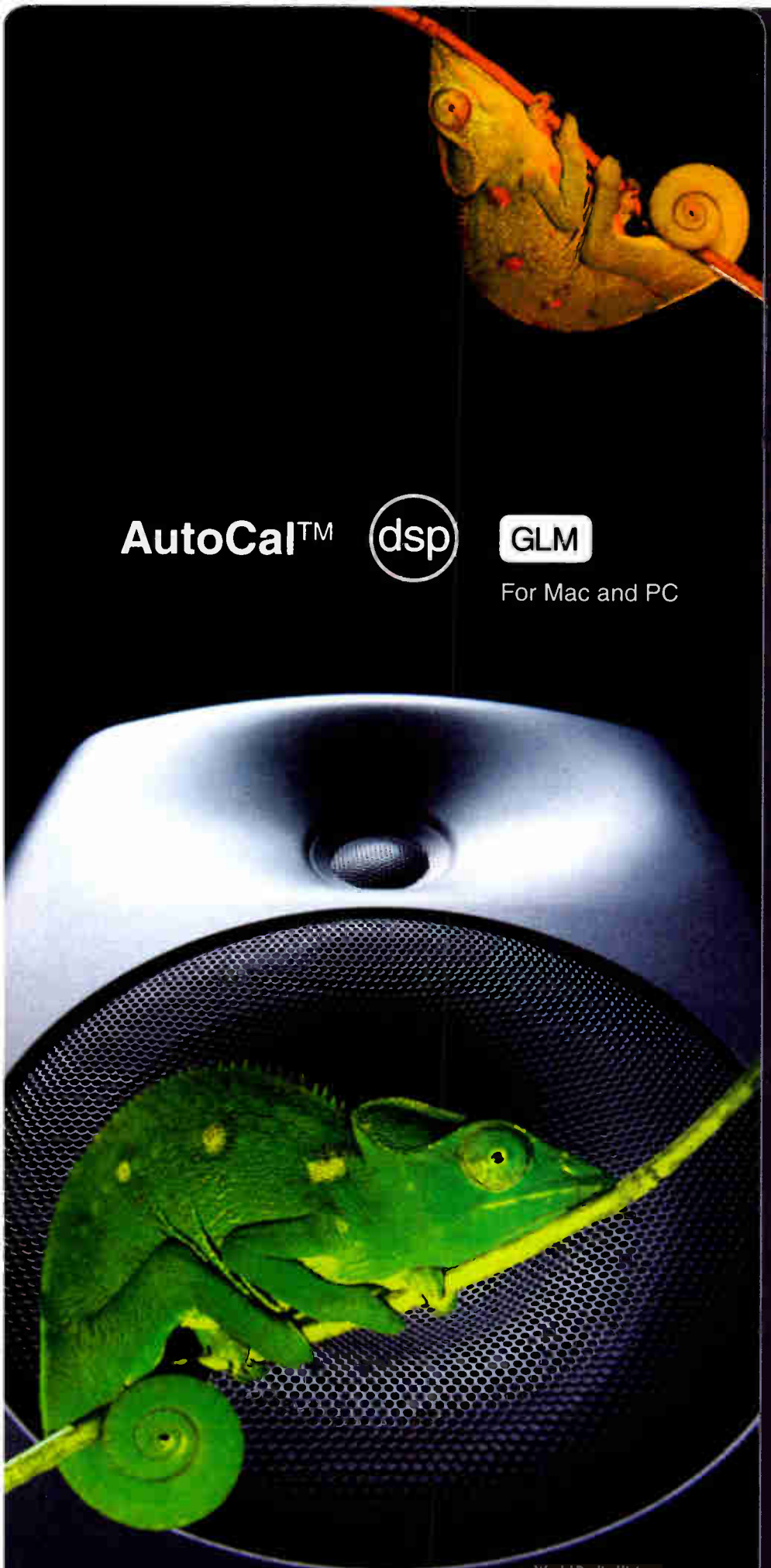
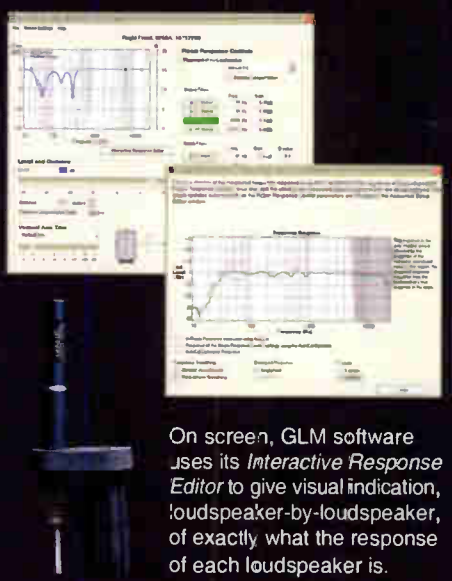


Designed to Adapt

Nature has come up with clever ways to let some animals adapt quickly to their environments.

At Genelec our new 8200/7200 DSP Series also have the ability to adapt to their environment, by design.

AutoCal™, Genelec's optimisation software takes into account level, distance and 8-band equalization to adapt each monitor loudspeaker to its immediate environment. What's more it does it as a system, with network control of up to 30 adaptable loudspeakers, including subwoofers.



On screen, GLM software uses its *Interactive Response Editor* to give visual indication, loudspeaker-by-loudspeaker, of exactly what the response of each loudspeaker is.

In 1978 Genelec brought active monitoring to the professional audio world. An essential part of our active design is the room response controls. They are included in every Genelec analogue model to help integrate them to the listening environment. To further this, Genelec Product Specialists travel the world providing system calibration services to ensure optimum monitoring performance for our large system customers.

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World Radio History

STUDIO

The latest news and products

NEW PRODUCTS

FDW-WORLDWIDE Distributed Sontronics Microphone Line

North American pro audio distributor FDW-Worldwide is now distributing the Sontronics Microphones line. Founded by company Managing Director Trevor Coley, Sontronics officially launched at the 2005 Winter NAMM Show. Coley and his team of UK engineers have designed their microphones with the idea of providing professional quality at an exceptional value. In addition to their extensive microphone line, Sontronics offers top-of-the-line preamplifiers manufactured in Europe. Pictured here is the buzzed-about active ribbon offering, the Sontronics Sigma.

All Sontronics microphones are manufactured under laboratory conditions, where their finely tuned individual performance characteristics are carefully measured and controlled. The mics are then shipped to the UK where they are checked and tested by Sontronics' in-house engineers before shipping to FDW-Worldwide.

In other Sontronics product news, the company has introduced its lifetime warranty for their microphones covering the original owner against defects in material and workmanship for the life of the product. Sontronics preamplifiers carry a 2-year warranty against defects in material and workmanship.

PRICE: $899 (Sigma ribbon)

CONTACT: FDW-Worldwide | ☎ 608-227-2040 ➲ www.fdw-w.com

GENELEC Small Environment DSP Monitoring System

Genelec has introduced the SE (Small Environment) DSP Monitoring System, which offers Genelec's renowned performance in a high-quality, affordable and easy-to-use package that is ideal for near field monitoring, mobile/location recording, digital audio workstations, broadcast and TV control rooms, surround sound systems, home studios and multimedia applications.

The SE DSP Monitoring System combines the new SE7261A 10-inch DSP subwoofer with 8130A digital input active monitors (5-inch bass drivers and 3/4-inch tweeters), for easy configuration as a sub-assisted stereo or multi-channel reference system. Software control via the SE7261A DSP subwoofer provides all necessary network connections to the host computer and supplies extensive DSP resources through its high-pass AES digital outputs to the 8130A's.

The system also features new AutoCal GLM (Genelec Loudspeaker Manager) SE software, which provides the familiar graphic interface to help speed users through system setup and complete acoustic calibration.

PRICE: $1,195 (8130APM) to $9,795 (SE Digital Power Pak Five)

CONTACT: Genelec | ☎ 508-652-0900 ➲ www.genelecusa.com

AUDIO-TECHNICA AT4040SP and AT4041SP Studio Microphone Packs

Audio-Technica offers two new mic bundles, the AT4040SP and AT4041SP Studio Microphone Packs. Both include two mics from the A-T 40 Series of condenser microphones, along with mounting hardware and protective wooden cases, in cost-effective packages. The AT4040SP Studio Pack includes one AT4040 large-diaphragm side-address cardioid condenser and one AT4041 cardioid condenser. The AT4041SP Studio Pack offers two AT4041 cardioid condensers.

The AT4040 side-address condenser microphone features an advanced large diaphragm tensioned specifically to provide smooth, natural sonic characteristics, perfect for on-air and voiceover applications. Further, it offers exceptionally low noise, wide dynamic range and high-SPL capability. The AT4041 cardioid studio condenser microphone features a smooth, extended frequency response with a slight rise in the high-frequency region and a transformerless output for very high SPL-handling capability.

PRICE: $895 and $795 (AT4040SP and AT4041SP, respectively)

CONTACT: Audio-Technica US | ☎ 330-686-2600 ➲ www.audio-technica.com

NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS

Veteran sound engineer Dan Wallin was a natural choice to record Michael Giacchino's epic score for "Speed Racer" (Warner Brothers), the latest film to advance the trail-blazing style and technique of the Wachowski Brothers ("The Matrix Trilogy," "V for Vendetta"). Wallin and Giacchino have worked together on many previous projects, including "The Incredibles," "Ratatouille," "Mission Impossible 3," and the "Lost" television series. Four 49 large-diaphragm condensers recently joined their siblings on the scoring stage for "Speed Racer" and inched Wallin that much closer to his sonic

vision of a perfectly transparent recording. While recording the music for "Lost" at Capitol Studios, Wallin was so impressed with the Neumann TLM 49's wide open, truthful and accurate sound that he purchased four of them.

Nashville's OMNIsound Studios recently expanded to develop a state-of-the-art mixing/mastering facility adjacent to its original location. OMNIsound chose GC Pro to equip its new digs, and bought from them a 32-fader ICON integrated console system and D-Control from Digidesign with two 16-fader packs, Pro Tools HD3 Accel system, Apogee analog-to-digital and digital-to-analog converters, Dynaudio speaker system with two subs, SPL MixDream Analog Summing Unit and various other outboard gear.

Jose Hernandez, leader of Mariachi Sol de Mexico, acquired a pair of PMC IB1S Precision Monitors for his Lake Arrowhead Recording Studios. The facility offers digital and analog recording as well as CD mastering and 5.1-channel mixing. Other equipment at Arrowhead includes a 96-input Yamaha DM2000 console, Apogee Digital AD16 converters, and an Apple Mac G5 running Digidesign Pro Tools HD|3 software with MOTU MTP MIDI interface.

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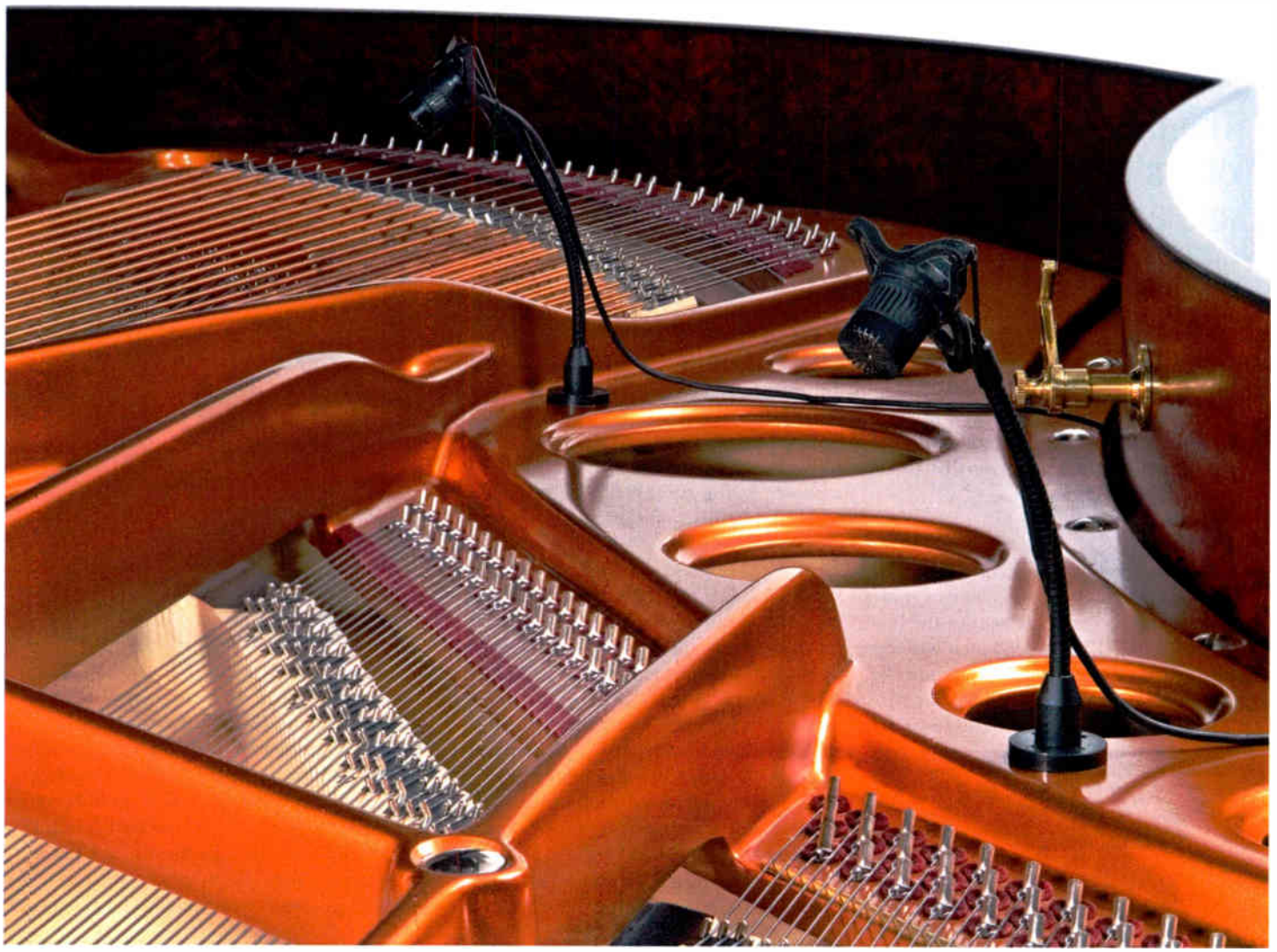
THE PERFECT MATCH



w w w . d p a m i c r o p h o n e s . c o m

The DPA 3521 stereo kit - the perfect partner for your instruments, includes two DPA 4021 compact cardioid microphones matched within +/- 1 dB on frequency response, sensitivity and self noise. Supplied in a robust carrying case with XY/ORTF holder, shock mount, goose-neck mounts and magnet bases, the DPA 3521 is designed for low profile mounting inside of pianos.

It's also the perfect kit for use on choirs, string sections, acoustic ensembles and drums as well as for use as a spot mic on virtually any instrument.

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by **Dan Wothke**

KRK Rokit G2 Powered Studio Monitor Series

The budget-priced redesigned Rokit Series offers significant improvements in imaging and accuracy.

With only a quick glance, anyone familiar with the KRK brand will immediately recognize the signature yellow cone and charcoal grey housing of its entry-level Rokit monitor line. Add power, a sleeker enclosure, extra connections and a cool glowing logo on the front and you have only a hint of what is now the Rokit Generation 2, or G2, Series.

| FEATURES

The second generation of the Rokit bi-amped powered series is available as three different models. The papa bear of the line is the 20W HF/70W LF 8"-inch woofer model, which weighs 25.8 lbspounds. Its frequency response is 44 Hz to 20 kHz, +/- 1.5 dB, with a built-in active crossover set at 2.4 kHz. The next in line is the 19.3 lb.pound 6-inch" woofer model with a power rating of 18W HF/50W LF. Its frequency response is 48 Hz to 20 kHz, +/- 1.5 dB; crossover point is 2.6 kHz. G2's baby bear, and what I reviewed here, is equipped with a 5"-inch LF driver, weighs a modest 13.4 poundslbs, and hasprovides a power rating of 15W HF/30W LF andwith a crossover point of 2.0 kHz. The frequency range on the 5-inch" model is 52 Hz to 20 kHz +/- 2 dB. Each model of the Rokit G2 series has the same recessed one-inch soft -dome tweeter.

Most importantly, the Rokit G2 Series' upgraded design includes a redesigned cabinet. According to KRK, by curving the baffle and corners of the cabinet, the diffusion associated with boxy cornered cabinets is drastically minimized, which results in a wider sweet spot. I realized this when I found myself doing the typical 'duck neck' movement — sitting still, but moving my head all around trying to lock in on the pinpointed sweet spot. With the speakers approximately 3' apart, the sweet spot covered a wide area and changed proportionately as I moved the speakers closer to each other.

The back of the cabinet offers three types of audio connections: XLR, TRS and even an unbalanced RCA jack. This will covers the gamut of typical setups and eliminates the need to carry around a RCA to TRS adapteradaptor associated with many lower cost sound cards. A notched volume control is included, providing input ranging from +6 to -30 dB. The notches are great, as they remove guesswork when trying to get the levels exact on both monitors. Also available is an adjustable-gain HF Level adjustment, a shelf starting at 2 kHz. This is availableShelf gain can be adjusted in -2 dB, -1 dB 0 and +3 dB increments—helpful when making adjustments to compensate for the placement and listening environment constraints. I played with itthe shelf settings whenever I listened in an unfamiliar room, but I always ended up leaving it on 0, simply because I was still familiarizing my ears with the monitors; during the early stages, less change means less chance for misinterpretation ... or so I like to think. Finally, each Rokit G2 receives power via a standard fuse -protected IEC power connector.

> I compared the KRKs with my current speakers of choice for smaller DAW-type work, the M-Audio Studiophile BX5a and a passive pair of KRK ST6s powered by a SAE TWO amplifier. I have an acquired taste for the ST6, but the Rokit 5 far outshined them in smoothness, imaging and accuracy across the spectrum.

| IN USE

I toted the Rokit G2 5-inch pair around with me to different listening environments to really get an accurate representation of what these offered. This included a very

KRK continues on page 12 ➤

FAST FACTS

APPLICATIONS
Studio, project/home studio, location/mobile recording, audio for broadcast and audio post production.

KEY FEATURES
Two-way; Rokit G2 models with glass aramid 5", 6" and 8" composite cone woofers; 1" neodymium soft dome tweeter; bi-amplified with active crossover; input gain control; radiused cabinet edges and curved front baffles; molded front-facing bass port.

PRICE
$149, $199, $249 each (5", 6", 8" models, respectively)

CONTACT
KRK Systems | ☎ 818-534-1500
➲ www.krksys.com

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Dave Pensado - S3A / Sub12

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KRK Continued From Page 10

large, acoustically correct control room (meaning it wasn't converted office space or a den) and, yes, a converted office space (where proper acoustics are on a long to-do list). In the larger facility I had the KRKs on their sides about 45 inches apart. This was a unique setup; I used the KRKs as near field monitors while the two-mix was also being fed to a set of larger monitors for an acoustic showcase in the other room. I was limited on how hard I could push the mix due to the possibility of feedback in the other room, so I quickly took a liking to the +6 dB of gain available on the KRKs. Although the power capability of the 8-inch model would have been a better fit for this large of a room, the 5-inch hung in there and, after listening back to the live mixes, had proven itself as a reliable monitoring source.

Probably the best fit in my trial run with the Rokit was in smaller rooms with the speakers located on each side of a dual monitor DAW, about 40 inches apart, sitting vertically on the 1/4 inch foam pad adhered to the bottom of the cabinet. Video shielding is part of the G2 design, so there was never a concern of any interference from the monitors. The setup was within 4 inches of the back wall and, in one instance, within a foot of corners on both sides. Granted — this is not the ideal setup but sometimes we just have to work within the confines we are dealt.

I compared the KRKs with my current speakers of choice for smaller DAW-type work, the M-Audio Studiophile BX5a and a passive pair of KRK ST6s powered by a SAE TWO amplifier. I have an acquired taste for the ST6, but the Rokit 5 far outshined them in smoothness, imaging and accuracy across the spectrum. The BX5a is a comparable speaker to the Rokit 5, both in price and size; the immediate noticeable difference between the two was in low end, as the BX5a are rear ported. Because of this, I have a built-in notch filter programmed somewhere in my mind to cut out the apparent low-mid build up. The KRK's front port design remedies this as all low frequency information comes right at me from a slot at the bottom of the speaker. Here, I heard what the low end was doing and was pleasantly surprised at the punchiness that came from the small package. My usual sub was disconnected during this instance and remained off — the translation of the audio was very accurate from top to bottom. I played these for hours on end and was not fatigued when monitoring from the KRKs. When it was time to crank up the mix, the G2's sound was consistent with the sound when at lower levels.

> I played these for hours on end and was not fatigued when monitoring from the KRKs.

The other difference in the BX5a and the G2 was in the sonic characteristics between the speakers. The KRK G2 was relatively flat across the spectrum and high-end hype, sometimes associated with former KRK models, was not there. The G2 was very pleasant to listen to, highlighting the shortcomings of the BX5As upper mid-range boost.

| SUMMARY

The Rokit 5 G2 would be a solid fit for an application where acoustic environment is an issue, surround mixes are taking place, or the on-the-go engineer needs a monitor able to quickly adapt to acoustic spaces and connectivity. Whether against a wall or in open space, I found these to provide a consistent and accurate reference point without wearing out their welcome on my ears. The new cabinet design adds sleekness to the look but, more importantly, lends to an accurate monitor that takes little time to adjust the ears. I can only imagine the same is true for the rest of the Rokit family. Throw in the $300 street price for a 5" inch pair ($400 for the 6 inch pair, and $500 for the 8 inch pair) and the Rokit G2 Series becomes a serious player in the 'lower cost quality reference monitor' market.

Dan Wothke currently runs the gauntlet of all things media in his role as Media Director at Belmont Church in Nashville. He invites you to contact him at dwothke@yahoo.com.

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UpSAMPLER

Capsule Reviews and Product Review Updates

CEntrance MicroPort Pro

CEntrance, Inc. | 847-581-0500 | http://www.centrance.com

The CEntrance MicroPort Pro ($149) is a simple, four and a half inch long barrel with a female XLR on one end and a USB port, headphone jack and phantom power switch on the other end. The phantom supply current runs at a healthy 48V DC, 20 mA — more than enough for the hungriest condenser mic. There are also rotary mic gain and headphone gain knobs on the barrel. The headphone amp gain is very healthy. When you plug the USB cable in, a sexy, translucent white ring around the unit lights up to let you know you're connected.

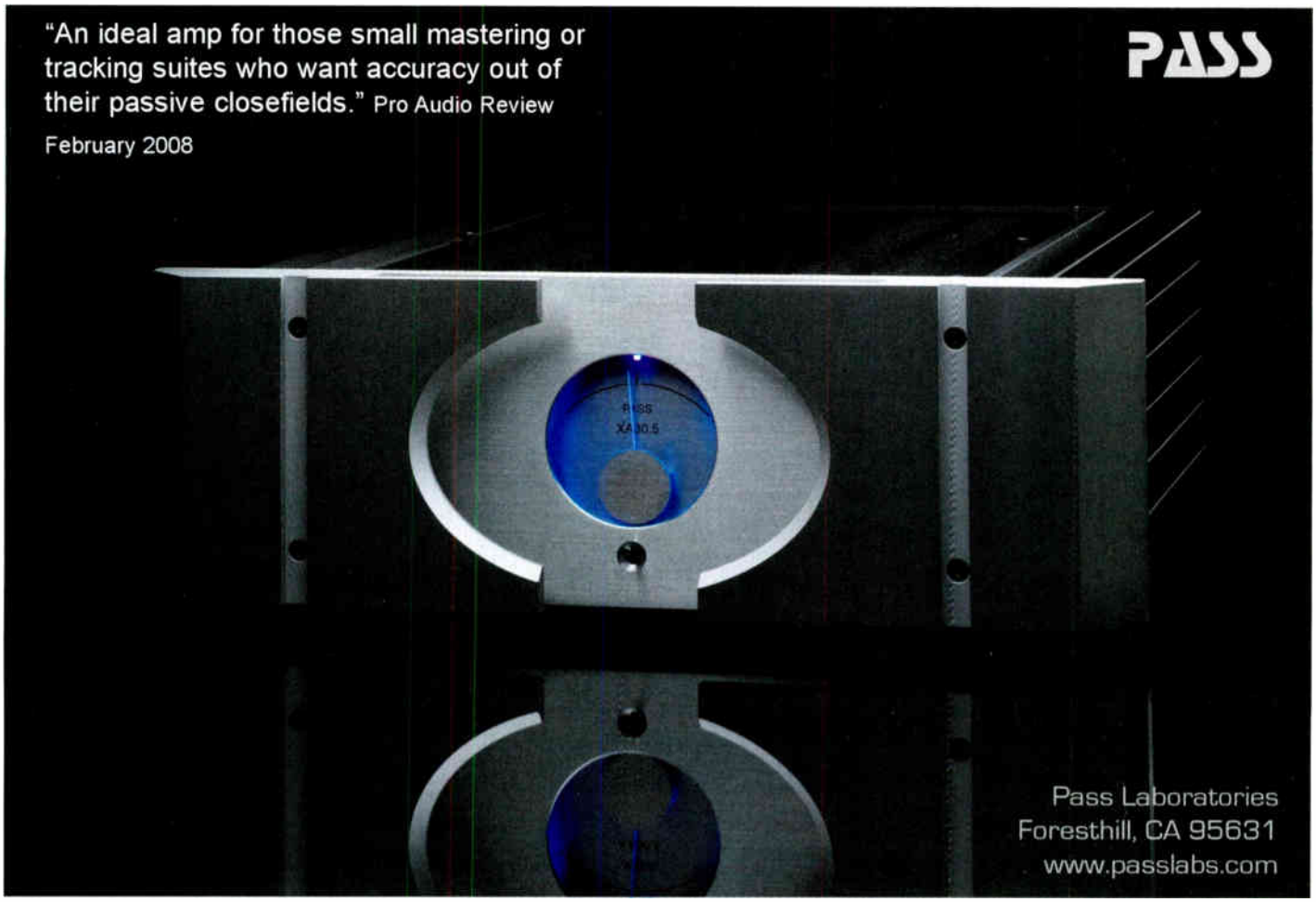
You do need to know a little about the sound control panels in your computer and the preferences panels of your applications. They need to be visited to make sure MicroPort Pro is recognized. Everything worked fine with my 10.4 Macs, but I did run in to a few small problems with the newer 10.5 Macs. The audio sounded garbled when I tried to record into QuickTime Pro 7.4.5. After I changed the Mac sound control panel to record and playback at 24-bit/48kHz, QuickTime recorded and played back properly. Curiously, when I recorded into Soundtrack Pro at 24/96 and exported the file, QuickTime Pro recognized the file as 24/96 and played it with no problems.

With a Sennheiser 421, I had to turn the MicroPort Pro mic gain control up all the way while I was talking at a subdued conversation level with the mic about two inches from my mouth. Even with the gain full up, there wasn't a lot of circuit noise. Using iChat and SKYPE, I talked with friends in far away places with better than average quality. In fact, using the Sennheiser, I got comments that the audio I was sending over SKYPE was better than most cell phones.

More sensitive condenser mics required less gain and could be used at further distances. My Schoeps cmc641 sounded good, but not as good as it sounds when recorded through my studio's pricey preamps and A/D converters.

There's a lot going on inside this little tube. Powering MicroPort Pro with USB-available voltages requires two switching power supplies: one for the circuitry and light and one for the phantom power. Being able to quickly convert any mic level source, including Phantom Powered mics, to a 24/96 digital signal with input adjustment and headphone monitoring makes MicroPort Pro a very handy tool.

— Ty Ford



World Radio History

By **Rob Tavaglione**

Avantone Active Mixcube Studio Reference Monitors

The Active Mixcube combines the ubiquitous single-driver, full-range studio reference of old with a built-in amp and a plethora of mod updates.

Now that you've installed your new subwoofer and networked 'intelligent' monitors, what else could you possibly need to add to your monitoring system? Some 5-inch, full-range mini-monitors, of course!

The standard single-driver, full-range studio monitor has always been the Auratone 5C. And today, it will be the Avantone Active Mixcube from Avant Electronics. Referencing 'real world' playback has never been this cute ... or this smart.

FAST FACTS

APPLICATIONS
Studio, project studio, audio for broadcast, audio post, location/mobile truck use.

KEY FEATURES
6.5-inches x 6.5-inches x 9.5-inches MDF cabinet with radiused edges; 5.25" New Zealand pulp and mica driver, 43 oz. magnets, die-cast aluminum frame; 35W Class A/B amp; 90 Hz – 17 kHz frequency range; 94 dB of output @ 1 watt/1 meter; Neutrik combo connector (accepting XLR, 1/4-inch TS or TRS) and RCA inputs; 7mm neoprene pad; magnetic shielding; Dacron acoustical stuffing; 5/8-inch mic stand mount.

PRICE
$419 per pair

CONTACT
Avant Electronics | ☎ 909-931-9061
➲ www.avantelectronics.com

| FEATURES

The popularity of the ubiquitous Auratone 5C rested in its ability to simulate playback as often heard by the end users (listeners) of our recordings. Let's face it; even today, a lot of consumption is through devices with only a single (or pair of) full-range driver(s). Sans thumping lows and piercing highs, do your mixes translate to such bandwidth-limited playback?

Avant Electronics' original non-powered Avantone Mixcubes upped the ante on the now-unavailable Auratone via beefed up cabinetry and components. Now the $419 (manufacturer direct per pair) Active Mixcubes take Auratone concept to its logical and thoroughly-modernized conclusion. The cabinets are solidly built and thought out with MDF construction, radiused edges, a polyurethane high-gloss "Butter-Cream" finish, a 7mm neoprene pad, magnetic shielding, Dacron acoustical stuffing and a 5/8-inch threaded insert for mic stand mounting. Input is provided on a Neutrik combo connector (accepting XLR, ¼ inch TS or TRS) and an RCA input.

The driver is a 5.25" paper (New Zealand pulp and mica) design with 43 oz. magnets and a die-cast aluminum frame. Power is provided by a Class A/B amp delivering 35 watts RMS. Frequency response is listed as 90 Hz – 17 kHz, with 94 dB of output @ 1 watt/ 1 meter. The Active Mixcube is slightly larger than the Auratone, but still necessarily small (only 8.8 lbs) at 6.5-inches x 6.5-inches x 9.5-inches, including its eye-catching heat sinks.

| IN USE

I connected the alternate monitor outputs of my Soundcraft Ghost console to the Mixcubes with a pair of TRS cables, creating the ability to quickly A/B against my JBL LSR 4328s and their powered sub (with room mode correction). My first impression was oddly positive in that I was blown away by the external power supplies! These were large and heavy, in-line transformers (either 110 or 220 V), with a thick, shielded output cable and a threaded, metal connector on the monitor end — nice!

I cranked up the input trims with a flathead tweaker and got them balanced with my mains. This balancing required a little work, as one must focus on the volume of only the mids, not the bottom or top end, to judge average SPL between systems.

Upon completion, I was rewarded with the focused, no-frills sound that Auratones are loved for — except the Active Mixcubes are more focused and less nasal than I remember Auratones to be. I'm really praising the qualities of the midrange here; these are far more than "no bass" boxes, like many could expect. Without the mids being split up by crossovers and multiple drivers (and all the phase inaccuracies and distortion that

AVANTONE continues on page 16 ➤

World Radio History

LEGACY

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Studio HD
$800 ea.

Focus SE
$4,400 ea.

800-283-4644 legacyaudio.com

World Radio History

AVANTINE Continued From Page 14

result), these critical frequencies are trustworthy and honest, clearly affecting vocal and melodic instrument mix decisions.

I fiddled around with some old dialog tracks and found the Avantones immediately helpful; balancing voices was easier here than on my mains. I tried the Mixcubes on some pop mixes and found this process to be a good bit trickier, of course. I always compare my mixes on multiple monitors and headphones, but the addition of the Mixcubes has benefited my 'vocal to backup vocal' and 'guitar to guitar (or keys)' balances the most. I also found the Mixcubes helpful in balancing multiple tom toms, focusing on their attack and their middle, without fooling me with their boom.

> I was rewarded with the focused, no-frills sound that Auratones are loved for — except the Active Mixcubes are more focused and less nasal than I remember Auratones to be.

Many people praise the value of using original Auratones to get 'just enough' kick and bass in their mix. This process will work on the Mixcubes as well; just dial in the kick on your mains and use the Mixcubes to check for mere audibility, not depth or fullness. Without changing the dialed-in bottom, a second EQ bump (higher in frequency) can be added for audibility, if needed.

Further, I carted the Mixcubes over to my local PBS affiliate (WTVI) to check them out 'in their element;' my judgements were confirmed. Perched atop WTVI's Studer D-950 digital broadcast console, the engineer there surmised they "sound like Auratones" — mission accomplished.

| SUMMARY

The bottom line is that these Mixcubes have so much usefulness in so many atypical ways that most any studio could use a pair. Combine all this utility with a reasonable price, professional construction and an impressive five-year warranty, and these little Mixcubes don't need to be so dog-gone cute to earn a spot in your nearfield. They're smart, good looking and affordable ... what a catch!

Mixcube's Rear Inputs

Rob Tavaglione has owned and operated Catalyst Recording in Charlotte NC since 1995. Contact him at rob@catalystrecording.com.

| REVIEW SETUP:

Soundcraft Ghost console, Digital Performer 5.12, Mac Pro computer, JBL LSR4328 system, Lucid Gen X 6-96 wordclock

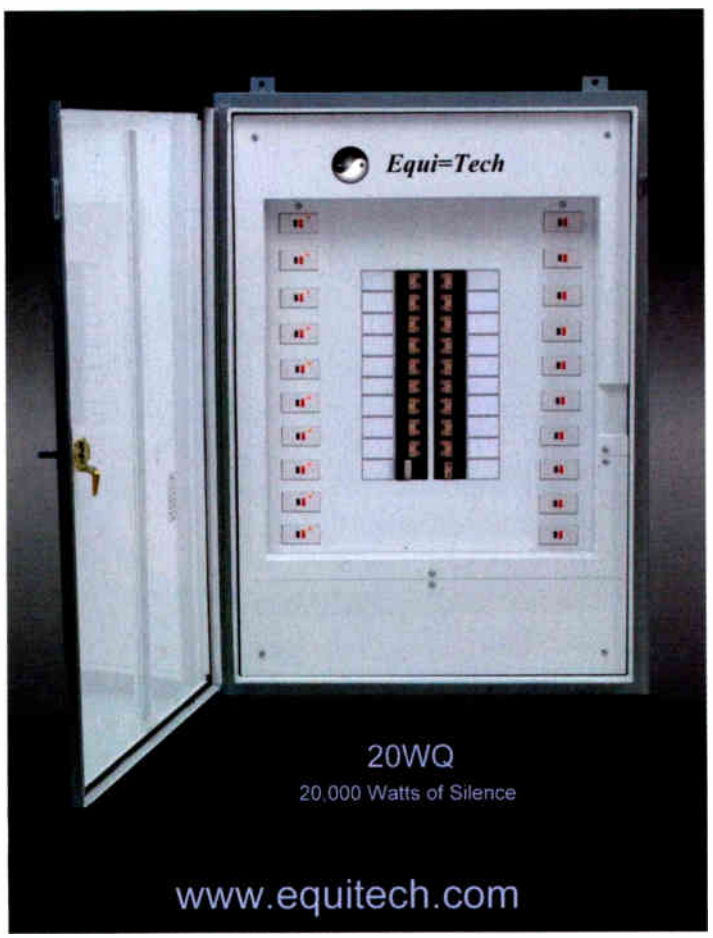
PRODUCTPOINTS

- Ideal second point of reference for full-range speaker playback
- Quality construction and thoughtful design
- Reasonably priced, visually attractive and portable

- Not adequate as a primary monitor
- Built-in limiter for protection would be nice

SCORE

Active Mixcubes offer so much usefulness in so many atypical ways that most any studio could use a pair.



World Radio History

PAUL SANDWEISS

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Genius: A Night for Ray Charles Special
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When the mission is flawless mix-down of live music performances, the producers of America's top rated TV shows call Paul Sandweiss and his team at Sound Design Corporation. To make sure there are no surprises when he views the shows at home, Paul relies on JBL LSR6300 Series Studio Monitors on the gig. "I work in a lot of environments and my monitoring set-up is critical. Not only do the JBL LSRs get the job done, when clients come in, they love the sound. The LSRs have great low end, warm midrange and airy sweet highs that allow me to put a little more love on my mixes. I can mix sixteen hours a day with no fatigue. The RMC™ Room Mode Correction is very helpful in situations where we have to get in quick and get going. It gets us closer faster. We just got a set of the new LSR4300 series and the automated RMC makes set up really easy. It's about knowing the mixes will translate, and the JBL LSRs work really well for us, on location and in our five control rooms at Sound Design."

Hear why Emmy® Award-winning mixer Paul Sandweiss relies on the LSR Series Studio Monitors. Visit www.JBLPRO.com/LSR

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World Radio History

by **Dan Wothke**

Berliner U77 Multipattern Tube Microphone

The U77 is an admirable choice as your one and only truly high-end tube microphone.

Berliner Microphones — named in part after Emile Berliner, one of the first builders of microphones via a telephone transmitter in the late 1800s (which was eventually acquired by Bell Telephone) — completely skipped the cluttered budget microphone pool and jumped right into the elite world of high-end, hand crafted, European-designed tube microphones. According to the manufacturer, the company name became a no-brainer as the capsules and transformers for its high-end offerings wound up being manufactured in Berlin — just call it nomenclatural destiny.

I spoke at length with Dana Paul, the man behind Berliner, to voice my concerns about investing the dollars to purchase a product — the U77 multipattern tube microphone — from a startup company such as his; it was a concern that I felt was justified. Dana assured me that Berliner was created out of a passion for creating music, as he himself is a producer and has a large collection of modern and vintage microphones. He has many other successful ventures and has not put his eggs all in the Berliner basket. I say this because I have personally reviewed equipment from startups in the past to find that only a few months after print, the company's doors are closed. For Berliner, those concerns are put to rest; should the mic ever have any trouble, it will be covered under its lifetime warranty from the Berliner US support center.

FAST FACTS

APPLICATIONS
Studio, project studio, audio for broadcast

KEY FEATURES
Omni, figure 8, and cardioid patterns; 30 Hz to 20kHz frequency response; Raytheon NOS 5703 military-grade tube; 'duraluminum' and stainless steel construction; Mic-power supply connectivity via GAC7 10m Gotham cable with 7-pin Tuchel connector; brick-style power supply; shockmount; waterproof case.

PRICE
$3,495

CONTACT
Berliner Microphones | ☎ 888-MIC-THIS
➲ www.berlinerusa.com

| FEATURES

The U77 is just over 9 1/2-inches long, weights 11 pounds and 5 ounces and is constructed of 'duraluminium' and stainless steel. It is right at home in its U47-style shock mount with hinged clasps to assure a good grip on the microphone.

It boasts three patterns — omni, figure 8 and cardioid — with a frequency response of 30 Hz to 20 kHz. Connectivity between mic and power supply is provided with a GAC7 10m Gotham cable using a 7-pin Tuchel connector. The brick-style power supply is encased in a thick black aluminum enclosure with the internal parts accessible via four screws. The single PCB is roomy in layout with all components well spaced out and easy to follow traces located on the bottom of the board. The outside end of the power supply has a standard IEC power connector, selector for 115/230V A/C, power switch and indicator light. The other end consists of the 7-pin female Tuchel connector, female Neutrik XLR and pattern selector switch.

Overall, this is a very well designed and constructed mic with no low dollar Asian components. Even the transformer is hand wound in Europe and fully inspired by the original M7/49, credited in large part to its smooth and natural sound. Included with each microphone is a custom frequency response plot.

During my time at Masterfonics, there were many days where I found myself locked down in the shop with a vintage, high dollar tube mic disassembled on the bench while I tried to track down various problems. Whether testing and replacing tubes, fixing cold solder points or testing the components, I became quite familiar with the build and quality of vintage German microphones and even the latest high dollar microphones. Here, I decided to put that experience to work, taking apart the Berliner microphone for look under the hood.

Inside, the mic looks similar to many of the classic mics with hand crafted point-to-point wiring accompanied by two easy to follow circuit boards. Clear Plexiglas dividers separate the diaphragm from the electronics and reinforce the construction of the microphone. The Raytheon NOS 5703 military-grade tube is hard wired due to the power requirements of the tube. This tube is known for its low noise and long life span and is similar to the original M49 tube, the AC701K. The capsule is hand-built and skinned by ex-Neumann engineer Siegfried Thiersch, one of the original builder of the M7 capsule. The U77 is built exactly the way

BERLINER continues on page 20 ➤

World Radio History

Number one by design.

INTRODUCING

The Studiophile BX Deluxe Series

What happens when you surpass what people expect from a near-field reference monitor? You end up with the best selling* monitor in its category–the M-Audio Studiophile™ BX5a. Now our obsession with perfection has led us to raise the bar again. Meet the Studiophile BX5a Deluxe and the Studiophile BX8a Deluxe.

* Source: MI SalesTrak

The BX Deluxe monitors sound balanced at a wide range of volumes, so your mixes will translate across diverse listening environments. They also provide detailed sonic imaging, seamless frequency integration and an amazingly cohesive sound. The BX Deluxe monitors are designed to deliver an exceptional monitoring experience that's true to your music.. Hear for yourself at your local M-Audio dealer.

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- 130 watts of bi-amped power
- 8" Kevlar low-frequency drivers
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- XLR balanced and 1/4" TRS inputs
- OptImage IV wave guides

Studiophile BX5a Deluxe

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- 5" Kevlar low-frequency drivers
- 1" natural silk high-frequency drivers
- XLR balanced and 1/4" TRS inputs
- OptImage IV wave guides

To learn more about M-Audio's complete line of monitors, please visit *www.m-audio.com/monitors.*

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World Radio History

BERLINER Continued From Page 18

he built the original M7 — the Berlin double ring type — with the exception of using Mylar instead of PVC, which deteriorates over time and is subject to environmental conditions such as heat or moisture. [According to the manufacturer, PVC components are one of the reasons why the original M7 sounded slightly different from one another — Ed.]

Even the U77's case was designed with excellence in mind; it utilizes 600 and higher denier nylon, DuPont Cordura, highest quality ? to ?-inch plywood, high-quality vinyl, polyester and leather with complete protection against humidity and other elements. Although I was not brave enough to try, it is claimed that the case can be fully immersed in water without the mic even getting damp.

| IN USE

My first test for the U77 was a female vocal on a song that ranged from low and raspy to high and, if not careful, ear piercing high-mids. I tried a few other low to mid-priced condenser microphones on this particular vocal and each time I was fighting to calm down the sonics. The signal chain was the U77 to a Summit 2BA-221 dialed completely into the solid state circuitry followed by a dbx 160XT compressor set to just barely grab the loudest points of the vocal.

After listening to a dry run, it was decided that no external EQ was necessary. The intimacy in the lower part was beautifully captured with the U77. Proximity really exposed the vulnerability the singer was imparting when the pop filter was 1 and ?-inches away from the microphone. The true test was when the belting started in the higher ranges. The U77's character really shone as what are usually offensive frequencies were naturally smoothed out; not dulled in any way, but more like the harshness was rounded off.

This was also the result with a male singer with more of a baritone/alto range; the mic was superb in capturing the performance while naturally rounding out what are often troubled frequencies without the assistance of equalization.

The mic was lent to another engineer to use on some overdubs consisting of banjo, acoustic guitar and violin. The basic signal path included the U77 into a combination of mic pres from API and Millennia, a dbx 160 for compression and, occasionally, the A-Designs Hammer HM2EQ tube EQ for added coloration to taste. Regardless of the chain, the results were excellent in each instance. So far, the U77 was really proving itself to be a great mic to have on hand for all applications. A testament to that was the violinist — a mainstay in the Nashville recording community — had such high affection for the results that he inquired about how he may acquire a U77 for his personal collection. This unsolicited endorsement spoke highly of the microphone capturing the body and fullness of the violin.

Berliner U77 On The Bench

| SUMMARY

Like all microphones, the Berliner U77 has a character and color all its own. Whether or not it sounds like the M7 capsule is up for debate as I have heard M7 capsules and many other vintage mics that don't sound like each other due to age and wear. The selling fact for this microphone is I would not hesitate to line it up with its vintage and modern counterparts in a shootout to find the best microphone for the desired result. For a facility where only one high-end tube microphone is an option to have on hand, the U77 is a admirable choice that would not disappoint as the primary go-to mic. In the "put your money where your mouth" is department, that is just what we did at our studio: we made the U77 our primary microphone for spoken word, vocals and a plethora of instrumentation — and have not once regretted the decision.

Dan Wothke runs the gauntlet of all things media-related at Nashville's Belmont Church in his role as Media Director. He invites you to e-mail him at dwothke@yahoo.com.

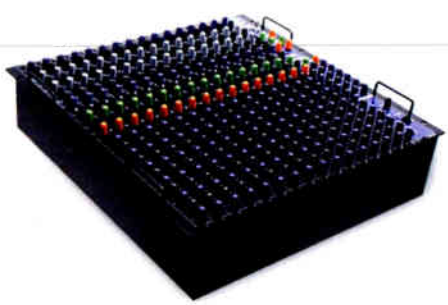
THE PERFECT MIX

hear back

- Unlimited system size
- Local control of eight channels (stereo mix and six "more-me's")
- ADAT, analog, HearBus inputs are switch-selectable from front panel
- Built-in DSP Limiter with threshold adjustment

- Master Volume
- Stereo AUX In
- Balanced Line-Outputs
- Built-in Mic Stand Mount
- Standard CAT5e power

mix back



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World Radio History

by **John Gatski**

Legacy Studio HD Passive Monitors

When I reviewed the first iteration of the Legacy Studio closefield monitors ten years ago, passive speakers in pro studios were still quite prevalent. Today, in a speaker world awash in powered monitors, the latest version of the non-powered Legacy Studio is a rare choice for studios.

The new Studio, priced at $1,699 per pair, has been totally redesigned with new drivers and cabinet design. Legacy's primary market is the audiophiles, but high-end pros that choose the separate amp/speaker route have used the Studios and their larger brothers, the Classic and Focus, for the detailed, accurate monitoring.

Legacy has a few dealers nationwide but does much of its business via direct factory order with a generous return policy.

| FEATURES

The Studio HD is a compact-sized, closefield monitor that sports an 8-inch woofer with a cone woven from carbon graphite and silver thread, and a custom-designed 1-inch folded ribbon tweeter with a kapton diaphragm and neodymium magnet. The ported, B4-reflex cabinet, provides bass augmentation for the small 13-inches tall 10.5-inches wide and 10.8-inches deep cabinet, allowing the speakers to reach down to a claimed 42 Hz.

Overall specifications included a factory rated frequency response of 42 Hz – 22 kHz (plus, minus 2 dB). The crossover frequency is 2.8kHz. Power rating is listed at 25 watts to 300 watts continuous RMS. Impedance is rated at 4 ohms nominal.

The cabinet's internal bracing and ultra-dense hardwood housing make for an extremely inert package with no midrange or treble coloration. Finishes include walnut, cherry and black pebble. The angled edges and sloped front-to-back dimensions are said to enhance dispersion.

Cable connection is done via spade or banana plugs, and the speakers can be bi-amped or bi-wired by removing the jumpers from the four speaker posts. Two switches allow subtle reduction in the mid-bass and low treble to compensate for room and location effects on the sound — about -2 dB.

I set up the Studios in two different systems: a closefield setup with a Mac DAW and as a midfield monitoring rig in the middle of my room with a 16-channel analog console.

| IN USE

In the first configuration, I sat them on Apollo stands and angled them in slightly toward the listening position. They were powered with a couple of different amps, including the reference high-power, Bryston 14B SST bipolar output amplifier, the Pass X350.5 MOSFET output amplifier and my current favorite low-powered amp, the all-Class A Pass XA30.5.

I fed reference audio from my Apple G5's Lynx L22 sound card to either a Benchmark DAC1 or Lavry DA10 converter, which fed the analog balanced outputs of my Coda monitor preamp and then the amp. Interconnects included Kimber Cable and Alpha Core solid silver, two-conductor cables. I used the Alpha Core solid silver cables to interconnect the amp to the speakers.

For reference, I also used the original Legacy Studios and the passive Lipinski L505s as well as my reference Legacy Focus 20/20s mid/farfield tower speakers.

On first listen, I could tell that the Legacy's did not need much break in. On 24-bit/96 kHz high resolution acoustic guitar recordings, the Studios sounded very natural with the accurate presence from a 1973 D35 Martin and my custom OO-28 fingerstyle guitar. Imaging was deep and wide with the complexity of the strums and plucks quite revealing without any harsh overtones. My initial listening notes contained the word "accurate" over and over.

The Studio HD is an excellent imaging speaker. I could hear a lot of treble cues spread very deep and wide in the mixes. Even compared to my Legacy Focus 20/20s towers with multiple drivers, the Studios were quite impressive in the amount of information they conveyed.

On jazz recordings, such as the DMP SACD Steve Davis "Quality of Your Silence" the ribbon tweeter had less of that seductive presence than the titanium dome of the original Studio — flatter sounding, but I believe it is more accurate.

Transient response is quite good for such a reasonably priced speaker. Drum cymbals reflect the speed and air of a well recorded setup, without a hint of harshness or over-splashiness — just like it sounds in the session.

High-resolution piano recordings also

FAST FACTS

APPLICATIONS
Legacy Studio HD

KEY FEATURES
Studio, project studio, audiophile Passive two-way B4-bass reflex design with 8-inch woofer and 1-inch ribbon tweeter, bi-wire terminals, 42 Hz to 22 kHz frequency response

PRICE
$1,699

CONTACT
Legacy Audio | ☎ 800-283-4644
➲ www.legacyaudio.com

World Radio History

revealed no exaggerated character or harshness in the upper register with the precise transients that quality piano mics are able to capture.

Another positive of this ribbon tweeter is its lack of extra sibilance you often hear on female vocals from some metal or soft dome drivers. This speaker shines on vocals with no exaggeration; what you hear is what you have on the recording.

The other characteristic I noticed was the good, unexaggerated bass for such small speakers. I measured test tones to 55 Hz that were just a few dB off the 1 kHz reference tone in my room. The original Studios had good bass, but there was some mid-to-upper bass enhancement in its tuning to help out the small driver/cabinet configuration. The latest version's woofer allows a flatter bass response.

Legacy Studio HD Rear Plate

The treble and bass tilt switches offer a little bit of fine tuning for spaces that may be a bit more live or have mid-bass build up when placed close to wall. I found they sounded a bit more open in the flat position, but the effect is subtle.

For the pop music engineer, the Legacy Studio HD can be played loud without hurting your ears. Using a really good Class A or A/B amp with really good passive speakers offers clean sound that many mass-produced powered monitor combos do not. I have heard many powered monitors that sound good at low-

LEGACY continues on page 24 ➤

PRODUCTPOINTS

- Accuracy
- Build/Design
- Good bass from a small speaker
- Bi-wireable
- Fine-tuning controls

- Few dealers

SCORE

A fine passive loudspeaker for those facilities who like separate amplification and need accuracy squeezed into tight space. Definitely a Reviewer's Pick.

World Radio History

LEGACY Continued From Page 23

to-moderate levels, but produce a bit of harsh sonic haze and edge when cranked up. You can't listen like that for very long.

I also tried the Studio HDs out in the middle of the room as a midfield monitor to see how it projected the sound from 7 to 8 feet. It was not as effective as the much bigger, Legacy Focus, but it was as effective as the standalone Lipinski L505s with more low bass. The Lipinskis need a subwoofer for any bass under 75 Hz.

As for negatives with this monitor, I had none. It sounds great, it looks good, it's easy to place and offers the flexibility of choosing your own amp. The only negative is that Legacy is an order-only company and you can't march down to your local dealer and get a quick audition. You get a 30-day audition with a money back guarantee and free pickup if you don't like them ... and I'm doubtful that you wouldn't like them.

| SUMMARY

For those facilities where great closefield speaker accuracy is desired and the pocketbook does not mind plunking extra coin for a good old fashioned amplifier, the Legacy Studio HDs are hard to beat. The deal gets better if you already have a good amp sitting in the gear closet.

John Gatski is Publisher/Executive Editor of Pro Audio Review.

RECOMMENDED STUDIO AMPS

Whenever I do a passive studio speaker review, I am always asked for amplifier recommendations. With powered speakers the dominant players these days, the pros have fewer choices, but if you look into the hi-fi market, companies there are still building plenty of amps to choose from and the features really are not different from the pro amps.

•**Bryston** — Long-time Canadian amp manufacturer still makes some of the most versatile, accurate sounding amps with pro features. If you don't need gobs of power, I would try the Bryston 4B SST at 300 wpc, priced at $3,499. The 14B SST, priced at $5,900, will power most any speakers for big rooms — with more than 600 wpc on tap.

Contact: ***www.bryston.ca***

•**Hot House** — Richard Rose and Co. are still making pro and hi-fi amps. The standard standby SV Stereo 400 (200 wpc) is a nice-sounding amp, priced at $2,299.

Contact: ***www.hothousepro.com***

•**Pass Labs** — Nelson Pass of Threshold fame has been producing his namesake line since the early 1990s. The MOSFET XA and X series are the best for the pros. They are not cheap, but I like the X350.5 ($9,500) for medium and big speaker rooms, and the $5,000 XA 30.5 for closefield setups.

Contact: ***www.passlabs.com***

•**Legacy/Coda PowerBloc** — Legacy sells an OEM bipolar amplifier, produced by amp/preamp manufacturer Coda, rated at 300 wpc. I own two Coda preamps and have used the Coda amps. Transparent and analytical. $3,800.

Contact: ***www.legacyaudio.com***

•**Lipinski Sound** — The clever, in-stand design L-301 make Lipinski's and other speakers come alive. They feature bridged mono (600 w) stereo 300 wpc or parallel power modes and are priced at $4,000 each.

Contact: ***www.lipinskisound.com***

•**Parasound** — The NewClassic line of Parasound amps are still sleepers with their lower cost and good sounding Class A/B bipolar output. I like the two channel Model 2250 (250 W) as well as the five-channel Model 5125 for small 5.1 rooms.

Contact: ***www.parasound.com***

•**Monster Cable** — That's right folks. Monster Cable's big MOSFET 250 wpc amp, Model MPA-2250, priced at $2,499 is one pretty sounding amp that has plenty of headroom. In fact, a LA mix engineer turned me on to the amp.

Contact: ***www.monstercable.com***

•**Behringer** — Bang for your buck is Behringer's A500 160 wpc traditional Class A/B bipolar output amp. Not in the league of the Pass or Bryston, but pretty darn good for a couple of hundred bucks. Shockingly good.

Contact: ***www.behringer.com***

— *John Gatski*

World Radio History

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by **John Gatski**

Cascade X-15 Stereo Ribbon Microphone

The X-15 stereo ribbon sounds good, has smooth character and is quite a deal at $399.

Ribbon element microphones are all the rage these days with a range of products from companies such as Royer and AEA to the more economical models from sE Electronics and Cascade Microphones brands. Case in point is the Cascade X-15 stereo ribbon, selling for $399!

| FEATURES

The X-15 stereo ribbon microphone contains separate factory-matched 2.5 micron ribbon elements, offset at 90 degrees in a Blumlein arrangement. Typical of ribbons, its coverage comes via a Figure 8 pattern. According to Cascade, the ribbon's aluminum membranes produce a "balanced" sound from sources on either side of the ribbon.

The X-15 comes with a nice shock mount, a splitter box with two separate XLR outputs, a 12 ft. connector cable and an aluminum case. The microphone is also available with Lundahl transformers that are installed in the Cascade Microphone shop in Olympia, WA for an additional $300.

The factory specs claim a 30 Hz to 18 kHz, +/-3 dB with just a hint of rise from 2 kHz to about 10 kHz. (The provided measurement plot shows a roll-off after 10 kHz). The maximum SPL is rated at 165 dB maximum SPL at 1% distortion, and self-noise is said to 17 dB.

FAST FACTS

APPLICATIONS
Recording, project studio

KEY FEATURES
Two separate aluminum ribbons, set at 90 degrees, Figure 8 pattern, suspension shock mount, splitter box, 12 ft. mic-to-splitter box cable, carrying case

PRICE
$399

CONTACT
Cascade Microphones | ☎ 360-867-1799
➲ www.cascademicrophones.com

| IN USE

Stereo microphones are suited for many applications including acoustic guitar, electric guitar amps, drum overheads, brass, piano. When adding ambiance, I used it on a variety of acoustic and electric guitars/amps from dark sounding dreadnoughts to small body finger pickers to Telecaster and Gibson hollow body jazz guitar.

I first mounted the X-15 on an adjustable arm stand and recorded a Guild D-55 dreadnaught. I had to play around with the positioning to find the sweet spot, finally settling on about a foot from the guitar and positioning it so the upper element paralleled the upper frets and the other paralleled the body.

> With most of the stringed instruments that I used the sound was pretty consistent. With its mostly flat response to 10 kHz, the mic just does not have any hyped character.

I recorded the audio 24-bit 96 kHz via a TASCAM HD-P2 connected to a Benchmark ADC1. The sound of the Guild is big with a lot of midrange/low treble and a tight bass for a dreadnaught.

Ribbon microphones lack the upper treble that my stereo pair high-end con-

World Radio History

densers produce, but I liked the sound because it was pretty smooth in the critically sensitive high-mid/low treble hearing frequencies without that hyped stridency you can get from a condenser with the broader treble rise. But sometimes you get an acoustic "sheen" from that treble tilt that many condensers impart. If you want that sheen with the Cascade, you may want to tweak the EQ — especially with a really dark instrument.

With the separate elements, proper mic placement and a good-sounding room, the stereo spread was excellent, as was the mic's ability to pick up the room sound. I tried the X-15 with my custom Martin 00-28 with silk/steel strings and it really sounded good with a tight bass and warm midrange. The resulting recording really filled out the width and depth of stereo recording.

With most of the stringed instruments that I used the sound was pretty consistent. With its mostly flat response to 10 kHz, the mic just does not have any hyped character.

The Figure 8 pattern allows you to experiment to find the optimum position for getting the best stereo image, plus picking up a bit more of the room. Although I did not test it on drum overheads, I would expect its smooth character and two-in-to-one placement to work well in such an application.

I did not have another stereo ribbon for direct comparison, but the X-15 has the essence of a ribbon microphone with a smooth warm response. Other ribbons that I have used may have more richness in their low treble character, but there is nothing wrong with the sound of this mic. I also recorded a hard-to-record Guild and it sounded quite good as did the Gibson hollow-body and Fender Twin Reverb amp.

| SUMMARY

The Cascade X-15 stereo ribbon is a very good sounding stereo microphone with a smooth character that can work on a lot of different instruments and applications. And it is quite a deal at $399 retail; this class of Chinese made-ribbons seems to improve with every generation. With the fit and finish, the cable, and carrying case — it is quite a nice package. Did I mention it is under $400?

John Gatski is Publisher/Executive Editor of ***Pro Audio Review.***

PRODUCTPOINTS

+ Price
+ Smooth sound
+ Quality construction
+ Stereo recording in one package

- None

SCORE

A good sounding stereo ribbon at a great price

World Radio History

by **Heather Johnson**

Powering Studio Monitors

With such a wide array of excellent studio monitors on the market, it's becoming even more difficult to choose the ideal components for a particular room and budget. Both active monitors and passive designs with separate amplifiers bear strong arguments in their favor. In an attempt to weigh the pros and cons of this debate, and perhaps ease the decision-making process, we enlisted a few expert witnesses: Peter Chaikin, JBL Professional's director of recording and broadcast marketing, and Bill Bush, director of engineering for KRK, offer a wealth of insight regarding active studio monitor advances. Nelson Pass, audio designer and founder of Pass Labs, and Richard Rose, president of Hot House Professional Audio, discuss the flexibility and fidelity behind passive monitors and control room amplifiers.

PAR: ***What advantages do active and/or powered monitors offer over passive monitors with separate amps?***

PETER CHAIKIN: Powered speakers offer convenience for the end-user. The system is self-contained, nothing needs to be connected externally, and the amp and the transducers work together as a matched system. That's not to say that passive speakers can't be excellent speakers. But from a design perspective, dollar-for-dollar, including amplification, we can deliver better performance from a powered studio monitor. The job of the crossover in the speaker system is to provide the right amount of power and EQ to each transducer—the woofer, tweeter, and midrange transducers. A passive speaker employs a passive crossover, which sees very high power from an external power amplifier and divides and delivers that power to each of the transducers. To handle very high level signals, the cost of the tight-tolerance components for a passive crossover can be very high. In a powered speaker, by putting the crossover in front of the amplifiers, and assigning a separate amplifier to each driver, we can optimize performance and compensate for response anomalies using equalization. Passive speakers are EQ'd as well, we just don't have the same flexibility in a passive network as we do in an active network. Using an active crossover in a powered system, we can tailor the output for each driver to optimize system performance. The end result is a much more accurate speaker dollar for dollar than can be achieved with a passive system.

JBL LSR 4328

BILL BUSH: Active monitors can have the drivers and the amplifiers optimized to work together as a system, making the best use of each and not having to design around possible mismatches that can be encountered with passive systems and separate external amplifiers. Active systems are bi-amped (or tri-amped for three-way systems) allowing each amplifier to be optimized (sensitivity/gain/et cetera) for the driver that it is powering. Active speakers can be tuned to provide increased low frequency extension and output without overdriving the system below resonance. This gives powered monitors more low frequency extension without overdriving them by rolling off the extreme low frequency. This also allows an active speaker to have a more linear woofer suspension because you can't have the problem of putting in too low frequency of a signal at too high a level causing either bad distortion or speaker damage. Passive systems need to have a nonlinear suspension (added distortion) to protect them from being overpowered.

Active monitors have more consistent frequency response because active crossover frequency response is not a function of speaker driver temperature (level) or minor variations of driver manufacturing. A passive crossover changes frequency response with increased voice coil temperature and with minor primary resonance deviations in the drivers. That is to say that passive speakers sound different at different volume levels and operating temperatures where active systems have dramatically lower changes with different levels.

An active speaker can easily give frequency response adjustments with the flip of a switch, whereas it is difficult to do this with passive systems because changing the output level changes the impedance load the crossover sees, thus it changes the crossover frequency and shape.

KRK E8B

The lower impedance fixed length of speaker wire in an active system has significantly lower power loss to the driver than does a long length of speaker wire and a passive crossover to the driver. Also, the lower fixed length of speaker wire inside the enclosure provides more consistent and increased damping of the drivers than passing the speaker level signal through a long length of speaker wire and passive crossover.

PAR: ***And would this same argument apply when discussing a more "affordable" line of monitors? I understand there's a greater risk of problems at this level.***

PETER CHAIKIN: Powered speakers are pretty reliable these days. It's true that from

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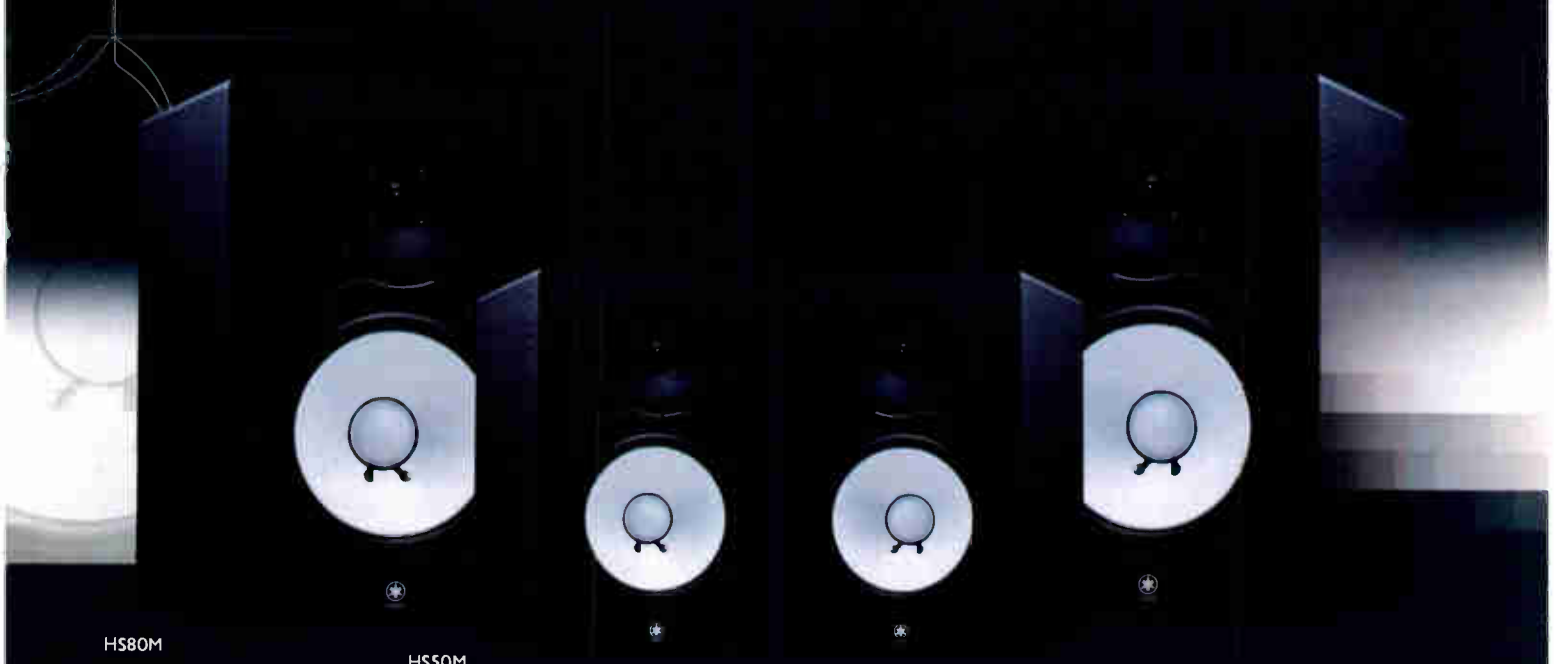
IF YOUR MIX SOUNDS GOOD ON THESE, IT'LL SOUND GOOD ON ANYTHING



HS80M

HS50M

HS50M
- 5" white polypropylene cone
- 3/4" dome tweeter
- 70-watt biamplified power
- XLR and 1/4" connectors
- Room Control and Frequency Response Switches

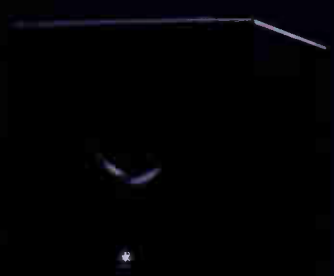
HS80M
- 8" white polypropylene cone
- 1" dome tweeter
- 120-watt biamplified power
- XLR and 1/4" connectors
- Room Control and Frequency Response Switches

HS10W
- 8" long stroke 120-watt woofer
- Dual XLR and 1/4" inputs
- 3 balanced XLR outputs (Mix, L&R)
- Phase switch
- Low/High cutoff

HS SERIES POWERED MONITORS

The new HS Series powered monitors were designed to be true studio reference monitors in the tradition of the famous NS10MS. That means, mixes that sound good on Yamaha HS speakers will sound good on anything. In fact, that's the ultimate test of a reference monitor. Even better than that, HS series speakers not only sound good, they look great, too.

The HS10W powered subwoofer complements the HS speakers and easily handles today's bass-enhanced music or the most dramatic surround effects. The HS10W subwoofer uses a bass reflex design cabinet that maintains high efficiency and low distortion. You can combine HS50Ms or HS80Ms with the HS10W subwoofer to create different 2:1 (stereo) and 5:1 surround sound systems. So check out the new standard in near-field reference monitors at a Yamaha dealer near you.



HS10W

THE NEW STANDARD IN NEAR-FIELD MONITORS

YAMAHA

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MONITORS Continued From Page 28

time to time, a powered speaker will fail. But passive speakers also fail: they fail because an external amplifier that is too small to provide adequate power delivers distorted audio to the speaker and damages the drivers. Conversely, overpowering drivers can cause them to fail. In a powered speaker, amplification is optimized for each transducer. To ensure reliability, JBL powered speakers must survive a torturous100 hour power test playing at full output before the design is frozen.

BILL BUSH: The benefits of an active powered monitor get even more critical as you get into the realm of more "affordable" monitors. The more the drivers, amplifiers, enclosure and crossover can be designed together as a unit, the higher the performance can be for a given budget. Active crossover cost does not rise significantly with increased complexity allowing the designer to use the crossover shape, slope, and frequency that makes the system work best, whereas passive crossovers tend to be very "limited" in an "affordable" system. These "limited" passive crossovers tend to have looser tolerances and higher distortion with increased playback levels (in addition to the increased driver distortion that all loudspeakers have active or passive) Response shaping is very easily accomplished in an active system helping to allow design decisions to be made for lower distortion and increased linearity as opposed to flat frequency response. Thus combined with the active crossover the final system can have flat frequency response and lower distortion than could be achieved with a passive system.

PAR: ***What markets do your active and passive studio monitors serve these days?***

PETER CHAIKIN : Virtually all music production studios and commercial studios use powered near-field monitors. Some high-end commercial recording facilities still use passive installed systems, although many of them now use active crossovers and bi-amp or tri-amp those speakers. JBL's passive LSR 6332 is used in DVD mastering and sound design applications where soffit mounting, extraordinary SPL and very linear response are required. Cinema applications are still largely passive, primarily because the infrastructure is set up for passive speakers. Amps with processing and fans are installed in an outboard room, and the speakers behind the screen and the surround speakers are passive. JBL ScreenArray® Cinema systems are widely used in theaters are also used on dubbing stages to emulate what the audience is going to hear in a theater. With the increasing demand for 5.1 surround sound programming, TV and post production facilities are installing our LSR43000 Series networked powered speakers, designed for surround sound production.

BILL BUSH: We have four lines, three active and one passive. The active line starts with Rokit, which is targeted at home and project studios, but we also see them in DJ booths, front-of-house setups and smaller rooms in pro facilities. Our VXT line serves a more discerning audience in these markets, and is also gaining popularity in broadcast and post-production facilities. The Expose is

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aimed at pro studios and producers and engineers. Our passive Rokit6 monitor is aimed at project and broadcast applications where users want the Rokit performance and accuracy but want to use existing amplifiers.

PAR: ***How has the increasing price of materials affected how you build your monitors?***

PETER CHAIKIN: We're all facing increases in petroleum costs, which means plastics have gone up, and metals, which means the cost of power transformers has increased. In the Harman Pro group we're fortunate to have the expertise to build more efficient systems and more elegant designs that reduce the costs so we can absorb these increases that are coming down.

PAR: ***How has the move to an overall more digital/workstation-based recording environment affected your designs?***

PETER CHAIKIN: The advent of digital audio workstations has many implications for the entire recording system, including the speakers. Most significantly, workstation users are likely to be working in rooms that are not application-designed and have not been properly acoustically treated. They're working in industrial parks, attics, basements, anywhere there's power. That means that the consideration for acoustics has not been given proper attention, and mixes can suffer. Low frequency anomalies—standing waves, room modes—can cause misrepresentation of low frequency content when heard in the mix position. So we JBL is developing systems, such as our LSR6300 and LSR4300 series systems that can measure the room and compensate for low frequency problems, and give greater accuracy at the mix position"

A PASSIVE APPROACH

PAR: ***From a design perspective, what sort of standards do you employ to keep quality at a premium?***

NELSON PASS: Quality occurs on two levels. Our design process is fairly conservative, and we usually work by innovating existing products, giving them a life span greater than 10 years before major model changes.

Richard Rose, president of Hot House Professional Audio,

Incremental improvements have the advantage of re-using portions that already work well and allow us better focus. This conservatism extends to the reliability margins we apply to parts. Our power output devices are rated at about 150 watts, and by using between 10 and 72 of these per channel, they

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don't usually have to operate much beyond 10 watts each.

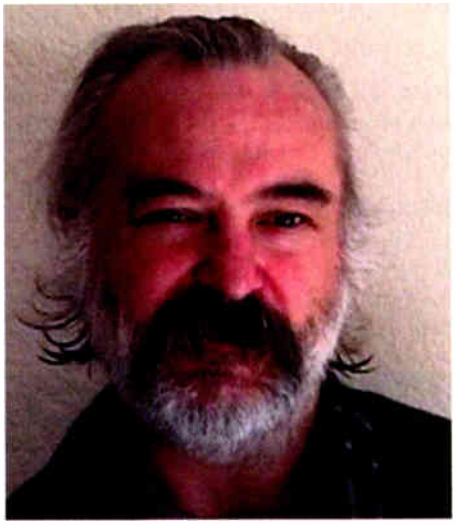
In addition to technical requirements, we place a strong emphasis on listening. We have five sets of trusted ears who listen to the products critically, and we evaluate potential improvements for six months to a year before they see production. We maintain static reference systems in which things change slowly, but we try other equipment out. The speakers we use are varied—from the latest tweaked full-range drivers to classic Tannoy, Altec, and Klipsch. Most recently we worked with the new Reference 1 studio monitors from TAD.

It's very important that the product is build-able, reliable and serviceable. We build the boards and other assemblies in house, which allows us to keep a close watch on quality.We do strong QA on incoming parts, including grading and matching transistors. Subassemblies are tested before they go into product, partially assembled product is tested, fully assembled product is fully tested, then it's burned in for three days and then it's fully tested again, with minor adjustments made at each test.

RICHARD ROSE: Well-designed, durable products, built from premium components, many of which are individually tested and hand (or ear) matched, ensure the kind of performance for which we're known. But even more importantly, every piece of equipment that leaves the shop has been extensively burned in and carefully auditioned by myself or someone else with a long history of critical listening and a solid engineering background. We'll even put a pair of speakers through an extended accelerated break-in burn if we know a client is about to start an important project and can't live with a couple of weeks to loosen up his surrounds and spiders. A true testament to our level of build quality is that little did we know when we first started manufacturing electronics and introduced the industry's only dedicated control room amplifier, the original S400, over twenty years ago, that virtually all of them would still be making music today, and even more incredibly, would still be highly prized and sought after. We often get calls for the vintage amps and help by providing recycled to original spec units whenever possible. The new technology is certainly more perfect, but the old MOSFETS have a beautiful sound.

PAR: ***How do you compete with today's powered studio monitors, which continue to improve in quality?***

NELSON PASS: Our market is at the top end of two-channel, where there is less competition. Being an amplifier company, we tend to look at our first loudspeaker, The Rushmore, as a loudspeaker wrapped around four amplifier channels. On the one hand, mating electronics with a specific set of drivers inside a loudspeaker offers an opportunity to optimize amplifiers to the drivers. Active crossovers easily raise the performance and efficiency of loudspeakers, and of course there is some convenience for



Nelson Pass, audio designer and founder of Pass Labs

the customer. On the other hand, most of our customers want to make independent decisions about electronics: upgrading, replacing, and repairing at will. Consequently, we see ourselves doing more in three loudspeaker categories: passive, internally active, and with external active crossovers.

RICHARD ROSE: First off, while many [powered monitors] are quite reasonable attempts for the money, the vast majority don't impress me as seriously accurate monitors, as they're built to a price point more than anything else. Many are little more than, as you refer to them, powered speakers, and are barely properly designed truly active monitors at all. While our passive PRM165 nearfield/Model One Thousand amplifier combo has gained a great following, all our models beyond that are either onboard active or supplied with a full outboard complement of amplifiers, electronic crossovers, sub controllers, cables and even isolation mounts creating an 'external' active system guaranteeing peak performance. Since we're one of the very few companies providing audiophile quality professional amps (you can count them on one hand and still have a few fingers left over), and we manufacture high-end monitors in need of transparent power, the competition actually drives our clients 'upstream' to us, keeping us in a backorder situation as often as not.

PAR: ***Does the wider array of "affordable" studio monitors on the market offer your products any sort of advantage?***

NELSON PASS: Of course. Affordable products set the stage for high-end products by raising the interest in high-quality audio. Virtually every customer who owns high-end product started with something modest and eventually experienced a desire for something better.

RICHARD ROSE: For those who want to get the most out of their "affordable" passive monitors, our Model Four Hundred frequently gets the nod. Regarding straight up amp sales, the less someone spends on "affordable" monitors, the more they have left over for a good amp. And the more they need one.

PAR: ***Considering the recording business and its budgets aren't what they used to be, has your customer base shifted over the past few years?***

RICHARD ROSE: Not really. We see less activity on the mega-monitor side these days (few clients are willing to spring for a hundred thousand dollar system, or even have the space for it these days), but our nearfield and amp sales are better than ever. And surprisingly, sales to newbies and pros alike are growing thanks to [jazz recordist] Joe Ferla's enthusiasm and the buzz in the blogosphere. So we're pretty much supplying every level from the real heavy hitters to the aspirants at home who are a decade away from their first platinum.

NELSON PASS: Pass Labs is a two-channel house, committed to high-end stereo. We stayed out of the multi-channel race to home theater, and we're pleased with that decision, as we have done well by sticking to what we know best. We're a small boat, so we stay close to the shore. Over the last ten years, Pass Labs product has gradually shifted from low powered single-ended Class A amplifiers to much more powerful push-pull Class A and AB designs, broadening our appeal, and increasing the business. The domestic two-channel market has suffered a disruption in retail distribu-

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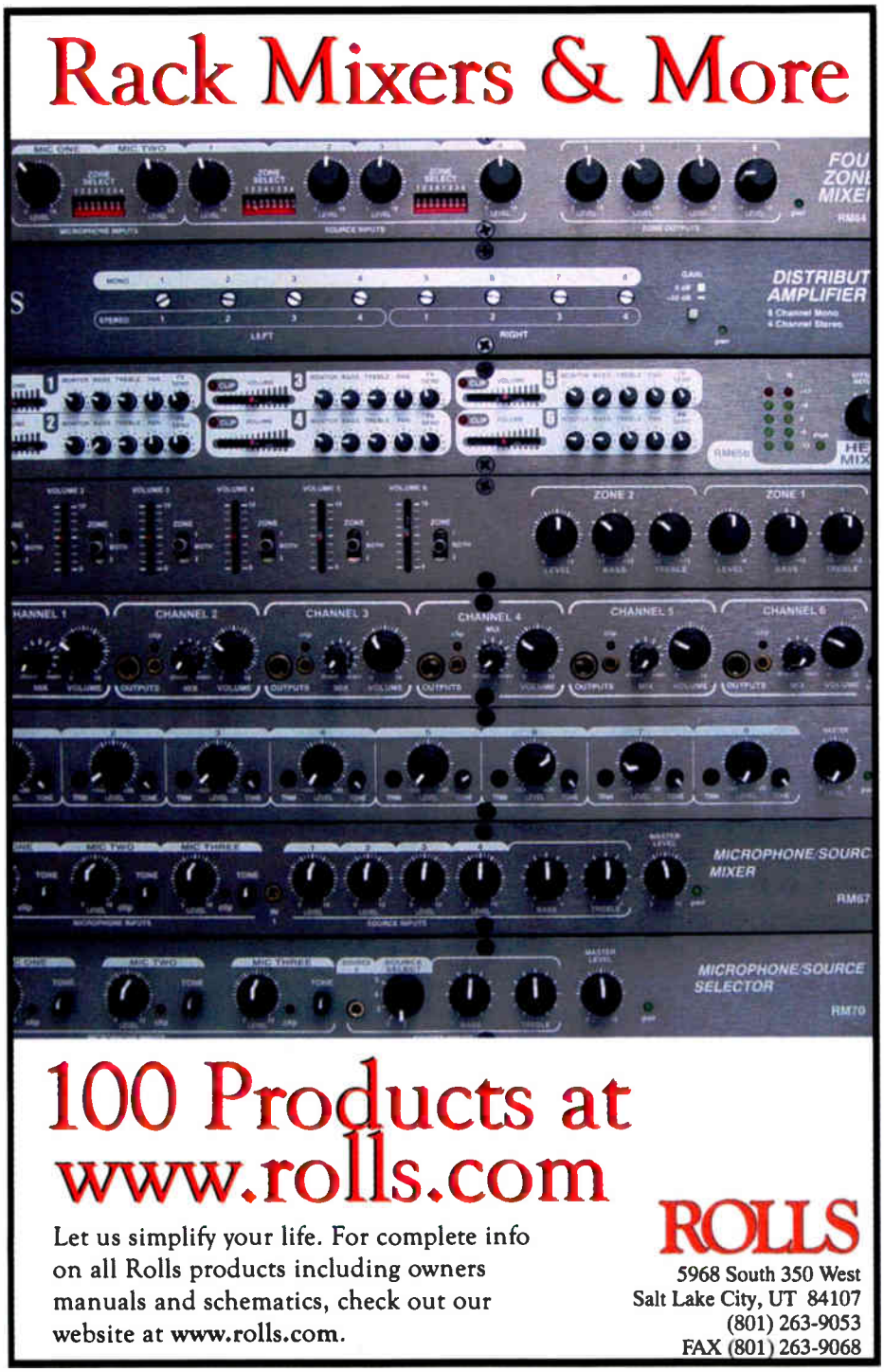
tion, but customer interest is still healthy. Much of the activity has shifted to the Internet and direct sales, but as of a year ago we decided to back off this route, focusing instead on the quality "brick and mortar" guys. Over the past 20 years, the overall business has slowly moved from about 60 percent export to about 75 percent export, with much of that growth in emerging Asian markets. These are some great customers, and we are very happy to work with them.

PAR: ***The price of materials is going up, sometimes way up. Has that affected how you build your products?***



NELSON PASS: They cost more to make, and that is reflected in the price we charge. We operate on the premise that there is always a market for the best, regardless of price, and we really don't let the cost of metal influence our design decisions. At the same time, some important parts are disappearing—Low noise JFETs in particular—and stocking up on them for the future is currently taking a larger share of our attention and resources.

RICHARD ROSE: We never compromise on any parts just to cut cost. If transformers double and triple in price, we simply adjust our end-user pricing. Selling direct helps a little by saving our clients the dealer margin, but being a small "boutique" manufacturer, everything we build is done in short runs, which is proportionately more labor intensive and means we don't benefit from the economy of scale larger companies enjoy. Our products have never been inexpensive, but have always been a good value, if not quite for everybody.

PAR ***Has the move to an overall more digital/workstation-based recording environment affected your designs?***

NELSON PASS: Indirectly, I think. Technology has given artists more independent control over the creative process and access to the market. Over time we expect this to help propel music and music reproduction, and "rising waters float all boats"—mine included. In the meantime, while esthetic and economic issues settle out, I'm very optimistic.

RICHARD ROSE: Not at all, since we already offer something for every type of environment. Our products have always been designed around very targeted applications, each conceived for a specific purpose, and not just the same old speaker that's bigger and louder or smaller and cheaper as you go up and down the range. You'll note there's very little "family resemblance" between our various monitors, and by design, the only thing they have in common is the presentation at the mix position ... regardless of what kind of music they're reproducing, how far away they may be, how loud they need to play, or how large a room they're in. There are reasonable technical explanations for this. But in a perfect world, large, medium or small, an amplifier should just amplify. And there should be no difference until you run out of headroom — period!

Heather Johnson is a San Francisco-based journalist and author whose books include "If These Halls Could Talk: A Historical Tour Through San Francisco Recording Studios"

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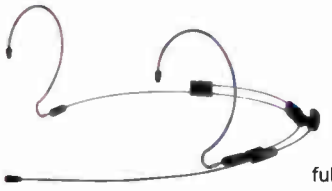
The latest news and products

NEW PRODUCTS

ELECTRO-VOICE RE97-2Tx Headworn Microphone



Electro-Voice has launched its RE97-2Tx headworn microphone, an ultra-low-profile, omni-directional, back-electret condenser headworn microphone targeted for applications such as houses of worship, corporate AV, theater and other venues.

The RE97-2Tx is a two-ear hook design with a band behind the head for comfort and stability in any performance. The band is fully adjustable, and the hooks fold flat for storage and flips all the way over so the microphone boom can be on the left of right side of the mouth. A clothing clip to retain the cord and a removable windscreen complete the package.

PRICE: $450

CONTACT: Electro-Voice | ☎ 952-884-4051 ➲ www.electrovoice.com

INTER-M PAC-5000 Mixer/Amplifier

With five microphone, two auxiliary and four remote Mic inputs, Inter-M's PAC-5000 utilizes two sources, including built-in media input (CD player/tuner/user-accessible USB), at a time, over 12 zones each for a total of 24 zones.

It also features a 120-watt by 120-watt digital power amplifier, emergency fire contact control, recordable emergency message via internal flash card memory, internal battery charger for emergency operation, RS232 control for AMX/Crestron and the ability to cascade together up to four PAC-5000s.

PRICE: $2999

CONTACT: Inter-M | ☎ 310-715-6152 ➲ www.inter-m.net

KALTMAN RF Spectrum Analyzers

Kaltman Creations has expanded its line of RF spectrum analyzers. The expansion includes the addition of a 2.4 GHz RF spectrum analyzer software package and a 2.4 GHz, 11-channel signal generator. Called the AirSleuth Pro and AirHorn (respectively), these products are designed for technicians that install, test, troubleshoot, analyze and optimize 2.4 GHz remote-control equipment and wireless networks.

The AirSleuth Pro allows the user to view 802.11 Wi-Fi channels 1 through 11 individually or simultaneously with Peak, Average and Raw trace modes. There are 10 diagnostic modes including Traces, Spectrogram, Channel Time Course, Differential Channels and Pie Charting.

Working independently or in conjunction with AirSleuth Pro is AirHorn, a 2.4 GHz ISM band signal generator that can be selectively set to generate RF signals for any number of the 11, 2.4 GHz Wi-Fi channels.

PRICE: $395, $135, $499 (AirSleuth Pro, AirHorn software application, or both, respectively)

CONTACT: Kaltman Creations | ☎ 678-714-2000 ➲ www.kaltmancreationsllc.com

POWERSOFT K3 Digital Amplification System

The Powersoft K3, measures 1RU by 14 inches (360mm) deep and weighs 17.6 pounds and produces 2,800 watts per channel at 2 Ohm. The K3 also features Power Factor Correction (PFC) for low power consumption and wide mains operating range. Advanced switch-mode worldwide operating power supply enables worldwide use.

PRICE: TBA

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NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS

Chicago's Wise Fool's Pub owners Chris Perry and Big Bill Vance recently undertook a total upgrade on the club's audio system with local installers, Frequency Audio.

Designer Nathan Short chose premium components for Wise Fool's makeover, including the first Martin Audio Blackline F12+ speakers installed in the U.S., and Dual 18 Subs, QSC amplification and an APB-DynaSonics ProRack House console.

For the new Audio RemoteAmp Blue wireless headphone amplifier, JK audio combines Bluetooth Wireless Technology with professional audio electronics in a new belt pack design. RemoteAmp Blue allows IFB monitoring through a cell phone equipped with Bluetooth Wireless Technology. This is a listen-only connection designed for voice IFB or full bandwidth stereo music listening. I/O includes XLR line level, 3.5mm TRS line level, 3.5mm mono headphone, 1/4" stereo headphone.

Martin Audio's family of ceiling speakers has been granted a UL2043 listing. This designates that the C4.8T, C6.8T and C8.1T have been tested in accordance with the standard governing fire tests for heat and visible smoke release for discrete products and their accessories installed in air handling spaces, and fully comply.

Roland released new software for its RSS M-400 V-Mixer digital console. The Version 1.5 update contains a number of features including increased flexibility in compressor and gate assignment, addition of eight matrices, direct channel output assignment for increased flexibility when using personal mixing systems and recording splits, Tap Tempo for delay settings, addition of numerous shortcuts for faster access and rapid setup, and numerous user interface enhancements for accelerated workflow and ease of use.

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"The Serato Rane Series Dynamic EQ is fantastic. This is one tool I want to take with me everywhere."

:: GREG NELSON, FOH: Pearl Jam and Incubus

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IN THE CONSOLE OR IN THE RACK

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by **Roger Williams III**

Atlas Sound PA702 Power Amplifier

The PA702 lends itself to a myriad of installed audio applications.

Atlas sound has been in the commercial audio product manufacturing business since 1934. Best known to sound reinforcement companies for their rugged microphone stands and horn speakers, they are almost a one-stop shop for just about anything needed by the installer — from volume controls to ceiling mount speakers, power distribution and rack cabinets. Every Atlas dealer is familiar with their product binder — about as thick as a phone book, testifying to the enormity of their product line.

| FEATURES

I was sent their new compact power amplifier, the PA702, to evaluate. The amplifier is a two-channel unit offering 70 watts per channel at eight ohms. It has a unique design facility that allows the installer to affix the amplifier to a video projector mount pole, making it attractive as zone localized audio reinforcement for audio-follows-video applications. Another useful feature is a current sensing circuit which senses current draw from an always on AC outlet on the PA702. When a projector plugged into this outlet is powered up it automatically turns on the power amplifier, turning this into a one-button operation. Or, by reconfiguring the rear mounted dip switches you can activate the audio signal sensor circuit, which similarly will "wake up" the amplifier from sleep mode.

When I mentioned the unit is compact, at 8.5-inch wide by 13.5-inch deep by 1.75-inch high, you can fit two side-by-side on a single (optional) rack shelf. The "BASH" amplifier design incorporates a switching power supply and class AB output stage, greatly increasing efficiency, thus enabling higher power output in a smaller package.

A look at the front panel of the PA702 reveals recessed screwdriver adjustable left and right channel gain controls, treble and bass controls, left and right channel signal indicator LEDs, limiter LED, power indicator LED and power switch. The back panel has IEC AC power line receptacle with integrated mains fuse holder, un-switched Edison style AC outlet, left and right unbalanced RCA input connectors, left and right balanced Phoenix input connector, left and right Phoenix speaker connector, dip switches for activating the above mentioned turn-on options as well as stereo-mono input selection and high pass filter, and audio/AC sensing attenuators. On the top of the unit you will see a recessed 2-inch hole, which completely passes through the unit. This is where the pole mount that facilitates the clamping assembly is located.

| IN USE

I recently had a project that required localized distributed sound for a classroom video projector. After specifying the ceiling speakers and installing them, I endeavored to attach the PA702 to a Chief RPA-U projector mount, which would ultimately hold a Panasonic PT-L780NTU projector. The Chief mount affixes to an industry standard 1.5" O.D. pole. Unfortunately, the adapter included with the amplifier tightens to 1.75-inches maximum, so I had to fashion a bushing that would allow me to snuggly hold the PA702. I interfaced the projector to activate the audio sensing circuit, thus turning on the PA702 when the class played a DVD through the system. This gave the operator one button operation, with no need to turn on and off the amplifier. The amp's small footprint was a natural fit between the projector and the ceiling. And the recessed screwdriver adjustable volume controls kept twiddling fingers at bay.

> The amp's small footprint was a natural fit between the projector and the ceiling

| SUMMARY

I found that the amplifier had good sonic qualities and ample headroom to drive the four 8-inch coaxials. I would like to see an adapter that would allow the PA702 to be mounted to a typical 1 and 3/8" diameter speaker tripod; it has enough power to drive a small pair of two-way box speakers, which would make it handy for rentals. It certainly is put together solidly enough to handle rental abuse. At an affordable $332 manufacturer's suggested retail, the PA702 is a great niche product that lends itself to a myriad of applications.

Roger Williams is a systems designer for Waveco, Inc., in the Philadelphia area and is a regular contributor to PAR.

FAST FACTS

APPLICATIONS
Sound reinforcement for installations

KEY FEATURES
Small footprint, current and audio sensing circuits, pole mount

PRICE
$332

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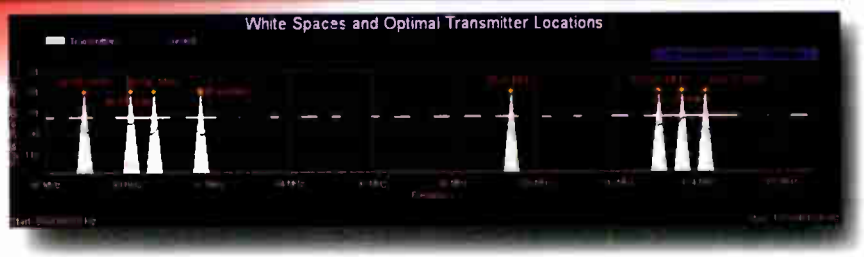

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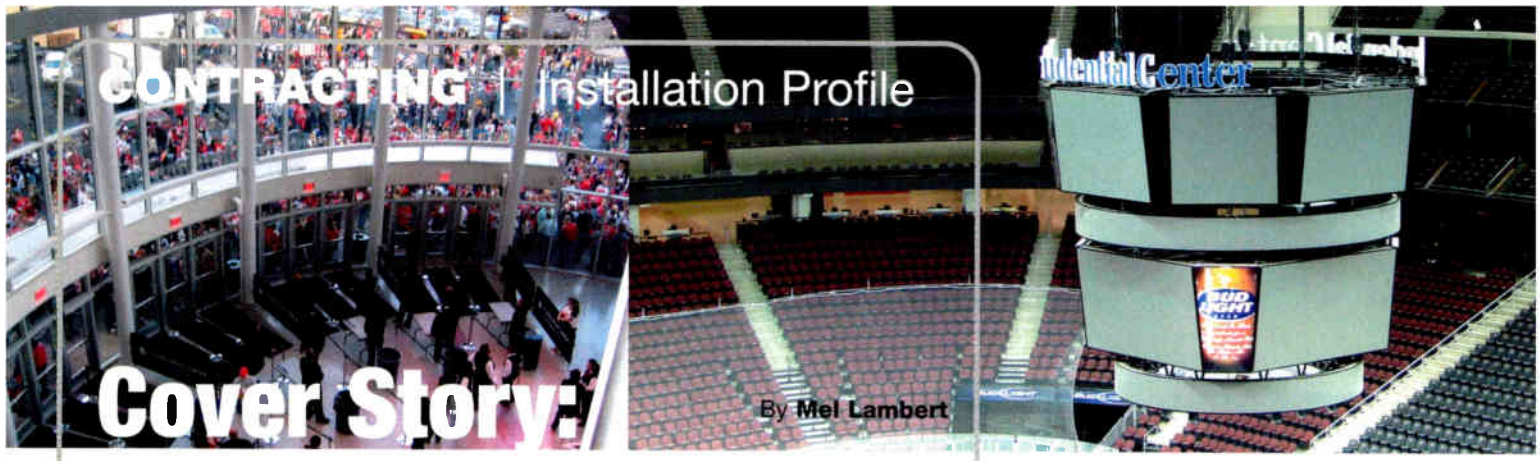

Cover Story: A New Prudential Center for Newark

By Mel Lambert

The Prudential Center in Newark was formally unveiled last Fall as the Tri-State's first major entertainment venue to be opened in 25 years. The new sports and multi-function entertainment venue, which cost a reported $600 million and provides seating for more than 20,000 patrons, serves as a new home for the NHL's New Jersey Devils and the Seton Hall Pirates basketball team, as well as hosting MISL indoor soccer, concerts, family shows and other special events. The venue is managed by AEG Live and showcases 76 luxury suites, 2,200 club seats and an array of amenities. Overall design of the sound and video systems, scoreboard and acoustics treatment for the Prudential Center was the responsibility of Dallas- and San Antonio-based Wrightson, Johnson, Haddon & Williams/WJHW, Inc. under the direction of Project Consultant Kevin Day. Primary audio contactor on the project was Diversified Systems, with Andy Prager serving as Senior Project Engineer.

A GRAND OPENING

The new venue opened officially in late-October with a 10-night concert series headlined by hometown favorites Bon Jovi, plus guests My Chemical Romance, Big & Rich, Gretchen Wilson, All-American Rejects and Chris Daughtry. The opening-week concert series attracted more than 150,000 fans. "It was a double honor to be part of the opening of the Prudential Center," Chris Daughtry conceded, "and to perform with New Jersey's very own Bon Jovi." On October 27, the New Jersey Devils played their first hockey game at the arena against the Ottawa Senators.

"We worked closely from Wrightson, Johnson, Haddon & Williams' intricate designs," Diversified Systems' Prager recalls. "WJHW routinely handles the design of large stadiums and knows this type of indoor environment very well, from both an audio and a video standpoint. The comprehensive design was predicated on WJHW's extensive experience; they can create systems that are known to work in spaces like the Prudential Center. In essence, the new sound system is primarily designed for speech: commentaries and announcements during the various hockey, basketball and soccer games played at the arena. But it is also designed to accommodate sound reinforcement systems that might be brought in by visiting musical acts."

JBL PD SERIES FOR MAIN SOUND SYSTEM

The primary sound system at the Prudential Center comprises four virtually identical clusters that are mounted just above and outside the footprint of the center-hung video/scoring display, and whose cabinets can be controlled individually via a cross point matrix/routing system and amplifier racks. The East and West clusters comprise 10 JBL Precision Directivity (PD) Series PD743 Mid/High-Frequency cabinets with a 40x30-degree dispersion pattern; four PD7164 LF Cabinets; and six ASB6128 Subwoofers mounted above. "The North and South clusters are identical to these," Prager says, "aside from [featuring] eight rather than 10 PD743 cabinets, plus an additional pair of down-firing PD764 60x-by-40 cabinets."

The PD743 Precision Directivity Mid/High Frequency Coaxial cabinet houses a pair of large-format 2430H HF drivers with IFS Interference Free Summation, dual 2250J eight-inch MF drivers; dispersion is said to be well controlled to below 400 Hz, with a quoted 150 Hz to 16 kHz frequency range and maximum SPL capability of 139 dB continuous, 145 peak. The PD764 is physically and electronically the same as the PD743 but with a 60x40-degree coverage pattern. The PD7164 mid/low-frequency cabinet incorporate six, 14-inch drivers, while the ASB6128 Applied Engineering high-power subwoofers feature two 18-inch 2242H SVG drivers with four-inch voice coils that offer a quoted frequency range (-10 dB) of 28 Hz to 1 kHz and 35 Hz to 1 kHz, ±3 dB, plus an AES transducer power rating of 2.4 kW (9.6 kW, peak) for two hours.

To augment the main scoreboard clusters, WJHW specified a total of three discrete delay rings. "The first ring is suspended off the bottom of the catwalk," Prager offers, "and consists of a total of 24 Model PD5212/64 two-way full-range cabinets. The second ring comprises 27 Community CLOUD Model 12-66 two-way, full-range coaxial loudspeakers flush-mounted in the upper-deck ceiling tiles, while the third ring comprises 36 Model 12-66T speakers for the main concession areas on a 70-volt line." The first ring is delayed between 80 and 100 mS against the main cluster, the second ring 122 mS and the third ring 84 mS. The PD5212/64 cabinet features a horn-loaded 12-inch M222-8A LF driver with a 60x40-degree coverage pattern, plus a large-format 2451H-1 Neodymium HF driver; quoted frequency range is 80 Hz to 18 kHz. The CLOUD 12-66 features a single 12-inch cast-

Audio Engineer Tim Wick at Yamaha M7CL48 Digital Produ

World Radio History

frame LF driver and a one-inch compression driver mounted on a coaxially-mounted 60x60 pattern control horn.

CROWN CT SERIES AND I-TECH AMPLIFIERS ON HIQNET NETWORK

"A total of 126 CT Series amplifiers equipped with PIP-Lite cards and I-Tech amplifiers are being used at Prudential Center," Prager continues. "The Crown systems sound remarkably good and have been 100 percent reliable."

"Crown products were one of two brands specified to set up a competitive-bid scenario," recalls WJHW's Project Consultant Kevin Day. "To reduce cable runs - and avoid the need for a dedicated cooling system, as would be required if the amps were in a closet - the amplifiers are located on a catwalk platform. Bradford Benn from Crown came out to set up the system and stayed for the opening events providing technical support for the installer and operator." Chris Williams served as the WJHW's Project Manager, and designed the scoring and video production systems.

tion Console.

"For each of the four JBL-equipped clusters," Prager explains, "we supplied a total of four I-Tech 4000s for the low-frequency and three 4000s for the subwoofer cabinets, while five CTs2000s feed the mid-range and five CTs600s the HF cabinets." A rack of seven CTs2000 amplifiers power Delay Ring #1, with seven CTs1200 amplifiers for Delay Ring #2; five CTs3000 Series amplifiers power Delay Ring #3, while CTs600, -1200 and 2000 Series power various full-range loudspeakers located within bars, lounges, meeting rooms and other locations around the arena.

YAMAHA M7CL48 AT FOH AND PEAVEY MEDIAMATRIX DSP

A 48-channel Yamaha M7CL48 Digital Production Console handles front-of-house mixing chores at the venue. Three Yamaha CobraNet cards provide direct digital out-

PRUDENTIAL CENTER continues on page 42 ➤

The North and South speaker clusters feature eight JBL PD743 cabinets, plus an additional pair of down-firing PD764 cabinets.

Crown International CT Series and I-Tech amplifiers on catwalk platform.

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PRUDENTIAL CENTER Continued From Page 41

puts from the FOH mixer to a comprehensive Peavey MediaMatrix NION-based DSP that handles system routing and signal processing. All of the Crown amplifiers also connect to the Media Matrix system via a CobraNet I Gbit Ethernet network. The sound-reinforcement system is run in mono.

Crown I-Tech Series power amplifiers feature integrated DSP, peak-voltage and RMS power limiting to protect connected loudspeakers, in addition to remote monitoring and control via integral Harman HiQnet, plus a front-panel LCD readout that provides diagnostics plus preset selection for fast and easy system setup. "Remote control and monitoring of all of the amplifier channels via HiQnet is a great bonus," stresses Prager. "Using a [Crown-developed] GUI we can set input and output levels and turn groups of amplification on and off. During different events at the Prudential Center, the owners might decide to run different PA configurations, dependent upon the audience size and location within the space. With either of the two redundant control PCs – one at the sound-mixing location and the other within the equipment racks – an operator

WJHW Project Consultant Kevin Day testing the PA announcer's microphone.

can monitor and verify amplifier status for any system re-configuration within seconds." The PIP Lite add-on card provides HiQnet control/monitoring for CTs Series amplifiers via IQ Network and IQwic software.

And there is another benefit of remote monitoring, the project engineer adds. "Aside from checking input and output levels via HiQnet, the operators can monitor load and thermal

BSS Soundweb and Dolby Lake loudspeaker controllers.

conditions – and see error-reporting messages – which mean that they can be alerted when a loudspeaker is removed from the system. While loudspeaker theft isn't foreseen as a major problem, it's a very useful feature!" HiQnet is available on a number of amplifiers, signal processors, loudspeaker controllers, wireless microphones and consoles; it was developed by the Harman Pro Group System Development and Integration Group (SDIG), based in Salt Lake City, UT.

All audio-system routing, equalization, delay and metering are handled by the facility's multi-element MediaMatrix. "The MediaMatrix control system is distributed throughout the Prudential Center," Prager continues, "with chassis located close to sound-critical areas. There are six units in the catwalk adjacent to the amplifier racks; two in the Sound Control room; one in the Fiber Core main rack; and one in each of the tech-

World Radio History

nical areas supplying audio to the bars, clubs and meeting rooms."

In addition, a separate Hockey Fill system comprises 10 JBL Model 2447H HF compression drivers on Model 2352 90x50-degree large-format horns and six JBL AM6212/64 60x40-degree cabinets mounted on the score board. "The arena system is designed to run in a series of operational modes controlled by the central MediaMatrix system," Prager explains. "For Hockey Mode, these additional horns and AM Series cabinets provide additional sound coverage for the outer perimeter just behind the Dasher Boards, to overcome shadowing of the main clusters. Its purpose is to enhance on-axis coverage to the second and third seating rows."

Currently, the Prudential Center is set up to provide a total of five preset modes via MediaMatrix. In addition to Hockey Mode, Basketball, Indoor Soccer, Concert and Floor Show Modes are available, with corresponding loudspeaker re-assignments and delays. "For large concert events," Prager explains, "there is provision for a dedicated south stage area and [rigging for] suspended line arrays from a touring sound company, for example. The house system can accept a mono feed from the visiting front-of-house mixer, which is then distributed under Concert Mode to Delay Ring #1 to add presence. Of course, the delay settings are adjusted because of the different timing references to the suspended PA system."

INSTALLATION CHALLENGES

Regarding the biggest challenges faced during the commissioning of Prudential Center's Crown-powered JBL systems, Prager cites three main dimensions. "Firstly, we had a short time to complete the installation," he recalls. "We started in April 2007, and the opening concert occurred just seven short months later. Secondly, we had specified a fast 1 Gbit Ethernet fiber system between the MediaMatrix and amplifier racks that needed to be wrung out and fully functional by the first event, including four V-LAN topologies to be set up and programmed. Thirdly, we faced some logistical problems due to construction delays. We were promised a broom-clean room for the sound equipment, which [because of time pressures] was not always possible!"

MISSION ACCOMPLISHED

According to Prudential Center Audio Engineer Tom Wick, who mixes sound for a variety of sports events, "From turn on, everything sounded great! The new PA system gives a good feel to the arena; having walked the space, the overall sound is outstanding in every seat – I couldn't find a dead spot anywhere. The sound is warm with no slap back. Diversified Systems did an exceptional job during the installation. The various modes we have available from the MediaMatrix are outstanding – we can re-configure the entire system at the touch of a button. For high-end concerts the customized delay ring for the upper areas is very useful, as is coverage of the various concourse, suites and other areas around the arena. All in all, our new system is well thought out, and extremely easy to use."

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. He is principal of Media&Marketing and can be reached at mel.lambert@mediaandmarketing.com.

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World Radio History

By **Strother Bullins**

Acoustics, Art, and Business At Home

It is not news that home-based studios now dominate the business of pro audio. Yet, on a regular basis, I find myself surprised and impressed by the large percentage of residential recording rigs used to record commercially successful and/or especially notable singles in this, the late 00s.

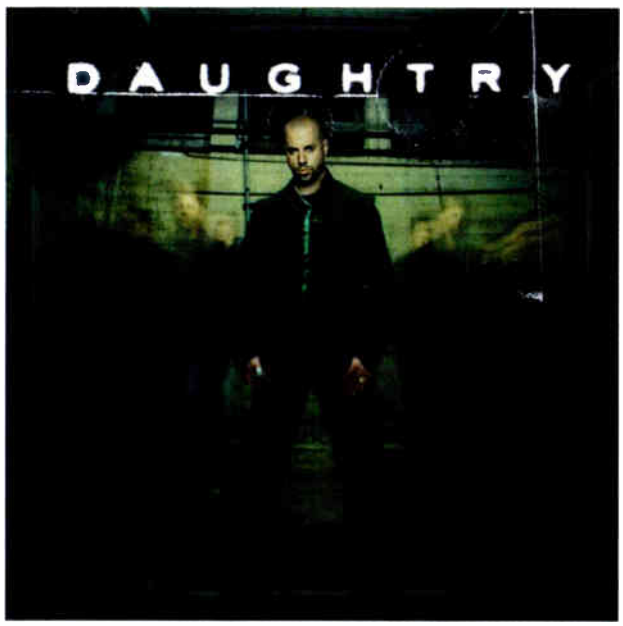
Why should I be surprised? Since I was a wee pro audio type, I was encouraged to believe that a proper recording environment (on pricey commercial property) combined with all the correct and incredibly esoteric choices in gear comprised truly great albums and singles. Yet today, late in the new millennium, such an audio production mindset is largely sentimental, progressively wrong and, at worst, stings of elitism.

Interestingly enough, the task of compiling the monthly PAR column 'Single Slice' has been my continued education in the possibilities of audio production excellence in the home, or what is primarily residential space. My 'teachers' are each and every producer, engineer, mixer, or mastering engineer that I interview regarding his or her own work.

More and more, these professionals are working in their own home facilities, if not for most of the project, for a substantial part of it. Yes, they often work in the largest and loveliest commercial studios, too — but even the biggest major label budgets can't squelch the appeal of, for instance, doing vocal ODs, or at least their subsequent edits, at home in boxer shorts. For example, could producer Howard Benson have edited Chris Daughtry's vocal tracks anywhere ['Single Slice,' PAR March 2007]? Sure. But he chose to do a great deal of that work at home. (No idea about the boxer shorts scenario — I didn't ask.)

LIFESTYLES OF THE RICH (AND NO-SO RICH) AND FAMOUS (AND NOT-SO FAMOUS)

Our industry's many tracking to mixing (and, often, mastering) businesses are generally owned by one pro who works full time as a producer of audio content. As such, their facilities do not have to be elaborate, as they exist to serve the needs of one primary user, themselves. Most of these production spaces are in residential rooms — alongside, underneath, or over typical living space where owners live, eat, sleep, and pay bills ... even raise kids and pets.



Appropriately, Daughtry's self-titled debut featuring the hit single 'Home' features Pro Tools editing work largely done at the home of prolific, commercially-successful producer Howard Benson.

Our growing community of 'home pros' create their own creative and capitalistic synergy in their non-traditional, 'post-storefront' world. In essence, this new biz model allows the rich and the not-so rich, and the famous and the not-so famous to comfortably coexist within this dramatically broadening 'singles' audio market of ours.

IT JUST MAKES SENSE

If 2008 is good for anything so far, it is the best year ever to work as an audio pro from home. Here in America, last time I filled up my car with fuel, it cost me nearly $4 a gallon. Conversely, high-speed Internet for a month costs the same as my full tank of gas (and I drive a small car). Further, cheap national and international phone plans abound. I can even buy new, cool audio gear for my rig without waiting for, or paying for, physical shipping (i.e. plug-in direct downloads)! Then, of course, there are the alluring tax benefits for homeowners who have a 'home office' (which is all I will say here as, personally speaking, quarterly payments to the IRS is more than plenty of involvement with this particular government agency).

So where do you really need to go to be a pro in 2008? Possibly nowhere. If my personal habitat is conducive to live instrument tracking, other artists and musicians will visit so I can record and produce them. In turn, I can reach out, too. For instance, I can roll a modest location rig to live gigs and particularly desirable acoustic environments where musicians do their thing ... and then roll back home to work on the tracks. If my home spot is conducive to mixing or mastering, and I have the skills, clients can provide their tracks via FTP; in turn, I provide complete mixes and masters to them ... all without burning a single ounce of gasoline.

BUT DON'T BE A TREE FALLING IN THE FOREST

For all the gas you can save as a home-based audio pro in 2008, getting yourself out to local gigs should be even easier. That's where you'll find your peers as well as new gigs and become more familiar with local talent while enjoying some live music. Along with being present in the local music scene, attending pro audio conventions as well as state, city/metro, and collegiate-sponsored musical events (many of which are free to attend) are also good ways to keep up with the aural happenings (and production possibilities) around you.

Finally, don't forget to try to play in a band yourself, or at least work directly with performing musicians, as 'actually doing it' is the most direct way to encourage continued artistic production.

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A IS FOR ACOUSTICS

While home spaces may be replacing the traditional studio storefront, little can replace or truthfully model the 'good sounding room.'

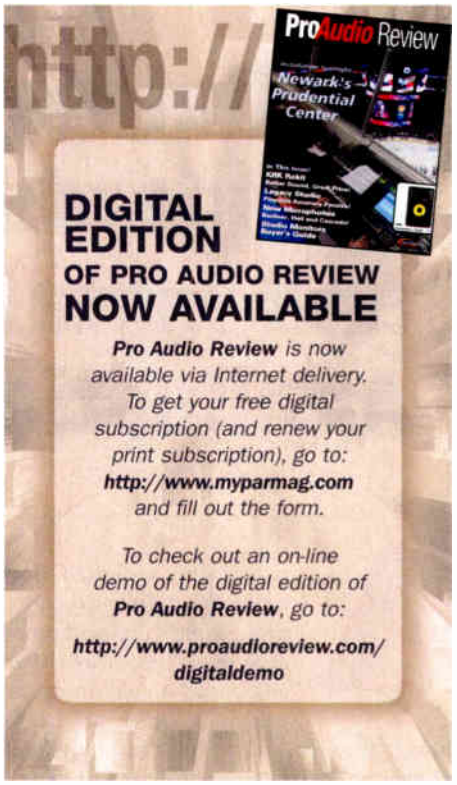
As this fact weighed on my mind, I back, examined the place where I spend hours a day listening to audio, and decided that it's not a new a mic, pre-amp, console, or DAW that I need most — it's a better sounding environment.

> So where do you really need to go to be a pro in 2008? Possibly nowhere. If my personal habitat is conducive to live instrument tracking, other artists and musicians will visit so I can record and produce them.

recently decided to start fresh from the beginning, continuing my investment in pro audio alphabetically ... and, in my book, 'a' stands for acoustics. For my own aural creation space, I've decided to try to make it acoustically the best it can be for what I can reasonably afford. I just stepped

As my close tree-hugging friends like to advise, 'think globally, act locally.' And nothing is more 'local' than home.

Strother Bullins is a North Carolina-based freelance writer specializing in the professional audio, music and entertainment industries.



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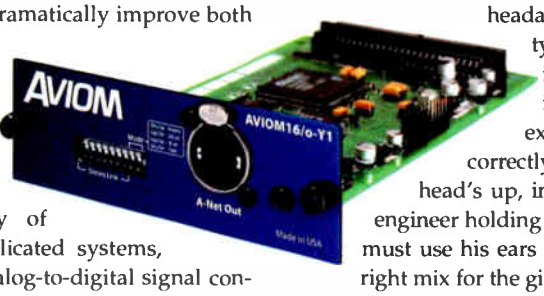
by **Strother Bullins**

Digital Networking: Standards for Live and Installed Applications

'Analog versus digital' is a topic amongst pro audio professionals that will probably never go away. After all, audio signal must be analog in order for us to hear it, thus most of us aren't naturally fond of ones and zeros as we are 'the real thing.' However, there's no debating that digitally networked audio within long, complicated signal chains can dramatically improve both hardware, and human, efficiency.



Digitally networked audio can very noticeably improve the overall sound quality of larger, more complicated systems, too; one simple analog-to-digital signal conversion means that a now-digital signal is suddenly impervious to change. Based on the quality of the conversion point, this audio at your FOH's main outputs, for example, is exactly what will be there at the end of the line when it ultimately hits a D/A converter before amplification and loudspeakers. This can be considered a joy of 'lossless audio.'

Finally — and what most digital network users, installers, and financiers would agree is a most important factor — a head-spinning amount of discrete signals can be delivered in comparatively miniscule bandwidth rather than through traditional (heavy, expensive, and hard-to-upsize) analog copper-based audio distribution systems.

For these and other reasons, digital audio networks have become an aspiration in nearly every corner of pro audio — and, rather quickly, a norm. For sophisticated installed and live audio networks, going digital rather than going in and out of analog devices — requiring more conversion for necessary equalization, compression/limiting, feedback suppression, electronic crossover, etc. — makes for easy and nearly-finalized audio for any audience. Thus, sophisticated installed audio systems are now largely digital.

Manufacturers of digital audio distribution products have gone a long way to reduce headaches for pro audio types and end users; if it is configured, implemented, and explained to the user correctly, it just works (so head's up, installers). Sure, the engineer holding the aural reins still must use his ears to provide just the right mix for the gig. But in a digitally networked system, whatever's on channel 32, for example, will get there as intended: cruising on that unrestricted, well-protected virtual highway that high-resolution digital audio via Ethernet — and increasingly, fiber optics — can provide.

PROTOCOLS AND STANDARDS

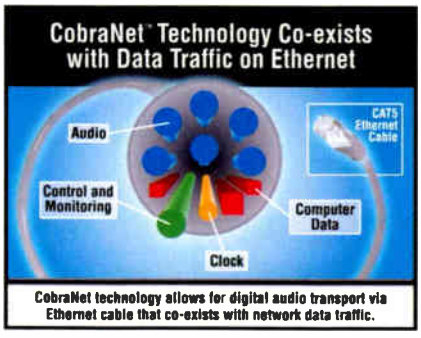
Here are the most common protocols for installed and networked digital audio systems:

-AES50: Last year, Klark-Teknik purchased rights to SuperMAC and HyperMAC audio networking technology, previously owned by Sony Oxford. SuperMAC technology is the basis of AES standard "AES50-2005 for high-res multichannel audio interconnection. SuperMAC offers up to 48 channels bi-directionally over CAT5, while HyperMAC offers up to 384 channels bi-directionally over CAT5/6, or fibre.

Currently, K-T promotes the use of AES50, SuperMAC and HyperMAC; SuperMAC and HyperMAC are used extensively within the Midas XL8 digital mixing console.

-A-Net Pro: Aviom's network audio protocol combines bidirectional audio with virtual data cables for control purposes. It is based on the physical layer of Ethernet, so it uses familiar CAT-5e cables and RJ-456 connectors. A-Net Pro comes in two Series varietals: Pro 16 and Pro 64. Aviom's Pro 16 Series hardware is designed to be 'plug and play' for simplified setup and configuration; Pro 64 adds features for higher-end installs, such as higher channel counts and sample rates, integrated control data (remote mic pre and network management), and the Aviom's Virtual Data Cables for distributing user control data. Aviom's ideas are catching on; I/O cards for Yamaha digital consoles have been enthusiastically received by the industry, and, in January of this year, the Aviom announced a partnership with Digidesign led to the ANO A-Net Output Card, an option for the VENUE Stage Rack.

-CobraNet: A longstanding protocol developed by Cirrus Logic and presently licensed nearly every pro audio manufacturer you could name — Crest Audio, Bosch companies (Dynacord, Electro-Voice, Midas, Telex, et al), Harman companies (BSS Audio, Crown, dbx Professional, JBL Professional, et al), Mackie, Peavey (for their MediaMatrix brand), QSC, Rane, Yamaha, etc., etc. — the widespread appeal of CobraNet is simple; offers Cirrus-Logic, "Regardless of the product's manufacturer, all products using CobraNet version 2.0 are compatible with one another. All products are capable of receiving software upgrades, and will therefore continue to be compatible as features are added to the CobraNet protocol."



NETWORKING continues on page 48 ➤

World Radio History

Aphex Anaconda™

Everything a Snake Should Be

- **Open architecture**
  Uses world-standard ADAT® I/O
- **Lowest latency**
  42 microseconds, plus the speed of light
- **Redundancy and reliability**
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- **Absolute electrical isolation**
  No noise, no hum, no buzz, no ground loops
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  1.25 miles (multimode), 10 miles (single mode)
- **Complete system solution**
  1788A Remote Mic Pre; 141 D/A; 142 A/D; 144 AES/ADAT
- **Splits**
  Model 824 Distribution Hub adds four transmitters
- **Word Clock distribution and stability**
  Eight BNC outputs, less than 1 nanosecond jitter
- **Most cost effective fiber snake**

No other snake offers the advantages of the **Aphex Model 828 Anaconda™** 64 Channel Bidirectional Digital Snake. It's the most reliable, most versatile, and easiest-to-use method of signal transport, while remaining the most affordable choice available. Find out why it was selected as the most outstanding pro product of NAMM 2008 by Live Sound International... contact your authorized Aphex dealer today!

www.aphex.com

APHEX

See us at InfoCOMM C4369

NETWORKING Continued From Page 46

-**Dante:** A new digital audio networking technology by Australian film Audinate, Dante is compatible with standard Internet Protocols — not just Ethernet — with no compromises in performance, assures Audinate. Features include sample-accurate synchronization and low latency. Dolby/Lake and Lab Gruppen are among the licensees of this technology.

-**EtherSound:** The creation of French firm Digigram, EtherSound uses current 100 Base-T Ethernet hardware to provide bi-directional transmission of up to 64 channels of 24-bit digital audio at 48 kHz (or 32 channels at 96 kHz), plus bi-directional control/monitoring data. Like protocol competitor CobraNet, EtherSound has a host of well-known licensees, such as Allen & Heath, Focusrite Audio Engineering, InnovaSON, Klein + Hummel, L-Acoustics, Martin Audio, NetCIRA by Fostex, Nexo, Peavey Electronics Corporation, Whirlwind, XTA Electronics; Yamaha, and others.

-**HiQnet:** Harman's own HiQnet, a plug-and-play system shares characteristics of both industry-wide, shared protocols and tightly grasped technology, as it uses CobraNet to transport audio, but the Harman Pro System Architect, a comprehensive core PC application, to control every detail component of a detailed, intelligent signal chain. It's a perfect solution to those who will have a system comprised of Harman-badged gear: AKG, BSS, Crown, dbx, JBL, Lexicon, Soundcraft, and Studer.

-**REAC:** Designed by and for RSS by Roland, REAC (Roland Ethernet Audio Communication) technology is designed to act as a 'plug and play' system for its associated brands. Up to 40 channels of 24-bit/96kHz audio, plus MIDI and remote control data, are part of the REAC stream.

-**U-Net:** Mackie's proprietary protocol was designed to transfer 32 channels at 96 kHz and control data in the midst of its own products such as the TT24 digital desk and DS3232 digital snake.

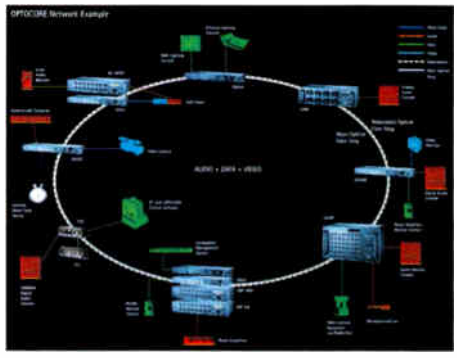
TYING IT ALL TOGETHER: THE DIGITAL SNAKE

In the midst of various protocols, standards, and processing methods, key manufacturers build the physical connections that make digital audio networks work. These system builders offer freestanding products for getting digital signal here to there in interesting ways. Relatively new manufacturers such as Media Numerics have developed their own special take on trafficking signal via CAT5 with its roadworthy RockNet system, while 'legacy' cable manufacturers such as Whirlwind have jumped into the deep end of CAT5 networking as well, offering such gear as their E-Snake.

A particularly hot subcategory in digital network products is fibre optic snakes. Companies such as Aphex, LightViper by Fiberplex, and Optocore offer products varying in features and components, yet each are based upon providing lightweight fibre optic cable runs with comprehensive, flexible I/O options.

WHAT'S RIGHT FOR YOU?

Jumping into digitally networked audio is a process chock full of key decisions and hopefully, the fundamental information provided here can be a good start for further investigation by networking newbies. Meanwhile, stay tuned to *Pro Audio Review*

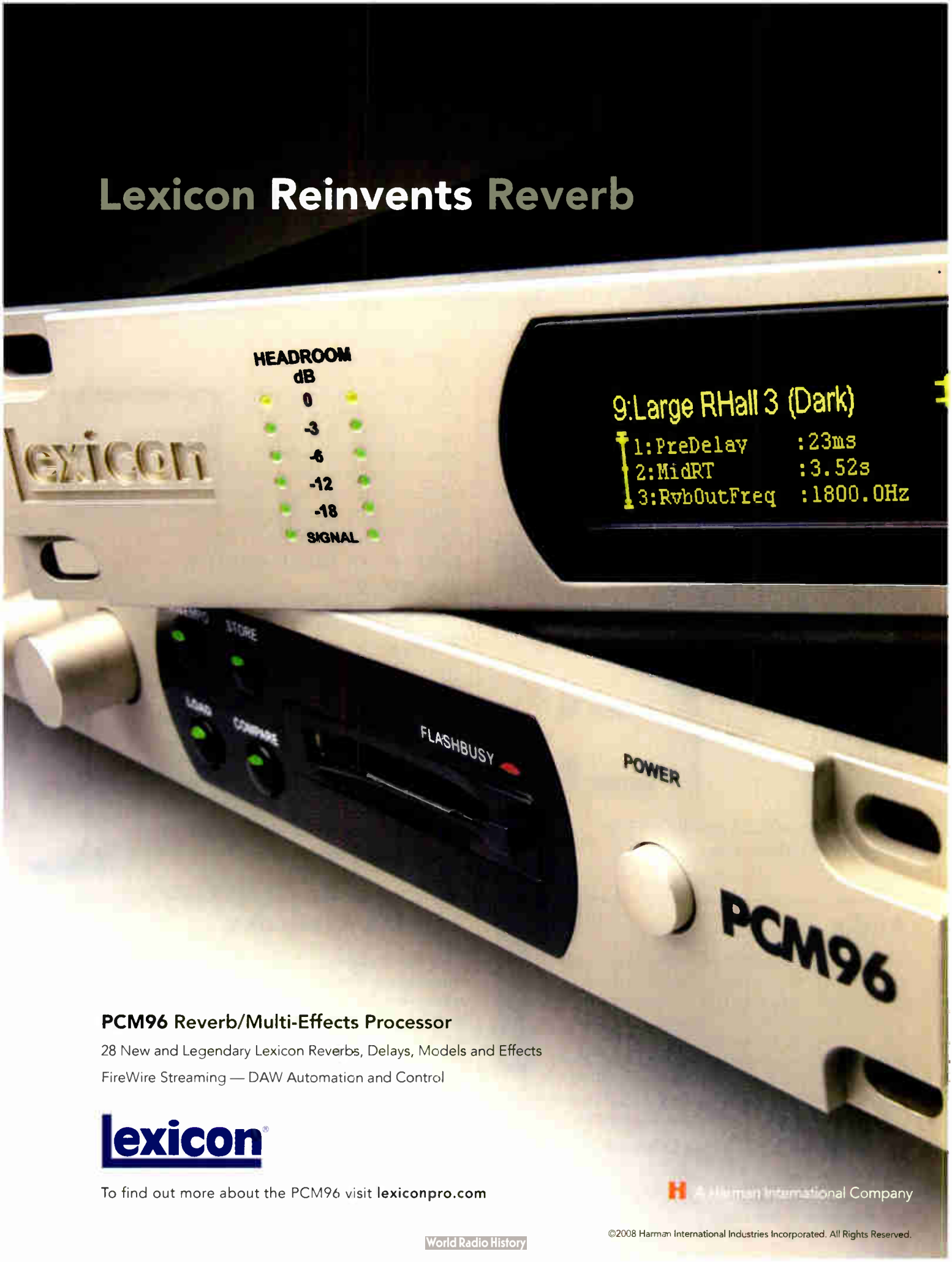


and sister publication *Pro Sound News* for reviews of digital network-associated gear and systems, and crucial protocol advancements, product releases, and associated announcements, respectively.

Strother Bullins is a Contributing Editor for Pro Audio Review.

World Radio History

Lexicon Reinvents Reverb



PCM96 Reverb/Multi-Effects Processor

28 New and Legendary Lexicon Reverbs, Delays, Models and Effects

FireWire Streaming — DAW Automation and Control

lexicon®

To find out more about the PCM96 visit **lexiconpro.com**

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World Radio History

Aphex

The 828 Anaconda from Aphex is a point-to-point, sixty-four channel, bi-directional snake designed to easily and cost effectively connect the Aphex 1788A microphone preamp system (or any Lightpipe equipped preamp) to a Lightpipe equipped console, DAW or recorders.

Visit InfoComm/NSCA Booth C4369; or www.aphex.com

Aphex

The Model 454 HeadPod is a professional 4-output headphone distribution pod with four independent stereo power amplifiers. Working with any headphone type, the HeadPod provides high headroom to avoid clipping even at high sound levels. Designed for ultra low distortion and wide frequency response capabilities.

Visit InfoComm/NSCA Booth C4369; or www.aphex.com

Audio-Technica

Audio-Technica introduces the new M2 and M3 Wireless In-Ear Monitor Systems. Both stereo systems feature Personal Mix Control that allows volume and mix control of two independent signals at the receiver.

Visit InfoComm/NSCA Booth C3757; or www.audio-technica.com,

Audix

The USB12 is a miniaturized USB condenser microphone used for recording voice and acoustic instruments directly into a computer. Features include low profile look, push to talk, push to lock, bass roll-off filter, flexible gooseneck positioning, headphone jack for no latency monitoring, Mac and PC compatibility, and studio quality sound. Available in black or white for suggested list of $179.

Visit InfoComm/NSCA Booth C4362; or www.audixusa.com

Audix

Audix continues to forge ahead with the Micros™ Series with the addition of the M1255 miniature condenser. At just under 2 inches in length, the M1255 has 12 dB higher sensitivity over competitive products, making it an ideal choice for over head ceiling or table mounted conferencing systems. Other features include modular threaded capsules, low noise electronics, 12mm gold vapor diaphragm, choice of 4 polar patterns options, and . complete immunity to RF interference caused by cell phones and other GSM devices. Suggested list is $419 for black, $439 for white.

Visit InfoComm/NSCA Booth C4362; or www.audixusa.com

Auralex Acoustics

By redirecting sound energy, the "Class B" fire-rated, solid Paulownia wood SpaceCouplers provide an exceptional "big room" reverberation tail without any acoustical artifacts or anomalies difficult to work with in post-processing and mixing phases. Price: $199.

Visit InfoComm/NSCA Booth C4984; or www.auralex.com.

World Radio History

Auralex Acoustics

The GRAMMA (Gig and Recording, Amp and Monitor, Modulation Attenuator) is an incredibly effective patented device used to float an amp or loudspeaker. Total acoustic isolation results in a purity of tone that has to be heard to be believed! Price: $49.95.

Visit InfoComm/NSCA Booth C4984; or www.auralex.com

Bosch Communications

Introducing the PL Series: a complete family of world-class microphones from Electro-Voice®.

Visit Electro-Voice at InfoComm 2008, Booth C3439, Demo Room N109 ; or www.boschcommunications.com

Community

Community now offers the popular M12 monitor with rubber pocket grip handles for effortless portability, and a larger, easier-to-access connector base.

At 10 1/2" high, the M12 is ideal for any application where low visibility is a key requirement. Available in low-luster black or white finishes, with the HF horn molded into the faceplate to either the right or left of the LF driver.

Visit InfoComm/NSCA Booth C3963; or www.communitypro.com

Community

Community's iBOX Series of installation loudspeakers has been expanded to offer portable versions of all iBOX full-range models, equipped with handles, rubber feet and stacking cups on four recessed corner mounting points. High-performance, high-quality loudspeakers covering the widest range of applications of any manufacturer requiring no DSP tuning or setup.

Visit InfoComm/NSCA Booth 3963; or www.communitypro.com

DPA

DPA The 4080 cardioid lavaliere microphone offers all of the sonic advantages of the larger, more expensive microphones DPA has become famous for. The 4080 provides a wide dynamic range and maximum off axis rejection with the highest intelligibility of speech.

Visit InfoComm/NSCA Booth C4582; or www.dpamicrophones.com

Equi=Tech

"The Pioneer of Balanced Power" introduces the Model 20WQ wall cabinet balanced power distribution system, featuring a massive yet precisely balanced toroid isolation transformer, 200 amp load capacity and 20 branch circuits for hardwiring AC power. Price: Contact manufacturer.

Visit InfoComm/NSCA Booth C4985; or www.equitech.com.

Full Compass

FULL COMPASS
PRO AUDIO | VIDEO | AV | LIGHTING

Full Compass is a national leader in Professional Audio, Professional Video, A/V and Lighting sales. Over 600 brands available! Call a Sales Pro at 800-356-5844 or visit our web site.

Vist InfoComm/NSCA Booth C1943; or www.fullcompass.com

Hear Technologies

The Talk Back 600 MV controls talkback, monitor switching from front panel, optional wired, IR remotes. Includes quality talkback mic preamp with gain/level controls, Phantom Power, six balanced Aux inputs, outputs switch-selectable in pairs, IR receiver, IR receiver repeater. Price: $399.

Visit InfoComm/NSCA Booth C4188; or www.HearTechnologies.com.

World Radio History

Hear Technologies

Mix Back monitor mixer features 16 mic/line inputs with passive split, two stereo, 12 mono levels, pin one lift, mic power switches, dual FX sends, stereo aux inputs, inserts, four-band EQ with dual sweepable mids. Talkback. 16 master outputs are balanced TRS analog, ADAT, HearBus. Price: $2,495.

Visit InfoComm/NSCA Booth C4188; or www.HearTechnologies.com

JBL Professional

The new JBL VERTEC VT4889ADP powered full-size line array element and companion VT4880ADP Ultra Long Excursion powered full-size arrayable subwoofer are integrated audio systems featuring field-proven JBL DrivePack®technology.

Visit InfoComm/NSCA JBL Booth# C3523/ Demo Room N110; or www.jblpro.com

JBL Professional

JBL Professionals's new AE Compact loudspeaker series consists of eight high-output, 2-way loudspeaker models incorporating either single or dual woofers, including 5.25-inch, 6.5-inch, and 8-inch transducers.

Visit InfoCom/NSCA JBL Booth# C3523/Demo Room N110; or www.jblpro.com

Kaltman Creations

Stop the Wireless Madness! Kaltman Creations presents the Spectran & Invisible Waves affordable, RF Spectrum Analyzers for Professional Audio Wireless applications. No more channel selection guessing, no more RF ambushing, no more frequency allocation charts. Complete RF Analyzer systems from $1,400.

Visit InfoComm/NSCA Booth C4366; or www.RFAnalyzers.com

World Radio History

Kaltman Creations

The Worlds First Handheld, Motorized, Cable Coiler which allows the user to remove the cable once coiled. The Kaltman Cable Coiler™ is a patented device that quickly winds-up most medium duty cable, such as microphone cables, saving time as well as wear and tear on cables.

Visit InfoComm/NSCA Booth 4366; or www.cablecoilers.com

QSC

Designed to meet the needs of both concert and fixed sound applications, the WideLine-8 line array series from QSC offers the same wide, 140-degree horizontal coverage as larger WideLine models with a 10:1 design factor. Prices: $2,999 - 5,550.

Visit InfoComm/NSCA Booth C3459; or www.qscaudio.com.

Rane

The C4 offers four channels of compression, limiting and dynamic EQ. Internal and external side-chain offers a parametric EQ for frequency-dependent compression or de-essing. The limiter operates independent of the compressor. Adjacent channels may link for accurate stereo tracking.

Visiit InfoComm/NSCA Booth C3932; or www.rane.com

Rane

The G4 offers four channels of gating, ducking and downward expansion modes are offered, with internal high- and low-cut filters and external side-chain inputs. It is the ideal tool for front of house, instrument and voice processing for recording and broadcasting.

Visiit InfoComm/NSCA Booth C3932; or www.rane.com

World Radio History

Rolls Professional

DB25b is a passive direct box that takes a high impedance _" signal to low impedance XLR via shielded transformer balancing. That is affordable to everyone. Features include Ground Lift for "hum" reduction, attenuator control, and dual-1/4" jacks for signal pass-through

Vist InfoComm/NSCA Booth C3582; or www.rollsprofessional.com

Rolls Professional

The MX422 Field Mixer, a four channel professional ENG microphone mixer engineered with the audio professional in mind. Low cut filters and 48 volts phantom power. Features include four 4 XLR inputs, transformer-balanced XLR outputs, Back-up battery, Limiter, VU meters, level and pan controls

Vist InfoComm/NSCA Booth C3582; or www.rollsprofessional.com

Wohler

The AMP2-E8MDA multi-format audio monitor is a complete, exceptionally high quality audio monitoring solution capable of monitoring audio from DOLBY E, DOLBY Digital (AC-3), HD-SDI, SD-SDI, AES/EBU, and analog signal sources.

Vist InfoComm/NSCA Booth C2315; or www.wohler.com

Yamaha

The Yamaha IM8 Series Mixers are available in 24-, 32- or 40-channels, all with four additional stereo inputs. The consoles feature TRS Insert Points, balanced Direct Outs, 8 Groups, 8 Aux, one Stereo and Mono output. With an 11 x 4 matrix, the IM8 Series feature 4 Mute groups, 100mm faders and come equipped with an external power supply as well as a power redundancy option.

Visit InfoComm/NSCA Booth C4069; or www.yamahaca.com

FDW WORLDWIDE
FDW-W.COM

FDW-Worldwide, the exclusive distributor of Violet Design and Nevaton microphones in the Americas and the exclusive international distributor of Cable Up pro-line cables and accessories is seeking to establish new strategic partnerships with manufacturers exploring the outsourcing of their sales and marketing operations. We operate out of a 75,000 square foot facility in Wisconsin and provide a wide range of services including sales, marketing, customer service, credit, service, warehousing, and shipping. We have sales representatives positioned throughout the USA and Canada and can react immediately to expand your current distribution.

Contact Garry Templin, Brand Manager, at 615-308-7808 or visit www.fdw-w.com for more information.

Yamaha

The Yamaha ProjectPhone is the world's first audio/video conferencing system with integrated speaker/microphone arrays. All models feature smooth, two-way talk without interruption or delay. The arrayed microphones track speakers and eliminate ambient noise, isolating only the voices. High-performance array speakers project voices with high clarity, making them easily audible in any setting.

Visit InfoComm/NSCA Booth C3969; or www.yamahaca.com

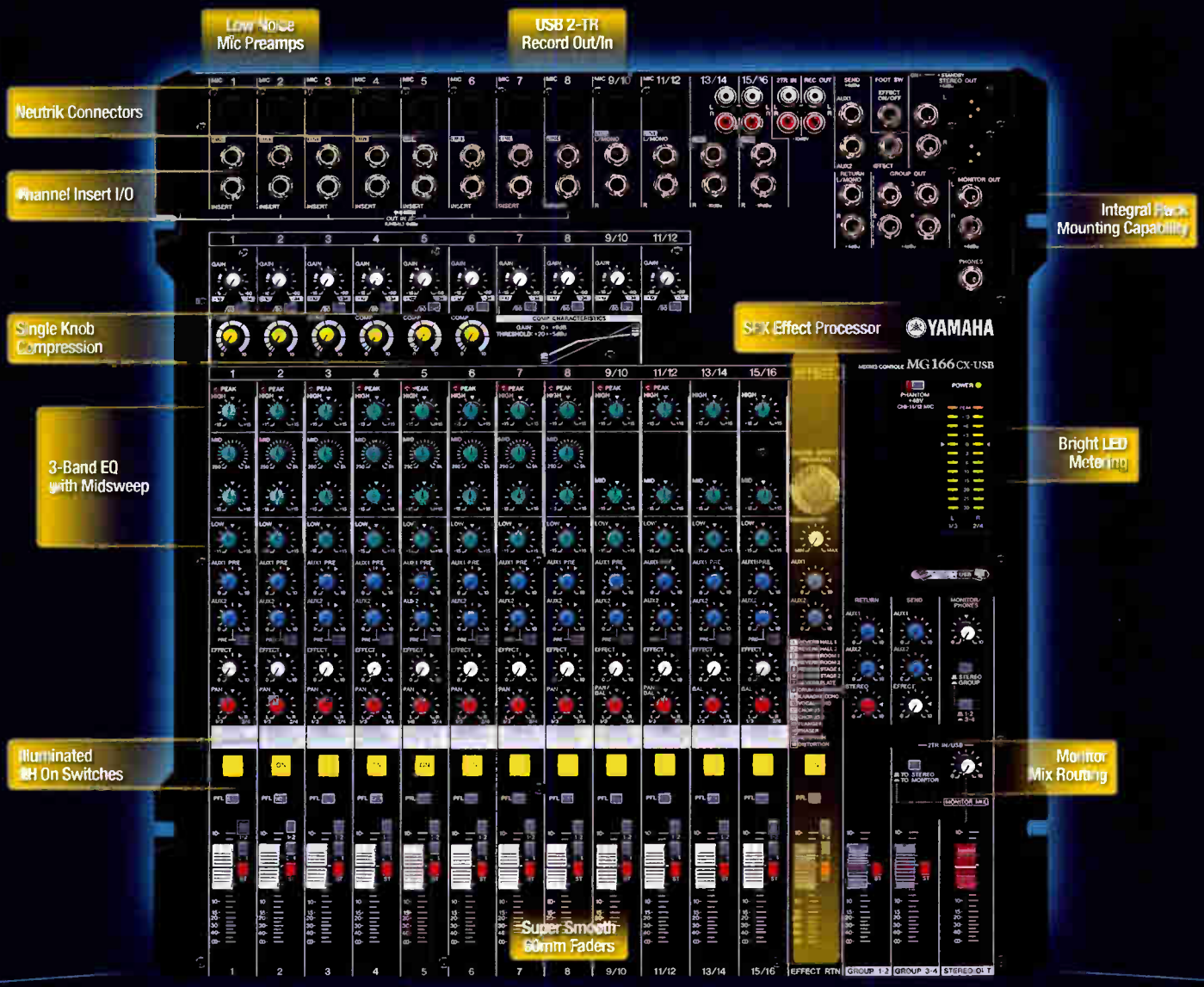
VTC Elevation Line Array

The VTC Elevation Series is a vertical array sound reinforcement solution for touring or fixed applications featuring key technologies by designer Tom Danley. As a touring solution, the Elevation Series is a fully scalable line array system easily reconfigured for virtually any sized venue. VTC Pro Audio products are designed and manufactured in North America by Yorkville Sound.

Visit InfoComm Booth C5063N110; or www.vtcproaudio.com

World Radio History

It's All In The Details



Yamaha's ten new MG-Series mixer models provide excellent audio performance and a varied combination of valuable features, many of which are highlighted here on our fully-loaded MG166cx-usb.* No matter your application, there's an MG configuration just right for you. Even better yet, all this "no compromise" quality comes at prices anyone can afford, ranging from $99 to $649.** So, if you're as de-ail oriented as we are, visit our website to check out the line and your favorite Yamaha Live Sound dealer for a hands on examination.

*USB models also come with Cubase AI4 recording software
**Estimated street price

YAMAHA

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World Radio History

LIVE
The latest news and products

NEW PRODUCTS

APB-DYNASONICS ProDesk-4 Small Format Console

Available in 16, 24, 32, 40 and 48 mono mic/line input channels, the APB-Dynasonics ProDesk-4 includes 4 Stereo Line Only input channels, each selectable from two different input sources and controlled from 100mm faders with stereo EQ and access to all aux buses. All mono input channels also include internally illuminated Mute and PFL switches, 6 segment channel metering, 48 Volt Phantom Power switch with LED, mic/line, Pad and Polarity Reverse switches. The ProDesk-4 input channels are similar to those used on ProRack mixers, while the cosmetics are identical to Spectra consoles.
At the heart of ProDesk-4 is APB's acclaimed wide bandwidth circuitry, most noticeable in the microphone preamps, EQ, and summing amplifier and output sonic performance. A solid mechanical structure designed to endure tough road conditions protects the electronic circuitry and provides a comfortable but solid work surface.
PRICE: $7,400 to $13,800 (16 to 48 mono mic/line input channels)
CONTACT: APB-Dynasonics | ☎ 973.785.1101 ➲ www.apb-dynasonics.com

VTC PRO AUDIO Elevation Series Line Array

VTC Pro Audio offers a full-range of hardware and software technology solutions alongside some familiar names in live sound technology. Case in point — the VTC Elevation Series line array loudspeaker enclosures and subwoofers utilize three newly patented technologies by Tom Danley of Danley Sound Labs to create a vertical array sound reinforcement solution for touring applications or fixed installations. As a touring solution, Elevation Series is a fully scalable line array system, and can be easily reconfigured for virtually any sized venue from small system applications like theaters with fewer than 1,000 seats to large scale full auditorium shows, convention centers, arenas and outdoor amphitheater-style events. Designed and manufactured in North America for VTC Pro Audio by Yorkville Sound, all Elevation Series enclosures employ solid void free 5/8-inch 11-ply Baltic birch, and use high quality speaker components.
PRICE: POA
CONTACT: VTC Pro Audio | ☎ 716-297-2920 ➲ www.vtcproaudio.com

DBX DriveRack PX Powered Speaker Optimizer

Harman company dbx Professional Products has announced the DriveRack PX powered speaker optimizer, designed to enhance and optimize the performance of powered speakers in an intuitive package that requires no special skills to operate. An included dbx M2 measurement mic uses Auto-EQ to correct for audible deficiencies in the room environment. dbx's patented Advanced Feedback Suppression (AFS) kills harsh feedback, allowing problem-free operation at higher sound levels, and the patented Subharmonic Synthesizer extends bass response for enhanced bottom end. The PeakStopPlus limiting protects the speakers without sacrificing overall sound quality.
PRICE: $599
CONTACT: dbx Professional Products | ☎ 801-568-7660 ➲ www.dbxpro.com

COMMUNITY M12 Stage Monitor

Community has redesigned its M12 stage monitor. Improvements include rubber pocket grip handles for portability, and a larger, easier-to-access connector base. The M12 is targeted for applications where low visibility is a key requirement, including televised and corporate events, houses of worship, as well as theater and stage performances. The M12's high-frequency driver is mounted to a molded, one-piece asymmetrical horn with a 90-degree pattern at the top and 40 degree at the bottom, allowing full-range monitor output close up or at a distance.
PRICE: $1,665
CONTACT: Community Professional Loudspeakers | ☎ 610-876-3400 ➲ www.communitypro.com

NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS

Yamaha Commercial Audio Systems has announced the availability of the Nexo RS15 low-profile, high-output, modular, scalable bass cabinet. The first in the RS (Ray Sub) Series, the RS15 is reportedly capable of operating in both omni-directional and cardioid modes. Comprised of a 15-inch

transducer with a frequency response of 35 Hz-200 Hz in omni or 35 Hz-150 Hz in directional mode and a sensitivity of 105 dB SPL, the RS15 is targeted for system installations and touring requirements.

Martin Audio's new W8VDQ compact, three-way system combines line array and differential dispersion technologies to provide an advanced solution for even coverage over wide angles and throw distances. The system has been designed to provide a short-throw horizontal dispersion of 120°, narrowing to 100° as the throw increases. The vertical differential directivity (VDQ) creates progressively more HF output as throw distance increases. The resulting dispersion pattern is ideally suited to covering audiences located on flat, or gradually sloping surfaces.

Danley Sound Labs is introducing the SH-46 Synergy Horn, a 40 x 60-degree dispersion pattern speaker offering very high-output capability with ultra high-fidelity. This latest addition to the company's Synergy Horn product line is designed to be operated vertically or horizontally and may be configured standalone or in an array.

The SH-46 handles 1,400 watts RMS of power and has a sensitivity of 106dB. Frequency response is 70Hz - 15kHz (+/-4dB, using two or more cabinets). The braced Baltic birch enclosure measures 29 inches high by 22.5 inches wide and 22.75 inches deep and weighs 105 pounds.

World Radio History

WorldWideLine

WideLine™ line array system solutions from QSC Audio offer an innovative approach to creating and programming system tunings that produce amazing accuracy when combined with our SC-28 system controller. The flexibility and rich GUI environment of networked QSControl.net™ processors and, lest we forget, no WideLine system would be complete without QSC's PL380, the "ultimate" Class D amplifier.

Experience the complete WideLine system at InfoComm 2008 - Las Vegas
June 18-20, 2008 - Booth C-3459

SC-28 System Controller

PL380 Class D Professional Power Amplifier

QSC™
Passionate About Sound

Win one of three limited-edition QSC 40th Anniversary guitars!

We're giving away a guitar each day of the show. Fill out an entry form at the booth for a chance to win.

Official rules at:
www.qscaudio.com/contests

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World Radio History

by **Karl Bader**

Heil Sound PR-22 handheld microphone

The latest from Heil maintains the great clarity of the PR-20 with reduced handling noise.

Best known for the Peter Frampton talk box and live quadraphonic sound for The Who, Bob Heil is always coming up with innovative products for the music industry. One of Heil's most recent products is the PR-22 dynamic microphone — essentially an improvement made to his PR-20 dynamic vocal microphone.

| FEATURES

The PR-22 is very similar to the PR-20 in many ways, including the cardioid pick up pattern and precise phase plug. It has a very flat response with a slight boost in the midrange around 3.15kHz.

The flat response of the PR-22's predecessor, the PR-20, led to its Achilles heel: handling noise. Handling noise is created when putting the mic into a mic clip, rubbing the outside, tapping the mic, etc. Other manufacturers solved this problem by rolling off the frequency response around 125 Hz and disregarding the lowest octave.

According to Heil, his company decided to keep that last octave, and looked hard to find a solution to this problem. The found it in foam used in ceiling fans called Sorbothane. This foam isolates the mic element from the body of the mic, reducing dreaded handling noise. This improvement created the PR-22.

FAST FACTS

APPLICATIONS
Live, broadcast, and recording studio

KEY FEATURES
Cardioid pattern, dynamic element, extra wind screens mount and carrying pouch

PRICE
$179 list

CONTACT
Heil Sound | ☎ 618-257-3000
➲ www.heilsound.com

| IN USE

I opened up the large leatherette case. I found the mic, two additional metal windscreens in gold and black, a mic clip, and a foam windscreen. I questioned, "Why the extra metal windscreens? Did they change the pickup pattern? Were they just for show?"

An e-mail to Bob Heil and a prompt phone call back from Bob determined that they were indeed for the Easter Egg colorer in all of us. I quote Bob Heil when I say, "When you're in 'Vegas, you use the gold one."

The PR-22 was initially tested through headphones, a monitor wedge, and a speaker that was set up about 30 feet away. The mic was A/B tested against many microphones in our inventory. It was also tested at a couple of corporate shows with bands.

Overall, I was impressed with the sound of the microphone. It had a smoother low end than a Shure SM-58 and a clarity that I couldn't get out of any of the mics in my shop's wardrobe,

World Radio History

especially in the low/mid range. The closest match in clarity came from an EV RE-20, which is much more expensive, and not very practical for live vocal use. The mighty SM-57 seemed to have a similar frequency response, except — once again — the clarity of the low/mid wasn't there.

In the live shows, I found the vocals were clean and very natural sounding. The crew on the show was impressed by its intelligibility. I did find that the PR-22 had better feedback rejection if stage monitors were placed off axis from the mic. I also discovered the PR-22 tended to feedback in the monitor before most other mics did. It took considerably more work to EQ the wedge to get the vocal to a high SPL. Because of this I wouldn't consider the mic for loud stage volumes. It would be better, in my opinion, for in-ear monitors.

I found that Heil Sound's claim of reduced proximity effect was also true in comparison to other microphones. The PR-22 lost some low end, but did not get as thin and tinny sounding as other comparable mics. Not only that, but it was discovered that this microphone would be a good choice for artists who like to "cup" the mic. I found the response of the mic didn't get honky like other mics — unless you covered the flat top of the windscreen.

Handling noise was a big issue with the PR-20, and I wanted to know how the PR-22 compared to other mics I had on hand. When I listened to the PR-22 in headphones, I heard more handling noise than in a Shure SM-58. In speakers, however, the difference between the two was barely audible. I can't comment on the claims that PR-22 exhibited less handling noise since I did not have one in hand. But during one show, the PR-22 was passed from one person to another, and there was barely any handling noise — except when the mic was pulled from the stand.

The durability of the PR-22 was questioned because the grip of the mic seemed to slip through my hand, and the overly thick case made me question its ability to hold up to the rigors of the road. But in my own 'drop durability test,' the mic was dropped onto the cement floor several times from varying levels and positions, and the mic performed flawlessly after each drop. Seems durable to me.

SUMMARY

Overall, I was impressed with the Heil PR22. Yes, this mic is a few dollars more than your industry standard live vocal mic, but for this price you get the improved performance and intelligibility of mics costing much more.

Karl Bader is a live sound engineer based in Washington, D.C.

PRODUCTPOINTS

- Frequency response
- Exceptional clarity
- Reduced proximity effect

- Gain before feedback

SCORE

The PR-22 maintains the great clarity of the PR-20 with reduced handling noise.

Triple Independent A/D, D/A and Sample Rate Converter

ProAudio Review PAR Excellence

TOTALLY TRANSPARENT!

ATI DIGITAL AUDIO ADAC-2
2-Channel 24-bit/192kHz AD/DA/SRC

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World Radio History

BROADCAST

The latest news and products

NEW PRODUCTS

DENON PROFESSIONAL DN-C640 Slot-in Network CD Player

The new DN-C640 enables audio data-file playback from both CD and DVD discs and easy access to network playback capabilities. It is well suited to serving as a fully networked audio playback control center, and it was designed with the needs of the broadcaster and professional audio market in mind.

The DN-C640 is compatible with most standard audio data file formats including CD-DA (.cda), WAVE (.wav), MPEG-1/2 Layer III (.mp3), MPEG-1 Layer II (.mpg) and Windows Media Audio (.wma), allowing for up to 20 hours of MP3 or similar audio playback from a single CD, CD-R or CD-RW. Additionally, the unit reads these files directly from a data DVD with its greatly enhanced storage, thus increasing continuous single disc playback to nearly 6 days of uninterrupted audio.

PRICE: $899

CONTACT: D&M Professional | ☎ 630-741-0330 ➲ www.dm-holdings.com

FURMAN SOUND Merit-X Series Power Conditioners

Furman Sound has announced its new Merit-x Series, an upgrade to Furman's existing Merit line. For the value-conscious customer, the new Merit-x Series provides convenient, heavy-duty, rack-mountable power-conditioning solutions at a low cost. The three new units feature a more robust chassis with wall-wart spacing on the rear panel to accommodate bulky power transformers; increased AC noise filtration for a lower noise floor; and a higher joule rating for superior protection.

The M-8x provides eight filtered and protected rear-panel outlets with a front-panel convenience outlet, and a "Protection OK" indicator light. The M-8Lx adds pull-out light tubes (with dimmer knob) for discreet rack illumination, while the M-8Dx provides light tubes as well as a laboratory-grade, front-panel digital voltmeter to monitor incoming voltage.

PRICE: TBA

CONTACT: Furman Sound | ☎ 707-763-1010 ➲ www.furmansound.com

REALTRAPS MiniGobo Series

The latest product line from RealTraps, the MiniGobo Series, consists of lightweight and affordable alternatives to the company's full size gobo line. MiniGobos are available in a variety of sizes and configurations to favor either isolation, bass trapping, or broadband absorption.

MiniGobos are based on standard line of MiniTraps, MicroTraps, and MondoTraps, using hinges to join two or more panels together as a single unit that's stable, easy to handle, and self-supporting. Further, the same panels can be used when recording, and again in the control room when mixing. For most gobo applications, RealTraps recommends the HF style MiniGobo, which is absorbent on both sides and has a barrier in the middle for increased isolation. However, RealTraps also builds MiniGobos with the reflective barrier on either side, or no barrier at all; with no barrier, the MiniGobo still provides plenty of isolation, and they're also more effective as bass traps or reflection panels in the control room when mixing.

PRICE: from $249 (ficus tree not included)

CONTACT: RealTraps | ☎ 866-732-5872 ➲ www.realtraps.com

TASCAM DR-1 Portable Digital Recorder

Well suited for audio-for-broadcast gathering, the new TASCAM DR-1 features built-in stereo condenser microphones with a unique variable angle mechanism, so you may set it to record from any angle. The DR-1 is the first portable recorder to include a 1GB card, offering plenty of CD or MP3-quality recording time for long rehearsals and concerts. The mics on the DR-1 are arranged for a wide stereo image, and an external mic can also be used. The DR-1 also includes auto gain control and analog limiting for easy setup and a low-frequency cutoff to eliminate handling or wind noise.

PRICE: $299

CONTACT: TASCAM | ☎ 323-726-0303 ➲ www.tascam.com

NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS

Following its acquisition of the business and intellectual property rights of SADiE, formerly owned by Studio Audio and Video Ltd, Prism Sound has signed a three year contract with the BBC to maintain all of its SADiE PC-based digital audio workstation products. The corporation currently has over 800

SADiE systems, which are primarily used for radio production. The majority of the systems are in Portland Place and Bush House in London, but there are also a substantial number in regional offices around the UK.

For producer Jordan Tarlow, ICON D-Control ES was part of a broader move to Pro Tools software. "I used another program for many years, and frankly I just got tired of staring at my screen — that's not why I got into music," Tarlow explains. A 15-year veteran of national radio and TV spots, Tarlow's newly built Malibu, California, facility also produces the immensely popular Martha Quinn Presents Gods of the Big '80s show on Sirius satellite radio.

Producer/mixer Brad Gilderman relied on Solid State Logic AWS 900+ consoles at Westlake Studios' Production Rooms 1 and 2 to capture the golden tones of the weekly hopefuls for this year's American Idol TV program. The AWS provides Gilderman with SSL SuperAnalogue sound and integrated control of Westlakes' Pro Tools systems. The productions ended up on iTunes every week.

Marantz Professional Canada has partnered with the University of Windsor and Auburn University in an ongoing groundbreaking environmental research project, "The Search for the Ivory-billed Woodpecker" in the Florida wilderness near the Choctawhatchee River. Marantz Professional is an integral part of this project by providing PMD670/PMD660 field recorders for the listening stations.

World Radio History

www.yamahaca.com

sweat the small stuff.

LS9-32

We do. With Yamaha's LS9, countless features are jam-packed into this miniature mixer. A virtual effects rack, plenty of EQ and dynamic processors, full-size 100 mm faders, an integrated MP3 recorder/player, and recallable head amps make the LS9 worthy of major notice. Once you pick it up (LS9-32 weighs a mere 42 lbs) you won't want to put it down, so give it a little attention and see how this compact console can make a big difference in your mixes.

Yamaha's LS9. Worth Your While.

When you need help, time zones shouldn't matter. Yamaha provides coast to coast 24/7 technical support. With dedicated staff and regional service centers, assistance is around the corner. If we can't fix it over the phone, we'll put a part or a person on the next plane out. It's that simple.

YAMAHA
commercial audio

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World Radio History

POST
The latest news and products

NEW PRODUCTS

SOLID STATE LOGIC Mynx Desktop X-Rack Module Chassis

The new Solid State Mynx is a cool, new desktop chassis that allows you to load your choice from the popular X-Rack module range into a simple two module desktop box. Using identical circuit design and manufacturing to SSL's Duality and AWS 900+ consoles, X-Rack is a modular system that delivers SSL SuperAnalogue sound in a versatile form.

The X-Rack system enables you to combine different modules to create a range of recording and mixing tools; available modules include the SuperAnalogue Mic Pre, EQ, VHD Input, Stereo Bus Compressor, Master Bus, and Line Input. Mynx is a rugged metal enclosure made from 4mm thick extruded aluminum. It measures 105mm x 190mm x 185mm and has two X-Rack Module capacity. Power supply to the modules is via an external supply and audio connections are made directly to the back of your selected modules. Mynx has no Total Recall capability.

PRICE: $595

CONTACT: Solid State Logic | ☎ 212-315-1111 ➲ www.solid-state-logic.com

MINNETONKA discWelder STEEL Version 3 Software

Minnetonka Audio Software (MASI) is now shipping an all-new version of discWelder STEEL with the release of Version 3. The new release is infused with a subset of features from MASI's authoring application, discWelder CHROME II, recently used for authoring "Ringo 5.1," a DVD-A release by Ringo Starr [see *PAR* March 2008's 'Single Slice' for more about the "Ringo 5.1" sessions].

New to discWelder STEEL v3.0 is Automirror, a DVD-A-to-Dolby Digital DVD-V creation tool; DSD import/convert to PCM, DSD to PCM conversion folder for off-line editing, and Red-Book CD burning.

PRICE: $595

CONTACT: Minnetonka Audio Software | ☎ 952-449-0187 ➲ www.minnetonkaaudio.com

LSI Storage Systems-Certified SNS Ellipse Enterprise HBA

Studio Network Solutions (SNS) has announced that its Ellipse Enterprise HBA has been certified for use with LSI storage systems and Mac OS X. The Ellipse Enterprise Fibre Channel HBA (Host Bus Adapter) from SNS delivers the ability for Macintosh servers and workstations to take full advantage of the fault tolerant, multi-pathing I/O and failover/failback features found in Redundant Disk Array Controller (RDAC)-enabled storage systems from LSI. The certification process ensures interoperability between the SNS and LSI products and brings advanced enterprise-class SAN performance and fault tolerance to Mac OS X customers.

The Ellipse Enterprise HBA is compatible with Mac OS X Leopard and Tiger. It is now available worldwide and can be ordered in single-, dual-, and quad-port configurations of PCIe or PCI-X.

PRICE: POA

CONTACT: Studio Network Solutions | ☎ 877.537.2094 ➲ www.studionetworksolutions.com

NEUTRIK ConvertiCon Unisex XLR Connector

In direct response to high professional and consumer demand, Neutrik designer and manufacturer of the XX series XLR cable connector, has officially introduced the world's first unisex 3-pin XLR connector, ConvertCon. ConvertCon (NC3FM-C) is a new 3-pin male and female cable connector in a single housing also available with black chrome housing and gold contacts (NC3FM-C-B). By simply sliding the housing back and forth, ConvertCon is transformed from a male to female connector. This new male/female cable end XLR allows for use of one connector, as it can mate with either a male or female 3-pin XLR.

ConvertCon shares some of the features and benefits of Neutrik's best-selling XLR XX series. ConvertCon also features an improved chuck type strain relief that provides higher pull-out force and makes assembly easier and faster.

PRICE: POA

CONTACT: Neutrik USA | ☎ 732-901-9488 ➲ www.neutrikusa.com

NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS NEWS

"Sure, plug-ins are okay," offers prolific music-scoring mixer Alan Meyerson," but I need a world-class external reverb for creating realistic-sounding ambiences and reverberant spaces for my motion-picture soundtracks. As soon as I heard the new Bricasti Model 7 I knew that I had found what I was looking for. I'm so impressed with this powerful unit that I ended up purchasing a total of six Model 7 Stereo Reverb Processors. They sound amazing!"

The aforementioned Meyerson has also recently utilized Eventide's Anthology II TDM Plug-ins bundle on the soundtrack of 'Iron Man' starring Robert Downey, Jr. The largely rock soundtrack for the film was mixed at Hans Zimmer's Remote Control Studios, where Meyerson reportedly used the plug-ins to create a live feel.

Prism Sound has announced an important upgrade to its multi-channel Orpheus FireWire computer interface, a 1U, 19-inch rack-mount 192kHz-capable unit. The new upgrade enables Orpheus users to convert their audio inputs to ADAT outputs, and vice versa. This substantially improves the unit's stand-alone capabilities by allowing users to connect directly to a variety of digital audio workstations, including Pro Tools LE. Orpheus units with the new upgrade incorporate an AV/C model that behaves as ADAT Send & Return, but also works when the Firewire cable is connected. This provides users operating in DAW mode with pure audio conversion.

In other Prism Sound news, following its acquisition of the business and intellectual property rights of SADiE, the company signed a License Agreement with CEDAR Audio that enables it to restart sales of CEDAR for SADiE processes. CEDAR for SADiE is a complete suite of processes optimized for cleaning audio in areas such as multi-track re-mastering, surround, post, and film soundtrack restoration. Originally introduced in 1996, the software now incorporates five processes — Declick, Decrackle, Denoise, Dethump and Retouch V3.

World Radio History

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World Radio History

by **Rob Tavaglione**

Samson VR88 Active Velocity Ribbon Microphone

Old-school ribbon sound in a new-school package

It's only natural that today's largely digital production environment has welcomed, and probably intensified, the resurgence of the ribbon mic. Now, an abundance of affordable ribbon models offer various degrees of sound quality, but most all budget models are saddled with the burden of requiring a very clean, high-gain mic preamp. Samson's new VR88 attacks this problem with an active output stage and throws in a number of unexpected accessories to boot.

| FEATURES

The VR88 represents a sizable investment from Samson; with five years of R&D in the making, the VR88 is handcrafted and available for only limited production. This production run is accompanied by a complete set of accessories including an aluminum carrying case, yoke mount, elastic-spider suspension mount, protective sock and a premium 90-degree right-angle XLR cable.

The VR88 is an active velocity ribbon mic, featuring a 2.5-inch long, 2-micron thick, pure aluminum ribbon suspended in a neodymium-created magnetic field. The active output stage requires 48-volt phantom power and a bit of memory (as you will probably forget to engage it at first). The bidirectional VR88 handles SPL of 135 dB, has frequency response from 30Hz – 16kHz, a self-noise level of 17dB and an impedance of 200 ohms.

The VR88 lists for $750 with the complete mic kit, but is available for $400 - $500 street.

| IN USE

The first thing that grabbed my attention was Samson's thorough, yet brief, owner's manual. Not only did the manual provide a number of helpful mic technique suggestions, it also included a primer of sorts on the proper care and handling of ribbon mics. Studio veterans may skip this chapter, but many a first-time ribbon owner will be (and should be) intrigued by how careful we engineers have to be with such sensitive equipment.

The VR88 fit nicely into its yoke mount, with the help of a threaded retainer ring that more than securely held the mic. However, this yoke has parts made of plastic, so I'm a little concerned with its long-term durability. I instead opted to use the included spider-shock mount, which also used the retainer ring to amply secure the mic to the basket, but also employed some plastic parts. The shock mount may not be stellar, but it's adequate and a welcome accessory for this low price point.

I can't live without my AEA and Beyer ribbons on drum rooms, so naturally I started there. Clearly a creature of habit, the VR88's active output made me quickly reduce my preamp gain by about 20dB. The sound was unmistakably ribbon, with a delightfully emphasized bottom, an overall (compressed) smoothness dynamically and an understated, rolled off top end. Side by side with the AEA R92 (a modern, passive ribbon mic), the VR88 was a little darker, a little slower with transients and a little less "real" sounding in its soundstage. There was a certain irregularity in the mids (I suspect a bump at 350Hz-ish and a dip around 2kHz?) that, in this case, was particularly interesting! This midrange dip made the VR88 sound a little further back, but after some EQing (I inserted a HPF and my usual corrective room EQ dip at 400Hz) and extreme limiting (about 12dB) the resulting sound was nicely "in my face" and attention-grabbing without nasty condenser mic transients. I ended up using both ribbon mics across the whole project, blending them to taste on each song. More room "air" means less artificial reverb required ... nice.

Rather than throw the VR88 at unusual applications, I chose to apply it where a ribbon would be a typical choice and got expected results. Tambourine found the VR88 emphasizing the "thwank" of palm hits on 2 and 4 and de-emphasizing the metallic rattle of the jingles. Even if you're looking for the opposite tambo sound (bright with rattle) the VR88 can still step up; just aggressively apply a HPF around 250Hz and push up a high-end shelf at about 8k 'til it's bright enough. It may take hefty amounts of boost, but don't worry because ribbons take EQ with grace (their cushioned transients accept such boost very pleasantly).

The manual recommended apps with jazz guitar and drop-tuned, heavy-metal guitar, so I dutifully gave them a shot. The VR88 had the right tone for jazz guitar, but it just wasn't clean enough, with distortion present unless the amp was unreasonably quiet or the mic was pushed too far back into the room. The heavy guitar actually worked much better with the VR88 about a foot back, angled in

SAMSON continues on page 72 ➤

FAST FACTS

APPLICATIONS
Studio, project studio

KEY FEATURES
Active velocity ribbon mic, requires 48V power; 2.5-inch long, 2-micron thick, pure aluminum ribbon suspended in a neodymium-created magnetic field; 30Hz – 16kHz frequency response, a self-noise level of 17dB, impedance of 200 ohms; comes with aluminum carrying case, yoke mount, elastic-spider suspension mount, protective sock and a premium 90-degree right-angle XLR cable; handcrafted, limited production.

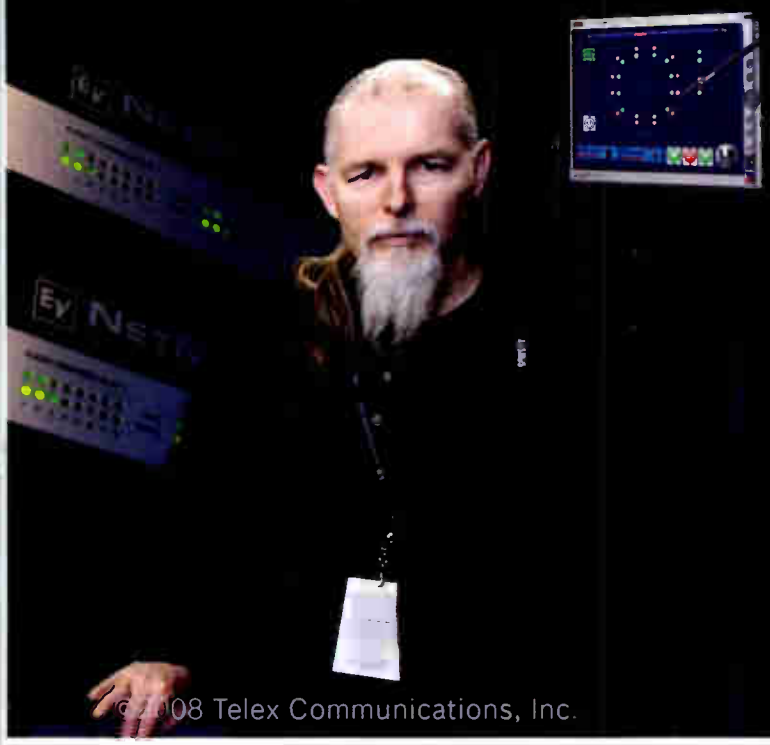
PRICE
$750 list

CONTACT
Samson Technologies Corp.
☎ 631-784-2200 ➲ www.samsontech.com

World Radio History

On the largest stages

Complete Sound System Solutions by Electro-Voice



LD Systems, Houston Livestock Show & Rodeo, Reliant Stadium

Robert Ausmus, Director of Production Services, LD Systems

"For the last five years, LD Systems has been working very closely with Electro-Voice on the rodeo audio systems, trying to raise the bar not only in terms of our capabilities, but also with regard to developing a strategic R&D relationship that raises the bar for audio in general. This relationship has proven extremely positive: we're both committed to providing the absolute best that there can be, and as a result we can up the ante every year here at the Rodeo.

This is a very large X-Line system, with a total of 108 cabinets powered by 108 RL amplifiers distributed over a 12-array zone coverage configuration, all controlled by IRIS-Net. This year we integrated NetMax N8000 processors, which added FIR filters and reduced our cabling significantly while providing us far better speaker management and control. This was the world premiere for X-Line with FIR-drive. The system has rewarded us with the absolute best results yet in our 15 years handling sound for the Rodeo. It's mind-boggling how much more presence and performance we get out of the EV system than from our former products."

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Live For Sound

www.electrovoice.com

World Radio History

ADAM AUDIO A7 Powered Monitor

FEATURES: Two-way; 6.5" carbon fiber woofer; Accelerated Ribbon Technology tweeter; twin 50W amps; front panel detented volume control; EQ controls; tweeter control; RCA/XLR inputs; magnetic shielding.
Price: $999 per pair.
CONTACT: ADAM Audio USA at 818-991-3800, www.adam-audio.com

ALESIS M1Active 320 USB Powered Monitors

FEATURES: Two-way; USB 1.1 audio interface, TRS, RCA, ¼" and ⅛" inputs; 3" lightweight, magnetically-shielded woofer; 1" silk dome tweeter; 80Hz to 20kHz frequency response; 10W per channel RMS; 16-bit, 44.1kHz or 48kHz sampling rate D/A conversion.
Price: $199 per pair.
CONTACT: Alesis at 401-658-5760, www.alesis.com

ALTO M4A Active Studio Monitor

FEATURES: Two-way; two 4" woofers; 1" silk dome tweeter; bi-amplified with 30W HF amp and 60W LF amp; 112dB maximum SPL; shielded magnets.
Price: $219 each.
CONTACT: Alto/ART at 716-297-2920, www.altoproaudio.com

ATC SCM 300 ASL Pro Main Reference Monitors

FEATURES: Three-way; twin 15" Super Linear woofers; 3" soft dome midrange driver; 34mm dome tweeter; four-way Class A monoblock amp delivering 275W LF, 200W midrange, and 100W HF power; 121dB continuous SPL; Grounded Source Topology; several finishes.
Price: $32,250 per pair.
CONTACT: ATC/TransAudio Group at 702-365-5155, www.transaudiogroup.com

AVANT ELECTRONICS Avantone MixCubes

FEATURES: 5.25" passive full-range 8 ohm paper cone driver; high-rigidity MDF cabinet/baffle for low resonance; radiused corners/edges for diffraction reduction; female mic stand mount in base; magnetically shielded; powered version available.

Price: $199 per pair.
CONTACT: Avant Electronics at 909-931-9061, www.avantelectronics.com

BAG END M-6 Time Align Loudspeaker System

FEATURES: Two-way; 6" cone woofer; 1" coaxially mounted neodymium tweeter; equalizer filter @ 3.5kHz; five-way binding posts; ¾" MDF; black textured paint finish enclosure.
Price: $2,130.
CONTACT: Bag End at 847-382-4550, www.bagend.com

BEHRINGER Truth B2030P High-Resolution Reference Monitor

FEATURES: Two-way; 6 ¾" polypropylene diaphragm LF; ferrofluid-cooled tweeter; 75Hz to 21kHz frequency response; passive design.
Price: $189 per pair.
CONTACT: Behringer at 425-672-0816, www.behringer.com

BLUE SKY International EXO Stereo Monitoring System

FEATURES: Two two-way satellites and one subwoofer; 3" woofer; 1" soft-dome tweeter for satellite; 8" woofer for sub; 35W amp per satellite; 90W amp subwoofer; desktop remote control/connection hub (XLR/TRS, RCA and 3.5mm mini jack inputs); headphone output jack.
Price: $399
CONTACT: Blue Sky International at 516-249-1399, www.abluesky.com

DIGIDESIGN RM1 Active Reference Monitors

FEATURES: Two-way; 5.5" doped cone with cast alloy chassis; 1" fabric soft dome with ferrofluid cooling; 3kHz crossover frequency; 50Hz to 25kHz response; XLR analog and digital (AES/EBU) inputs; 24-bit/96kHz conversion rate; 111dB peak SPL at 1m.

Price: $2,498 per pair.
CONTACT: Digidesign at 650-731-6300, www.digidesign.com

DYNAUDIO ACOUSTICS BM 6A MKII Powered Analog Monitor

FEATURES: Two-way; 6.9" woofer; 1.1" soft dome tweeter; 100W LF amp; 50W HF amp; integrated positioning filters (LF/MF/HF shelving/notch); 60/80Hz high-pass filter; clip indicator LED; slow attack optical HF protection; balanced XLR input.
Price: $1,745 per pair
CONTACT: Dynaudio Acoustics/TC Electronic at 818-665-4900, www.dynaudioacoustics.com

EQUATOR AUDIO Research Q Series Monitor

FEATURES: Two-way, Zero-Point Reference Coaxial transducers; 8" coaxial LF; 1" coaxial dome compression driver with resin-coated constant directivity horn; 38Hz to 22kHz frequency response; bi-amplified, 400W LF peak, 400W HF peak; 2kHz crossover; XLR, TRS balanced inputs and USB in/thru; DSP with 24-bit/96kHz processing; SRC secondary reflection correction system (optional).
Price: $1,500.
CONTACT: Equator Audio Research at 888-772-0087, www.equatoraudio.com

EVENT ELECTRONICS ASP8 Studio Precision 8 Monitor

FEATURES: Two-way; 8" mineral-filled polypropylene cone with neodymium magnet; 1" ferrofluid-cooled soft dome tweeter; 35Hz to 20kHz, +/-3dB; bi-amplified with 200W LF amp, 80W HF amp; 2.6kHz crossover; balanced XLR and TRS input; continuously variable HF and LF trim; switchable 80Hz 2nd order HPF.
Price: $749 each.
CONTACT: Event Electronics at 805-566-7777, www.event1.com

MONITORS continues on page 68 ➤

World Radio History

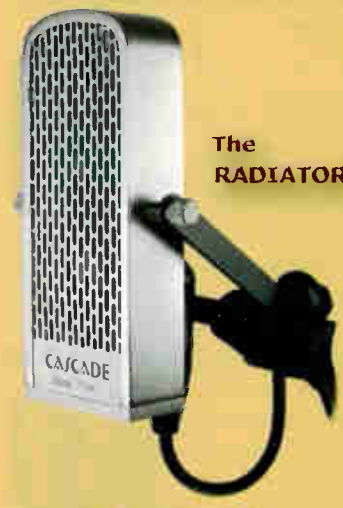
GOMEZ
Michael Joly Edition
Fitted w/ Lundahl LL2913

FAT HEAD II: $199.00
Single Element Ribbon

ELROY: $299.00
Tube Multi-Pattern LC

FAT HEAD: $159.00
Single Element Ribbon

X-15: $499.00
Stereo Single Element Ribbons



The
RADIATOR

731R: $299.00
Dual Element Ribbon

VIN-JET: $199.00
Long Element Ribbon

DR2-S: $599.00
Stereo Dual Element Ribbons

L2: $399.00
Stereo Multi-Pattern LC

CASCADE MICROPHONES
Olympia WA
cascademicrophones.com
360.867.1799

World Radio History

Continued From Page 64

FOSTEX PM-1 MKII Powered Monitor

FEATURES: Two-way; bi-amplified, 120W total power; 25mm soft dome HF driver with Poly Urethane Film Laminated Cloth (LFLC) technology; 160mm LF woofer; input gain control.
Price: $499 per pair
CONTACT: Fostex at 310-329-2960, www.fostex.com

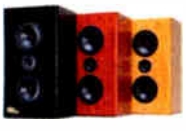
GENELEC 8240A Biamplified DSP Loudspeaker

FEATURES: Two-way; 6.5" woofer; ¾" tweeter; 90W LF amp; 90W HF amp; AES digital and XLR analog inputs; MDE cabinet; onboard calibration DSP with GLM software.
Price: $1,595 each.
CONTACT: Genelec USA at 508-652-0900, www.genelecusa.com

GRIFFIN Audio G1.5 Active In-Wall Monitor

FEATURES: Three-way; 15" woofer; twin 9" midrange woofers; insoplanar ribbon tweeter; 500W LF amp; twin 250W mid/high frequency amps; DSP active controls; cabinet in choice of wood and finish.
Price: $19,900 per pair.
CONTACT: Griffin Audio USA at 914-248-7680, www.griffinaudiousa.com

HOT HOUSE PRM 165 Monitor



FEATURES: Two-way; 6.5" long-throw woofer; 1" recessed soft dome tweeter; magnetic shielding.
Price: $1,399 per pair.
CONTACT: Hot House at 845-691-6077, www.hothousepro.com

JBL LSR4328P Powered Monitor

FEATURES: Two-way; 8" neodymium woofer; 1" neodymium tweeter; Linear Spatial Reference technology; 150W LF amp; 70W HF amp; boundary compensation settings; Room Mode Correction technology; HiQnet; wireless remote and Control Center software; magnetic shielding.
Price: $1,399 per pair.
CONTACT: JBL Professional at 800-852-5776, www.jblpro.com

KLEIN + HUMMEL 0300D Three-Way Active Studio Monitor

FEATURES: Three-way; 8" woofer; 3" dome midrange driver; 1" titanium/fabric dome tweeter; triamplified; magnetic shielding; switchable transformer balanced analog/digital inputs; 40Hz to 20kHz; onboard EQ; 24-bit D/A converter; onboard 150W LF amp; dual 65W amps.
Price: $3,395 each.
CONTACT: Klein + Hummel/Sennheiser USA at 860-434-9190, www.sennheiserusa.com.

KRK SYSTEMS Rokit Generation 2 Series Powered Studio Monitors

FEATURES: Two-way; 3 models with glass aramid 5", 6" and 8" composite cone woofers; 1" neodymium soft dome tweeter; bi-amplified with active crossover; input gain control; radiused cabinet edges and curved front baffles; molded front-facing bass port.
Price: $149 to $249.
CONTACT: KRK Systems at 818-534-1500, www.krksys.com

LIPINSKI SOUND L-707

FEATURES: Two-way; Twin 7" glass fiber woofers; 1" neodymium tweeter; time adjusted; magnetic shielding; 1" MDF cabinet; 56Hz to 20kHz.
Price: $2,495 each.
CONTACT: Lipinski Sound at 877-876-4844, www.lipinkskisound.com

MACKIE DESIGNS HR824mk2 High-Resolution Studio Monitor

FEATURES: Two-way; 8.75" woofer; 1" titanium ferrofluid-cooled tweeter; Optimized Waveguide; 150W LF amplifier; 100W HF amplifier; cast-aluminum Zero Edge Baffle; passive radiator extends bass to 35Hz; acoustic space, LF roll-off and HF controls; MoniMount ready; THX pm3 certified.
Price: $799 each.
CONTACT: Mackie Designs at 800-258-6883, www.mackie.com

M-AUDIO EX66 Reference Monitor

FEATURES: Two-way; twin 6" piston linear woofers; 1" titanium dome tweeter; Optimage II waveguide; onboard DSP; 24-bit/192kHz digital inputs; twin 100W amplifiers.
Price: $699 each.
CONTACT: M-Audio at 866-633-9050, www.m-audio.com

MEYER SOUND HD-1 High Definition Audio Monitor

FEATURES: Two-way; bi-amplified Class A/AB operation, 150W/75W; 8" cone LF driver; 1" soft dome tweeter; flat frequency response, +/- 1dB from 40 Hz to 20kHz; 120dB max SPL at 1m; XLR input.
Price: POA.
CONTACT: Meyer Sound at 510-486-1166, www.meyersound.com

NHT M-80 Xd Tracking Monitor

FEATURES: Three-way; twin 8" magnesium cone woofers; twin 2" aluminum dome mids; one 1" aluminum dome tweeter; XdA DSP processor/amplifier plus 'slave' 250W XdB amp.
Price: $7,000 per pair.
CONTACT: NHT at 800-648-9993, www.nhthifi.com

SAC PRO Audio Pump 8A Powered Direct Field Monitors

FEATURES: Two-way; 8" mineral-filled polypropylene cone woofer; 1" ferrofluid-cooled soft dome tweeter; biamplified; 100W LF amp; 50W HF amp; front volume control; magnetic shielding; delay protection circuit.
Price: $529 per pair.
CONTACT: SAC Pro Audio/Kaysound at 514-633-8877, www.sac-pro.com.

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World Radio History

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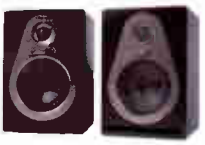
SAMSON Resolv A6 Active Studio Reference Monitors



FEATURES: Two-way; 6.5" woven carbon fiber woofer; 1.25" silk dome tweeter; active crossover; bi-amplified with 75W LF amp and 25W HF amp; 40Hz to 30kHz frequency response; four-position high-frequency lift control; XLR and TRS balanced inputs, RCA unbalanced inputs; solid MDF construction.
Price: $499 per pair.
CONTACT: Samson Technologies at 800-3-SAMSON, www.samsontech.com

SLS PS8R Powered Studio Monitor

FEATURES: Two-way; 8" woofer; 5" planar ribbon HF driver; SLS/Evenstar Sigma-Delta 1-bit digital biamplification; 270W LF amp; 50W HF amp; balanced XLR inputs with volume control; 111 dB max calculated at 1m, continuous output.
Price: $1,570 each.
CONTACT: SLS Loudspeakers at 417-883-4549, www.slsaudio.com

TANNOY Precision 8D

FEATURES: Two-way; 8" Dual Concentric driver; concentrically mounted 1" titanium tweeter; 1" titanium SuperTweeter; Wideband technology; 120W LF amp; 60W HF amp; Active-Assist software.

Price: $1,029 each.
CONTACT: Tannoy North America at 519-745-1158, www.tannoy.com

TAPCO S8 Active Studio Monitor

FEATURES: Two-way; 8" woofer; 1" Waveguide-loaded silk dome tweeter; twin 60W amplifiers; LF boost, HF boost/cut controls; balanced TRS/XLR and unbalanced RCA inputs; magnetically shielded.
Price: $619 per pair.
CONTACT: Tapco at 877-TAPCO-69, www.tapcogear.com

TASCAM VL-A Series Powered Monitors

FEATURES: Two-way; bi-amplified 35W, 90W, or 140W design; 4", 6" or 8" direct-radiating bass reflex woofers with port; 1" dome tweeter; magnetically shielded; optional subwoofer.
Price: $199 to $499
CONTACT: TASCAM at 323-726-0303, www.tascam.com

TRIDENT LS102A Powered Monitors

FEATURES: Two-way; two 4" white-coned low-to-mid drivers; one 1" dome tweeter; magnetic shielding; 120W RMS; balanced input; input sensitivity adjustable from muted to +10dBV; 55Hz to 22kHz; sensitivity 85dB with a very low distortion rating; black vinyl cabinet.
Price: $1,960 per pair; $6,311 for 5.1 surround system with subwoofer.
CONTACT: Trident Audio Ltd. at 011 44 147 481 5300, www.tridentaudio.co.uk.

YAMAHA MSP7 Professional Studio Monitor

FEATURES: Two-way; 6.5" polypropylene cone woofer; 1" titanium dome tweeter; onboard 80W LF amp; onboard 50W HF amp; level, high trim, low trim controls; one-piece molded enclosure with rounded baffle; magnetic shielding.
Price: $699 each.
CONTACT: Yamaha Corporation Of America at 714-522-9000, www.yamahaca.com

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STUDIO REVIEW

SAMSON Continued From Page 66

and down. Chords were all thick and chewy like wads of taffy, but the piercing high notes of solos were clearly defined and musical — no harshness here, no EQ needed.

Some acoustic guitar overdubs showed the VR88 to be picky about placement; it was just too boxy if used for miking the guitar's body behind the bridge, too woofy and windy at the soundhole, but pretty nice at the 15th fret. Good dynamics were found at lower and medium levels, but if really chunking into it, slightly audible compression and distortion edged in.

No test would be complete without an attempt at vocals, and I got some unexpected results. My first reaction was "This is going to be way too dark" as I had a male rock vocalist warming up. Fortunately, my Manley TNT preamp (the solid-state side) has selectable impedance and a 300-ohm "purist" setting that was perfect for the VR88 as the top end opened up. Next I got aggressive with my tape monitor signal path by applying a HPF, rolling off bottom end and adding a whopping 8-9dB of top-end shelving boost. I only compressed to tape, but applied the EQ and filters in the monitor path and final mix. After a little additional limiting I got a nice, almost creamy sound (with just a touch of room air on the loud notes) for such aggressive rock vocals. The VR88 accepted the boosting without fuss, as the transients and phase response still sounded good and the noise floor did not become too apparent. Interestingly, the VR88 handled plosives really well, barely even needing a pop filter.

SUMMARY

In a crowded field of affordable ribbon mics, it was wise for Samson to add a full complement of accessories where their competitors sometimes include nothing more than a stand mount. For many rising engineers who desire their first ribbon transducer, the VR88 represents a great choice if only for its active electronics, which will mostly free up users from preamp related issues like headroom and impedance (although I am recommending a low-impedance preamp for best results, 600-ohm max). Flatter response would make the VR88 more flexibly useful, but even with its obvious character, the mic can be great for drum rooms or vocals where some interesting coloration can be downright desirable.

The VR88 is a great choice to begin your travels with a ribbon mic or to increase the diversity of your mic closet. Just be careful with those accessories, have your HPFs ready to go, then go get creative with that rear lobe of the figure-8 pattern (yes, it's decidedly different with a nice, low-mid scoop). After all, a little room ambience is good for you.

Rob Tavaglione owns and operates Catalyst Recording in Charlotte NC. He welcomes your questions/comments at rob@catalystrecording.com.

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Single Slice

by Strother Bullins

"Pray" | King's X

SINGLE: "Pray"
ALBUM: XV *(Inside/Out)*
DATES: Recorded and mixed January through April 2007 at Wireworld, just outside Nashville, TN.
PRODUCER: Michael Wagener
ENGINEER: Michael Wagener
MIXER: Michael Wagener
MASTERING ENGINEER: Ty Tabor at Alien Beans
OTHER PROJECTS: Wagener has worked with many successful rock bands over the past 30 years. In total, his productions have sold over 80 million albums.
STUDIO MONITORS: A.D.A.M S3A in a 5.1 configuration
STUDIO WORKSTATION/CONTROLLERS: Steinberg Nuendo 4, Euphonix MC Pro controller, Sony DMX-R100 digital consoles
SELECT PROCESSING AND CONVERSION: Creation Audio Labs MW1 Studio Tool, Seventh Circle Audio N72 mic preamp, Chandler Ltd. TG-2 mic preamp, Groove Tubes ViPre, Empirical Labs Distressor, Euphonix MADI I/O, Solid State Logic AlphaLink MADI I/O
SELECT MICROPHONES: Soundelux ELUX 251 (Pinnick vocal), Soundelux E47 (Tabor and Gaskill vocal), Royer R-121 ribbon (Tabor's amp), Mohave Audio MA-100 condenser and Beyerdynamic M 201 (snare drum), Shure SM91 and Yamaha SKRM-100 SubKick (kick drum), Shure SM58 (toms), Mohave Audio MA-200, pair, and Royer SF-12 stereo ribbon microphone (cymbals/OH)

PRODUCER'S DIARY

Strother Bullins is a music and pro audio industry writer based in North Carolina.

Following their self-titled 1992 album, King's X ducked from under the cape of their first producer, Sam Taylor. Yes, the band had experienced notable success with Taylor's direction. But better things waited for the trio, as none other than producer Brendan O'Brien — Bruce Springsteen, Pearl Jam, Soundgarden, Korn, Stone Temple Pilots, the Black Crowes, Matthew Sweet, Train, Rage Against The Machine, others — de-varnished the King's X sound of yore on their landmark, influential 1994 album *Dogman*.

Since then, the band wandered, continuing to construct a studio sound all their own. Bassist/vocalist Doug Pinnick, guitarist/vocalist (and mastering engineer!) Ty Tabor, and drummer/vocalist Jerry Gaskill each possess a style that is recognizable to many and distinctive to most listeners.

Wagener, Tabor, and Pinnick at Wireworld.

Present-day King's X Producer Michael Wagener (Ozzy, Metallica, Motley Crue, Queen), a truly technologically astute producer, engineer, and mixer, captures the essence of what King's X is and stays out of the way (or at least that's what he wants you to think he does). Thus, he allows King's X to *just play* while paving the aural road ahead of them.

On their 2nd collaboration, Wagener and King's X create an album that feels like you're in the room with the band, but you're listening to them on headphones; sonically, it's detailed and precise yet live and loose. Nowhere on the album does this approach work better than on "Pray," the first jam in which Pinnick sings about a need for compassion over a gritty groove that would make both Hendrix *and* Hetfield jealous.

"The original track is done pretty much in one take, which — to me — is *the* way to record," explains Wagener. "If I would ask Ty, 'Could you try this?' he comes back with what I suggested in one second — 'Oh, you mean like that?' For me, that's a fantastic way of working. The better musicians are, the easier my job is … and King's X is just fantastic."

Wagener called upon his most desirable, reliable sources in the studio for the recordings; for instance, on Pinnick's vocal, a chain of the Soundelux ELUX 251 (now Bock Audio 251), Seventh Circle Audio N72 mic preamp, and Empirical Labs EL8 Distressor was employed. Wagener also employed his own hardware creation — the MW1 Studio Tool by Creation Audio Labs, a unique D.I. and re-amplification device — on every guitar and bass track on *XV*.

In the end, "Pray" represents a match made in heaven; here, a band's band and an engineer's engineer both do everything they do best.

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