

Single Slice: Faith Hill's Chart-Crossing Smash Hit, "Cry"

PRO AUDIO REVIEW



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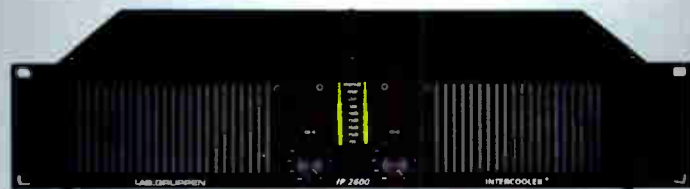
January 2003

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The Industry's Equipment Authority

Vol. 9 Issue 1 • January 2003

Evaluating audio products for professionals in commercial recording, broadcast production, audio for video/film, project studios, live sound, contracting and multimedia.

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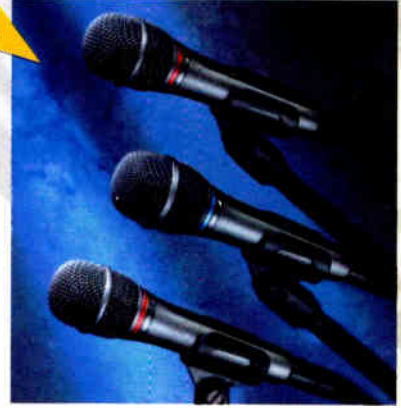
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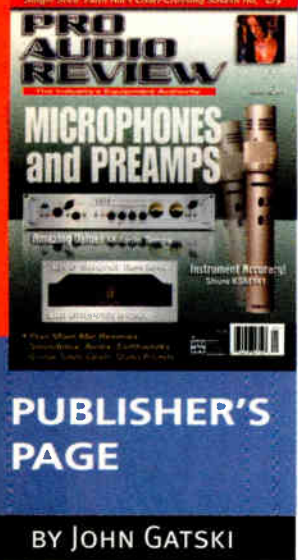
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World Radio History



It Is Live...

Although we are well into our eighth year of publishing *Pro Audio Review*,

we always continue to tweak the editorial to reflect the pro audio readership. An example is the growth in live sound, contracting and installation.

To better reflect that trend in *PAR*, we have added new writers. For 2003, we have commissioned a theater sound reviewer, an additional church sound writer and another sound contracting equipment engineer, Wayne Becker of CSI who joins Roger Williams III for contracting review duties.

Couple the new guys with our stalwart tour sound guys Tom Young (Tony Bennett and Will James (Doc Severinsen and others), Dave Rittenhouse of RCI Sound and Andy Roberts, and *PAR* has the best equipment review team in the industry to cover live and contracting gear.

MORE MICS

Moving on to this month's theme: microphones. From our view here at the mag, the microphone market is definitely one for the buyer. There are so many choices these days — from the high echelon of European and U.S. hand-built studio condensers to the bang-for-the buck Chinese-made mics available from nearly a dozen companies — we could just review mics 12 issues a year.

Since we dedicate only one issue *entirely to microphones*, check out our selections this month. They include Steve Murphy's review of the Soundelux E47 and Tom Jung's review of Shure's new KSM 141 instrument condenser. Other mics examined include Groove Tubes's best condensers, Studio Projects B series, A-T's Artist Series, Audix drum mic kit, Carvin's own-badged Chinese condenser tube and Earthworks kick-ass (can I say that?) podium/performance mic.

We also have a number of preamps in the line up including units from Dan Alexander

and A Designs, and of course, the front cover review of the M-Audio's Tampa.

PAR ON-LINE

I want to say a word about *Pro Audio Review's* web site. Over the past two years, we have adapted the elements of our magazine and added a few new ones as well to make it Internet friendly.

Today, the www.proaudioreview.com site has come into its own. From the reviews of the week, to the master review index and archives, columns, new product announcements and our own unique musician gear reviews not found in the magazine, the web site draws about 80,000 hits a month. A lot of

PAR has the best equipment review team in the industry to cover live and contracting gear.

the credit for the steady progress goes to our own web master Rich Farrell who I have worked with at IMAS Publishing since way back in the olden days, the 1980s. If you have not seen the site in awhile, check it out, and let us know what you think.

And one more thing - come by and see us at the NAMM show we are booth 6224. It is always fun to see the new products, old and new industry friends, and the people with the pink and green hair.

John Gatski is publisher/executive editor of Pro Audio Review. He can be reached at jgatski@aol.com. Letters to the magazine can be directed to PAR@imaspub.com.

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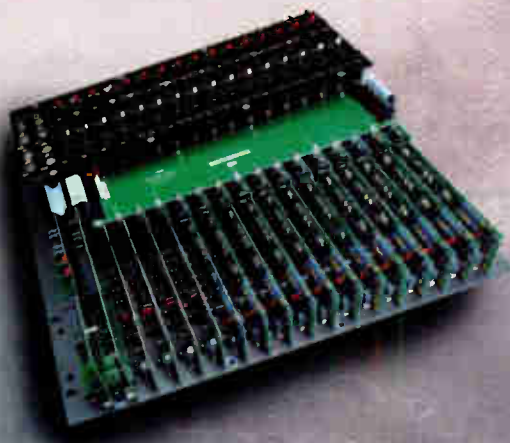


A RACK MIXER BUILT TO PERFORM LIKE A PRODUCTION CONSOLE.



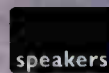
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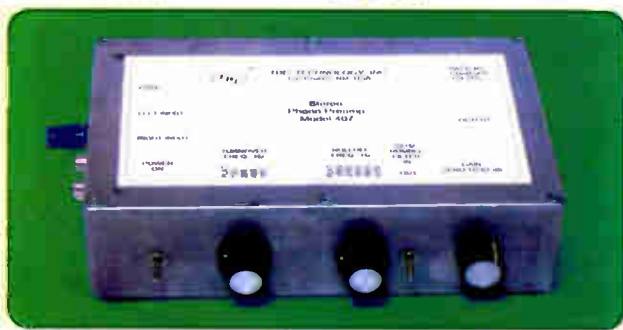
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World Radio History

Denon DN-T625 CD/Cassette Combo Deck

Denon's T620 has been put out to pasture and replaced by the DN-T625. The T625 is a full-featured studio CD player/cassette recorder with a couple of special twists for the contractor such as Crestron and AMX control system compatibility. The basic features include pitch control ($\pm 12\%$) for both CD and cassette player, 10-second shock buffer for the CD player, CD-RW-compatibility, Dolby B and C and a S/PDIF output along with several other output options. Price: \$649.

Contact: Denon at 973-396-0810, www.usa.denon.com/pro.



TDL Technology Model 407 Phono Preamp

Plainer than Jane, the Model 407 Stereo Phono Preamp from TDL Technology, is a distinct throwback to an earlier, utterly utilitarian era, but with a twist. The 407 is designed to facilitate recording 78 RPM records via a computer sound card. The 407 offers numerous EQ curves and turnover frequencies. A 20 Hz rumble filter is also included. The unit is battery operable. Price: \$237.

Contact: TDL Technology at 505-382-3173, www.zianet.com/tdl.

Laird Telemedia DVora Pro Tools Digital Audio Workstation

Moving against the fast-depleting grain of turnkey digital audio workstation builders, video company Laird Telemedia has expanded its workstation lineup to include a Pro Tools-loaded box. Preloaded with Pro Tools LE for Windows XP, the package includes the Digi 001 rackmounted I/O box or Digi 002 control surface. Laird's configuration offers a Pentium IV 2.0 GHz processor, 512 MB RAM, onboard RAID, a Matrox dual-head video monitor card, an ADS Pyro FireWire capture card and a CD-RW drive. Several other options are available. Price starts at \$5,999.

Contact: Laird Telemedia at 845-339-9555, www.lairdtelemedia.com.



Gator Cases GX-20 Cable Caddy

When your cable collection (and other goodies) more resembles a tangled pile of spaghetti whip some organization into it with Gator Case's GX-20 Cable Caddy. The Cable Caddy is a wheeled wooden box with a 600-denier nylon skin. It features a deep top-access box with a lift-out tray along with an ample exterior pouch and a telescoping handle. Price: \$114.99.

Contact: Gator Cases at 813-221-4191, www.gatorcases.com.

Planet Waves Cable Clamps and Elastic Cable Ties

And to tame those cables once they are outside of a cable caddy, Planet Waves offers its new Cable Clamps and Elastic Cable Ties. Looking more like handcuffs, the reusable Cable Clamps are made of polymers and stainless steel for durability and come in two sizes. Each package, \$12.99, offers three small clamps and one larger. The ties are also reusable and are locked by an easy-open/easy-close mechanism. Per pack of four: \$5.49.

Contact: Planet Waves at 631-439-3300; www.planet-waves.com.



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Testing for Optimal Results

M-Audio Tampa Mic Preamp and A/D Converter

BY BRUCE BARTLETT

We studio geeks love our toys, and the Tampa mic preamplifier (\$799) is a great one. With its retro knobs and VU meters, it looks cool, and more important, it sounds wonderful.

The Tampa provides a full-function recording chain between a microphone and a recorder input. It is a solid state, mono mic or instrument preamp with switchable phantom power, low-cut option, compression, polarity switch, output pad, and variable input impedance. An extra feature is "Temporal Harmonic Alignment," which is claimed to align the phase of harmonics with fundamentals in a natural sounding way, over the entire range of audio frequencies.

Powered by its own 12V AC adapter, the Tampa offers both analog and digital outputs. Fortunately, the adapter comes with a power cord so it does not take up unnecessary space on a power outlet strip.

FEATURES

The front panel includes a combination XLR/phone connector that accepts a balanced mic signal or a balanced/unbalanced instrument signal. A mic/instrument switch selects one or the other and 48V phantom power is switchable.

You can set the mic input impedance to



2,400 ohms, 1,200 ohms, 600 ohms or 300 ohms. While 2,400 ohms is the normal setting for modern condenser mics, vintage condensers might sound better with other settings. The instrument input will not load down a pickup because it is 200 kohms balanced and 100 kohms unbalanced.

A gain control provides 12 dB to 46 dB of gain, and a +20 dB switch gives 20 dB more gain if needed.

A useful feature is the compressor, a dual optical servo design that is superior to the usual VCA type. Compression is switchable in or out (bypass). The usual controls are included: threshold, ratio, attack and release time. Attack time is variable from 1 to 11 msec (on the short side), while release time is 250 msec to 5 sec. There is no make-up gain control. One VU meter shows the amount of gain reduction provided by the compressor, and the other indicates the output level. A clip light flashes if the output signal reaches +26 dBu (about 0 VU on the output meter).

I was surprised to see that the unit has no input clip light. But if the various gain controls are set correctly, no input clipping occurs. A polarity switch is included.

A 20 dB pad prevents overloading the input of following equipment. Also, engaging the pad lets you turn up the input gain to drive the preamp harder, causing "tube-like" soft clipping.

Finally, a sample rate knob selects the sampling rate on the digital output: 44.1 kHz, 48 kHz, 88.2 kHz or 96 kHz.

IN USE

I like devices in which the controls are accessible and obvious in function. The Tampa is like

that. It invites you to turn knobs and flip switches. The control-setting labels, however, are tiny and somewhat hard to read because of their tightly spaced text characters.

I connected the analog and digital outputs of the Tampa to a DAT recorder and plugged in a low-noise condenser mic. Then I recorded voice, guitar and drums while adjusting the Tampa's controls. I also recorded those signals through a mic preamp built into a popular mixer. During playback of the recording, this is what I heard:

- Analog sound quality: The Tampa sounded slightly less harsh and had less HF hiss than the mixer's preamp. With acoustic guitar, the Tampa gave a more detailed sound with more "air" (extreme highs).

- Digital sound quality: The Tampa's A/D converter sounded a little smoother than the one built into the DAT recorder, and also smoother than the analog output.

- Soft clipping: Indeed, it is soft or subtle. When I drove the Tampa hard, the result was a pleasantly mild grunge or smearing effect.

- Compressor: Transparent, with gentle action. Hardly any pumping or breathing effects. A truly fine compressor, one of the best I have heard.

SUMMARY

The M-Audio Tampa is a fine-sounding preamp: clean, clear and gentle on the ears. I think its compressor alone is worth the price. The unit is packed with many useful features that will enhance and pamper your mic's signal on its way to the recorder.

Bruce Bartlett is a microphone engineer/tech writer, recording engineer, and audio journalist.

Fast Facts

Applications:
Studio

Features:

Mic preamp/DI input; 20 dB pad; low-cut filter; switchable mic impedance; compressor; 24-bit/96 kHz A/D converter

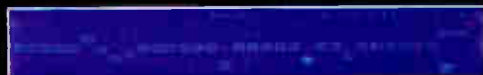
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Earthworks Flex Series Microphones

BY EDD FORKE

This review is actually for three mics in the Earthworks Flex Series of gooseneck-type podium microphones. Earthworks is a company praised for its superb omni and reference microphones, known for being very flat and neutral or “uncolored.”

Earthworks' Flex Microphones, \$400 each, are intended for podium use, as hanging choir mics and for a variety of instrument applications. They are equally adept at handling soft vocals or high SPL drums.

FEATURES

The Flex Series Microphones, all \$400, are said to perform very similarly to Earthworks' award-winning SR69 handheld cardioid condenser mic. But the Flex Series Mics have flexible goosenecks of 13 inches (FM360), 19 inches (FM500) and 27 inches (FM720). Unlike some gooseneck mics that make quite a sonic crunch when moved, the Flex Series are very quiet during repositioning.

On-axis sound quality is natural and uniform all the way out to 90 degrees. Off-axis sound is rejected smoothly with very little coloration. When used as a podium mic, this characteristic is beneficial when the speaker (in this case, a very animated pastor) is moving all around in front of the mic. He or she will be picked up much more consistently than with some other microphones.

Applications:
Live sound, installation, studio

Key Features:
Cardioid pattern, phantom powered, gooseneck, high SPL (145 dB)

Price:
\$400 each

Contact:
Earthworks at 603-654-6427,
www.earthworksaudio.com.

While it is natural to think of the Flex Series only as podium mics, because that is exactly what they look like, they are really designed for a wide variety of other applications like choirs and acoustic guitar, and for very loud sources like drums.

The Flex Series are flat from 50 Hz to 20 kHz within ± 2 dB at six inches. This level of accuracy is unusual in flexible microphones. Earthworks says its Flex Series mics “facilitate intelligibility and communication through time accurate response... and are optimized for fast, clean impulse response. This results in uncolored sound because the relationships between frequency and time are less smeared than with normal mics.” This may be correct because the characteristic “sound” of the Earthworks mics reminds me of my Magnepan electrostatic home speakers - fast, accurate and detailed.

As mentioned above, the Flex Series mics come in three lengths. Having XLR-male connectors (of course) made them easy to swap out during setup and use.

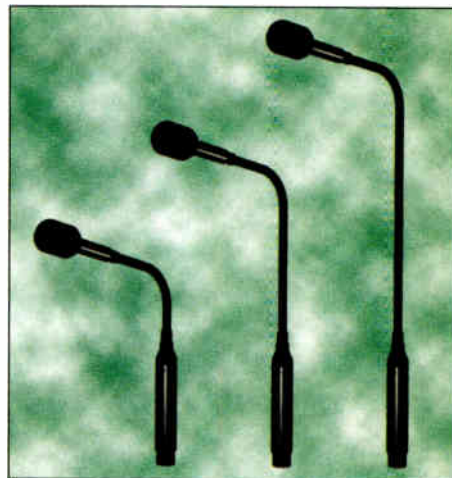
IN USE

Visually, the Earthworks mics were dripping with quality, exhibiting jewel-like appearance and construction. It is fun (if you have a boring, engineerlike personality like mine) to look over something this well made and find the flaw. I found none on these made-in-America, museum-quality mics.

The FM 720 (27 inches) is the extra long model and is “the best hanging choir mic,” which is exactly what I used it for. In situations that require extra flexible reach, the FM720 is the first choice.

I used the FM 720 in place of our church's Shure condenser mics. The Earthworks sounded natural and present. To compare them to the Shures would not be fair in this setting, but it is fair to say that the Earthworks mics sound great in the room, and on the recording I was doing on the sly.

The FM 500 (19 inches) is a good length for most podium and church applications. The ability to adjust its position with very little (read: no) handling noise is amazing...



really! Also cool is that it does not try to move back a little after you reposition it. It will stay where you put it. I wanted to peel off the vinyl covering from the flexible neck to see how Earthworks does it.

I mentioned above that the off-axis ability of the Flex Series was a benefit when used with an orator who is constantly on the move. In this situation, the FM 500 replaced a lavalier mic.

Of course, the lav “tends” to go everywhere the user goes, yet the FM 500 did an impressive job of picking up everything within reasonable range of its placement, and sounding very natural while doing so.

I used the FM 360 (13 inches) to mic an acoustic guitar and swapped the FM 500 to use for the guitar player's vocals. This is where one could really get a good idea of just how natural and clean the Earthworks mics sounded. Very impressive! And, this great sound came right through on the recording. After hearing the recording and hearing how good she sounded, the guitarist/vocalist was certainly disappointed to learn that the church had not bought these mics but had to return them.

SUMMARY

The Earthworks Flex Series are microphones that are superb for their intended use. They produce a clear, detailed, natural sonic image in a variety of applications. Earthworks (and Recording Arts 101) says to try mics first using no EQ. That is certainly true with these mics. They sound great on their own.

When one considers the wide range of possible applications for the Flex Series mics and their splendid audio characteristics, it would be difficult to choose against them.

Edd Forké, a regular contributor to Pro Audio Review, is a sound reinforcement engineer specializing in gospel music.

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World Radio History

Audio-Technica Artist Elite Series Microphones

BY ANDREW ROBERTS

Every so often, microphone manufacturers seem to get restless. Instead of releasing a new model here, a new model there, they bring out a whole new group of mics. I am sure the reasons for such dramatic debuts are varied — improved technology or production techniques, lagging sales or even a new market. Like recent additions such as Shure's Beta series and Sennheiser's Evolutions, Audio-Technica has just unveiled its Artist Elite series of microphones that offer some exciting new transducers.

FEATURES

The Artist Elite series consists of seven microphones: four handheld vocal mics (two dynamic and two condensers), one pencil condenser, a side-address cardioid condenser and a unique dual-element cardioid kick drum mic. According to Mike Edwards, product manager at Audio-Technica, the series is designed to appeal to live sound professionals and other discerning users.

All of the vocal mics come finished in an attractive metallic gray finish. The flagship of the line is the AE5400 (\$579), an externally polarized, cardioid condenser with a large diaphragm element based on the AT4050 studio microphone, an 80 Hz high-pass filter, a 10 dB pad, a frequency response of 20 Hz - 20 kHz and a maximum input level of 147 dB SPL (1kHz @ 1% THD, without pad). The other vocal condenser is the AE3300 (\$439), a mic that features a capsule based on A-T's classic AT4033 studio microphone. It is a fixed-charge, cardioid condenser with the same pad and HPF as the 5400, a frequency response of 30 Hz - 18 kHz and a comparable input level capacity to the 5400. While both of these mics have a slight presence rise in the 2

kHz - 4 kHz range, the 5400 has a sizeable bump around 9.5 kHz.

The dynamic duo has similar distinctions. The AE6100 (\$289) is a hypercardioid while the AE4100 (\$289) is a standard cardioid. They have frequency responses of 60 Hz - 15 kHz (AE6100) and 90 Hz - 18 kHz (AE4100). On paper, the 6100 has a real peak in the 5 kHz range while the 4100 has a more gentle slope that crescendos around 5 kHz as well. All four

other condensers, the 5100 has a high-pass filter (80 Hz, 12 dB/octave) and a 10 dB pad.

The AE3000 (\$379) is a side-address cardioid condenser that features a permanently polarized element with a fixed-charge back plate. The 3000's casing is very open and free of potential obstructions — an effort to create a more accurate transducer. That design seems to have paid off as the 3000's frequency response plot is very flat throughout its 20 Hz - 20 kHz range. The mic also features a high-pass filter and a pad. The AE3000 can withstand a 148 dB SPL onslaught (158 dB with the pad engaged). That, combined with its open, side-address design, makes it a prime candidate for guitar amp duty.

The AE2500 (\$699) is the real standout here. It is a dual-element (dynamic and condenser) cardioid that is designed primarily for bass drum duty. As is often the case with two mics in close proximity to a sound source, phase cancellation is a potential problem here. However, A-T claims that the two elements are positioned in a perfect phase relationship, mitigating cancellation problems. The mic itself is cylindrical and it measures 2.17 inches in diameter and 6.5 inches in length. It comes with a stand mount and a custom, five-pin Y-cable that allows the two mics to be processed separately. Just like many of the other mics in the series, the 2500 has a 10 dB pad and an 80 Hz high-pass filter —



of the handheld mics impart a very solid feel and claim to have superior antishock abilities as well as A-T's new shock absorbing stand clip.

The instrument mics are all quite different from each other. The AE5100 (\$379) is a large-diaphragm, end-address cardioid pencil condenser. The 5100's permanently polarized condenser element yields a frequency response of 20 Hz - 20 kHz and a maximum SPL of 148 dB (1kHz @ 1% THD). Like the

affecting only the condenser element. The mic has a listed frequency response of 20 Hz - 17 kHz (condenser) and 30 Hz - 10 kHz (dynamic) with a maximum input level of 148 dB SPL (158 dB with the pad engaged).

IN USE

I own quite a few Audio-Technica mics and I have become very attached to a number of them. In live sound applications, I frequently

use the ATM25 on floor toms and the ATM35 on sax and small toms. I almost always use the ATM23HE on snare drum (it is one of my favorites for that application). However, I have not really found mics in the A-T line that I have been comfortable using on kick drum or vocals in a rock/pop setting... until now.

At one time or another, I have used all of A-T's hypercardioid dynamic vocal mics and I have never really been satisfied with the results on a loud soundstage. While some of them sounded pleasing, they just did not have the ability to cut through the din of a loud band without some serious EQ. At the same time, I feel that the ATM25 (A-T's suggested kick drum mic) is a very good tom mic and a great guitar mic (trade secret: use it when you need to fatten up a brittle sounding guitar amp) — it just does not have the qualities that I look for in a kick drum mic. Therefore, I was excited to hear what the Artist Elite mics sounded like.

I had the chance to use these mics at a number of live shows. At the first show, I provided an outdoor system for an eclectic group of singing ladies from the UK called the Mediaeval Baebes. The Baebes have a dulcimer player and I used the AE5100 as an overhead. It delivered excellent clarity and detail capturing the attack of the hammers and the twang of the vibrating strings. While the Baebes specified Shure Beta 87s in their tech rider, I did have a few opportunities to plug in the AE5400 and 3300 as a quick comparison. If anything, I thought that the 5400 offered a bit more high-end detail than the 87s without sounding overly harsh, even with the monitors EQed for the Shure mics. The 3300 had a very pleasing sound too. I think both of these mics would be appropriate for situations where

maximum fidelity was essential and stage volumes were low. It should be noted that engaging the low-cut on these mics is essential to reduce excessive boominess.

Later, at another show, I used other Artist Elite mics with a local variety band. The group has a superb drummer named Chuck Ferrell. Chuck is a dynamic player; great for testing drum mics. I used the 5100 as an overhead and

got fantastic results again. The cymbals shimmered, the snare crashed and the whole kit was very honestly portrayed. The AE2500 was a jaw dropper on the bass drum. Processing the two elements separately (EQ, gating and compression) yielded an awesome sound. It has been awhile since I got this excited about a microphone. I took the liberty of burning some *continued on page 33* ►

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Fast Facts

Applications:
Live sound

Key Features:
Condensers and dynamics;
vocal and instrument mics;
high SPL

Price:
AE2500 - \$699; AE3000 -
\$379; AE3300 - \$439; AE4100 -
\$289; AE5100 - \$379; AE5400 -
\$579; AE6100 - \$289

Contact:
Audio-Technica at 330-686-2600,
www.audio-technica.com.

Amy Grant Legacy... Hymns & Faith Tour



FROM
THE ROAD

BY TOM YOUNG

While on the road recently, I crossed paths with Dave (Doogie) Thomas, systems engineer and FOH for opening act Fernando Ortega who I previously worked with on shows when he was employed at Eighth Day Sound. I asked him about the approach that he, monitor engineer Chris (Sully) Sullivan, technician Mike Taylor and FOH engineer for Amy Grant, Eric Elwel, decided on for this unique tour encompassing theaters and churches.

Q-We Get It, formerly known as Crystal Taylor Sound of Nashville, Tenn., provided the sound system for the tour. They carried a Funktion One speaker system, which I used last year on a Tony Bennett/k.d. Lang tour with good results, as well as the new Yamaha DM2000 digital mixing console. I sat down with Dave Thomas and conducted a brief interview for *Pro Audio Review*.

PAR: *What type of venues did you play on this tour?*

Dave Thomas: We played a lot of theaters, and churches. The churches were obviously the challenging setups. The seating capacity varied. The churches ranged from 1,500 to 4,700, and some were huge! We played theaters like the Rosemont in Chicago, The Dodge Theater in Phoenix and a House of Blues in South Carolina.

PAR: *Why did you and Eric [Elwel, Grant's house engineer] select a DM2000 for this tour?*

Thomas: We needed a console that was a small footprint but yet had the capability of giving us the 73 inputs we needed. We were going into some venues that aren't used to production being brought in. We also had some venues where volunteers were our hands, which also made the weight of the console a consideration.

Eric and I were very familiar with the Yamaha O2R and O1V platforms, so getting up to speed on the DM2000 platform didn't take much time for us. We, in fact, found it easier to get around.

There were more ways to make changes on the console itself without having to step through pages. We used all of the internal effects with the addition of a TC Electronic M3000. We made our last page the "FX/playback page." We had to think outside the norm of a standard console having faders laid out in banks of 25. For Amy, most of the band ended up on the first layer with special instruments and vocals on the 2nd layer. After getting caught in-between layers to get instru-

mental solos we used a bank of eight open faders on the second layer to create fader links from the first layer and a fader link to our vocal effects from the fourth layer. The third layer was for the opening act (Fernando Ortega). Once again we were able to use fader links for the FX on the last page.

In particular the internal effects makes the DM2000 stand out from the other digital consoles because that would have been more rack space thus a larger footprint at FOH.

PAR: *I noticed on your equipment list you used 24 Focusrite OctoPre's. How does the sound of the Yamaha mic preamps compare to the Focusrite mic preamp?*

Thomas: We ended up using the DM2000 mic preamps mainly for Amy. That was how it originally patched out in rehearsals. We really heard no noticeable difference between the Yamaha mic pre and the Focusrite preamps. We thought of changing Amy over to the Focusrites, but decided not to after we heard how good the Yamaha preamps were.

PAR: *Did you have any problems interfacing the DM2000 with the Focusrite or TC effects units?*

Thomas: We initially had problems with the word clock on the Focusrite preamps locking to the DM2000 so we changed out to new AES/EBU cards to solve the problem. The one-space Focusrite mic preamps were built right into the console case and provided a compact package. We didn't have the meter bridge because the case was custom built to hold the DM2000, Focusrite and TC units. At times troubleshooting an input during the show I sure wish I had the meter bridge as a quick visual. The sound company is modifying the case to include the meter bridge for future events.

PAR: *What about the Funktion One PA? I see from your equipment list you carried 20 Resolution 5 speakers, with 10 F218 bass and 10 F1 underhangs with Nexo PS8 front fills.*

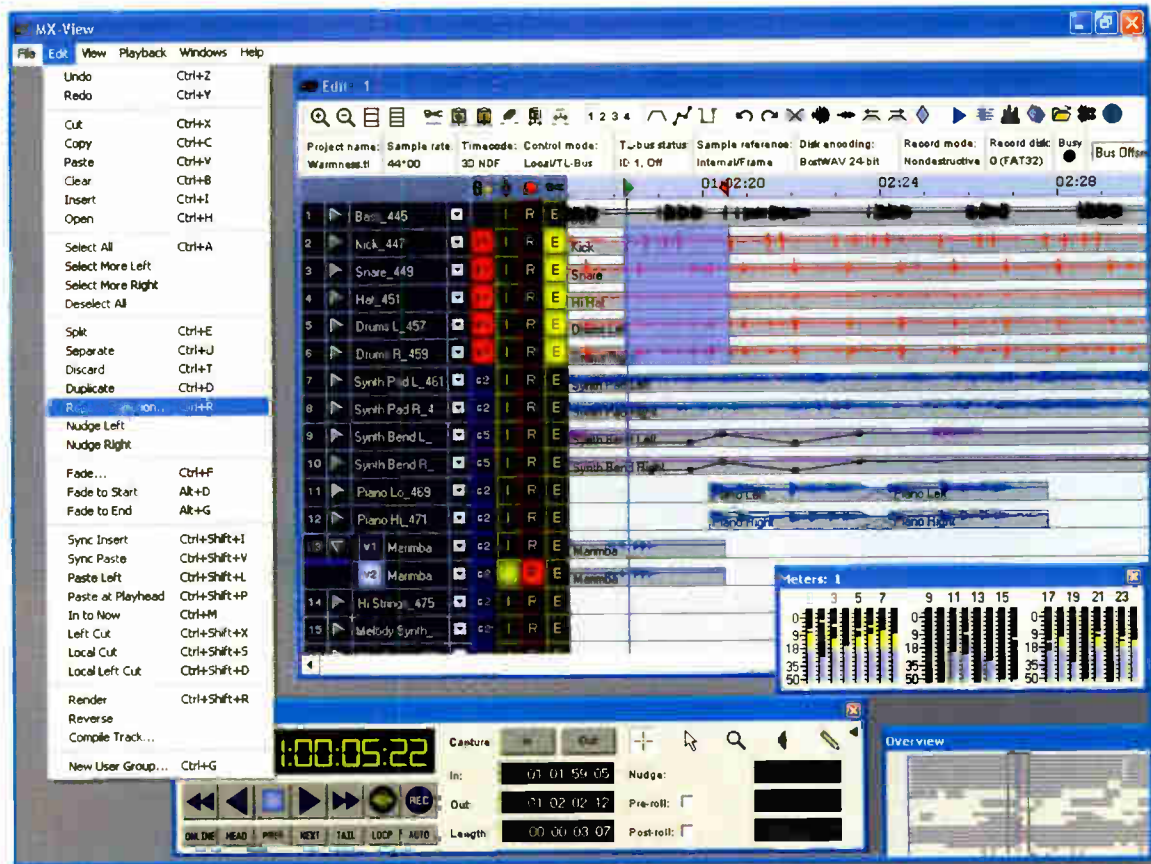
Thomas: The Funktion One PA was just what we needed for this tour. As you can tell from the venues we played, we had to have a system that was flexible. One day we were flying five-wide, two-deep of Res[olution] 5s with underhangs, and the next day, we are doing a ground stack of three-wide, two-high. The PA was such a plug and play system. We didn't have to do much of anything with the box EQ, so we were able to spend our time on just room EQ. The boxes weigh so little and were easy to fly which also made it an easy selection for challenging venues. Some days had unforeseen circumstances and I was the only one flying the PA which only could be possible with a PA that had these features. Many of pastors we spoke with were so impressed that such a small PA had such a great sound, that we may assist these churches with an install.

Tom Young, a regular contributor to Pro Audio Review, is currently the live sound engineer for Tony Bennett.



Dave Thomas, Chris Sullivan and Mike Taylor

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Faith Hill's "Cry"

Single Slice

BY CHUCK TAYLOR

SINGLE: "Cry"

ALBUM: *Cry* (Warner Bros.)

DATE RECORDED: July 2002

ENGINEER: Brian Paturalski

OTHER PROJECTS: Johnny Lang, Pat McGee Band, Aerosmith

SINGLE SONGWRITER: Angie Aparo

SINGLE PRODUCERS: Marti Fredericksen, Faith Hill

STUDIO: Percussion, strings, and keyboards at Rumbo Recorders, Los Angeles; vocals at Oceanway Studios, Nashville; post production at The Attic, Los Angeles

INSTRUMENTS: Drums, electric/acoustic guitars, bass guitar, strings, Hammond B3 organ, piano, pedal steel (which did not make the final mix)

CONSOLE: Trident ADC, Yamaha 02R, Neve V Series

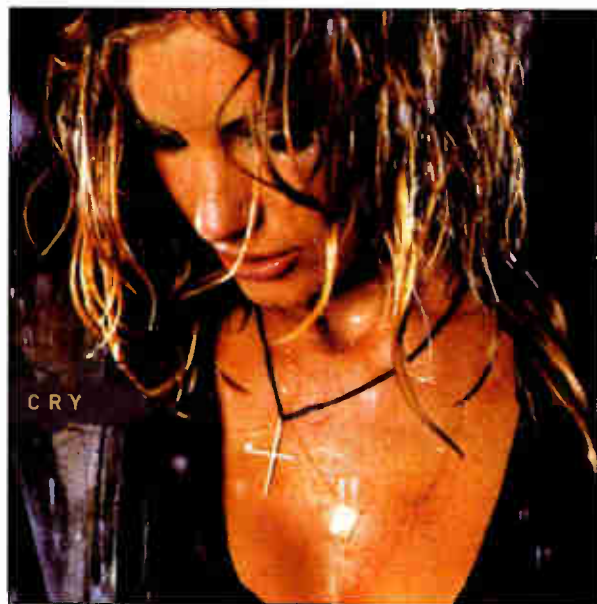
RECORDER: Pro Tools

MONITORS: KRK Expose E8

MICROPHONES: Sony C800 for vocals; Neumann U 67 and AKG C12 for background vocals; AKG 414 for piano; AKG 421 and Neumann U47 for the B3 organ; AKG C12 and Shure SM57 for guitars; AKG D112, Shure SM57, Sennheiser 451, Sennheiser 421, Neumann U 87, Neumann U 67 on drums

MICROPHONE PREAMPS: Neve 1073 for vocals, Focusrite for guitars; GML for piano

PROCESSORS: Empirical Labs Distressor, dbx 160s



Engineer's Diary

Like many pop hits of the modern age, Faith Hill's "Cry" is a sum of parts, with various pieces recorded, combined, and massaged across two recording studios in Los Angeles and one in Nashville. Hill recorded her primary vocal to a



Brian Paturalski

Pro Tools track with scratch guitars and MIDI drums, then session musicians entered and built the mix piece by piece. "It was sort of a backwards project," says engineer Brian Paturalski, who is celebrating his first hit after working as a protégé of the song's producer Marti Fredericksen for the past couple years. "Normally, it's a really awkward way to work, but this let the musicians really play to the way Faith was singing. Where she would really go for it, they could accentuate their parts."

Paturalski says that "Cry," a crossover hit on both the pop and country charts and a No. 1 at AC radio, started with a predominant orchestral arrangement and ended up as more of a pop/rock number. "The end result was a lot different from what we started with," he notes. "It was sped up, we switched from a 6/8 to a 3/4 rhythm," and a steel pedal part that was eventually scrapped - proof of Hill's continuing evolution toward the mainstream.

Toward the end of the process, Paturalski and Fredericksen traveled to Nashville with the track almost finished, and had Hill add more background vocals and sweeten the verses.

"She's such a great singer, so it was a good overall experience," says the engineer. "She's a real perfectionist; we would say, 'OK, we've got that part,' and Faith would insist that she could do it better."

Paturalski is enthused that "Cry" was chosen as the first release from the platinum singer's latest set: "I've done a lot of editing and engineering here and there. This was my first project as the primary engineer. To have the first single was really cool."

Chuck Taylor, a regular contributor to Pro Audio Review, is senior editor at Billboard magazine in New York.

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TAKING POWER TO THE NEXT LEVEL.

Audix D Pack

Drum Microphone Packages

BY TOM YOUNG

Audix, a drum mic market pioneer, has repackaged a number of its percussion mics to handle the specific needs of artists and engineers for recording and live sound reinforcement. These "D Packs" are marketed all across budget and application requirements starting with the DP 2 (\$899) and running through the DP 3, (\$1,299), DP 4 (\$1,129), DP 5 (\$1,149) and DP-Elite (\$2,569) (reviewed here).

FEATURES

Each microphone in the D Pack consists of a VLM (Very Low Mass) capsule housed in a precision-machined lightweight aluminum body. These American-made microphones are fairly compact in size, and with the newly designed D-vice gooseneck clip, provide ease in setup without the clutter of multiple microphone stands on a drum or percussion riser.

Applications:
Live sound, studio

Key Features:
Multiple percussion mics; Very Low Mass capsules; condenser elements; aluminum bodies; ship with aluminum road case and mic clips.

Price:
DP 2 - \$899; DP 3 - \$1,299;
DP 4 - \$1,129; DP 5 - \$1,149;
DP-ELITE \$2,569.

Contact:
Audix at 503-682-6933,
www.audixusa.com.



My DP Elite demo kit consisted of a D-1 snare mic, two D-2 tom mics, one D-4 kick or floor tom mic, one D-6 kick mic and three SCX-1 mics for overheads and high hat. All the mics fit nicely in a very practical, durable aluminum road case and include a nylon pouch and unbreakable ABS microphone clip. Every microphone in the kit uses the same clip, which is an added benefit. The D series microphones are designed to handle over 140 dB sound pressure levels and are fitted with gold-plated XLR connectors.

The D-1 snare mic, D-2 tom mic and D-4 kick mic are all dynamic transformer-

less- types with a hypercardioid pickup pattern for excellent isolation. The D-6 kick mic (\$349) is new to the product line and about twice the size of the other D series mics. It has a cardioid pickup pattern designed to sound good in any position in front (or inside) of the drum.

The SCX-1 microphones for overheads and high hat are quality condenser microphones designed for use with any one of three interchangeable capsules. These microphones are an excellent choice for a variety of applications and instruments when requiring an accurate natural sound.

continued on page 22 ►

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World Radio History

► *Audix from page 20*

For buyers not finding the SCX-1 in their budget, Audix offers the ADX-50 cardioid condenser for reproduction of cymbals, goodie table and percussion handheld instruments. I found this mic kit extremely comprehensive with all the mics required to effectively to do a drum kit or percussion setup.

IN USE

Having regularly used almost every drum mic package offered at one time or another, I must admit upon first inspection, I was very pleased to find that the Audix Drum Package is sold in the best case I have seen included in the package price. And upon opening the case, it only gets better. All the D series mics are lightweight and easily mounted with the patent pending D-Vice clip. This low profile mounting system with a spring loaded locking clip fits on any type of drum. At a retail price of \$29.95, the clip is a must see for engineers and musicians looking for ease in the mounting of drum and percussion microphones. The flexible gooseneck makes positioning in the sweet spot a snap.

I used the D series microphones on Clayton Cameron's Ludwig Drum set for a series of shows with the Tony Bennett Quartet including an appearance on *Live with Regis and Kelly* for the live studio and broadcast mix. Because Clayton sets his kit up very tight and low, I prefer to use microphones that sound great, provide good isolation and mount easily. Audix D series

drum microphones rate excellent in all categories. Right angle XLR cables are available as an option and provide a clean look.

All the Audix D series mics provide a big flattering sound. The drums sound natural and tight and do not require any EQ if you are wanting to reproduce a drum kit sound as if you were standing in front of it. Since Clayton plays a lot of brushes, I was very pleased with the ability of these microphones to pick up the most subtle sounds. The SCX-1 condensers provided such an exceptional flat response that I didn't hesitate to use them on the Steinway concert grand piano provided for *Live with Regis and Kelly*.

SUMMARY

Audix has packaged a winner with the DP-drum packages. Not only is the sound quality excellent, but these quality microphones are well-built and, if stored in their cases, will look new for years. Audix's prepackaged drum kits are cost-effective, work well day-in and day-out, and provide the sound necessary for live sound or studio applications.

Tom Young, a regular contributor to Pro Audio Review, is currently the live sound engineer for Tony Bennett.

REVIEW SETUP

Yamaha PM-4000, Allen & Heath consoles; Ludwig drum kit; Zildjian cymbals; EAW KF 750/755 speakers; QSC power amplifiers.

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SECOND OPINION

I have been a session drummer and engineer for many years. During this time I have had the opportunity to record with many different brands of microphones from real high-end to middle of the road. My first experience with Audix mics was in a recent smooth jazz session that I did in LA. Even when setting levels, I noticed how transparent the mics were while listening through headphones. As I had expected when I listened back in the control room my first impressions were correct. The mics do not color the tone of the drum and really allow the true essence to come through. I used three SX-1 mics, two for overheads and one dedicated to the high hat. Two D-2 tom mics were used along with one D-4 for my floor tom and the D-6 on the kick drum. The D-1 snare mic was amazing due to the responsiveness and clarity that was achieved and that goes as well for all the mics. Another feature of the Audix mics that really came in handy was the size of the microphones. That worked very well when having to mic drums with very little space plus allowing you to position the mic properly without getting in the way of anything else. I would personally say that the Audix mics are not to be taken lightly, they are a serious microphone for the most demanding professional to the home enthusiast.

— Doug Stanny

Doug Stanny is a drummer and engineer.



"The KSM44 has amazing presence on vocals. It's a great all-around condenser mic."
-Eddie Kramer (Jimi Hendrix, Led Zeppelin, Kiss, the Beatles, ...)

"I found the KSM44 to have an excellent natural quality with good presence and a nice open top end. This mic is so smooth in the midrange, even a banjo sounded good!"
-Joe Chiccarelli (Beck, U2, Elton John, ...)

"I tested the KSM44 on vocals, bass, guitar, and drums, and haven't stopped using it since. It's hard to describe, but there is an immediacy to the KSM44 that is very appealing - sort of like a dynamic mic, but more elegant."
-Brad Wood (Smashing Pumpkins, Liz Phair, Better Than Ezra, ...)

**For a mic with
such low self-noise,
it sure creates a lot of buzz.**

"The KSM44 is the quietest microphone I have ever used, and one of the best sounding too."
-Tom Jung (Pro Audio Review, DMP Records, ...)

"As I compared the KSM44 to a mic I consider to be an old favorite, my ear immediately chose the KSM44. Shure has a fantastic studio mic that I can use for critical recordings - it's going to become a standard, very fast."
-Bil VornDICK (Alison Krauss, Bela Fleck, Mark O'Connor, ...)

"My first impressions of the KSM44 were warm, round, full - dare I say it? Fat!"
-Bob Ross (Recording Magazine)

"The KSM44 is a remarkable achievement. I am especially impressed with the versatility of this microphone and have yet to find its limits."
-Steve Albini (Nirvana, Page and Plant, PJ Harvey, ...)

"I was given the KSM44 prototype early-on, not knowing its intended purpose - so I tried it on everything. Guess what. It worked on everything!"
-Chuck Ainlay (Trisha Yearwood, Mark Knopfler, George Strait, ...)



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The KSM44 multi-pattern studio condenser microphone has become quite the conversation piece in studios around the world. Maybe that's because its incredibly low self-noise (7 dB) lets you record only what you want to hear. Or maybe it's the three polar patterns and the design of the externally biased dual-diaphragm cartridge. Once you experience it for yourself, you'll be talking, too. To discover what makes the KSM44 so buzzworthy, call 1-800-25-SHURE or visit www.shure.com.

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A Designs MP-2 Microphone Preamp

BY RUSS LONG

Los Angeles based pro audio designer/manufacturer A Designs has recently launched its debut product, the MP-2. The MP-2 (\$1,499) is a no-frills stereo tube microphone preamplifier that utilizes first-rate Jensen input transformers and custom wound output transformers coupled with a circuit utilizing a pair of 6N1-P tubes and a pair of EF86 tubes. The result is a fantastic sounding mic preamp with unusually low noise for a tube-based circuit.

FEATURES

The 2RU MP-2 is 10 inches deep and weighs 18 pounds. The front panel of the box has identical controls for each channel. The level control adjusts the gain from 0 to 46 dB. The polarity switch inverts the phase of the preamp's input. Its switch positions are labeled 0 and 180. An output switch sets the output impedance at either 600 ohms or 10 kohms. Its switch positions are labeled 600 and 10k. The phantom power switch provides 48V phantom power to the microphone input when activated. Its switch positions are labeled On and Off. If the phantom power is switched off while the mic is still



plugged in, there will be a 10 second delay before it is completely off. Each channel is also equipped with a backlit VU meter.

Also on the front panel is a power switch that activates power to the unit and a red jewel lamp that illuminates when the unit is turned on. The 220 volt model has a blue jewel lamp. Unfortunately, the units are not user switchable between 110 and 220 volts. The MP-2 manual recommends that the preamp is allowed at least two to five minutes warm-up time before use. I seemed to get the best results after allowing the box at least 30 minutes of warm-up time.

The rear panel is equipped with a pair of Neutrik combo XLR/1/4-inch input connectors that will accept either a male 1/4-inch or male XLR connector for audio input. The input impedance is 1.4 kohm. On the unit I reviewed, both the 1/4-inch and the female XLR were setup for microphone input. This has since changed and now the female XLR is for microphone input and the 1/4-inch is a DI for instrument input. A pair of male XLR connectors provides audio output. A standard IEC connector provides AC input.

The box's output is a Low-Z, trans-

former-balanced signal with a maximum level of +22 dBu. With a frequency response of 20 Hz - 60 kHz and a THD > .08 @ 1 kHz, the MP-2 should find itself welcome in even the most sonically demanding recording scenarios.

The MP-2 has a one-year limited warranty for internal parts, a 30-day limited warranty for labor and a 30-day limited warranty for tubes. A Designs has already had an overwhelmingly positive response to the MP-2 and has recently announced the release of the MP-2R, a variation of the MP-2 optimized for use with ribbon microphones. The MP-2R has more gain than the MP-2 and has an input impedance designed to work perfectly with classic ribbons such as the Coles 4038 and the RCA 77DX, as well as modern masterpieces such as the Royer R-121 and SF-12.

IN USE

During a tracking session I put one channel of the MP-2 to work on the drum set's kick drum with a D 112 and the other on the snare using an SM-57 and had great results

continued on page 26 ►

Fast Facts

Applications:
Studio

Key Features:
48V phantom power; polarity reverse; tube design; VU meter

Price:
\$1,499

Contact:
A Designs at 818-716-4153,
www.adesignsaudio.com.

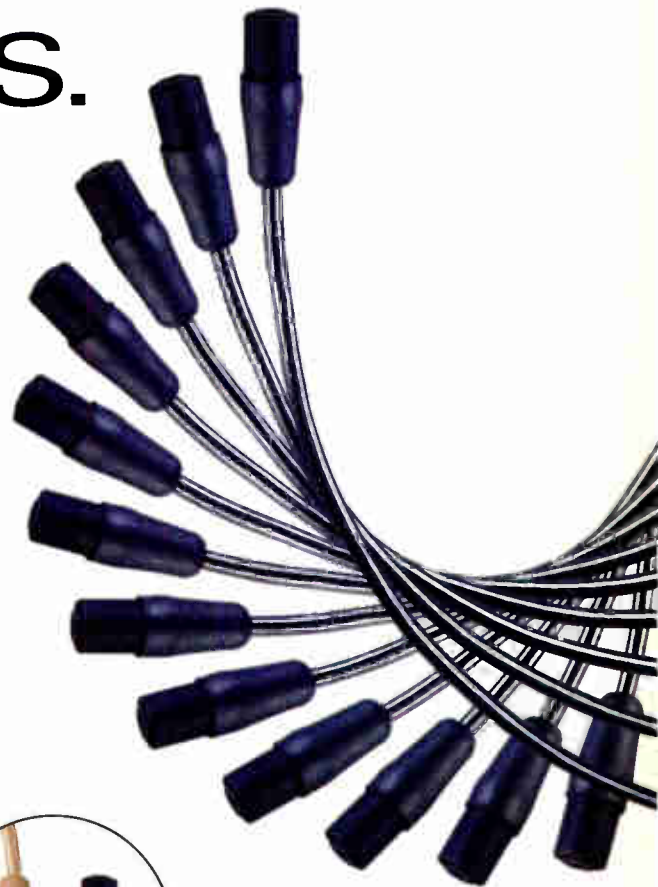
MORE. *AND* LESS.

The new **AT899** from Audio-Technica:
More accessories, less conspicuous

The all-new **AT899** Subminiature Omni Condenser lavalier microphone provides maximum intelligibility and clean, accurate reproduction for vocalists, lecturers, stage and television talent, and houses of worship. Intended for high-quality, unobtrusive operation, the **AT899** is a mere 5 mm in diameter, making it ideal for applications requiring minimum visibility.

Whether you need a mic for theater, broadcasting, video, or worship services, Audio-Technica's new **AT899** is the affordable solution. The basic wired model comes with the flexibility of battery or phantom power. Multiple terminations, including wireless, are available in black and beige.

Additionally, each mic comes with an accessory kit that includes a magnetic mount (black model only), tie clip, viper clip, two element covers, and two windscreens. Visit your A-T dealer to check out the mic that gives you so much more, *and* less.



(actual size)



Included interchangeable accessories

- viper clip
- tie clip
- magnet clip and lanyard (black model only)
- two windscreens
- two element caps
- three single mic mounts (two for beige model)
- two double mic mounts

Available in 4 terminations

AT899

wired model with TA3F connection to AT8537 battery/phantom power module that features a low-frequency roll-off switch and integral 3-pin XLRM output connector

AT899cW

professional 4-pin locking connector for use with all A-T UniPak™ wireless systems

AT899cT5

5-pin connector for use with ATW-U101 wireless body-pack systems

AT899c

unterminated model for custom applications

 **audio-technica.**

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► A Designs from page 24

in both cases. On the kick I found the bottom end to be far more tight and punchy than the sound I have typically achieved with a tube mic pre, and the snare had a wonderful sparkle that seemed to be enhanced by the tubes. On another tracking session I was able to use the MP-2 with a pair of Royer SF-1s and a pair of Empirical Labs Distressors to record drum kit ambience; again I had great results.

I put the MP-2 to use recording electric guitars for Canton, Ohio's Relient K, and had wonderful results. I found that placing a Royer R-122 about four inches from a Marshall 4 x 12 cabinet and running through the MP-2 needed no additional processing. I ran directly out of MP-2 into an iZ Technologies RADAR hard disk recorder and recorded fabulous sounding electric guitars.

Next I went to work recording vocals through the MP-2 with a Brauner VM1KHE and a Sony C-800G (both tube mics). In both situations I ran the preamp's output into a GML 8200 EQ and Tube Tech CL1B compressor and had fantastic results. I also found that the MP-2 did a nice job smoothing off the edge of an Audio-Technica 4033 while recording female backing vocals. I was also able to use the box in several situations while recording a track for an animated children's film and found that it worked well recording accordion, tuba and slide whistle.

Since the rear panel's 1/4-inch input has been updated to be an instrument instead of a microphone input, I would like to see additional 1/4-inch inputs on the front panel. It is often a pain in the studio to climb behind a rack to plug in a guitar cable and the convenience of having inputs on the front panel would be worth a slightly higher cost as far as I am concerned. The only other complaint I have with the MP-2 is that I found it difficult to make small adjustments with the level control due to its extreme sensitivity. A Designs' Pete Montessi confirmed that this was a complaint by a few of his customers so he altered the volume control design so this will not be the case in the future. It is refreshing to see that there are still companies that listen to their customers and will actually alter their products to better meet their needs.

A DESIGNS MP-2 MIC PREAMP

Plus

- + good price
- + great sound

Minus

- Difficult to make small adjustments (the MP-2's latest version corrects this problem)
- No instrument input (the MP-2's latest version corrects this problem as well)
- No front panel 1/4-inch input

The Score

The MP-2 provides the smooth warmth of analog while maintaining a crystal clear spectrum of sound all within the price range of most studio budgets.

Product Points

SUMMARY

The A Designs MP-2 is a simple, straightforward, affordable stereo tube mic preamp of exceptionally high-quality packed into a 2 RU box. The pre may be just the answer for those from the project studio needing a single high-quality mic pre to handle all of their recording needs, to a full production studio needing to add an option to their preamp selection pallet.

Russ Long, a Nashville-based producer/engineer, owns The Carport recording studio. He is a regular contributor to Pro Audio Review.

REVIEW SETUP

Apple 400 MHz PowerMac G4; Pro Tools v5.1.3 Mix+; iZ Technologies RADAR 24 with Nyquist 96 kHz card; Lucid Gen-X-96 clock; Mogami cabling; Hafler amplification; PMC TBI, Yamaha NS-10M monitors; GML 8200 parametric EQ; TubeTech CL-1B, Empirical Labs Distressor compressors; Sony C-800G, Brauner VMI-KHE, Royer R-122 and SF-1, AKG D112, Shure SM-57 microphones.

NO EXCUSE PERFORMANCE.



The New RMX 4050HD From QSC.



The New RMX 4050HD

In the world of live sound, no excuse means no second takes. With amplification, no excuse means brute force power, pristine audio performance, and high efficiency design. Introducing the RMX 4050HD. Built for the most demanding jobs, this amp delivers "big block" performance capable of driving up to four 8-ohm subwoofers per channel. That's 4000 watts of pulse pounding adrenaline in a 3RU chassis only 16" deep.

Heavy Duty in every respect, QSC "HD" amps work as hard into 2-ohm loads as most competing amps will at 4-ohms. With a three-tier, Class H design, the RMX 4050HD is extremely efficient at real world power levels. Less AC current is wasted and more goes into producing useful audio power. Best of all, this powerhouse uses a standard 15-Amp plug (120V models).



RMX 4050HD: rear panel view

Like all RMX amps, the 4050HD features balanced 1/4" TRS, XLR and barrier strip inputs, binding posts and Neutrik Speakon™ outputs, front-mounted gain controls, plus signal and clip LED indicators to monitor performance. Unique to the 4050HD is a dual mono, high current power supply designed to keep the house rockin' night after night.

The RMX 4050HD. Heavy Duty performance with the rock-solid reliability QSC is famous for—at a price that won't break the bank. For more information, visit your authorized QSC dealer, log onto

www.qscaudio.com or call 800-854-4079. The RMX 4050HD—the no excuse amp for no excuse performance.

Both channels driven		20 Hz-20 kHz, 0.1% THD*	1 kHz, 0.1% THD (EIA Watts)
Stereo (W/Ch)	8 ohms	800 watts	850 watts
	4 ohms	1300 watts	1400 watts
	2 ohms	1600 watts	2000 watts †
Bridged Mono	8 ohms	2600 watts	2800 watts
	4 ohms	--	4000 watts †
MSRP: \$1,779		*FTC Watts †1 kHz, 1% THD	

Special Features:

- The RMX 4050HD provides improved thermal performance that gives you higher continuous power in 2-ohms stereo or 4-ohms bridged applications
- Dual mono, high current power supply for increased reliability and performance
- High-current toroidal transformers for greater two-ohm power and low noise
- 3RU chassis only 16" deep
- 3-year warranty. An optional 3-year extended service contract is available.



HEAR THE POWER OF TECHNOLOGY.

BLUE Cactus Microphone

BY RUSS LONG

I first became familiar with BLUE (Baltic Latvian Universal Electronics) when I reviewed its Kiwi microphone (*PAR* 7/01) a few years back. Since then I have had the utmost respect for this high-end microphone company. From the introductory \$649 Baby Bottle microphone to the top of the line \$4,995 Bottle, every BLUE microphone is crafted without compromise to the highest quality standards. The Cactus (\$3,295 but streets around \$2,800) is no exception, and after spending the past two months using it to record virtually every sound source imaginable, I have come to the conclusion that it's a microphone that will be hard to live without.

FEATURES

At the heart of the Cactus is a multipattern variation of the B7 Bottle microphone capsule. This large diaphragm, single backplate capsule is BLUE's modern-day version of a classic microphone capsule from the 1950s. Rather than building a microphone with an ultraflat frequency response, the Cactus was developed to enhance the projection, air and midrange detail in a voice, while keeping the proximity effect to a minimum.

The Cactus amplifier, which utilizes a hand-selected, subminiature vacuum tube, is Class A and fully discrete. BLUE utilizes electronic

components of only the highest quality including expensive metal-film resistors and a hand-made, custom transformer. To keep the signal path as pure as possible, there are no pad or low-cut filter switches in the circuit. The amplified signal is taken from the plate and fed through a high-quality polypropylene capacitor, then output through a BLUE custom hand-built transformer. This transformer was designed by BLUE's engineers to match the tube, and to eliminate outside interference (RF, etc.). The transformer is balanced, using a symmetrical two-bobbin design, with a transforming ratio of 10:1. With this ratio, the microphone's impedance is fairly low, typically 150 ohms. The primary transformer windings are connected in series. The transformer's secondary windings are connected in parallel, and connect directly to the XLR output pins. The transformer lamination has a high relative permeability, which is one of the reasons the microphone has a higher dynamic range with very little distortion. The Cactus microphone's internal wiring is Teflon-insulated oxygen-free copper.

The BLUE 9610 power supply for the Cactus features a regulated circuit design. To assure tube longevity and the stability of the tube microphone circuitry, BLUE developed its Soft Start feature. This feature delivers the tube's heater voltage before the plate voltage which lengthens the life of the tube and keeps its noise to a minimum. The Soft Start circuitry also prevents the heater current from exceeding the limits for which the tube was designed. Approximately 80 seconds after the Cactus has been switched on, when the cathode is fully heated, the plate voltage is applied gradually. During this time the output of the microphone is muted. After about three minutes when the tube is settled in its correct operating mode, the mics muting is disabled. Both the heater and the plate voltages are extremely stable and non-dependent on AC main changes or fluctuations.

A nine-position switch on the Cactus power supply determines the pickup pattern for the



microphone capsule. The pattern is variable from omnidirectional (fully counter-clockwise) to figure 8 (fully clockwise).

The separate power supply has a switchable fuse that sets the operational voltage at either 110 or 240 VAC.

In addition to the Cactus microphone, the Cactus microphone system includes the BLUE Series One shockmount and wire mesh pop filter assembly, a length of BLUE's private stock Champagne tube microphone cable, and the model 9610 power supply. The microphone and all of its accessories come packed in a velvet-lined Anvil-built ATA flight case should sufficiently protect the Cactus for decades to come.

IN USE

Recording lead vocals is the Cactus' specialty. I found that the microphone has a slight upper midrange boost that adds a wonderful

Fast Facts

Applications:
Studio

Key Features:
Multipattern, ships with power supply, premium mic cable, Anvil flight case

Price:
\$3,295

Contact:
BLUE at 805-370-1599,
www.bluemic.com.

presence to a vocal without any increase in sibilance. The microphone's bottom end is tight and full and the top end is airy and open. I had equally pleasing results using the microphone to record female and male vocals. I found that the mic's pop filter worked extremely well in eliminating virtually all of the unwanted pops and thumps. While recording vocals, I experimented with a vast assortment of preamplifiers (John Hardy M-1, Geoff Daking, Universal Audio 2-610, Gordon Microphone Preamplifier System) and always had wonderful results. In nearly every instance, the Gordon was the perfect match.

With the capsule set to omnidirectional, I had fantastic results using the Cactus to record a Duncan acoustic guitar. I placed the Cactus facing the guitar neck at approximately the 14th fret (about 2 inches away) and the sound was amazing.

While recording Nashville's Love Sponge Quartet, I had exceptional results using the Cactus to capture John Catchings' cello. This time I used the Focusrite ISA220 Session Pack. Except for a high-pass filter set at 50 Hz the microphone required no EQ and just a hint of compression.

The Cactus did a fine job of capturing the sound of electric guitars. I had my best results recording cleaner tones. I found that distorted guitar sounds have a tendency to be a bit harsh and piercing. One exception I found was setting the Cactus' pattern to omni and placing it about four feet from the front of the guitar cabinet. I combined this signal with a Royer R-122 placed about two inches from the cabinet's grill. The end result was a huge crunch guitar with the perfect amount of room ambience.

The smooth high-end response of the Cactus gave me perfect results when capturing the sound of an alto flute and a penny whistle. The microphone sounded best about 12 - 15 inches from the instrument with a slight amount of compression.

The fast transient response and high-end detail of the Cactus make the microphone an excellent choice for recording drums and percussion. I had good results using the microphone to capture drum kit ambience. The microphone also worked well recording bongos and congas. In both instances the microphone provided a nice attack with plenty of the drums body. The Cactus worked exceptionally well recording tambourine, wind chimes and shakers.

Not only does the Cactus sound good on vocals but it is visually inspiring. Every vocalist I worked with commented on the mic.

BLUE included each of their high-quality microphone cables (the Kiwi, the Blueberry and the Cranberry). I could not tell a difference between the BLUE cables but I was surprised when I compared them to my trusty Mogami cables and found that the BLUE cables sound

better. The low-end has slightly more definition and there is more sparkle on the top end.

SUMMARY

The BLUE Cactus is a high-quality microphone that works well in virtually any situation. With a list price of over \$3,000, your wallet may be the only negative factor in determining whether to buy this microphone.

D P A T Y P E 4 0 4 1 - S M I C R O P H O N E



The Type 4041-S is an omnidirectional microphone with transparency and sensitivity producing a performance of startling reality and clarity.

The 4041-S uses the 1 in. (24 mm) Modular Microphone Cartridge MMC4041 with the totally transparent MMP4000-S Solid State Preamplifier. The cartridge MMC4041 can be unscrewed from the preamplifier allowing for the exchange of the preamplifier module. The frequency response from 20 Hz to 20 kHz with a 4-6 dB soft boost at 8 kHz matches the highly acclaimed Type 4040 Hybrid Microphone. The 4041-S is powered via the standard HMA4000 Microphone Amplifier (as an added option), a system that offers a totally transparent audio path with an exceptionally low noise floor of maximum 7 dB (A) and a SPL handling capability of 144 dB SPL peak.

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Bruce says



"I've never heard anything better in a ribbon microphone than Royer's new R-122, ever! Something happened when they put that amp and larger transformer in there and this has become my new favorite ribbon microphone. I always use ribbon mics for their warmth and sweet high frequency response characteristics, but there is something truly unique about the powered R-122's sound quality. My pal Omar Hakim was bouncing off the walls when he heard the first playback with R-122's on overheads on his drum set - they just sound absolutely fantastic! Royer really nailed it with the R-122."

Bruce Swedien

(Grammy winner, Jennifer Lopez, Michael Jackson, Quincy Jones, Duke Ellington, Count Basie)

Visit royerlabs.com to hear Bruce speak about ribbons and to see photos of his current recording session.

ROYER



www.royerlabs.com
818.760.8472

43 in a series

► Shure from page 30

this type of microphone. A 17 Hz subsonic filter is used to reduce low-frequency rumble caused by mechanical vibration. A three-position pad switch (0 dB, 15 dB and 25 dB) allows the KSM141 to handle levels as high as 170 dB! Headroom is increased significantly when used with a microphone preamplifier whose input impedance is 5 kΩ or higher so a transformerless mic preamp is a good idea here if you are after max headroom.

Another three-position switch is used to select flat, low-frequency cutoff that is 18 dB per octave at 80 Hz, and low-frequency rolloff, which is 6 dB per octave at 115 Hz. The latter is useful to compensate for proximity effect while in the cardioid mode.

Switching polar patterns between omni and cardioid is a matter of turning a nice heavy-duty collar a quarter turn to lock it firmly into a detented position.

IN USE

Recently I recorded a gospel group called The Broadway Inspirational Voices at Clinton Recording in New York City. This was a multichannel DSD project where I used a pair of KSM141s in the omni pattern for my surround channels. Clinton Studio A is a nice size room, measuring 50 feet x 55 feet x 24 feet and has rotating wall panels that are hardwood on one side and absorptive on the other side. We set all the panels wood side out to make the room as live as possible, which turned out to be just under a one second decay time. I mounted the KSM141s on Starboard mic booms and positioned them on the sides of the choir and two

thirds of the way back into the room about 10 feet high. When you listen to this recording the sound from the surround speakers is made up entirely from the 141s capturing the nuances of the room, without any signs of coloration — totally natural and unhyped as if you were sitting in the middle of the studio.

On a recent Bob Mintzer Big Band project at Ambient Recording in Stamford, Conn., I used a single KSM141 on a 9-foot Steinway grand piano in the omni pattern and have to say that the 141 is my new favorite piano microphone. When you can use a single microphone with no EQ on a piano, everything in the chain has to be right, starting with the instrument. On this same session I tried a KSM141 in the bridge of Jay Anderson's acoustic bass, this time with a cardioid pattern, since the bass was in the room with the rest of the band and I could not get enough isolation with the omni pattern. Switching in the rolloff to compensate for the proximity effect due to the close mic/instrument relationship worked out well. The bass sounded fat without getting boomy, and with a nice amount of attack when Jay's fingers came off the strings. There was still a fair amount of leakage of other instruments into the bass mic, but it was nice leakage and added to the dimension of the multichannel SACD end product. I also used a pair of KSM141s for the surround channels on this project with the same kind of success.

On an even more recent project at Ambient Recording, owner/engineer Mark Conese used the KSM141s on an orchestral session where he recorded strings, woodwinds, brass, percussion, acoustic guitar, piano and harp all at separate overdub sessions. He used a pair in omni about two feet apart just over the conductor's head on each session. He also set up my Shure KSM32s for highlights, but used them sparingly because overall the pair of KSM141s did such a great job on their own. Now Mark is almost as enthusiastic about these microphones as I am.

SUMMARY

At its retail price (even lower at street), the KSM141 is a steal. The entire line of Shure KSM studio microphones are true price/performance champions. I never leave for the studio anymore without them.

Tom Jung, founder of DMP Records, is Pro Audio Review's technical consultant and a regular contributor.

Fast Facts

Applications:

Studio, live sound

Key Features:

Low-frequency rolloff; 15 dB, 25 dB; stand adaptor, windscreen and carrying case

Price:

\$770

Contact:

Shure at 847-866-2200,
www.shure.com.

► *Audio-Technica from page 15*

kick drum hits to a CD and brought them back to my studio. The dynamic element sounded a lot like my AKG D112, big bottom with a hint of attack. The condenser had a nice crisp attack and some drum resonance too. Blending the two together created a wonderful kick

drum sound. Chuck had a big dose in his IEMs and he played with a smile on his face all night. Since this mic uses a proprietary cable, I would suggest buying a backup if you are using it on tour.

The group also has a fantastic guitarist by the name of Keith Grimes. Keith has a smooth, melodic style; to hear it, listen to any Eva Cassidy CD. The AE3000 very accurately captured the sound of Keith's Matchless tube amp. It honestly portrayed the spongy warmth of his clean sounds and the grit of the amp's overdrive.

At another gig, I put the dynamic mics to work. I found the 4100 to have a very pleasing classic sound with just a hint more low/mid body and less handling noise than a standard SM58. The 6100 emerged as my favorite in the handheld group. It has a very aggressive sound, perfect for difficult live situations. Being a hypercardioid, it has a lot of peripheral rejection - focusing the mic on the source, enabling louder monitors and a cleaner mix out front.

SUMMARY

With the addition of the Artist Elite series, Audio-Technica has certainly filled some voids in its offerings. They now have an excellent kick drum mic and a true aggressive vocal mic for noisy stages. While all the mics are impressive, some are sure to find their way onto major concert stages. With very reasonable prices, great sound and proven A-T reliability, I am sure they will show up a lot of other places too.

Andrew Roberts, a regular contributor to Pro Audio Review, is a sound reinforcement and recording engineer.

REVIEW SETUP

Midas Venice 320, Mackie 24-4, Spirit Digital 328 consoles; PreSonus ACP88 comp/limiter/gate; HHB CDR Burn It Plus; Mackie HR824 monitors; Audio-Technica ATH910 and M40 headphones; Community loudspeakers

Product Points

AUDIO-TECHNICA ARTIST ELITE PLUS

Plus

- + Great sounding
- + Affordable
- + Innovative kick drum mic (AE2500)

Minus

- AE2500 uses special Y-cable

The Score

A great-sounding mic line at reasonable prices.

Think you can't afford the best?

Bottle
Tube system with 8 interchangeable capsules

Blueberry
Airy top-end contemporary sound

Baby Bottle
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Mouse
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Kiwi
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PAR REVIEWER'S PICK 2002

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Lab Gruppen fP2600 Power Amplifier

BY ANDREW ROBERTS

Having a sound reinforcement business, I am always interested in the latest, greatest and lightest (in reverse order actually) power amps on the market. That's why the fP2600, a new amp from Lab Gruppen (distributed in the US by TC Electronic), piqued my curiosity. Apparently, these Swedish amps are very popular in Europe and you can find them powering line array systems by L'Acoustic, Adamson and Martin Audio.

FEATURES

The fP2600 (\$2,295) consumes two rack-spaces, is 11.3 inches deep, and weighs a scant 18 pounds. What makes that weight stat so impressive is that this amp churns out a very robust 840 watts per side at 4 ohms and 1200 watts per side at 2 ohms (EIA at 1 kHz and 1% THD). Other specs for the fP2600 are impressive too. THD is listed as 0.04% (20 Hz-20 kHz, 1W to full power) while hum and noise is <-110dB. Lab Gruppen claims that this amp incorporates current semiconductor technology into the unit's ferrite power (fP) engine. This, coupled with the amp's copper cooling system "Intercooler," translates to comfortable 2-



ohm operation. In addition, LG claims that the amp's new biphas wiring scheme increases the capacity of the switch mode power supply, extending the power bandwidth in the low end.

While there are many switch-mode amplifiers on the market today, LG claims that the fP2600 has some distinct advantages over the competition. The amp is apparently more forgiving in terms of AC mains voltage. In fact, LG claims that the fP2600 can tolerate a 20 percent voltage drop without problems. The company also purports that the fP2600 is extremely efficient too, meaning it can comfortably operate on a single 20-Amp circuit. The fP2600 also has a sophisticated group of protection features including an Adaptive Limiting System (ALS) that permits high peak cur-

rents while keeping the amp within its safe operation zone. In addition, the amp protects against infrasonic signals, non-musical VHF signals above the audible range, thermal overload, AC voltage drop, and clipping.

Controls and I/O on the fP2600 are conservatively apportioned. The front panel has a

Fast Facts

Applications:
Live sound, sound reinforcement, installation

Key Features:
Two-channel; Adaptive Limiting System; MLS load matching; Neutrik Combo, Speakon connectors; dust filters.

Price:
\$2,295

Contact:
Lab Gruppen/TC Electronic at
805-373-1828,
www.tcelectronic.com.

power switch, 31-position gain controls, an LED ladder, and removable dust filters. The rear panel has Neutrik Combo inputs (XLR and 1/4-inch), XLR links, Speakon outputs, and switches for clip limiting, link and MLS (power matching for different loads).

IN USE

Upon initial examination, without even hearing it in action, I quickly determined
continued on page 36 ►

Lavry Engineering (formerly dB Technologies)

dB4496 Converters



Features: Modular A/D-D/A system; up to 8 Channels per rack; 44.1, 48, 88.2, 96KHz sampling; Varispeed; Set word length with Acoustic Bit Correction; Soft saturation; Tape emulation; Reference bridge.

Comments: "I have been a fan of your wonderful products for many years." Frank Filipetti

206-381-5891 www.lavryengineering.com

NUENDO

frank filipetti



nuendo... untouchable sound.

To capture the sound of their new release *Untouchables*, heavy-hitting band *Korn* turned to digital recording pioneer Frank Filipetti and producer Michael Beinhorn. After painstaking comparisons, the group was unhappy with the way their tracks sounded using other popular DAWs, and found that they could edit and process tracks to their heart's content in NUENDO with absolutely no decrease in fidelity.

"I knew going in that the band was going to be especially vigilant about the sound of their instruments. That's why it was so important for me to find the right digital gear. Nowadays, everyone is accustomed to the manipulations we can perform on a digital platform. But the feature set has to be secondary to the fidelity set. And on that score we found NUENDO second to none."

One might even say.... untouchable.

phil ramone
rory kaplan
chuck ainlay
david tickle
frank filipetti
rob hill
greg ladanyi
elliott scheiner
alan parsons



These world-renowned producers know what it takes to be the best. They also know why NUENDO is the best digital audio production tool available and have partnered with Steinberg to ensure that it will continue to meet the needs of tomorrow



 **steinberg**
Creativity First

► *Lab Gruppen from page 34*

that this amp is all business. The workmanship is superb – the chassis is flawlessly machined and assembled with all the parts matching perfectly. The pots feel firm, smooth and tight. The AC cable and connector are very beefy, though a tad short for my taste.

I used the fP2600 over the course of two weekends at an outdoor festival. I was providing sound reinforcement for a unique group from England called the Mediaeval Baebes. The Baebes are nine talented women who sing and play traditional instruments, accompanied by a male percussionist and mixed by their own engineer, Jamie Harley (also from the UK). I used the fP to power two separate monitor mixes with each channel working a 4-ohm load. The first weekend I used the amp to run a vocal mix on one side and the percussionist's mix on the other. Throughout the four shows that weekend, the fP2600 was spot on. It had gobs of power – far more than was needed in this scenario – and it delivered powerful bass to the drum fill. The signal ladder was easy to read, even in direct sunlight, and the dust filters proved very useful, as there were lots of airborne particles floating about. In fact, looking inside the amps showed just how much those filters work – the other amps all had internal dust residue that was plainly visible while the Lab Gruppen did not.

Since we had to strike the system between weekends, I brought the amp out on a midweek job at a black tie corporate event. This time I used it to power some 4 ohm FOH cabinets that were more of a match for the amp's power output. Drums, bass, horns and vocals

Product Points

LAB GRUPPEN FP2600 POWER AMPLIFIER

Plus

- + Powerful
- + Lightweight
- + Well-crafted

Minus

- Noisy fan
- Short AC cable

The Score

A beautifully made amp that is targeted toward the touring professional.

were all reproduced in excellent fashion with powerful mids and crisp highs (subs were powered alternatively). I still cannot get over the fact that this amp weighs only 18 pounds – it is quite powerful.

Back at the festival the following weekend, I used the fP to run the vocal monitor mixes for the eight Baebes who front the group. They do some superb harmony and unison work that features loads of falsetto, and round-type delivery. Jamie and all of the ladies were very pleased with the monitors, making their performances all the more superb for the standing room only crowds.

My only gripes with the fP2600 were minimal. The fan is louder than most of my other switch mode type amps. In a live sound setting that is very inconsequential but in a studio setting (which I would not rule out) it should be considered. Also, it would be nice to have a switchable high-pass filter at 30 or 50 Hz to prevent excessive excursion, when needed. The manual, and even the website is full of Asian-style, English translation gaffs. When you make an amp this nice, who has time to hire an editor?

SUMMARY


Wow, this is a really nice amplifier. You should know that I already own quite a few switch mode type amps and I am very impressed with the fP2600. The power to weight ratio is remarkable and the price of \$2,295 seems well worth it. The amp screams touring professional – I can see why they have had such good sales in Europe. This is definitely one of those products that will be hard to send back to the manufacturer!

Andrew Roberts, a regular contributor to Pro Audio Review, is a sound reinforcement and recording engineer.

REVIEW SETUP

Midas Venice 320 console; Rane EQ; Community 525 FOH speakers; custom wedges (12-inch with horn); Shure Beta 87, Beta 58, AKG D112, Audio-Technica ATM25, ATM23HE microphones.



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The Quartet is the ideal front end for high resolution recording. Our modern tube design adds larger-than-life detail and depth to any source. Its features include:

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GLYPH Hard Drives



Trip



X-Project

Serato Pitch'n Time Plug-in



McDSP Synthesizer One



Blue
Condenser Microphones



Aphex
2 Channel Digital Mic Pre Amp



dbx 160SL Stereo Compressor

Focusrite



ISA110 Mic Preamp & EQ



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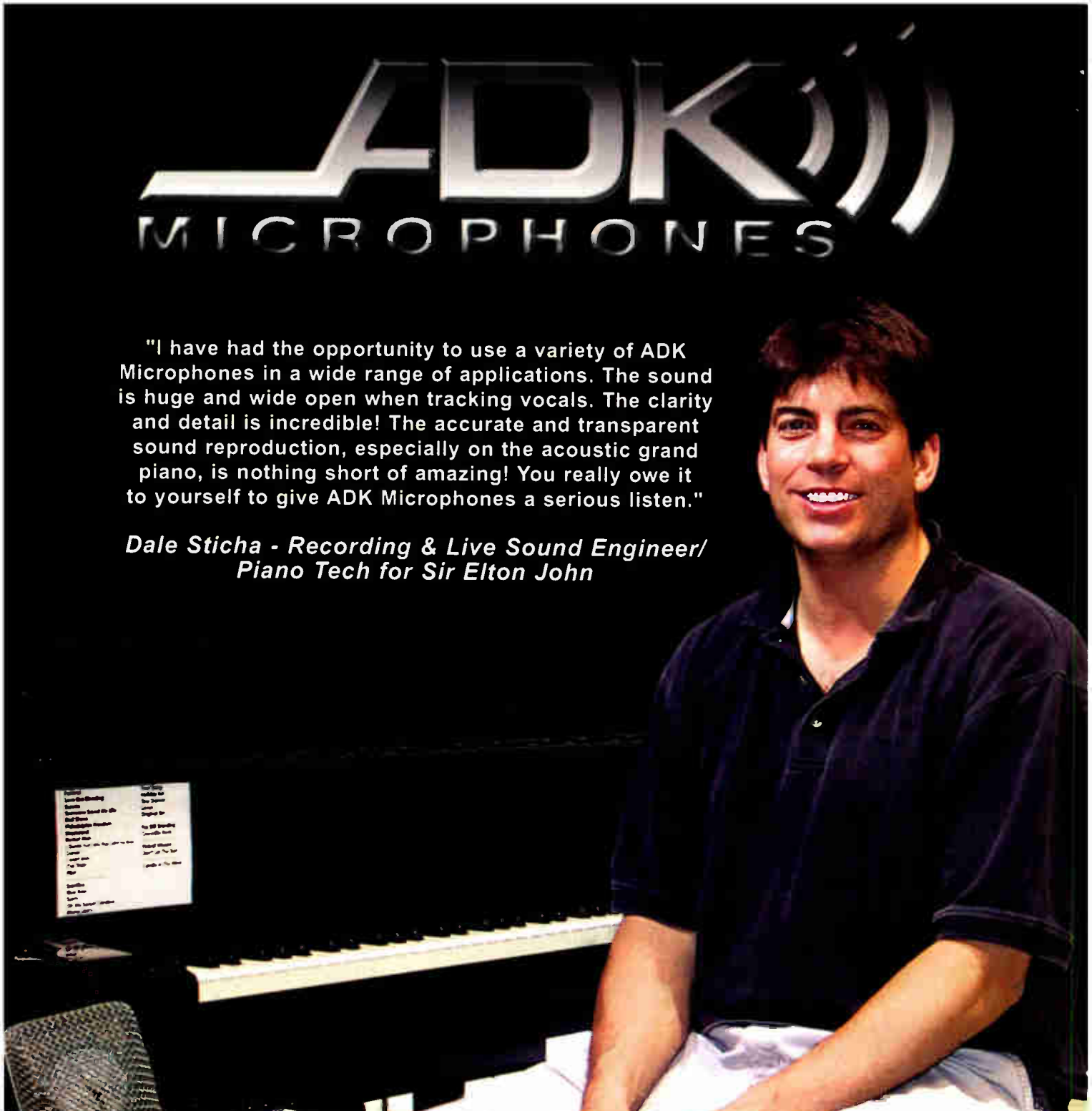
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*The New ADK Studio
Twin Packs Are Here!*

Royer Labs R-122 Active Ribbon Microphone

BY RUSS LONG

Anyone who has read my reviews with any consistency knows that I am a lover of ribbon microphones. They capture audio impulses in a way no other microphone can. Their smooth, warm, natural sound works wonders on everything from violin and trumpet to vocals and guitars. They do have some weaknesses, however. Their low output requires significantly more gain than their condenser and dynamic counterparts, and their impedance dependency requires that they see a fairly high impedance before they operate to their full potential. With the release of the new Royer Labs R-122, all of this changes.



FEATURES

Everyone familiar with the look of the Royer R-121 will be quick to recognize that the R-122 (\$1,695) looks identical to it except it is two inches longer. Its brushed nickel finish is striking (a Matte Black Chrome finish is also available) and it, like all Royer mics, slips into a protective sock and packs in a dark red wooden box for storage.

The Royer R-122 ribbon-velocity microphone is the first phantom powered ribbon microphone ever made. The mic's head amplifier, designed *continued on page 40* ▶

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Specifications

Frequency Response: 20Hz to 20kHz
Polar Pattern: Cardioid
Diaphragm: 1" 24K gold-sputtered
Sensitivity: >14m V/Pa
Tube Type: 12AX7 (6072A optional)
Output Impedance: <200 ohm
Output Noise: <17 dB (A weighted)
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► Royer Labs from page 39

by Royer's resident geniuses David Royer and Rick Perrotta, is fully balanced, discrete and it utilizes a specially designed toroidal transformer and ultralow-noise FETs. This head amp/ transformer system makes the R-122 15 dB more sensitive than standard Royer ribbons, bringing its sensitivity to the level of the average condenser microphone. The mic's "Z-match" feature provides the optimal impedance to the ribbon element and a low impedance output that allows for long cable runs with minimal signal loss. Additionally, this eliminates the possibility of damage by phantom power or electrical surges.

The toroidal transformer is responsible for the microphone's gain. This transformer produces a voltage gain across the full audio bandwidth while reducing the current. The balanced FET amplifier has a voltage gain of less-than-one, and since its impedance is so high, it effectively imposes no load to the transformer. This allows the full voltage gain achieved by the transformer to be utilized. Since the amplifier has no gain characteristics of its own, thermal noise from the FETs and transistors is negligible. The amplifier acts strictly as a buffer and provides a balanced low-impedance drive to the circuit's output. The amplifier can handle SPLs approaching 150 dB (well in excess of the 135 dB limit of the ribbon element), and is very quiet.

The Z-match feature is what makes the greatest difference between powered and unpowered ribbon microphones. With conventional ribbon microphones, the input impedance of the mic pre directly affects the ribbon element. If the impedance match is good, the ribbon element operates at full potential. If the impedance is too low, the ribbon element becomes overdamped and loses sensitivity and bottom end, resulting in compromised performance. A great ribbon mic will perform poorly if it is not presented with the proper impedance. Z-match perfectly matches the impedance to the ribbon so the ribbon always provides optimal performance.

IN USE

Eager to put my pair of review R-122s to work, I jumped right in recording electric guitars with rockers Relient K. The R-121 has been my primary electric guitar mic since its release, so I was excited to see how the 122 compared. I ran the 122 into my John Hardy M-1 preamplifier, then into my GML 8200 EQ and finally into my Empirical Labs Distressor EL8 for compression. The mic performed immaculately. The top end was nice and smooth, capturing all of the guitar's brightness and shimmer without ever sounding edgy or brittle; the mids were punchy and the bottom was extremely full and defined. The bottom end was where I noticed the biggest difference between the 122 and the 121. The active Royer has a slightly tighter and more defined bottom end. The 122 seems to have a top end that extends slightly beyond the 121, likely because of the toroidal transformer.

The microphone performed equally well with drums and percussion. A pair of R-122s worked fantastic as drum overheads and room mics. I also had good results using the R-122 as a more ambient kick mic by placing it about four or five feet from the kick drum, about two feet off the floor and angled slightly toward the floor. Combining this with the AKG D 112 that I placed inside the kick resulted in a massive, yet controllable, kick sound. The mics did an incredible job capturing the sound of shaker, triangle and tambourine.

Fast Facts

Applications:
Studio

Features:
Figure 8 pattern; ribbon element; active electronics; toroidal transformer.

Price:
\$1,695

Contact:
Royer Labs at 818-760-8472,
www.royerlabs.com.

I had great results using the microphone to record acoustic guitar. I have always liked the sound of ribbon mics on acoustic guitar, but they often do not have the output to capture a quiet guitar performance, especially a finger-picked part. This is not the case with the R-122. For the first time ever with a ribbon, I beautifully captured the sound of a finger-picked Duncan guitar, using the R-122 through the Gordon mic pre, the GML 8200 EQ and a Pendulum Audio 6386 compressor. While tracking acoustic guitar with Undershade's Jason Cole, I used the R-122 in conjunction with the Sony C-800G and had fantastic results. The guitar sounded full and rich with a wonderful percussive sparkle.

As I anticipated, the microphones worked extremely well to capture the sound of violin, viola and cello. I almost always use ribbon microphones on strings and I was more than pleased with the way

ROYER LABS R-122 ACTIVE RIBBON MICROPHONE

Plus

- + great sound
- + ram tough
- + great warranty

Minus

- none

The Score

The Royer R-122 is a mic lover's dream come true. If you do not own a ribbon mic yet, this is the one to buy and if you already have one or more, this will be a great complement to your collection.

the microphones captured the performances of these instruments.

The microphone did an adequate job recording vocals. The Royer SF-1 and the Coles 4038 remain my favorite vocal ribbon microphones, but the R-122 is a nice option.

SUMMARY

The Royer R-122 is the new standard to

which all ribbon microphones must be compared. Its high output makes the mic usable with the quietest of sound sources, the Z-match feature perfectly matches the impedance to the ribbon so the ribbon always provides optimal performance, and in the tradition of the R-121, the 122 will take tons of sound, allowing the mic to be used with even the loudest of electric guitar amps.

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Bob Katz - Mastering Engineer - Digital Domain, Orlando, FL

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Product Points

Studio Projects B3 and TB1 Microphones

BY JOHN GATSKI

Anybody who has read the pages of *Pro Audio Review* over the past couple of years, knows that I have become a fan of Studio Projects microphones. In fact, the C1 large body cardioid condenser was one of my PAR Reviewer's Pick in 2002.

These made-in-China microphones are built to tight tolerances and, of the ones I have used, have been consistent from model to model, with good sound and reliability.

I recently sampled two of SP's lower cost, smaller-sized condenser mics. The B series use a 1-inch diaphragm, housed in a smaller body. The B3 (\$199) version is a three-pattern FET-design, and the TB1 (\$399) is a cardioid tube mic version. The cardioid-only FET B1 (\$99) was reviewed in *PAR* 12/02 by Frank Beacham.

FEATURES

The B3's body is sturdily built with switchable cardioid, figure 8 or omni patterns, with rolloff and pad switches. It comes with a swivel shockmount that grips the bottom of the microphone.

The B3 features a 1-inch, Mylar diaphragm and has the aforementioned, three

switchable polar positions. The transformerless circuit claims low self noise, a claimed 14 dB, A-weighted factory spec. The B3 manual, unlike the B1 manual, does not list the frequency response, but it is assumed that in the cardioid position, at least, the response is the same as the B1, listed as 20 Hz - 20 kHz with no tolerance listed.

The rest of the factory specs include 137 dB maximum SPL and 80 dB signal-to-noise. The B3 accessory package includes a carrying pouch, foam windscreen and a "grip" shockmount.

The TB1 uses the same cardioid, 1-inch Mylar diaphragm as the B1 and B3, but features a tube circuit utilizing a 6072 dual-triode and a separate power supply. Listed specifications include 120 dB SPL, 16 dB, A-weighted self-noise and a 78 dB signal-to-noise.

As with most tube mics, the tube's power and signal is routed via a 20-foot seven-pin cable through the power supply/signal-out box, which seems robust enough.

IN USE

With my previous experience with the Studio Projects, I had high expectations for the B3 and the TB1 - even at their shockingly low list prices. What I found out was that the mics sound good, and they have a different character



than the flagship C series.

During setup, I found that the shockmount for the B3 was a little loose; the mic would not stay level. I called the company and found out that a tension adjustment screw on the mount, not mentioned in the manual, is located underneath a plastic cap. So I adjusted it, and it gripped the mic like a vice. The company also said there is an optional basket mount available.

I tried both mics through my Night Technologies, PreQ3 stereo preamp using Alpha Core solid silver balanced interconnects. I recorded two acoustic guitars to the Alesis



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Fast Facts

Applications:
Studio

Features:
B3 - 1-inch diaphragm FET condenser, three patterns (cardioid, omni and figure 8), includes carrying pouch, shock mount and manual. Basket mount is optional.

TB1 - 1-inch diaphragm, tube condenser microphone, separate power supply, cardioid only, includes shock mount, carrying case and power supply cable; basket mount is optional.

Price:
B3 - \$199; TB1 - \$399

Contact:
Studio Projects at 877-563-6335,
www.studioprojectsusa.com.

MasterLink, 24-bit, 88.2 kHz. And I did some pseudo voice-overs using both mics. Playback was through the Benchmark DAC1 D/A into a Legacy High Current Preamp. Monitoring was done via Grado SR-325 headphones and NHT A10 powered monitors.

First, the B3. I recorded a Gibson Advanced Jumbo reissue and a Carvin C250S with solid cedar top acoustic. On playback, I found that the B Series are flatter sounding than the C series. That noticeable, but nice presence of the C1 is not there. The B3 is not as "big" sounding, but more neutral. It is also slightly quieter. Another plus was the B3's lack of proximity effect when placed close to the guitar's soundhole. Though the room sound gets picked more by the figure 8 pattern, the characteristic of the mic was still neutral.

For quiet, accurate reproduction of a source with no color, the B3 is an incredibly priced, multipattern microphone. But do not expect it to sound "big." I expect project studios will love the sound/dollar ratio of this multipattern mic.

Using the same sources, I tried the TB1. It was similar sounding to the B3 in the cardioid position, but had slightly more presence and a touch of warmth that made the rosewood Gibson's high-mid/low treble loudness a smoother. And it also was quieter than the C1.

On voice, the TB1 and the B3 sounded similar, with the TB1 having just a hint more pres-

ence than the B3. Neither mic has the desirable presence boost that many of the more expensive, favorite vocal mics have. But for some vocals, an honest microphone is a handy tool - especially at well under \$300 on the street.

SUMMARY

So take your pick. Those on a budget cannot go wrong with either microphone. If you need multipattern the B3 works well. Its neutral,

quiet characteristic and high SPL handling make it a good choice for instrument miking on piano, guitar and perhaps overheads that are not in need of an extra cutting sheen.

The TB1 is a good choice for acoustic guitar and voice with a more neutral sound than most tube mics. Of the two, my personal favorite was the TB1. As always, audition any microphone before you buy it. Make sure it is suitable for your application.

Product Points

STUDIO PROJECTS B3 AND TB1 MICROPHONES

Plus

- + Low, low price
- + Sounds good
- + Multipattern (B3)
- + Tube circuit (TB1)

Minus

- Manual did not mention hidden mount tension screw (the new one will mention it)

The Score

How much lower can studio mic prices go and still maintain decent quality sound and reliability? The Studio Projects B series is your answer.

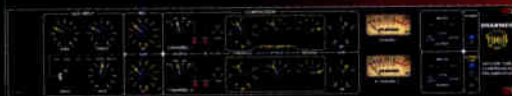
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Carvin CM98ST Tube Condenser Microphone



BY ALLEN KAMM

Low-cost condenser mics with big diaphragms have been proliferating like rabbits. Even some of the high-end mic manufacturers, such as Neumann, AKG and Audio-Technica, have come out with high-value models at reduced prices.

One such microphone is the Carvin CM98ST tube condenser mic (\$499). It connects to a remote power supply, where the user can switch the mic's polar pattern anywhere among omni, cardioid and figure 8 in nine steps.

The CM98ST is actually a complete kit. It includes a classy foam-lined aluminum flight case, the microphone, a shockmount, foam windscreen, power supply, mic pouch and cables. The power supply connects to the mic with a 30-foot, gold-stripped, seven-pin cable. A regular mic cable is provided as well.

This is one handsome, well-made microphone. I was impressed by how heavy and solid the mic is. Reminiscent of a Neumann U 47, it is a satin metal cylinder that is 7 inches long and 2.25 inches in diameter, decorated with a gold ring. Inside the open grille screen are dual, back-to-back, 1-inch gold-sputtered, 5-micron diaphragms that are shock mounted. The housing also includes the vacuum tube impedance-matching circuit. A seven-pin connector protrudes out the bottom.

On the mic's front surface is a low-cut

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Fast Facts

Applications:
Studio

Key Features:
Multipattern; 10 dB pad; low-cut filter; ships with 30' mic cable, shockmount, windscreen, power supply, flight case.

Price:
\$499

Contact:
Carvin at 800-854-2235,
www.carvin.com.

switch (6 dB at 120 Hz), which reduces excessive bass caused by close miking. There is also a 10 dB pad switch to prevent distortion of very loud sound sources.

The included spider-type shockmount suspends the mic to prevent thumps. Attaching the mic to the shockmount is a matter of screwing the mic into a ring. The mount has a swivel mic stand adapter.

According to Carvin, the CM98ST's frequency range is 20 Hz – 20 kHz, dynamic range is 133 dB, and impedance is 300 ohms. No other specs or data sheet are furnished.

IN USE

I tried the Carvin CM98ST on vocals, acoustic guitar, piano, sax and drums. Here are my impressions:

- Vocal at eight inches with cardioid setting: Clean, non-boomy lows. Bright upper mids; lots of presence. Sibilants (s and sh sounds) are slightly harsh. No breath pops. Very little off-axis coloration.

- Vocal at eight inches with omnidirectional setting: A little more low end and smoother highs than with the cardioid setting.

- Vocal at eight inches with bidirectional setting: Less bass than cardioid, with slightly harsher sibilants. Front and back of mic provide a similar tone quality.

The remaining tests employed the cardioid setting.

- Vocal at four inches: Nice warmth without any boominess. Low-frequency pops are audi-

ble, but are almost eliminated by the foam windscreen.

- Vocal at four inches with low-cut filter: Thin sounding.

- Acoustic guitar with mic one foot from the 12th fret: Clean bottom end and crisp, well-defined plucks.

- Acoustic guitar with mic six inches from the sound hole and low-cut switched in: Boomy.

- Piano: Miking over the sound board near the hammers, the sound is bright with a good amount of presence.

- Sax: One and a half feet away, about a third of the way down from the top: Articulate, with plenty of breathy "edge."

- Over drums: Clean, clear tom attacks and crisp cymbal hits.

In general, the CM98ST is handy when you want an instrument or vocal to cut through the mix. It has very low self-noise and a clean, distortion-free character. The sound of the mic is bright rather than smooth and natural, but the brightness is still a useful trait. I would probably not use the CM98ST on jazz vocals or classical recordings. But it works great for pop music.

IN THE LAB

Figure 1 shows the measured frequency response of the CM98ST in the cardioid setting. It is flat up to 2 kHz, then rises to +8 dB at 11 kHz. This high-frequency peak contributes to the bright, present sound of the mic. *continued on page 50* ▶

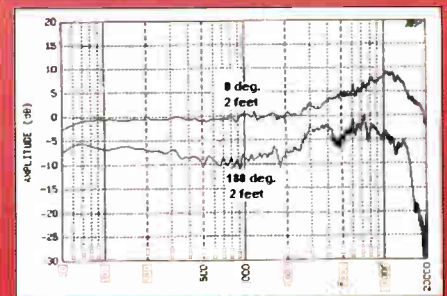


Figure 1: CM98ST front and rear frequency response in cardioid setting.

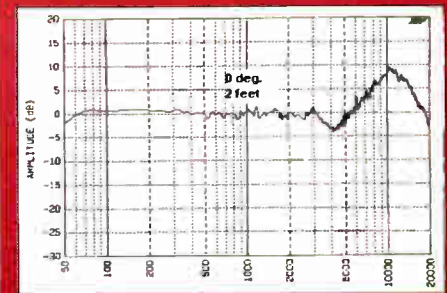


Figure 2: CM98ST frequency response in omnidirectional setting.

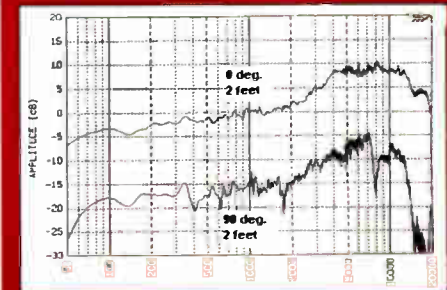
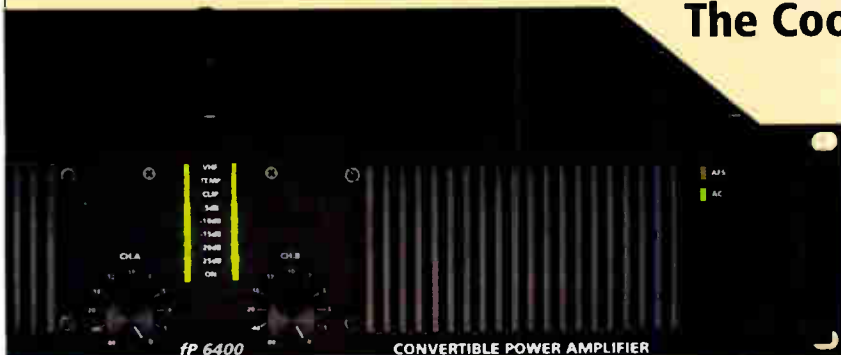


Figure 3: CM98ST front and side frequency response in bidirectional setting.

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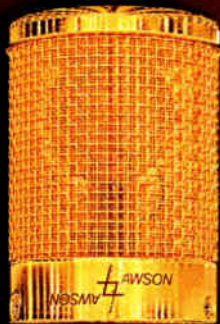
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Dan Alexander Audio Mic Preamp



BY DR. FRED BASHOUR

Dan Alexander, a musician and recording engineer in San Francisco, has been a dealer of vintage pro audio gear for at least 20 years, and, in the early 1980s, sold me my first pair of Neumann M 50s and all my Schoeps 221Bs. I was thus quite curious when I heard that, in addition to selling large Neve consoles and individual channel strips, he had entered the manufacturing arena with a mic preamp—one whose circuitry emulates that found in the famous Neve 1073/1064/1066 modules.

FEATURES

The preamp's controls are basic, but well thought-out. Its front panel features a feedback loop gain switch — varying gain from 20 to 50 dB in five dB steps, an output level control, polarity reverse and phantom power switches, and a 1/4-inch "direct box" input. The front panel also provides another 1/4-inch output jack, which is a direct mult of the DI input signal, and is meant to be plugged into a musical instrument amplifier. The rear panel contains XLR input and output connectors as well as a 1/4-inch unbalanced output. The power supply is a large 24VAC "line lump" which connects to a small power jack on the preamp's rear panel.

What is a Neve mic preamp anyway?

Many large format consoles from the '70s and '80s are still in use today — usually after having been upgraded with newer passive parts and, often, active ones as well. Old brands like Neve, Trident, API, and Langevin are becoming buzzwords to a new generation. Other vintage consoles, however, have not been upgraded and, instead, have been scavenged for parts (usually channel strips and

similar modules) to serve as the raw material for building "new" equipment, or as templates for the design of modern replicas.

Dan Alexander's mic preamp is a hybrid of those two approaches. He uses the input and output transformers from original Neve modules, but builds new amplifiers — with all new parts — whose circuitry is schematically equivalent to the original. Which original, a Neve freak might ask? Although the first Class A Neve "mic preamps" were part of hard to find console modules such as the 1073, 1064, 1066, 1084 or 1089, some of today's designers turn the more readily available 1272 module into a mic preamp. The 1272, however, was a line/summing buss amplifier used in early 1970s Neve consoles such as the 8048, 8014, 8016, and BCM-10 portable mixer and, as such, was never used by Neve as a mic preamp. Nevertheless, Sir Rupert Neve himself, when asked what he thought about people rewiring it as a mic preamp, is reported to have said, "Why not? It has all the same stuff inside."

The bottom line is that the classic Neve Class A amplifier circuitry from the early '70s

Fast Facts

Applications:
Studio, live performance

Key Features:
Original Neve parts and design; Class A; 1/4" instrument input

Price:
\$1,150

Contact:
Dan Alexander Audio
at 510-527-1411,
www.danalexanderaudio.com.

was used in virtually all of the modules, and Dan Alexander's mic preamp uses the same circuitry, with the special addition of authentic Neve transformers — a LO1166 or a 2567 (with a 1310 coil for DC blocking) for output, and a 31267 for input.

IN USE

Okay, so Dan Alexander's mic preamp is a Neve clone; what exactly does it sound like? In a word, big and bold! Just about everything I put through it acquired this characteristic, perhaps attributable to a slight forward quality in the upper mid-range and a slight brightness in the high end. The lows sounded comparable to other good solid state preamps I have on hand (Crane Song, Millennia Media), but still sounded "different" from them — not deeper or louder; merely "stronger."

I first played my 1964 Hofner bass through the preamp's direct inputs, and compared the resulting sound with that provided by my favorite bass preamp, the Manley VoxBox. Big difference here! The Manley (with flat EQ and no compression) sounded smoother, but less

"exciting" while the Dan Alexander preamp gave my round-wound strings much more "life" and presence. A great combination was the Dan Alexander preamp feeding the VoxBox's compression and EQ sections!

I then tried out just about every mic I own through it — from vintage Neumanns, AKGs, and Schoepses to beyer M88s and M500s, as well as a "cheap" Groove Tubes AM11 — and compared the results with the aforementioned solid state preamps, as well as tube gear by Manley and Fearn. While the other two solid state preamps are definitely in the "neutral" camp, and the Manley MicEQ500 and Fearn VT-2 are definitely (and quite differently) colored, the Dan Alexander box made my 47 sound larger than any of the others did, my small diaphragm Schoeps 221Bs sound almost like Neumann KM 54s, and gave my beyer stage vocal mics a welcome bit of extra presence. Even the rather dark-sounding solid state Groove Tube mic came alive. The preamp's "coloration" was especially effective on voice, drums, bass and guitar.

To further investigate the preamp's sound, I

hooked in a little "re-preamp" box. After playing various CDs and master tapes "back through" the Dan Alexander mic preamp, I concluded that this is not a preamp for the two-mic audiophile purist; its stereo image is more "closed-in" than my other (more expensive) mic preamps, and any source possessing the least amount of harshness becomes a bit edgy. But when the source needs livening up, or more of a distinct personality, this relatively inexpensive box really does miracles!

SUMMARY

Sometimes one needs smooth and relaxed; sometimes, big and bold. If you want your vocals or drums or bass to come alive with extra presence, I would strongly recommend trying your favorite mics through the Dan Alexander Class A "Neve" mic preamp. Sir Rupert certainly knew how to get a big sound, and Dan Alexander has effectively packaged that "euphonic coloration" for this century.

Dr. Fred Bashour is a classical music producer/engineer and a regular contributor to Pro Audio Review.

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World Radio History


Focusrite

Groove Tubes

GT55 and GT66 Microphones

BY RUSS LONG

Groove Tubes began in the late 1970s when Aspen Pittman, the company's founder, hired some technicians to investigate why various tubes sound and perform so differently. With a personal collection of vintage tube amps and mics in excess of 250 pieces, Pittman had always been fascinated with tubes, tone and amps. Driven by curiosity, as much as an itch to start a new business, Aspen and these engineers discovered entirely new tube operating characteristics to measure and new ways of interpreting these test data results.

This research became the foundation for the Groove Tubes performance testing and matching process they still use today. Since its beginning, Groove Tubes has grown from a modest garage workshop to an international business with over 1,200 U.S. retail outlets and distributors in more than 40 countries worldwide. The company is still run by music lovers, and while the organization has long since moved out of the garage, Groove Tubes takes pride in continuing to maintain their tinkering workshop mind-set.



The Groove Tubes line of microphones is exclusively distributed worldwide by M-Audio (formerly Midiman), with the only exception being the Model 55 and Model 66 that are sold exclusively through Guitar Center stores in the USA market. Outside of the USA, M-Audio also distributes the Model 55 and Model 56.

FEATURES

The beautiful flat-silver Groove Tubes GT66 is a no-compromise tube mic delivering better performance and sound than the many mics costing much more. A Groove Tubes GT6205 tube powers this microphone's Class A electronics. Groove Tubes philosophy regarding tube microphones has always been that great tube mics start with great tubes. The Groove Tubes' tube microphone design is different from other companies in that they use triode wiring on specially selected miniature pentode tubes to yield low noise and incredibly realistic dynamic response. This provides a smooth vintage tone combined with modern studio high-fidelity specs. Accurate tube selection is also a high-priority at Groove Tubes. The

Groove Tubes quality control department is so discriminating that they surprisingly reject more tubes than they accept. The GT66 power supply is designed with a load-balancing circuitry that allows cable runs of more than 200 feet with no deviation from optimal performance. Included with the GT66 is the PSM1 power supply, a multipin 25-foot soft audio cable, a hard mount, a shockmount, and a zipper mic case all for \$899.

The flat black GT55, the solid state version of the GT66, is a true Class A condenser microphone equipped with a 1.1-inch, hand-assembled and tested large-diameter capsule with an ultrathin 3-micron gold evaporated diaphragm. The GT55 has a cardioid polar pattern and warm Class A FET electronics. Included with the GT55 is a hard mount and a padded zipper mic case all for \$499.

At the heart of the GT55 and the GT66 is a hand-assembled, hand-tested 1.1-inch diameter capsule. This 3-micron evaporated gold diaphragm with Disk Resonator technology provides amazing sensitivity that delivers a sparkling, transparent sound across the full frequency spectrum. The Groove Tubes' Disk Resonator technology gives the GT55 and GT66 an extended frequency response ideal for accurately capturing the realism of just about any sound source. Large-diaphragm microphones often get bogged down resonating at low frequencies preventing them from efficiently reproducing frequencies above 14 kHz -15 kHz. Groove Tubes' Disk Resonator interacts at high frequencies with part of the diaphragm, extending the range of the capsule well beyond 20 kHz.

Both the GT55 and GT66 feature a low-frequency rolloff filter (75Hz) and a 10 dB pad. The rolloff filter is useful in reducing or eliminating low frequency noise such as floor rumbles, mic stand noise, passing trucks, etc... It can also be used to compensate for the microphone's proximity effect. The pad is useful to prevent the microphone

Fast Facts

Applications:
Studio

Features:
1.1-inch 3-micron gold-evaporated diaphragms; Disk resonator technology; Class A; 10 dB pad; low-frequency rolloff filter

Price:
GT55: \$499; GT66: \$899

Contact:
Groove Tubes at 818-361-4500,
www.groovetubes.com.

and/or preamp from overloading when recording loud sound sources such as a close-miked guitar amp or kick drum.

IN USE

Although the GT55 and the GT66 both work exceptionally well on vocals, I always preferred the sound of the 66 over the 55. I am nearly always partial to a valve microphone on vocals and this is no exception. While working with a vocalist whose voice had a tendency to get a bit edgy and piercing in the higher frequencies, I found that the GT66 would actually correct this problem by warming up and smoothing out the edge without losing any sparkle or air.

I had exceptional results using both the GT55 and the GT66 to record a wide variety of acoustic string instruments including acoustic guitar, mandolin, violin, viola and national slide guitar. I generally preferred the sound of the GT66 but there were a couple of instances (mandolin and national slide guitar) where I favored the sound of the GT55. I was able to get a fantastic acoustic guitar recording by using the GT66 on the neck of a

Duncan guitar and the GT55 on its body.

I used the GT55 to capture room ambience during a string quartet recording which provided nice results. This was one of only a few instances that I wish the microphone had selectable pick-up patterns. My results were wonderful but I believe they would have been even better if I would have had the option of using the mic in an omni position.

The microphones also worked well on drums and percussion. I substituted the GT55 for my standard hi-hat microphone (Neumann KM 86i) and was extremely pleased. This instance alone was enough of a reason to purchase the GT55. I used the GT66 to capture drum kit room ambience also yielding wonderful results. Both microphones worked well capturing the sound of tambourine, shaker and triangle.

SUMMARY

The GT55 and the GT66 are outstanding microphones with a similar sound yet still unique. With a combined price that is less than I would expect to pay for either one they are a bargain as well.

GROOVE TUBES MICROPHONE COMPARATOR

Groove Tubes originally developed the Microphone Comparator to give trade show attendees the opportunity to accurately compare the performance of various microphones. Engineers and producers began to realize that this device would be right at home in the studio providing a quick, easy and accurate way to shootout up to four microphones. Volume can be very deceptive when comparing audio devices and having the ability to precisely match the gain of the microphone prevents falsely selecting the microphone with the highest gain as sounding the best. A phantom power switch provides 48V phantom power to the fourth microphone input. Four Microphone Select switches determine which microphone will be auditioned. Output is provided via a front panel 1/4-inch TRS jack labeled Record Out. The box is also equipped with four headphone out jacks on the rear panel and four headphone volume controls on the front panel.

Hear What The Hype Is All About

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Scott Rouse - Producer, Grammy Nominee, Nashville, Tennessee

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Ted Perlman - Producer/Arranger/Composer

Bob Dylan, Chicago, Kaci, 2gether, Young MC

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Pete Leoni - Producer/Engineer, Tech writer and reviewer



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Back to NAMM-aheim!



NAMM, January 16 - 19 in Anaheim, always has a few odd product surprises. This year one is Aphex's new line of Xciter effects pedals. The interesting take on these pedals is that they bring Aphex's famous Aural Exciter and Optical Big Bottom effects to the pedals.

Another prospectively interesting product is CreamWare's Noah "Tactive Instrument Modeller," a rackmounted synthesizer. Noah is designed to be programmed by CreamWare's DAW systems but operate on its own in the field or studio.

A whole menu of new Digidesign Pro Tools workstation software for Mac AND Windows XP will be on display at the Digi booth (along with the latest from Digi's Development Partners).

HHB continues to build on its distribution of the TL Audio line. New for the show is the latest member of the Ivory 2 series, the



Turbosound LMS-D4

5052 Dual Tube Processor, a two-channel channel strip. HHB's line of Rosendahl Nanosyncs clocks also has a new member,

the V3 (sporting word clock, Superclock, video, LTC, AES/EBU and S/PDIF audio in one package).

Summit Audio's 2BA-221 Microphone and Line Module tuber mic pre will be the center of interest at its booth. Focusrite promises a new preamp, the Rupert Neve-designed ISA 428.

Yamaha continues its product upgrade march. The latest - the venerable 01V is pumped up to 96 kHz in the 01V96. Less fancy, Yamaha is debuting a series of analog mixers from the mid-sized MG family.

For API/Audient, the 8024 is a new recording console on display. A bit smaller, Soundcraft will introduce a new series of small multipurpose mixers, the Spirit E series. The E series will be aimed at live sound duties - monitoring and mixing.

The latest from

Peavey will include a new line of speakers. Q-W along with updated models of the CS power amp line.

Showing somewhat larger speakers, SLS Loudspeakers will give its RLA/2 ribbon line array speaker its NAMM debut. Users

of Turbosound speakers will be happy to see the introduction of the LMS-D4, a digital controller for the QLight, HiLight, TC and TM speaker families.



Yamaha 01V96

New power amps at the show will include Crown's XLS models. The XLS series is designed for road use.

Putting more control into artists' hands Primera Technology will be showing the Bravo, an automated integrated CD/DVD duplication/printing system. Disc Makers, too, will be at NAMM. It's offering the Elite series of automated CD/DVD duplicators/printers.

D'Addario's Planet Waves division will



Aphex Xciter

demonstrate its solder-less RCA custom cable builder kit along with a "circuit breaker" guitar cable designed to mute pops and thumps caused by swapping guitars and amps. And speaking of connectors, Neutrik will show the newest Speakon, the SPX.

► Carvin from page 45

Also shown in Figure 1 is the frequency response at the rear of the mic, 180 degrees off axis. The rear attenuation is only 9 dB in the midrange, showing that this pattern is actually a subcardioid. The response is down only 3 dB at 90 degrees off axis (not shown).

Figure 2 shows the response of the CM98ST in the omnidirectional setting. Except for a minor dip at 4 kHz, the response is flat up to 6 kHz and rises to +9 dB at 11 kHz.

Figure 3 is the response in the bidirectional setting. The lows roll off and there is a broad 8 dB rise from about 4 kHz to 12 kHz. This explains the rather thin, harsh sound of the bidirectional setting. Side attenuation is greater than 15 dB over most of the range.

The sensitivity of the CM98ST is high: -33 dBV/Pa in cardioid, -31 dBV/Pa in omni, and -34 dBV/Pa in bidirectional.

Not shown is the polar-pattern switch set two clicks past the cardioid setting. That time, the response is down 6 dB at 90 degrees off axis (not shown), as it should be for a cardioid pattern. At the rear of the mic, 180 degrees off axis, the rear attenuation is only 9 dB at 1 kHz but up to 24 dB at 120 Hz. Apparently the positions of the polar pattern switch were not calibrated to match the mic's actual performance.

SUMMARY

This is a quality microphone with many included accessories at a low price. The mic's off-axis attenuation is minimal but this may not be a problem during overdubs. If you need a clean, bright-sounding tube condenser mic, the Carvin CM98ST is worthy of serious consideration.

Allen Kamm is a contributor to **Pro Audio Review**.

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Soundelux E47 Tube Microphone

BY STEPHEN MURPHY

As time marches on, the number of coveted pre-1960s tube microphones available on the open market diminishes. And of the mics that are available for purchase, the chance of picking up a mic that functions at a sonic quality commensurate to its market price is even smaller. While several options exist for expert rebuilding, refurbishing and/or modifying a vintage mic, these choices often come at a steep price.

The allure of these mics, however, is based in real value — when working to their potential, there is no denying the aural “magic” and often-intangible allure they possess.

As vintage models disappear, the market for new models meticulously recreated in the image and sound of coveted vintage microphones has steadily grown. Soundelux Microphones continues its advance in this area with the release of the E47 tube microphone (\$3,950), modeled after the Neumann-made Telefunken U 47 microphone.

FEATURES

In 1948, Neumann introduced the Telefunken-distributed U 47 microphone — the first condenser with switchable patterns (cardioid/omni). The U 47 utilized the VF14M tube, a metal-clad pentode tube (configured as a

Applications:
Studio, broadcast, live performance recording

Key Features:
Multipattern tube microphone and matched power supply; 1-inch gold-sputtered diaphragms; fixed cardioid or continuously variable polar patterns; suspension mount and wood case.

Price:
\$3,950

Contact:
Transamerica Audio Group, Inc.
at 702-365-5155,
www.transaudiogroup.com.

triode) along with Neumann’s M7 capsule, a 12-micron PVC-based dual-diaphragm assembly with a glued-on membrane tensioning ring.

Over the years, the U 47 mic went through several design modifications, ultimately evolving into the popular U 67 microphone in 1960 when the capsule design switched to Mylar film (instead of PVC) and a screwed-on tensioning ring (instead of glue). The U 67 also added a low-end shelf and amplifier pad.

The Soundelux E47 is designed to invoke the sonic characteristics of the original while also offering improved performance specifications and additional features not found on the original U 47 — at approximately half the going rate of its period counterpart. These factors plus a three-year warranty and the removal of the increasingly significant “vintage operating condition x-factor” make the E47 an attractive purchase option in craftsman-quality tube microphones.

The nearly nine-inch long Soundelux E47 housing is based on the original 1948 issue of the U 47, chrome grille and all (in 1956, the U 47 switched to a matte grille and the body was shortened by nearly three-inches thanks to the reduction in size of electronic components, capacitors more specifically). The E47 body sports the instantly familiar dull-gray matte finish found on all larger Neumann mics.

While the E47 is quite similar to the U 47 in design and operation, several modifications and “improvements,” if I may be so bold, were made. One of the most significant modifications to the original design is its fully variable polar pattern capability. A retro-style knob on the E47 power supply smoothly sweeps the mic’s directionality from omni (fully counterclockwise) to cardioid (center) to bipolar (fully clockwise).

The mic can also be locked in cardioid-only mode via a small switch located inside the microphone housing. Changing the position of

this switch requires the removal of four screws, sliding the sleeve off the inner-assembly and flipping the tiny switch mounted to the circuit board just above the tube. The sub-miniature-style tube is soldered directly to a horizontal spring-mounted circuit board.

E47 designer David Bock declined to print the subminiature tube model used in the Soundelux mic, but explains, “I found a tube with the same plate impedance as the VF14 without having to use a VF14. The plate impedance is the most critical factor in replicating the performance of the original U 47 tube since matching to the output transformer happens at this node.” It should be noted that the VF14 went out of production in the early 1970s and is nearly extinct worldwide.

Cardioid mode specifications according to the manufacturer are an overall frequency response of 20 Hz - 20 kHz; impedance is 200 ohms and load impedance is 1000 ohms; signal-to-noise ratio is 79 dB (A-weighted); self noise is 15 dB (A-weighted); maximum SPL is 134 dB (< 0.5% THD); dynamic range is 119 dB and the maximum output voltage is 5.29 volts.

The E47 is 2.48 inches in diameter, 8.95 inches long and weighs in at 1.34 pounds. The E47 package includes a suspension mount, separate power supply (with sweepable polar pattern control), and a cherry-lacquered wood case for the mic.

IN USE

The Soundelux E47 microphone ships in fixed-cardioid mode. In this mode, the mic exhibits a 3 dB improvement in output level due to the reduced capacitance when using a single diaphragm. It is in this mode that, according to Bock, the mic is the most faithful to the U 47 sound.

The increased proximity effect in this mode accounts for a good part of the faithful-

continued on page 54 ►



AUDIX



"I've discovered a gem of a mic"

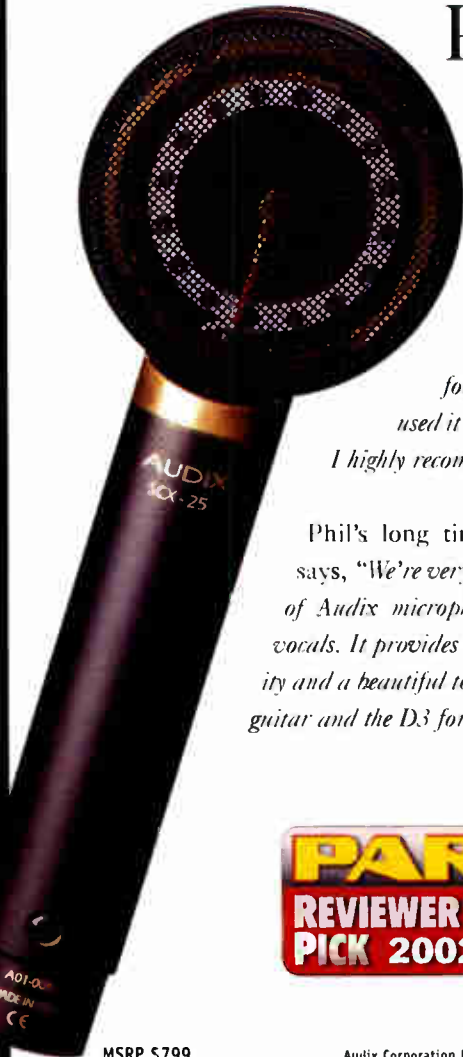
—Phil Keaggy

Phil Keaggy, considered one of the most influential and respected guitarists of our time, continues to re-invent himself in the midst of a musical career which has spanned more than 30 years.

Working and living in his hometown of Nashville, Phil first discovered the SCX25 in studios around town. He had heard that the SCX25 was creating quite a buzz.

Phil states, "After trying the mic out for myself in my own studio, I found it to be very transparent as well as having a great design. I've used it on vocals as well as on acoustic guitar, both with outstanding results. I highly recommend the SCX25 for vocals and acoustic instruments."

Phil's long time live sound engineer, Brian Persall, says, "We're very impressed with the quality and performance of Audix microphones. We decided on the VX10 for Phil's vocals. It provides a very full-bodied sound with amazing clarity and a beautiful top end. We've also got the SCX25 for acoustic guitar and the D3 for cabinet miking."



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► *Soundelux* from page 52

ness, as the U 47 was very proximity effect-prone — distance from the source was large factor in the creative use of the U 47. In the cardioid-only mode, Bock and Soundelux pretty much nailed the big, wonderful sound of the U 47, right down to its varying frequency response based on the sound pressure level entering the mic — another frequently noted characteristic of the original.

Given the reasonably involved procedure to switch the modes, I suspect users will come to predominately choose one mode over the other. I do not know if, as a studio owner, I would want a parade of in-house and independent engineers and assistants constantly tampering with the inside of the mic.

Being a fan of continuously variable polar pattern microphones, I prefer this mode over the absolute faithful approach. This is an excellent-sounding mic and its creative use is further enhanced through the use of the sweepable pattern control.

The E47 was a top performer in the vocal

category. While the Soundelux mic exhibited an increased top end over the U 47s and other similar vintage microphones (U 67, U48) I have used, it was never excessive or brittle — an increasingly common sound I find in newer, artificially hyped microphones.

The E47 sounded absolutely great on lower winds — bass clarinet, baritone and tenor sax were some of my favorite uses of this mic. The E47 also proved its worth as a distance mic on brass and string ensembles.

Between placement techniques and the sweepable patterns, I found I could obtain the sound I was looking for without EQ (save a low shelf). I used practically no EQ on tracks cut with the E47 in mixdown, except when other instruments in the mix demanded space.

SUMMARY

While certainly “up there” in price, the importance of having a few craftsman-quality mics like the Soundelux E47 in the locker cannot be over emphasized. It is one of those non-secrets in audio recording that seems to

be continuously forgotten, to the point of becoming secret again.

Soundelux once again shows a craftsman-quality design and build in the E47 tube microphone. And again, when faced with the gamble of picking up a vintage model with uncertain performance and potentially imminent maintenance needs for twice the cost, I would opt at this point for the E47 — one of the most creatively variable microphones I have ever used.

Stephen Murphy, contributing studio editor for PAR, has recorded hundreds of vinyl and CD releases, including a Grammy Award-winning and a Platinum-selling album. Steve can be reached at editor@smurphco.com.

REVIEW SETUP

SP Technology Timepiece 2.0 and Westlake LCW 8.1 studio monitors; Bryston SST and Hafler P3000 amplifiers; API 512 mic preamp; Universal Audio LN-1176 compressor; Zaolla Silverline and Kimber cables.

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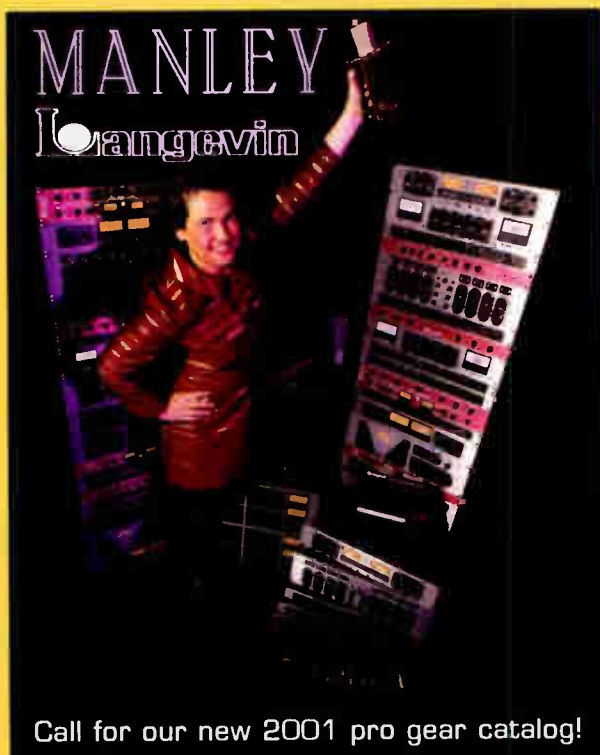
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Contact: TC Electronic at 805-373-1828, www.tcelectronic.com.



Manley Labs DualMono Micpre

Features: Two channel 48V phantom power input controls; phase reverse; front panel 1/4-inch input; tubes. Price: \$2,400.



Contact: Manley Labs at 909-627-4256, www.manleylabs.com.

Audio Technologies (ATI) ML200

Features: Two channel gain control 20V phantom power; peak LED. Price: \$299.

Contact: ATI at 215-443-0330, www.atiguys.com.



True Systems Precision P2analog

Features: Two channel 48V phantom power; phase reversal; high pass filter; M/S decoder; stereo phase meter. Price: \$1,750.

Contact: True Systems/Neumann at 860-434-5220, www.neumannusa.com.

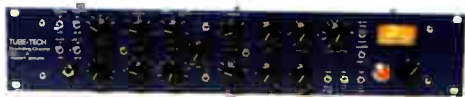


Tube-Tech MEC 1A

Features: Preamp/EQ/compressor; single-channel; tube

operation; high, low-shelving filters; manual, fixed attack and release controls; 48V phantom power; 20 dB pad; phase reverse; high-pass filter; switchable VU meter. Price: \$3,495.

Contact: Tube-Tech/TC Electronic at 805-373-1828, www.tcelectronic.com.



Millennia Media HV-3D

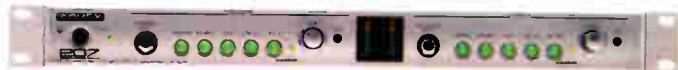
Features: Eight-channel; gain controls per channel; 48V phantom power; optional ribbon mic input; optional 130V inputs; optional four-channel version (\$2,995). Price: \$3,995.

Contact: Millennia Media at 530-647-0750, www.mil-media.com.



Aphex Model 207 Tube Mic/Instrument Preamp

Features: Two-channel; 48V phantom power; 20 dB pad; phase reverse; low-cut filter; MicLim limiter; front panel DI; Reflected Plate Amplifier tube circuit. Price: \$649.



Contact: Aphex Systems at 818-767-2929, www.aphex.com.

Pendulum Audio Quartet

Features: Two channel tube preamp/opto compressor/limiter/de-esser/three band EQ, 48V phantom power; phase reverse; 20 dB pad; low-cut filter (75/150 Hz); front panel 1/4" input; switchable VU meter. Price: \$3,250.



Contact: Pendulum Audio at 908-665-9333, www.pendulumaudio.com.

Studio Projects VTB-1

Features: Single channel 48V phantom power; phase reverse; high-pass filter (75 Hz); tube blend control; 12AX7 tube; front panel 1/4" DI input. Price: \$299.



Contact: Studio Projects/PMI Audio at 877-537-6335, www.studioprojectsusa.com.

Crane Song Flamingo

Features: Two-channel; gain, attenuation controls per channel; phase reverse; "Iron" and "Fat" effects; Class A; LED meters. Price: \$3,125.



Contact: Crane Song at 715-398-3627, www.cranesong.com.

Grace Design Model 801 Preamplifier

Features: Eight-channel 48V phantom power 20 dB pad; phase reverse. Price: \$4,795.



Contact: Grace Design at 303-443-7454, www.gracedesign.com

continued on page 58 ►

Pro Audio Review – January 2003

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WHAT MICROPHONES DREAM ABOUT.

VOG: Vipre Owners Group

"I heard the Vipre demo at the NY AES show in New York and I bought one right away...and gotten great results I would not have been able to obtain otherwise. This is not just another first class mic pre - this box can help you get sounds out of your mic's that have eluded you up until now."

Walter Becker,
Steely Dan

"I've used it on voice, guitar, and bass, all with stunning results!"

Frank Filipetti,
James Taylor, Carly Simon, Elton John, Barbara Streisand, Pavarotti, Celine Dion, others

"After extensive listening tests comparing it to all other mic preamps at my studio, the Vipre came out way on top in terms of sound clarity and depth."

Michael Wagener
Dokken, Ozzy Osbourne, Janet Jackson, Stryper, Alice Cooper, many others

"This Vipre is just too good to send back! I gotta have it! Here's the check."

George Petersen
MIX Editor, "Mr. Mix"

VARIABLE IMPEDANCE INPUT

Custom-wound transformers load mics at 300, 600, 1200 or 2400 ohms, multiplying the performance potential of every microphone. Additional transformerless balanced bridged, line and instrument inputs.

VARIABLE RISE TIME

Select between five amplification styles ranging from Smooth-and-Classic (Slow) to Bright-and-Modern (Fast). These first two exclusive Vipre features alone provide 25 unique tone-shaping combinations from any single mic!

ALL TUBE, BALANCED CLASS A

Eight Groove Tubes in a fully differential signal path dramatically lowers noise and distortion - while expanding bandwidth (flat from 7Hz to over 100kHz!).

PRECISION GAIN CONTROL

No pots! Custom-built ceramic deck attenuators control Vipre's incredible 75dB of total gain in 5dB and 1dB stepped increments for precision gain while maintaining the integrity of Vipre's fully balanced signal path.

AUTHENTIC VU METERING

Custom-built, back lighted VU meter with five switchable viewing ranges.



World Radio History

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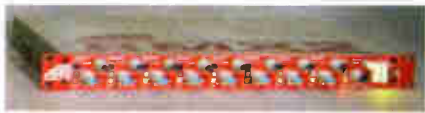
Visit our website or call us at 818 361 4500 for complete specs and a list of Groove Tubes Vipre dealerships.

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Audio Toys, Inc. (ATI) 8MX2 Preamp

Features: Eight channel; 48V phantom power; phase reverse; gain level, limiter threshold, channel level, pan controls per channel; linkable; headphone jack controls; LED meters. Price: \$2,795.
Contact: Audio Toys, Inc. at 800-642-8063, www.audiotoys.com.



API 512C Preamp Module

Features: Mic preamp module for API Lunch Box modular processors frames; 48V phantom power; 20 dB pad; 1/4" Hi-Z input; mic/instrument switch. Price: \$825.
Contact: API/Transamerica Audio Group at 702-365-5155, www.transaudiogroup.com.



Gordon Instruments Preamp System

Features: Two channel, 48V phantom power, phase reverse, Hi-Z input; optional gain control (\$300). Price: \$3,500.



Contact: Gordon Instruments at 615-665-1005; www.gordoninstruments.com.

Summit Audio 2BA-221

Features: Single channel tube or solid state signal path; 12AX7A tube; variable mic impedance; variable high-pass filter; ground lift; front panel 1/4" Hi-Z input. Price: \$695.
Contact: Summit Audio at 831 728 1302 www.summitaudio.com



Drawmer 1969 Tube Mic Pre/Compressor Mercenary Edition

Features: Two channel 48V phantom power phase reverse low cut filters (50, 100 Hz); tube-based DI section; compressor; Burr-Brown op amps; VU meters. Price: \$2,950.



Contact: Drawmer/TransAmerica Audio Group at 702-365-5155, www.transaudiogroup.com.

DACS MicAmp

Features: Two-channel; switchable bass rolloff; gain control; phase reverse; phantom power. Price: \$2,125.



Contact: DACS/Independent Audio at 207-773-2424, www.independentaudio.com.

Sonifex RB DMA2 Preamp/Converter

Features: Dual preamps, 48V phantom power; bass rolloff; S/PDIF, AES/EBU outputs. Price: \$799.



Contact: Sonifex/Independent Audio at 207-773-2424, www.independentaudio.com.

Schoeps VMS 5 U

Features: M/S matrix; gain, balance, width controls; 48V phantom power; low-cut filter (150 Hz); headphone controls; battery power meter. Price: \$1,305.



Contact: Schoeps/Redding Audio at 203-270-1808, www.reddingaudio.com.

Lavry Engineering MSPA-1000

Features: Single-channel; 48V phantom power; level control. Price: \$560.

Contact: Lavry Engineering at 206-381-5891, www.lavryengineering.com.



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Audix D6

Features: Cardioid pattern; dynamic element; Very Low Mass (VLM) capsule; aluminum body; ships with stand adapter, carrying pouch. Price: \$349.

Contact: Audix at 800-966-8261, www.audixusa.com.

Neumann KMS 105 Vocalist Microphone

Features: Supercardioid pattern; condenser element; triple acoustic noise filter; internal shockmounting. Price: \$599.

Contact: Neumann at 860-434-5220, www.sennheiserusa.com.

DPA 4006-AE

Features: Omnidirectional pattern; condenser element; 16mm diaphragm; ships with mic stand, aluminum carrying case. Price: \$2,100.

Contact: DPA/TGI North America at 519-745-1158, www.dpamicrophones.com.

Sony F-780/9X

Features: Hypercardioid; dynamic element; copper clad aluminum voice coil; Alnico magnet; urethane coating; ships with stand adaptor. Price: \$375.

Contact: Sony at 800-635-7669, www.sony.com/professional.

Audio-Technica AE3300

Features: Cardioid pattern; condenser element; 10 dB pad; high-pass filter (80 Hz); internal shockmount; stand clamp. Price: \$439.

Contact: Audio-Technica at 330-686-2600, www.audio-technica.com.

Crown CM-311A

Features: Cardioid pattern; flexible headworn over-the-ear frame; belt-pack. Price: \$329.

Contact: Crown International at 800-342-6939, www.crownaudio.com

Manley Labs Reference Cardioid

Features: Cardioid 1/6 micron diaphragm; 10 dB pad; ships with shockmount, swivel mount, leather capsule case, carrying case. Price: \$3,000.

Contact: Manley Labs at 909-627-4256, www.manleylabs.com.

Studio Projects B3 Microphone

Features: Omni, cardioid, figure 8 patterns; 1" three-micron Mylar diaphragm; high-pass filter; 10 dB pad. Price: \$199.

Contact: Studio Projects/PMI at 877-563-6335, www.studioprojects.net.

Royer Labs R-121 Ribbon Mic

Features: Figure 8 pattern 2.5 micron aluminum ribbon, neodymium magnet; high SPL. Price: \$995.

Contact: Royer Labs at 818-760-8472, www.royer-labs.com.

Shure KSM141

Features: Omnidirectional, cardioid patterns; Class A; transformerless; 15/25 dB pad; low-frequency filter; ships with mic clip, windscreen, carrying case. Price: \$770.

Contact: Shure Bros. at 800-257-4873, www.shure.com.

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The new 2BA-221 continuously variable impedance microphone preamp is the latest offering from Summit Audio. Use the separate solid state input controls to mix the microphone input with the Hi-Z or line input into the variable vacuum tube output. The 2BA-221 also features a stackable input design; multiple 2BA-221's can be linked together to form a modular mixing device. Its swept high pass filter, multiple simultaneous tube and solid state outputs, insert jack, and internal power supply makes the 2BA-221

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MBHO MBNM-608

Features: Omnidirectional, cardioid, figure eight patterns; double diaphragm; brass backplate. Price: \$1,355.

Contact: MBHO/MTC America at 800-579-4832, www.mbho.de.

AEA R84 Studio Ribbon Microphone

Features: Bidirectional pattern; ribbon element; ships with shockmount, stand adapter, cable, carrying case. Price: \$999.

Contact: Audio Engineering Associates at 800-798-9127, www.wesdooley.com.

Coles 4040 Studio Ribbon Microphone

Features: Ribbon element; internal shockmount. Price: \$1,399.

Contact: Coles/Independent Audio at 207 773-2424, www.independentaudio.com.

ADK ST

Features: Three patterns; 1"-inch diaphragm; condenser element;

Class A; pad; bass rolloff; ships with shockmount, aluminum flight case. Price: \$695.

Contact: ADK at 360 566 9400, www.adkmic.com.

Soundelux ifet 7

Features: Cardioid pattern; dual fet47, 87fet-type electronics; low-cut filter. Price: \$2,100.

Contact: Soundelux/Transamerica Audio Group, www.transaudio-group.com.

Sennheiser e865

Features: Supercardioid pattern; electret condenser element; neodymium magnet. Price: \$399.

Contact: Sennheiser at 860-434-9190, www.sennheiserusa.com.

Electro-Voice N/D767a Vocal Microphone

Features: Supercardioid pattern; dynamic element; Warm Grip handle; multistage shockmount; ships with stand adapter, gig bag. Price: \$252.

Contact: Electro-Voice at 800-392-3497, www.electrovoice.com.

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Behringer Mixer, Software from TC Works, Audacity

MICRO
VIEWS

BY FRANK BEACHAM

Behringer Eurorack UB802 8-Input, 2-Bus Mixer (\$89.99). After taking a close look and listen to Behringer's new line of UB series audio mixers, it is hard not to be astonished. The sonic quality, tiny size, build quality and ergonomics of these mixers is a remarkable achievement. The prices are almost unbelievable.

There are 10 new models in the UB line. Designed personally by company founder Uli Behringer, all models share ultralow-noise circuitry and newly designed studio grade mic preamps that Behringer calls IMP, for acoustically "invisible" mic pre. "These consoles have been pushed as far as the technology permits to date," said Behringer.

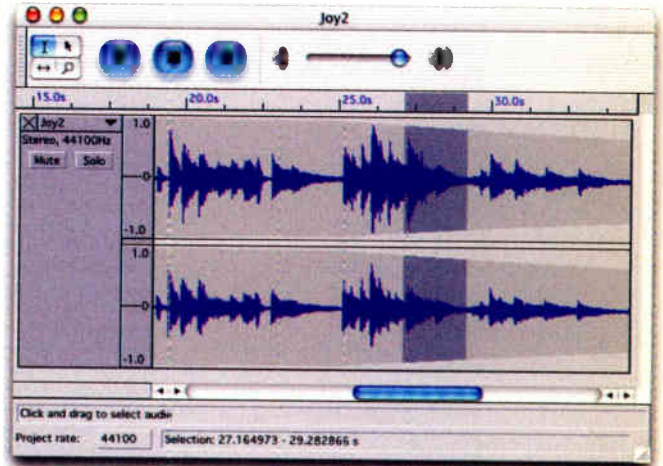
I focused on the UB802, a tiny mixer hardly larger than a desktop calculator and weighing about two pounds. Its two mic inputs provide 130 dB dynamic range, 60 dB gain range and +30 dBu line inputs. The bandwidth of 5 Hz to 100 KHz and practically distortion free circuitry (0.0007 percent, 20 Hz - 20 kHz) can feed the best quality audio systems.

In addition to the two mic inputs with 48V phantom power, the UB802 features six balanced high-headroom line inputs, one post fader FX send per channel and one stereo aux return for FX applications or as separate stereo input. There is a three-band EQ on all channels, peak LEDs on all mono channels, and separate control room, headphone and stereo tape outputs. Sealed rotary controls are from ALPS.

The UB802 is perfect for video and audio booths, computer applications or musicians in need a small mixer for keyboards and samplers. Extraordinary audio quality for well under a hundred bucks.

Audacity and Spark ME for Apple Macintosh OS X (Free). Who says there's no free lunch? Apple's new OS X platform is maturing nicely and now attracting new audio applications with one thing in common. They are free. Tests of the two applications below also show both work quite well.

Audacity is a two-track audio editor that allows recording and playback, as well as the import and export of WAV, AIFF, and MP3 files. Edit functions include cut, copy and paste (unlimited undo) and mix tracks. Built-in effects include bass boost, wahwah, and noise removal. Audacity also supports VST plug-in effects. Download at:



Audacity

<http://audacity.sourceforge.net>. Also for Windows and Linux.

SparkME from TC Works is a core version of Spark, the company's realtime audio editing and processing application. SparkME is fast with unlimited undo and sample-accurate waveform display plus VST plug-in support. The play list section allows preparing projects for CD, and includes realtime crossfades



TC Works Spark ME

and export of play lists in Roxio Toast format. All major audio file formats are supported, from AIFF to WAV and SDII and all file formats imported through QuickTime. Download at: www.tcworks.de.

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Unlike most solid state electronics, tube-based devices strike the ear as having such a "warm" sound because the added mid-range harmonics have the same temporal relationship as natural mechanisms like strings, drumheads and vocal chords. This results in a sweet spot that makes vocals, guitars and

other midrange-rich content sound especially pleasing.

TAMPA's revolutionary new Temporal Harmonic Alignment technology produces that same phase relationship found in both tubes and nature.

And unlike tubes, TAMPA's sweet spot spans the full spectrum of your sound from bass to cymbal

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