Radio World

NAB PRODUCT PREVIEW

NAB

THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

April 17–22, 2004 · Las Vegas, NV

A Supplement to Radio World Newspaper • April 7, 2004

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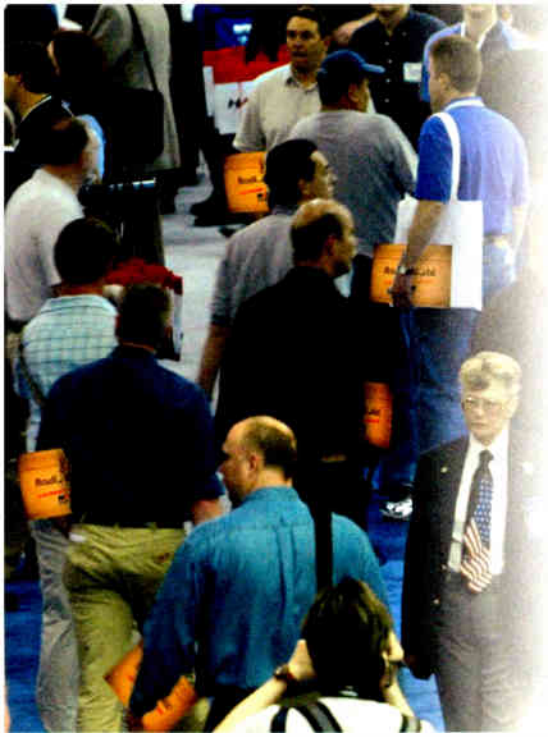

MISSION: ACCOMPLISHED

Good morning, Mr. Phelps.

As leader of the Impossible Radio Missions team, you are accustomed to pulling off engineering miracles every day on behalf of Your Employer.

You are now faced with your biggest challenge yet: penetrating the vast and complex exhibit floor of the NAB2004 convention, gathering technical intelligence there, creating overt source networks and cracking the code of information access to allow Your Employer to obtain cutting-edge radio broadcast technology throughout the coming year.

It is a daunting task. However, you are not alone on this mission.

The dossier you hold in your hands is the first Radio World NAB Product Preview. It contains newly declassified information, an exclusive first glimpse about the intentions of key suppliers on the NAB show floor. It is intended to help you and the members of your team plan your attack, execute it efficiently and withdraw with the maximum information advantage.

Inside this folder you will find sponsored Product Preview pages. These quick-read snapshots are authored by the product makers themselves to give you an up-front glimpse of their new offerings for the broadcast radio market.

To assist you in your mission, we have also included a color-coded floor map of the Radio/Audio Hall of the Las Vegas Convention Center, along with selected booth listings.

Your destination: Las Vegas. Use these resources to your best advantage. Pack this dossier with your carry-on luggage and make it your last briefing item before the show floor opens on 19 April at 0900 hours.

Good luck, Mr. Phelps. And remember to wear comfortable shoes.

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Radio World (ISSN: 0274-8541) is published bi-weekly by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone: (703) 998-7600, Fax: (703) 998-2966. Periodicals postage rates are paid at Falls Church VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church VA 22041. REPRINTS: Reprints of all articles in this issue are available. Call or write Joanne Munroe, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600; Fax: (703) 998-2966.

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—Printed in the USA—

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Audio Pioneer in High-Performance Sound Design

Founded in 1962, Audio-Technica is a leading innovator in electro-acoustic design and manufacturing. Initially known for state-of-the-art phonograph cartridges, A-T now creates high-performance microphones, headphones, wireless systems, mixers and electronic products for home and professional use.

Audio-Technica microphones are used daily in major broadcast and recording studios, and dominate the GRAMMY® Awards and the Rock & Roll Hall of Fame induction ceremonies. In presidential debates since 1988, Audio-Technica has provided seamless audio coverage and technical support. A-T mics are chosen for critical installations in the U.S. House of Representatives and Senate.

Sports Broadcasting

Audio-Technica mics also set performance standards for the Super Bowl, World Cup Soccer, and other high-profile sports broadcasts. In 2002, as the company celebrated its 40th anniversary, Audio-Technica supplied approximately 2000 microphones during the Winter Games in Salt Lake City—as A-T did for the Summer Games in Atlanta (1996) and Sydney (2000). A-T microphones delivered outstanding performance despite the extreme challenges of on-site coverage of events like luge, skiing, biathlon, skating and more.

That same year, working in close association with the BBC, Audio-Technica provided more than 1000 microphones for the broadcast coverage of the 2002 Commonwealth Games. In fact, A-T microphones accounted for every wired microphone position throughout the Games in 16 venues.

Consistency & Reliability

The company's consistency and reliability standards are legendary. For example, every microphone in the A-T 40 Series of precision studio microphones is individually tested and inspected for 100 percent quality assurance—rare in today's world of mass-marketed studio microphones.

Engineering Breakthroughs

State-of-the-art design and manufacturing techniques combine with engineering breakthroughs to further distinguish the A-T product line. A pioneer in the development of miniature condenser microphones, A-T created these innovative products incorporating leading-edge low-mass technology. In a groundbreaking price/performance advance, A-T developed the first professional quality side-address studio condenser for under $1000, the AT4033 Cardioid Condenser Microphone. The AT3060 Phantom-Powered Tube Microphone also represents a price/performance first in tube microphone technology.

Targeted for every film, TV and radio production need, Audio-Technica's Broadcast & Production microphones also feature leading innovations in acoustic design. The AT4071a and AT4073a shotgun mics are a case in point. Engineered for long-distance pickup in broadcasting and film/TV production, these microphones feature an Audio-Technica exclusive patented acoustic design (U.S. Patent No. 4,789,044) that provides the same directivity as mics up to 50 percent longer. Internal matrixing innovations in Audio-Technica's MS stereo shotgun microphones, the models AT835ST and AT815ST, allow for professional quality stereo audio with or without an external matrix. These stereo mics are a direct result of leading-edge design that was initially developed to meet the demands of broadcasting for the Summer Games.

With operating companies in the U.S., Japan, Europe, Singapore and Hong Kong, Audio-Technica is committed to providing superior performance and exceptional value for broadcast professionals around the world.

audio-technica
always listening

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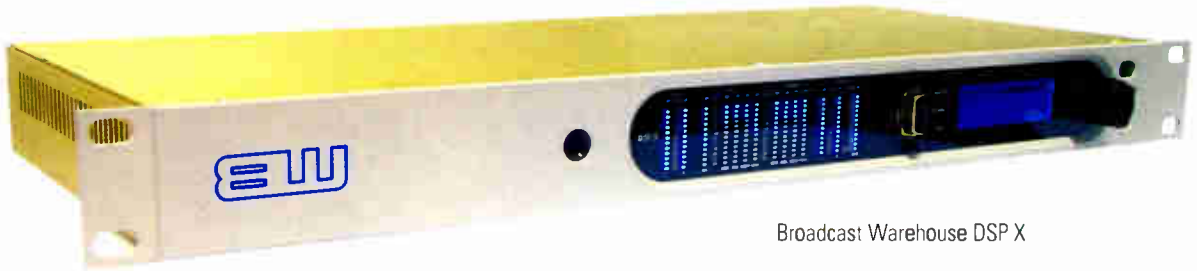
World Radio History

Low-Cost Digital Broadcast Processing



Broadcast Warehouse DSP X

Broadcast Warehouse (BW), based in London, England, manufactures audio processors and FM transmitters. At NAB2004 BW will be demonstrating the DSP X, a low-cost fully-featured FM, AM, digital radio and Internet streaming digital audio broadcast processor. BW will also be demonstrating the microgen TS9000 FM broadcast analyzer, a low-cost USB-powered FM test set. BW will also have on show their popular range of low-power transmitters and dynamic RDS encoders.

The BW DSP X is a new generation of digital audio signal processor that can be used for FM, Net and digital radio broadcasting.

The DSP X is the first UK-designed and manufactured digital multi-band broadcast processor. Using the latest multi-band DSP technology, the DSP X offers a versatile and powerful tool in creating a loud punchy on-air presence.

The DSP X has been designed and built from scratch using a new approach to the design of a digital audio processor that incorporates the most up-to-date components. Cutting-edge technologies allow the DSP X to produce similar results to other processors in the market but in a simpler more cost-effective way. The advances we have made have allowed us to pass the savings on to our customers.

What's Under the Lid?

The DSP X is driven by a fast 8-bit micro-controller that controls a vast array of specialized analog and digital circuits. These include 24-bit A/D and D/A converters, analog level control circuitry, 18 x 24-bit DSPs, an Ethernet port, a trigger port, two RS232 ports, 200 LEDS (metering), an LCD screen, two sample rate convertors, a headphone jack and memory devices to hold the software and firmware.

The Processing Architecture!

After input selection the 24-bit digital audio signal is passed through a wideband AGC processing block to normalize input levels. The output of the AGC feeds the EQ and audio shaping sections before being split into four bands by linear phase time aligned filters. The four bands are processed by a further four AGCs before being fed to dynamic audio limiters on each band. Look-ahead limiting and distortion-cancelling clipping ensure your signal is kept to a strict maximum while maintaining crystal-clear sound. A supersonic sample rate DSP stereo encoder provides MPX generation with fantastic stereo separation.

The easy-to-use front-panel control system and LED metering display afford the user with ease of use and setup.

Comprehensive control of every processing parameter is available to the user both from the front panel and by remote (computer) control.

At a fraction of the size, weight and price of its rivals, the DSP X is a clear winner.

Dynamic, fresh & innovative... The DSP X

BW opinion: We are so confident that you will love this processor that BW is offering 100% money back if you are not entirely satisfied. Contact BW sales for more info.

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Fax: +44-208-540-9994
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PRODUCT PREVIEW

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Comrex to 'STAC' Up at NAB

Comrex STAC12

At NAB2004, Comrex introduces STAC, the Studio Telephone Access Console for the new millennium. Callers have always been essential to live broadcast, and STAC introduces new features, flexibility and power, with more control over telephone audio than ever before. STAC is available in two models, accommodating 6 (STAC6) or 12 (STAC12) telephone lines. Each system consists of the mainframe controller with dual high-performance digital hybrids, one control surface and STAC IP, software to control STAC from any web browser.

Innovative Features

STAC's new, innovative features reflect extensive research and station visits to determine what studios want and need in a telephone system. STAC includes the labor-saving Auto Attendant, which can automatically answer incoming calls and play a pre-recorded message, a real plus for overworked producers and call screeners. When on duty, Auto Attendant answers each call and can play a recorded message before placing the caller on hold.

The control surface is designed for easy operation. Its bicolor LEDs and intuitive controls are simple to learn for fast-paced show production. In addition, STAC's integrated server permits IP-based operation from anywhere using a standard Web browser. No proprietary software or hardware is needed.

STAC includes several additional features for powerful operation:

- Busy All function to clear all unlocked lines.
- Control surface headset jacks for hands-free screener operation.
- Optional caller ducking to keep the host in control of the show.
- Two phone lines can be assigned to VIP mode, removing them from the primary rotation and Auto Attendant.

Flexibility

STAC can accommodate up to four control surfaces, easily linked to the mainframe via standard Cat-5 cabling. Each control surface can be configured for one of two modes, each with unique functionality, by simply flipping a switch. Studio/Producer mode offers pre-air and on-air caller management, while Screener mode simplifies the task of screening and queuing callers.

The STAC mainframe also acts as a server for IP-based call screening and control. STAC IP can be accessed from any Web browser, allowing screeners to share caller information and chat with other personnel. With STAC IP, talent can host shows and even control calls from any location with an Internet connection. No additional software or hardware is required.

STAC6 units can easily be field-upgraded to STAC12 units. The expansion kit, with a control surface sidecar and mainframe line card, adds six additional lines of capacity in minutes.

STAC will be on display at the Comrex booth (N2722) at NAB.

Comrex STAC6

About Comrex

Comrex, an innovator in communications and telephony technologies for over 40 years, provides reliable solutions to meet the demands of live broadcast. Thousands of radio and TV stations trust the quality of our products every day for news, sports and entertainment audio. Headquartered near Boston, Massachusetts, Comrex products are offered and supported by a worldwide network of dealers.

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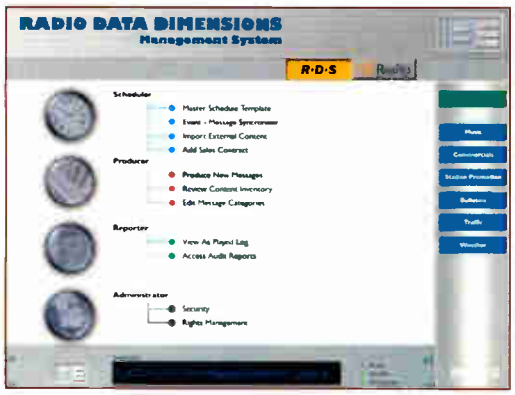
Broadcast Electronics: HD Radio. Guaranteed.



Broadcast Electronics Radio Data Dimensions screenshot

A radio station is more than the sum of its parts. Improved integration among the mission-critical, high-value equipment in your facilities results in greater reliability, lower maintenance and increased productivity.

AT NAB 2004, Broadcast Electronics introduces Total Radio Program and Data Integration™ (TRPDi). With TRPDi, your analog broadcast, HD Radio® and Internet streaming requirements are fulfilled with fewer, more powerful operational components. Content and data management is seamless. Equipment from any manufacturer benefits from TRPDi, with the greatest advantages achieved using BE technology.

Your plant consists of four equipment clusters:

- Program generation and audio management
- Data management
- Program and data transport
- Transmission

For program generation and audio management, the latest version of BE's AudioVAULT provides individualized user interfaces, is optimized for operational efficiency and is designed for elegant management of program-associated data (PAD). AudioVAULT is ready now for HD Radio secondary audio services.

Data management must accommodate the disparate requirements of Radio Data Services (RDS) for analog FM, Advanced Application Services (AAS) for HD Radio and Internet streaming clients. BE's Radio Data Dimensions simplifies the use of PAD to feed your branding, program information and text messages with traffic, weather or even gas prices from third-party providers. It also streamlines importing AAS data, including secondary audio service, into your HD Radio stream.

The XPi10 studio HD Radio signal generator addresses the additional demands on your "bit-budget" that are a consequence of HD Radio's revenue-creating opportunities. By generating the more compact HD Radio signal at the studio, rather than at the transmitter, the XPi10 reduces STL bandwidth requirements and thus can reduce the amount of equipment replaced during migration to HD Radio.

Existing wireless and terrestrial studio-to-transmitter links (STL) will remain an appropriate program and data transport choice for many. Collocation and other factors, however, demand more efficient solutions with greater bandwidth. Big Pipe, with its scalable, bidirectional capabilities up to a whopping 45 Mb/s, interchanges uncompressed analog and digital audio, HD Radio data, Ethernet, serial data and telephony via a wireless or wireline path. Big Pipe is designed for both STL and for studio facility interconnect applications.

Broadcast Electronics XPi10

BE continues to lead the industry in FM and AM transmission technology. Every transmitter currently sold by BE is HD Radio-capable, so you can buy confidently, without the risks of rapid obsolescence or unpredictable expenses. Our HD Radio Guarantee, available on request, puts it in writing: When you buy a BE transmitter, we will provide a firm quotation of your BE HD Radio equipment for up to three years from the date of your purchase.

TRPDi was developed for the realities of radio, including tight budgets. Come see us at booth N1902 and let us show you all of its advantages.

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bdcast@bdcast.com

www.bdcast.com

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PRODUCT PREVIEW

World Radio History

AudioVAULT:

Because you wouldn't drink from the other guy's mug.

[illegible] because you sit in the [illegible] mean you have to work on the same screen as the other talent. Whether you [illegible] need left or right brained, the latest AudioVAULT [illegible] lets you [illegible] tches your workstyle. AudioVAULT enhances automation [illegible] a second generation CD ripper, true IP networking, enhanced quick-start [illegible] benefits including RDS and HD Radio data service integration. [illegible] about stepping up to the reliability of AudioVAULT [illegible] AudioVAULT? Contact BE for upgrade details.

HD GUARANTEED Radio

Program Generation & Audio Management | Data Generation & Management | Transport | Transmission

BE

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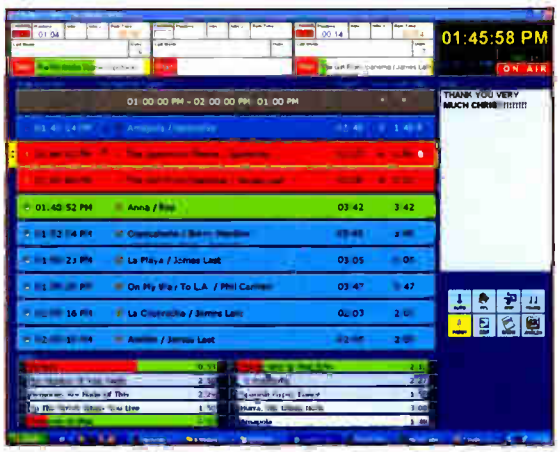
LATITUDE Edition (Powered by DigaSystem)

In today's highly competitive environment, radio broadcasters, specifically those in the small- to medium-sized category, need to find cost effective ways to manage their businesses. With the introduction of DigaSystem LATITUDE Edition, these radio broadcasters now have a robust, flexible and scalable solution to manage their audio and video content. Further, they have the latitude ('room to grow') for future expansion and connectivity to other member stations and remote offices.



D.A.V.I.D. DigaSystem LATITUDE Edition

Built by D.A.V.I.D., one of the world's leading providers of radio production and automation systems, LATITUDE Edition was designed specifically with the needs of the U.S. broadcasters in mind, providing a broad range of functionality at an affordable price. Traditional large-scale production systems, although robust, are often too complex and too cost-prohibitive to meet the needs of the mid-sized broadcasting organizations. With LATITUDE Edition, these broadcasting organizations now have the ability to leverage the expertise and technology advancements of a large-scale system at a fraction of the cost.

What Is LATITUDE Edition?

DigaSystem LATITUDE Edition is a highly-scalable networking platform designed to meet the needs of mid-sized radio broadcasters. LATITUDE Edition enables broadcasters to record, manage, edit, schedule, automate, broadcast and distribute audio content efficiently and cost-effectively.

LATITUDE Edition is delivered in a fully preconfigured package. The basic setup includes three workstations, one server and all necessary networking components. In an effort to deliver a pure "plug and broadcast" environment, LATITUDE Edition arrives with all necessary software pre-installed and leverages a standard configuration. All customers receive the same core setup and are given the ability to choose from up to 20 options to customize the solution to meet the station's unique needs. Options include additional OnAir redundancy, a variety of automated Web import and export capabilities (e.g. playlist on the Web, remote reporter), RDS support, and many others.

How It Works

LATITUDE Edition's design is based on feedback received directly from today's professional broadcasters. Its components are made up of tools needed by the vast majority of small and medium sized radio stations. As a result, LATITUDE Edition delivers the functionality that drives the greatest value to the end user.

With LATITUDE Edition, broadcasters manage all audio content from a single screen with an abundance of search capabilities, eliminating long search processes and the hassle of traditional storage methods such as carts, tapes or CDs that can be lost, stolen or misplaced. Centralized storage and drag & drop capabilities ensure quick turn around to air, and means that all staff members are editing content and sharing files and information in real time.

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New and Rebuilt Power Tubes

Broadcast Family

3CX15000E7

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Thirty-five years ago, three engineers at Eimac found that they could rebuild failed tubes that had been returned from the field after many thousands of hours of operation. They disassembled them, replaced worn parts and reprocessed the tubes like new. They found that the quality and life was excellent.

They approached management with the idea of building a business based on rebuilt tubes. Eimac, at the time, declined on the grounds that they would be competing with themselves. The three engineers disagreed, and left Eimac to form their own company, ECONCO.

Over the following years, ECONCO has built a fine reputation for quality and customer service and has become the world's largest tube rebuilder, with more than 80 employees and a modern 50,000-square-foot facility in Woodland, California.

ECONCO knows how to make quality tubes. Unlike original tube manufacturers, ECONCO performs an analysis on all tubes after failure, and therefore learns how and why they fail. And we rebuild more than 450 different tube types from several manufacturers. So we know the strengths and weaknesses of the various tube designs.

Quality

A case in point is the U.S. Navy. For many years, our customers have told us that the life of ECONCO rebuilt tubes exceeds that of the originals. However, we did not have statistical evidence to back this up.

Now we have that evidence. Long power-tube life is an important part of the cost of operating the U.S. Navy's AEGIS missile system. Accurate records are kept on the life of power tubes that are purchased new, compared to those purchased rebuilt from ECONCO.

The statistical evidence is compelling. There is now no question that our company's processing results in rebuilt tubes with much longer life than new tubes from the original manufacturer. The evidence is so striking that the Navy has twice presented ECONCO awards for excellence (the first time a power-tube company has been twice honored), stating that the life of our rebuilt tubes exceeds that of tubes purchased from the original manufacturer by a full 30 percent.

ECONCO is proud to now have this unassailable confirmation of the statements of our broadcast and industrial customers over the years. The power tube used by the Navy is the Y633, a water-cooled version of classic RF transmitting tubes, such as the 4CX10,000D and 4CX15,000A. Basic construction and design are the same, so the Navy's quality assessment results can be directly extrapolated to the tubes used in broadcast service.

New Tubes

Over time, ECONCO has developed processes for manufacturing tube parts, including anodes, cathodes, grids, etc.

With this knowledge, there was a natural progression to manufacture new tubes. Today, ECONCO makes new tube types for most of the broadcast transmitters throughout the world.

Through our history, we have worked hard to build and maintain a reputation for quality rebuilding of tubes for broadcast, industrial and government applications. Now with our new tube manufacturing, the combination of our knowledge of failure mechanisms for 450 tube types from many different tube companies contributes to ECONCO's ability to design, fabricate and process new tubes of superior quality.

Why Do ECONCO Tubes Last Longer?

Processing: ECONCO has the finest furnaces and pumps available

Cleanliness: First-Class Industrial Practices.

Time: ECONCO invests the time to process at the highest temperature for the best vacuum.

You can now obtain these newly manufactured broadcast tubes from ECONCO: 3CX2500A3, 3CX2500F3, 3CX3000A7, 3CX10,000A7, 3CX10,000E7, 3CX15,000A7, 3CX15,000E7, 4CX3500A, 4CX7500A, 4CX5000A, 4CX10,000D, 4CX15,000A, YU148.

World Radio History

ESE Time Code Products

ESE ES-242U Time Code and Frequency Distribution Amplifier

ESE introduces a line of NTP Time Displays. ESE's line of 4-digit and 6-digit NTP (Network Time Protocol) Time Displays/Clients provide a simple method of displaying accurate time information from a Time Server. Hours, Minutes and Seconds are displayed on six-digit models and Hours and Minutes are displayed on four-digit models. All setup features (IP address, time zone offset, etc.) are configured through a telnet connection, web based applet or Windows software.

NTP Time Displays/Clients are available with LED displays measuring .56 inches, 1 inch, 2.3 inches and 4 inches in height. Enclosure styles include Desk Top, Console Mount (option "Q"), Rack Mount (option "P") and Wall Mount (option "Wall" is standard on certain units).

Products are now available and ready to ship.

PCI Time Code Interface

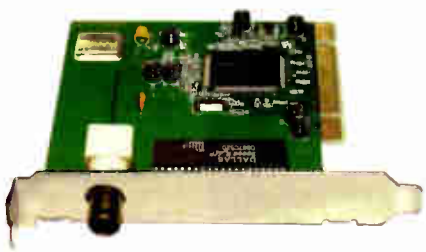
ESE introduces the PC-471PCI, a time code interface card for PC-compatible computers. The PCI card receives SMPTE, EBU or ESE Time Code, and using the supplied software will automatically synchronize the PCs internal time-of-day clock.

The time code input is provided via a rear-mounted BNC connector. Included is a Windows software application, which allows Time Code selection (SMPTE, EBU or ESE), Time Zone offset, Time Frequency update, Date format, and multiple card selection.

PC-471PCI is now available and ready to ship.

Time Code & Frequency Distribution Amplifier

ESE introduces the ES-242U, a 2 x 12 Time Code and Frequency Distribution Amplifier with an Automatic Switchover feature. It is designed to provide a simple/automatic method for switching between a Primary Source and a Secondary Source. The unit receives time code (AM or TTL) or a frequency reference (100 Hz to 100 kHz) from two different sources (A & B) and if a fault is



ESE PC-471PCI time code card

detected from the Primary Source (A), the ES-242U automatically switches to the Back-Up Source (B). Front-panel-mounted LEDs indicate status and a toggle switch allows manual switching between inputs A and B.

The ES-242U also includes an internal audible alarm and an external relay contact closure that can be used to alert the users when an error is detected from the primary source causing the unit to switch to the "Back-Up" source. A front-panel locking toggle switch allows the audible alarm to be deactivated and a front-panel "Alarm Reset" push button allows the user to reset the relay closure and the input source back to the primary input when the error has been corrected.

The ES-242U is now available and ready to ship.

For additional information please contact ESE or Monica Trotter / Marketing @ 310-322-2136 or see us on the Web at www.ese-web.com.

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Booth #C2522

PRODUCT PREVIEW

World Radio History

Henry Engineering Debuts StudioDrive PC Studio System

Henry Engineering StudioDrive

This compact PC mixer makes a soundcard into a complete studio.

Henry Engineering is proud to announce StudioDrive, an audio mixer that mounts in the drive-bay area of any PC. StudioDrive interfaces with the PC soundcard to create a self-contained studio that is ideal for live broadcasting and audio production tasks.

StudioDrive is the "missing link" between the PC soundcard and a real-world broadcast or production studio. Although software can easily handle the tasks of audio recording, editing and playback, other console functions are needed for live broadcasting or producing a spot.

You need a mic for the announcer. You need speakers and headphones to monitor the audio. You need the speakers to be *off* when the mic is *on*. You need *On The Air* warning lights to come on when you're live. Perhaps you need to record an actuality from a phone line, or use a telephone hybrid.

A PC-based studio doesn't need a large mixing console, because with PC editing, you do the mixing in the PC. You just need a way to get a mic and a few other sources into the soundcard, control the levels and accurately monitor what's going on.

That's what StudioDrive does. It adds the control, mixing and monitoring functions of a broadcast console to your soundcard, creating an integrated studio in your PC.

StudioDrive is a 6-input stereo mixer. It has inputs for a mic, four line-level sources and a built-in telephone coupler. There are two stereo outputs. The Program output is for live broadcasting. The Record output goes to the soundcard.

StudioDrive can be used "live," using the PC (and other sources) for music, spots, etc. It's ideal for use with PC-based radio automation, since the only live source needed is usually the mic. Like a broadcast console, when the mic is on, the Monitor system mutes. There's a Mic Tally output to control *On The Air* warning lights. The mic can even be remotely controlled, e.g. with a "cough switch." And like a real broadcast console, the Monitor system has an AIR input, so you can monitor the station's off-air signal.

StudioDrive can also be used for PC production tasks. StudioDrive provides an efficient way to feed audio sources into the PC for recording or editing. In this mode, you listen to the *output of the soundcard* on the Monitor system, so you can hear the effects of mixing and editing on the PC. You can use the built-in telephone coupler to record a tag line for a spot or an actuality for a news broadcast. There's even a convenient input jack on the front panel, for last-minute transfers from a MiniDisc or cassette.

The StudioDrive at home

StudioDrive can be mounted in the PC, or desk-mounted for use with a laptop computer. It makes a soundcard into a complete studio with minimal space or expense.

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World Radio History

AutoHybrid Telephone Audio Interface

JK Audio introduces AutoHybrid, a simple, passive, auto-answer/disconnect telephone line hybrid. This low-cost telephone interface allows simultaneous send and receive audio through analog telephone lines. Not just another half-duplex auto-coupler, this is a full-duplex AutoHybrid. Perfect for remote monitoring, IFB feeds and many simple studio, conferencing and PA telephone interface applications.

Four JK Audio RA4 AutoHybrids mounted

Yes, you can send and receive audio at the same time. The dual transformer hybrid is capable of 20 dB nominal trans-hybrid loss. In other words, your transmit signal will appear mixed with the receive signal, but at a level 20 dB lower than it was sent into the phone line.

The "Auto" feature is very simple. When the "Auto" switch is selected, AutoHybrid will answer on the first ring. The phone line will remain off-hook, or seized, until either the Drop button is depressed or the phone company releases the line. AutoHybrid will drop the line with either a momentary loss of line current or a polarity reversal. Keep in mind that it may take several seconds before the phone company provides this release signal. Also keep in mind that some business PBX telephone systems do not provide this release signal.

Yes, this is a very simple product, but it is simple done right. With solid state relays and gold-plated switch and connector contacts, this is a serious audio tool designed for years of service. AutoHybrid, like all JK Audio products, carries a two-year limited warranty.

- Full-Duplex Hybrid
- Auto-Answer/Disconnect
- Passive design – No Power Required!
- Balanced XLR send jack
- Balanced XLR receive jack
- Remote control screw terminal block
- Tough aluminum design

RA4 Rack Mount Adapter

The RA4 holds four AutoHybrids in a 1U rack space. That's four hybrids in a 1U space, or stack two RA4s to get eight hybrids in a 2U rack space… we're talking dense! What will you do with your extra rack space?

RA4 includes three removable blank covers.

Behind the RA4

JK Audio

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PRODUCT PREVIEW

World Radio History

New Services From RCS

AirCheck™
The New Broadcast Monitoring

Throughout 2004, RCS celebrates our 25th Anniversary of Selector® Music Scheduling. Thanks to our thousands of radio friends and customers, RCS now has many products and services worldwide.

This year RCS is proud to offer two ground-shaking new services.

AirCheck: The New Broadcast Monitoring Service

Commercials and songs on the top-rated radio stations in America's top 20 markets are now being continuously monitored by AirCheck, an audio identification service monitoring stations 24/7/365 and providing same-day, online reports.

"In the past, radio spot and song tracking was tedious and expensive," says Philippe Generali, President of RCS and its subsidiary, AirCheck, LLC. "Now, to check airplay of a McDonalds ad campaign or the latest Beyoncé song," he continues, "you find out in seconds. With AirCheck you learn whether the correct spots ran, and when each played."

With AirCheck, stations can...

- See client spots on competing stations
- Generate a list of accounts NOT buying your station
- Show when clients' spots were broadcast
- Decide which buys could be bigger

In January, AirCheck reached an agreement with Jones Media America to be the exclusive national ad sales rep for their barter inventory on stations using AirCheck.

To learn more, visit *www.aircheck.net*.

RCS Mobile: Connect With Your Audience ... Instantly

Text messaging data to and from your audience can be integrated into live programming, contests, games, surveys, requests, dedications and any other interactivity you can imagine.

Besides instant interactivity RCS Mobile services provide:

- Instant song title/artist info from ANY automation system
- Artist, weather and traffic alerts
- Analyze real-time responses to new music added
- Deliver mobile coupons (bar codes) to listeners for sponsor promotions
- Store every comment from every caller
- Manage your direct-marketing listener database

Customized text replies can match the station daypart, branding and style. Results are viewable in real-time and displayed as easy-to-read lists, charts and graphs and direct on-air use if desired.

RCS mobile™

Instead of costing you money, these unique high-tech services from RCS Mobile create a new revenue stream for your station.

Tools from RCS Mobile integrate with other RCS products including Selector® music scheduling and Master Control™ studio automation.

To learn more, visit *www.rcsmobile.com*.

RCS®
25th Anniversary

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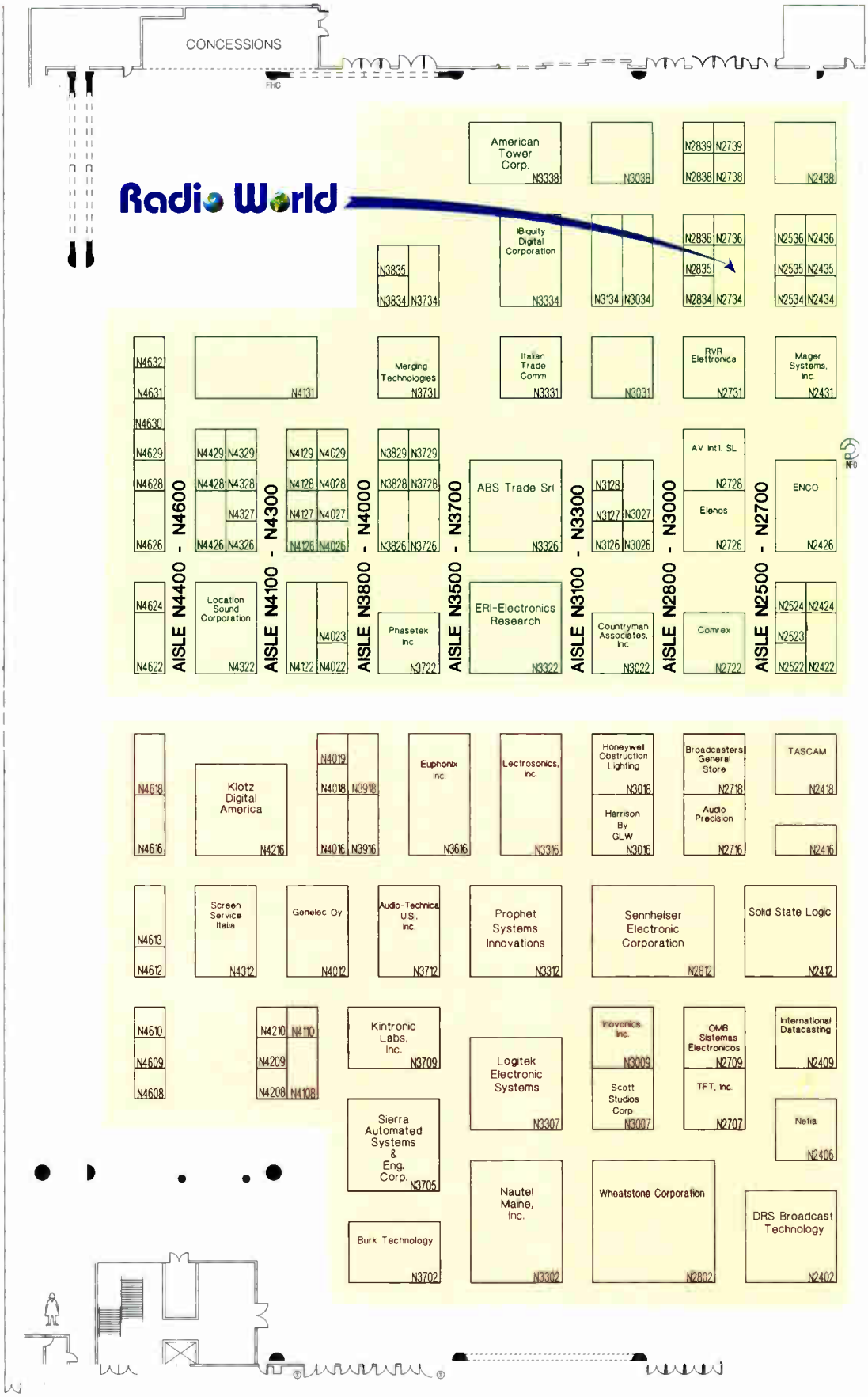
PRODUCT PREVIEW

World Radio History

FLOOR MAP



World Radio History

NAB

THE WORLD'S LARGEST ELECTRONIC MEDIA SHOW

April 17–22, 2004 · Las Vegas, NV

NORTH HALL

World Radio History

New DAB/HD Radio Processsors

Omnia
A Telos Company

Omnia once again raises the standards of audio processing for FM and AM with processors designed to meet the needs of today's broadcasters and unlock the full potential of digital radio.

Omnia-6EX HD+FM - ready for conventional and DAB/HD Radio broadcasts, the unique parallel processing structure provides simultaneous processing for both analog and digital FM. The conventional FM section receives distortion-controlled final limiting with pre-emphasis, and has an upper-frequency response of 15 kHz; the DAB/HD Radio section features a pioneering multi-band Look-Ahead final limiter and user-selectable frequency response all the way up to the full audio bandwidth of 20 kHz – something other "HD" processors can't provide.

Omnia-5EX HD+AM - the first processor to offer simultaneous processing of conventional AM/MW and HD Radio/DRM broadcasts. The Omnia-5EX HD+AM helps AM broadcasters overcome bandwidth limitations and break free from pale, flavorless audio. Unique dual processing structure routes audio from the multiband mixer section to separate, simultaneous output stages for analog and digital transmission. The HD Radio/DRM section features Omnia's program-adaptive Look-Ahead limiter, plus adjustable low-pass filtering and high-shelf EQ for clean, dynamic AM audio.

Omnia-5EX HD+FM - a new parallel-output DAB/HD Radio-ready audio processor for FM broadcasters. Omnia-5EX HD+AM gives broadcasters legendary Omnia punch and sonic clarity, with two bands of Automatic Gain Control, wideband AGC and a five-band limiter. Like its big brother, the Omnia-6EX, its FM section receives distortion-controlled final limiting with pre-emphasis plus an upper-frequency response of 15 kHz. The DAB/HD Radio section features exclusive program-adaptive Look-Ahead limiter and user-selectable frequency response up to 20 kHz.

AXIA

AXIA
A TELOS COMPANY

Q: "How many engineers does it take to build a new studio? "

A: Only One.

Meet Axia, the brand-new division of Telos. Axia specializes in networked professional IP-Audio products including routing switchers, PC sound card eliminators, mixing console control surfaces and processing engines. Primary markets for Axia products are radio and television broadcast, but many of the products are equally suited to applications in sound reinforcement, production and installed/commercial sound.

Enjoy the benefits of networking. The enabling technology employed across the entire Axia product line is Livewire, a patent-pending protocol and methodology delivering high-reliability, low-latency uncompressed PCM audio over standard Ethernet hardware. Livewire makes it possible to use Ethernet switches to deliver audio, control and program-associated-data over the same network – with guaranteed quality of service (QoS).

Axia offers easy-to-use Livewire adapter terminals to connect to standard studio audio sources and destinations. Separate multi-signal terminals are available for microphone, analog line, AES/EBU audio and Router Selector with integrated audio I/O. This single-RU device includes built-in power supply, balanced inputs/outputs and professional-grade specifications. Microphones, analog lines and AES/EBU signals are converted into networked signals to be mixed, enhanced, routed and shared throughout a studio or entire facility.

Have the benefits of an expensive cross-point routing switcher without the cost!

Axia's switched Ethernet backbone provides "grow-as-you-go" expansion possibilities. A 100Base-T link can carry hundreds of simultaneous digital audio signals... Gigabit fiber link can carry thousands.

Livewire components are scalable. Connect one pair of devices, or as sophisticated infrastructure for an audio plant with thousands of signals. Multiple studios can be linked using Livewire, and all audio sources are available throughout the entire plant.

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PRODUCT PREVIEW

World Radio History

Expecting a little more from your AM processing?

The new Omnia-5EX HD+AM has enhanced processing for standard AM, and a second limiter section and digital output for HD Radio. Both limiters and outputs are included as standard.

Omnia
A Telos Company
omniaaudio.com

World Radio History

The SAS Connected Digital Network™
Rubicon™ • 32KD • RIOLink™

At NAB 2003, the introduction of the SAS Connected Digital Network and its Rubicon Radio Console Control Surface garnered the first-ever win of all three awards for innovative new products — Radio World Cool Stuff, Radio Pick Hits and the NAB AIM.

A year later, Rubicon and the Connected Digital Network continue to lead with more than 25 installations underway, including the brand-new Clear Channel Las Vegas consolidated facility.

Users and Engineers Both Love Rubicon

For the board op, Rubicon strikes the ideal balance between ease-of-use and utmost power. Frequently used controls are always right at hand, while the SAS multi-function "dynamic control matrix" provides quick access to deeper capabilities.

For the engineer, Rubicon is highly configurable and programmable — easily, by you, at your station — to meet a wide range of applications.

Oh, and did we mention Rubicon's drop-dead gorgeous styling?

Redundancy and Reliability Keep You On The Air

It's the design concept integral to the fabric of the Connected Digital Network architecture. Any failure will take out only the small section that it serves.

Audio in 32KD is split into multiple TDM buses, each handling only 32 channels of audio. A disturbance on one bus only affects that small group of channels. 32KD does not use a "DSP farm." Instead, the DSPs are on each output card to handle routing, mixing and effects for those outputs only.

Two separate control, clock busses, and a redundant control module multiply the level of reliability. Completely hot-swappable architecture tops it off — remove and plug-in a new module and the Connected Digital Network doesn't miss a beat.

New at NAB

Console Control Module: Provides show save and recall of the console's input assignments, bus assignments and send settings. It also includes meter source select and timer control.

Remote Control Module: Programmable control module for any function, such as tape machine-style control, EAS activation or anything else that can be triggered by GPO or an SAS automation event.

Studio Monitor Module: Provides full monitor control for a studio or news booth, including source select and talkback.

Return Module: Two control input channels on one module for effects or other returns.

More powerful RIOLink: The popular Remote I/O interface is now upgraded with built-in routing and mixing, offering the smaller facility the ability to use Rubicon in a stand-alone configuration. Additionally, when used in a 32KD Network, RIOLink will provide local mixing and outputs in stand-alone mode in the event the control room gets disconnected from the terminal room.

SAS

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PRODUCT PREVIEW

World Radio History

Prevent Downtime With STABILINE

Superior Electric PT1 series

The preferred choice of broadcasters worldwide, from the name you trust in power protection

Lightning strikes, line disturbances and uneven loads cause disabling transients, spikes, sags and surges. Left unregulated, these conditions will degrade - even destroy - sensitive broadcast electronics in receiving stations, studios, mobile production vehicles and transmitter sites.

Avoid catastrophic equipment failure, software damage, reduced power tube life and poor signal quality with STABILINE TVSS Surge Suppressors and True On-Line Uninterruptible Power Supplies.

Your best defense against transients, voltage sags and surges, and brownout-blackout problems.

PT1 Series – Transient Voltage Surge Suppressors, Parallel-connected Design

Models deliver worry-free performance with an innovative and proven technology design. The tested single-pulse surge current capacity (per mode) meets NEMA recommendations. Sand-packed MOV arrays equally share current to suppress transients before they reach sensitive loads while capacitors filter out high-frequency noise and low-level transients. The PT1 Series is designed and tested to withstand surge currents in accordance with ANSI/IEEE recommendations. They respond immediately and reliably to repeated high-current lightning incidents and other transient voltage surges. The NEMA 4X fiber-glass-reinforced polyester (FRP) housing features a nonremovable cover. LEDs for all phases illuminate to clearly indicate protection is active.

SEG Series – True On-Line Uninterruptible Power Supplies

True regenerative On-Line design provides the highest level of protection against a broader spectrum of power problems. This is accomplished through converting the incoming AC utility voltage to a regulated DC voltage. From this DC voltage, a new AC voltage is regenerated, providing a clean, tightly regulated power source to your equipment. This solid-state generation function sets the true regenerative On-Line UPS apart from all other line-interactive and off-line designs. If your equipment operation is mission-critical, you need the STABILINE SEG Series!!

Superior Electric SEG series

All SEG Series models support the addition of optional EBBs (Extended Battery Banks). Whether your application requires a few additional minutes or hours, the SEG Series is ready. With the addition of an external input transformer, models can be configured for use as international voltage and frequency converters. This makes the SEG Series UPS and ideal choice for worldwide power applications.

Your best defense against transients, voltage sags and surges and blackout problems.

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World Radio History

Protecting Your Investment

Staco Energy Products UniStar Sx Family

When an instant of bad power can mean hours of lost revenue, you need an expert in power quality that understands the special needs of the broadcast industry. Broadcasters have one source of expertise when it comes to power quality issues – Staco Energy Products Co.

As studios and tech centers become more IT-oriented, Staco Energy Products Co. has the know-how and experience with products and services that broadcasters need, whether it be a facility-wide UPS, protection for one piece of equipment, mobile truck regulation and protection or a transmitter site voltage regulator that can handle the crowbar and stringent regulation requirements demanded by broadcast facilities. Your one-stop shop is Staco Energy Products Co.

For the 2004 NAB Show, Staco Energy is featuring two products that can provide power protection at the highest levels, for transmitters or studios: The FirstLine Conditioning Power System (CPS) and the UniStar Sx UPS.

Transmitter Protection

The FirstLine CPS gives cost-effective protection against everything except complete blackouts. It is designed for use in broadcast transmitters, to protect them from damage by poor power quality. It saves money by extending the life of the equipment and keeps operations up and running through unstable power situations. It is unique because it can provide a high level of protection for equipment where traditional UPS cannot be used because of environmental or cost considerations.

The initial cost of a FirstLine CPS can be as little as half that of a typical large UPS system, and provides equal or better protection against everything except complete blackouts. The cost savings continue throughout the life of the unit, with lower annual maintenance costs and no battery replacement costs. Yet the FirstLine offers tight voltage regulation and power conditioning, extremely low maintenance costs, quick response times and easier maintenance.

Studio/Tech Center Protection

The UniStar Sx protects against all power quality problems, including blackouts. It is a unique product designed to overcome the shortcomings of other UPS technologies. This state-of-the-art UPS generates clean power specifically designed for today's power loads. The feature-rich UniStar Sx is available in a tower or rack-mount for installation flexibility. It has hot-swappable batteries, and an advanced battery management system that can extend the life of the batteries two to three

Staco Energy Products FirstLine

years longer than other technologies. It has all the advantages and none of the disadvantages of competitive technologies. It is small and lightweight, has a low cost of ownership, and provides powerful protection against voltage frequency fluctuations, harmonics, electrical noise, brownouts and blackouts.

For over 10 years, Staco Energy Products Co. has been the number one choice for DTV transmitter sites, and for good reason. They have been in the power quality and voltage control business for over 65 years. They offer the longest standard warranties available, and they have outstanding service and support, both before and after the sale.

PRODUCT PREVIEW

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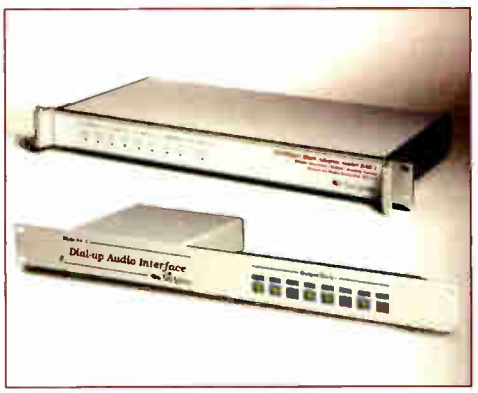
Booth #C1211

World Radio History

RFC-1/B: Full-Featured Remote Control

Sine Systems' RFC-1/B Remote Facilities Controller is an affordable, full-featured transmitter remote control system that can be accessed through a standard telephone or wireless phone.

Readings and alert information are reported with a human-sounding voice. The basic system consists of an RFC-1/B and at least one RP-8 Relay Panel that provides eight channels of telemetry and raise/lower control. Up to eight relay panels can be connected for a maximum of 64 channels.



All telemetry inputs can be used to indicate on/off status to deliver analog readings complete with decimal point and unit word. Any eight channels can be programmed with alarms to alert station personnel of an out-of-tolerance condition or to take corrective action. Up to six telephone numbers can be called when an alarm situation occurs.

The RFC-1/B can be programmed to perform power/pattern changes and take readings automatically. Depending on the system configuration, up to 80 timed events can be stored in memory so a full year of pattern changes can be programmed in advance. Programming adjustments can be made on-site or from a remote location by calling into the system.

The RFC-1/B installs completely at the transmitter site and requires a single telephone line that may be shared with other devices. For rack installation, the RFC-1/B requires a single rack space (1RU) and each RP-8 requires two rack spaces (2RU).

Telemetry inputs require a minimum of 1 VDC to achieve a full-scale reading. Maximum input voltage is 10 VDC. Nominal telemetry input voltage is 5 VDC. Telemetry inputs are floating and will accept inputs that are offset from ground.

Optional accessories

- SP-8 Surge Protector suppresses electrical surges on the telephone line and eight telemetry inputs.
- ACM-2 AC Current Monitor allows the RFC-1/B to monitor AC current sources such as tower lights.
- AFS-3 Audio Failsafe is an audio silence sensor that interfaces easily to the RP-8.
- DCA-1 DC Amplifier boosts telemetry signals that are too small to measure reliably.
- MA-2 Modem Adapter provides a modem interfaces for logging readings by computer.
- PA-1 Parallel Printer Adapter provides a parallel printer interface for logging readings to a printer.
- RAK-1 Intelligent Rack Adapter combines modem, parallel printer interface and battery backup in a single rack space chassis.
- TS-1 Temperature Sensor measures air temperature.

Sine Systems' Demo Transmitter Site provides an interactive demonstration of an actual RFC-1/B connected to a simulated transmitter site. Prospective customers can call to evaluate the operation of the RFC-1/B. Instructions for the demo site are available from the Web site at *www.sinesystems.com*.

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VISIT
Booth #N2718

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World Radio History

Zephyr Celebrates 10 Years of Success

This year marks the 10th birthday of the world's most popular broadcast codec, the Telos Zephyr. Over 10,000 Zephyr codecs have found happy homes in production studios, radio and TV stations and varying other installations. Today Zephyr is the standard for high-quality audio transmission at broadcast facilities worldwide... from California to Canberra, from Munich to Madrid, and everywhere between.

Telos Zephyr Xstream Family

Broadcasters love Zephyr Xstream for its ease of use, and because its full complement of coding algorithms – MPEG AAC, AAC Low Delay, MPEG Layer 3 and Layer 2, G.722 and revolutionary new *aacPlus* – guarantee hassle-free connections with virtually any ISDN codec for full-duplex, 20 kHz stereo audio. Three models – rack-mount, or portable (with four-channel stereo mixer or without) – mean there's a Zephyr Xstream that's just right for every application. Experts concur: no less an authority than Graham McHutcheon, BBC News' senior sound supervisor, has said that Zephyr Xstream is "the only codec really worth having for main broadcast ISDN."

Sending and receiving audio has never been easier. Zephyr is the only tool to use for sending and receiving high-quality audio around the globe.

And now Zephyr gives you even more remote choices, thanks to the popular Zephyr Xport, the latest innovation from Telos Systems

The newest member of the Zephyr family, Zephyr Xport is a feature-packed portable POTS to ISDN codec. Xport is chock full of exclusive features designed for great-sounding, reliable remote connections using analog or digital phone lines. That allows users the most flexibility possible for remote broadcast applications. Custom modem technology developed by Telos, combined with advanced *aacPlus* coding, lets Xport send 15 kHz audio over rock-solid POTS connections to your studio's Zephyr Xstream; an ISDN option gives you low-delay MPEG AAC coding for delay-free two-way remotes. Choose G.722 coding for connection to the widest range of third-party ISDN codecs. There's also a handy two-channel mixer with phantom power, making Xport the perfect "grab and go" remote tool.

Further options afford Xport the ability to connect with other third-party ISDN codecs using the G.722 coding standard. If a POTS to ISDN connection is not what you desire, an ISDN option allows your Zephyr Xport to connect over digital lines as well.

Transmitting your audio from the remote site to the studio is a cinch. Dial your Xport to transmit to the Zephyr Xstream back at home base. Zephyr Xstream allows you to connect with virtually every ISDN codec for full-duplex, 20 kHz stereo audio, and the ability to transmit and decode streaming MP3 audio over Ethernet and of course, connect with Xport in the field.

Revolutionary *aacPlus* and Low Delay MPEG AAC-LD lets you transmit Layer-3 quality audio while reducing transmission delay by up to 70 percent. The result is smooth and natural two-way audio of the highest quality. Zephyr Xstream comes equipped with built-in mixers and phantom power to assist with inventory control and set up time. A user interface - with an actual user in mind - completes the package.

For the past ten years broadcasters have been relying on the original award-winning Zephyr to make them sound "The best way to hear from there." Now, the next generation of Zephyr codecs, Xstream and Xport help broadcasters sound "the best way to hear from anywhere."

Telos

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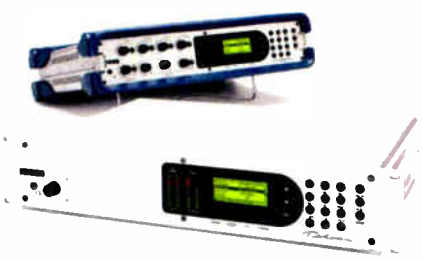
PRODUCT PREVIEW

World Radio History

It's Zephyr's 10th birthday (But you get the present).

Get two award-winning codecs – Zephyr Xstream & Zephyr Xport POTS – for just $4,995 US MSRP. Add ISDN capability (with G.722 and low delay MPEG AAC-LD coding) to your Xport for just $399 more, or...



...Upgrade to the Ultimate Remote Bundle: a rack-mount Zephyr Xstream for the studio and a portable Zephyr Xstream MXP with 4-channel DSP mixer and onboard audio processing by Omnia, for only $7,294 US MSRP.

When we first married MP3 with ISDN in 1993, we had no idea that their offspring would grow up to be the most-loved audio codec ever. But it has, and its popularity keeps growing – there are now **more than 10,000 Zephyr codecs** in radio stations and production studios around the globe.

A birthday this significant deserves a special present, so here it is: the Zephyr 10th Birthday Bundle, a complete codec package at a **once-in-a-decade price.**

You'll get the best-selling Zephyr Xstream for your studio, and the satisfaction of knowing you can make CD-quality ISDN connections to virtually anywhere using industry-standard MPEG Layer 3 or MPEG AAC coding. And for your remote kit, the award-winning Zephyr Xport with built-in two channel mixer — perfect for sponsored remotes, sporting events, interviews and live appearances. Just plug in to any POTS phone line for an *aacPlus*™ link to your Zephyr Xstream; you'll get stunning audio and rock-solid connections.

Best of all, you'll receive your Zephyr 10th Birthday Bundle for the special price of just $4,995 US MSRP – **over $1,800 in savings.** (There are more special Zephyr bundles to fit specific needs; just ask your Telos dealer.) But don't delay — this special offer is only good through ~~February, 2004~~ JUNE 30TH, 2004!

Telos
AUDIO | NETWORKS

telos-systems.com

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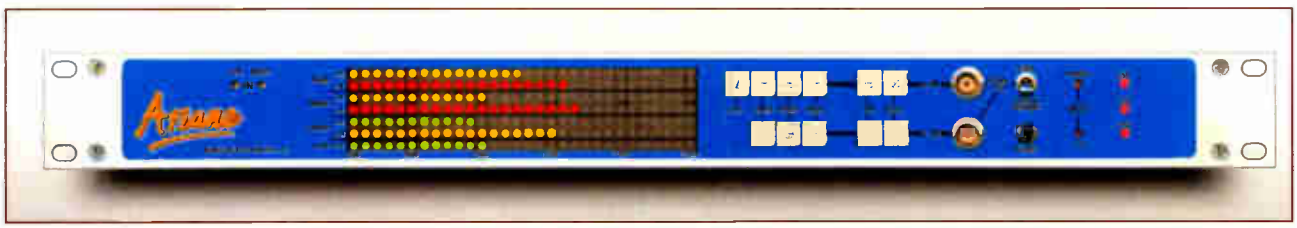
World Radio History

David Reaves Is on a Quest



TransLanTech Sound Ariane

David Reaves

Ariane

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VISIT US
Booth #N414

Color-keyed map on pages 16 & 17

PRODUCT PREVIEW

David Reaves is on a quest. The co-founder (with partner Jim Huste) of TransLanTech Sound, LLC, is out to promote the concept of, in his words, "intelligent audio processors." He will be speaking at the NAB2004 convention, Thursday morning, April 22.

"My presentation is called Sound Processing: A Time and a Place," and will focus on how to get the most competitive sound with the least amount of extraneous 'artifacts,'" he says. "Processor intelligence is becoming essential to today's broadcasting."

"The first truly 'intelligent' processor," Mr. Reaves says, "was the CBS Laboratories Audimax, in the 1960s. All previous processors worked on a continuum of attack and release above a threshold. The Audimax introduced the use of hysteresis, a 'dead band' window of unprocessed dynamics, right in the middle of the desired operating range. By turning audio up only when it's too low, turning it down when too loud, and leaving it alone when it's within useful range, the controlled sound is almost magically transparent, leaving the audio alone much of the time. It's genius. I can't understand why all processors don't work this way."

Origins

Yesterday's Audimax led to today's Ariane Stereo Audio Leveler.

"Originally the windowing release had a purely aesthetic purpose," Reaves continues. "Now we have at least two reasons intelligent processing has become a necessity. First is the advent of digital radio. You simply can't process as heavily, because encoding may accentuate sonic abnormalities. And we don't have pre-emphasis to hide all the nasty things we've been doing to audio over the years, such as clipping."

The second is even more important. Today's music is coming to radio stations already processed, sometime overtly so. "I'm not exaggerating when I say that some CDs have more processing than a lot of radio stations did 10 years ago."

Reaves warns that while the CDs may sound fine by themselves, "they can't take any additional processing without sounding dirty. An intelligent processor such as our Ariane will actually pass overly-processed sources through with almost no change."

But what about the other material that's not so processed? "The Ariane actually differentiates between sources, and adds whatever leveling is needed for a consistent, artifact-free output." Arianes are in use all over the USA and Europe with many different final processors.

At NAB

The Ariane will be on display at TransLanTech's NAB booth, N414. As an incentive to visit, David and Jim are giving away four of the new Apple mini iPods, one every day of the exhibits.

Reaves: "The mini-iPod is a really hot item, which makes it a fun thing to give away. Since this is the first year with our own booth, we figured we'd start out with a serious tchotchke to get people to come by!"

"And please give a listen to the Ariane. Really, it's not how loud you make it, it's how you make it loud."

Contact TransLanTech Sound, LLC: Jim Huste in New York at 212-222-0330, or David Reaves in Germany at +49-2361-9049-649.

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RADIO/AUDIO EXHIBITORS

Note To NAB Show Goers:

The following is a selection of exhibitors of interest to radio attendees at NAB2004. Check the on-site program for changes and the full list of convention booths.

Booths preceded by the letter N are in the North Hall of the Las Vegas Convention Center. C indicates Central Hall, SL is South Lower Hall, SU is South Upper Hall, MM is Mobile Media, MR is Meeting Room. Booths preceded by R are RTNDA booths at the Las Vegas Hilton.

360 Systems	C9606
5 Alarm Music	SU7052
A. F. Associates Inc.	C4722
A.N.T. Antenna Nord Telecomunicazioni	N4208
ABE Elettronica S.p.A.	C1432
ABS Trade srl	N3326
AccuWeather	C6034
Acoustic Systems	N4108
Acrodyne (Ai)	C3836
Active Power Inc.	C1217
ADC	C6413
Adder Technology	N2736
Adobe Systems Inc.	SL4730
Advertising Edge	N2016
AEQ	N1312
AEV	N4122
AKG Acoustics	N4018
Allen Osborne Associates Inc.	C7748
Allergy Alert	C10419
Allied Tower	C10110
Altronic Research Inc.	N1309
Ambient Recording	N3728
American Radio Relay League	Lobby 9
American Tower	N3338
Ametek Hunter Spring	C2329
Ampex Data Systems Corp.	SU12007
AMS Neve	N1612
Anchor Audio	N3027
Andrew Corp.	C5706
Anton/Bauer Inc.	C3806
Aphex Systems	N1009
Apogee Electronics	SL3458
Appliedinfo Asia	SU9980
APT Audio Processing Technology	N902
Arena-Maxtronic Inc.	SL2966
Armstrong Transmitter	N706
Arrakis Systems	N2022
Associated Press/ENPS	SL2775
AT&T	SL4740
ATA Audio	N4026
ATCi/Antenna Technology	C11222
ATS Communications	C9441
Audemat-Aztec Inc.	N1426
Audio Accessories Inc.	C2928
Audio Engineering Associates	N2436
Audio Ltd./MacArthur Group	N2118
Audio Precision	N2716
Audioarts Engineering	N2802
AudioScience	N405
Audio-Technica U.S. Inc.	N3712
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AV Internacional	N2728
Avid Technology	SL4761
AVP Mfg. & Supply Inc.	C2241
Axel Technology SRL	N2026
Azden Corp.	N4016
B&H Photo Video	SU11049
BBC Technology	SU8469
Belar Electronics Lab	N2012
Belden Electronics Division	C3351
Bext Inc.	N1202
beyerdynamic	C7604
Bird Electronic Corp.	N722
Bittree Inc.	C3355
BlackBall Inc.	SL5340
Boxx Technologies	SL1755
Broadata Communications Inc.	C3133
Broadcast Electronics Inc.	N1902
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Broadcast Microwave Svcs.	C1406
Broadcast Software International	N2534
Broadcast Software Solutions Inc.	SU7173
Broadcast Store Inc.	C2041
Broadcast Tools Inc.	N1500
Broadcast Warehouse	N1710
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Broadcasters General Store	N2718
Burk Technology	N3702
Burli Software Inc.	N3734
Burst Electronics Inc.	C7614
Calrec Audio Ltd	N1012
Channel Master	C12025
Chromatec Inc.	SL5224
Clark Wire & Cable	C10013
Clear-Com Communication Systems	C7406
Coast to Coast Tower Service Inc.	N4028
Coastal Satellite Inc.	C11046
Coaxial Dynamics	N4019
Coffey Sound	N4022
Com-Tech srl RF Filters	N1024
Comet North America	N4210
Comlab Inc.	N4610
Comprompter	C9125
Comrex	N2722
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Continental Electronics	N2402
Continental Lensa S.A.	N3134
Cooper Sound Systems Inc.	N2424
Corporate Sport	N3828
Countryman Assoc.	N3022
CP Communications	N824
CPI -Eimac Division	C2118
Crown Broadcast IREC	N712
CRT Custom Products Inc.	SL2455

BOOTH LISTINGS

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RADIO/AUDIO EXHIBITORS

CTE International N1322
D.A.V.I.D. Systems Inc. SL2477
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D&C Electronics N2524
Dalet Digital Media Systems SL3842
Dasto N1326
Davicom N4610
Dawnco Inc. C10943
DB Elettronica Tele. N2038
Decisionmark SU7248
Delco Wire & Cable SU7062
Delta Meccanica srl N2029
Delta RF Technology N602
Denon & Marantz N3026
Dialight Corp. N2834
Dielectric Communications C7806
Digidesign SL4761
Digigram N2522
Digital Juice SL4705
DK-Audio America C3843
Dolby Laboratories Inc. SU10443
Dorrough Electronics C7814
Dove Systems C1823
DPA Microphones Inc. N2536
Drake Electronics SU6776
DRS Broadcast Technology N2402
E-Z Up International C12010
Econco N1406
>> See our Product Preview, page 11<<
EDX Wireless LLC N1122
Electronica Quasar Tech Ltda. N1003
Electronics Research Inc. N3322, C5706
Electro-Voice C9106
Elenos N2726
Elettronika SRL N2031
EMR Corp. N1600
EMS Satellite Networks C12325
ENCO Systems Inc. SU6764, N2426
Encoda Systems C5617
E-N-G Mobile Systems Inc. C6444
Energy-Onix N4023
Environmental Potentials N604, C11744
ERI-Electronics Research Inc. N3322
ESE C2522
>> See our Product Preview, page 12<<
Euphonix N3616
Eventide N704
Federal Communications Commission N1031
Forecast Consoles Inc. SU11639
Genelec N4012
Gepco International Inc. C1429
Groove Addicts SL5302
Hamilton Metalcraft Inc. C2843
Hamlet Video International Ltd. C3243
Hannay Reels Inc. C10317
Harris Corp., Broadcast Communications C1906
Harrison N3016
Henry Engineering N1100
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HHB Communications N2812
Honeywell Obstruction Lighting N3018
Ibiquity Digital Corp. N3334
IBC Ibertecnica N2438
IBM SU9839
IEEE Broadcast Technology Society Lobby16
illbruck Inc./Sonex N1800
IMAS Publishing Co. N2734, SU6570
Independent Audio Inc. N1300
Industrial Acoustics Co. N3829
InnovaSON N2812
Inovonics Inc. N3009
International Association of Broadcasting Manufacturers C1400
International Datacasting Corp. N2409
Italian Trade Commission N3331
Jampro Ant. & RF Systems Inc. C2514
Jennings Technology LLC N3127
JK Audio Inc. N4616
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JLCooper Electronics SU11336
Jubilee Products N1000
Junger Audio Studiotechnik N819
Kathrein Inc., Scala Division C7817
Kathrein-Werke KG C7817A
Kay Industries N1700
KD Kanopy N4626
Kenwood Communications N1626
Kintronic Labs N3709
Klotz Digital America N4216
KLZ Innovations N724
Konan Technology Inc. SL2159
KWS-Electronic GmbH C2588
Lakesoft N2836
Larcan USA C3846
Lawo AG N716
Leader Instruments Corp C4142
Lectrosonics Inc. N3316
Lighting Eliminators C6239
Linear SRL N822
Location Sound Corp. N4322
Logitek Electronic Systems Inc. N3307
LPB Communications N2436
Mackay Communications C2023
Mackie SL5913
Mager Systems N2431
Magnum Towers N4618
Manhattan Production Music C2935
Marketron International C10310
Marshall Electronics SU11614
Marti N1902
Martinsound N2017
Mediatone Music C2245
Medical Coaches MM227
Megatrax Production Music N1327, SU7662
Merging Technologies N3731

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MGE UPS Systems	SL1869
Micro Communication Inc.	C2025
Microboards Technology LLC	SL3706
Microspace Communications	C10643
Microwave Radio Communications	C3206
Miller & Kreisel Sound	N4613
Modulation Sciences Inc.	C3943
Monitors and More	SU11739
Moseley Associates Inc.	N1907
MPEG Industry Forum	SL2152
Multidyne Video & Fiber Optic Sys.	C3151
Musicam USA	N1006
Myat	C1415
MyWeather LLC	C9617
Nagra Audio	SU10424
Narda Safety Test Solutions	C11628
National Religious Broadcasters	N1328
National Weather Service	N4426
Nautel Maine Inc.	N3302
Nemal Electronics International	C2338
Netia	N2406
Network Electronics	SU11606
Network Music	C2545
Neumann USA	N2812
Neutrik USA Inc.	C5842
New England Satellite Systems	C3132
Nicom USA	N416
NKK Switches	SU7679
Non-Stop Music Library	SU10315
Northern Technologies Inc.	C2230
Norsat Intl. Inc.	C12034
NPR Satellite Services	C11522
Octave Systems Inc.	SL3700
OMB Sistemas Electronicos	N2709
Omnia, A Telos Co.	N1416
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Omnimusic	C2151
Omnirax	C2014
OMT- iMediaTouch	N709
Onan Corp.	C3345
On-Air Systems Ltd.	SL1264
Opticomm Corp.	SU11304
Orban/CRL	N800
PatchAmp	C6140
Patriot Antenna Systems	C12039
Pesa Switching Systems Inc.	SU9530
Phasetek	N3722
Pilat Media	C10313
Pineapple Technology Inc.	N4110
Pinnacle Systems Inc.	SU10160
Pioneer Electronics (USA) Inc.	C9622
Potomac Instruments Inc.	N2119
Prime Image	C5634
Primera Technology Inc.	C8228
Pristine Systems Inc.	N1026
Production Intercom Inc.	C10307
Prodys	N2728A
Professional Sound Corp.	N3916
Promedia USA	SL1186
Propagation Systems Inc.	C1335
Prophet Systems Innovations	N3312
Quartz Electronics	SU9812
Quest Mfg.	N4608
RackFrame.com	C3842
RackSaver Inc.	SL4017
Radio Advertising Bureau	Lobby 12
Radio Design Labs	N2126
Radio Facts	N900
Radio Frequency Systems	C8617
Radio Music License Committee	N3729
Radio Systems	N2416
Radio World	N2734
Radyne ComStream	SU11300
RapidText Inc.	C12011
RCS	N1622, C6813
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RF Parts	N1022
Richardson Electronics	C1338
Riedel	C11210
Riz Transmitters	N2116
RTW GmbH & Co. KG	N719
RVR Elettronica	N3031, N2731
Rycote Microphone Windshields	N3128
Rymsa	C2025A
S.W.R.	C2922
Sabre Towers and Accessories	N1004
SADiE	SU8426
Sanken Microphones/plus24	N3918
ScheduAll	SU11611
Schoeps Microphones	N3126
Scott Studios Corp.	C2214, N3007
Screen Servica Italia	N4312
Selectracks	C2247
Sennheiser Electronic Corp.	N2812
Seratel	N1016
Shively Labs	N1606
Sierra Automated Systems	N3705
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Sine Systems	N2718
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SintecMedia	C10913
SKB Corp.	SL5618
Smart AV Pty.	N309
SMPTE	Lobby 29
Soc. of Broadcast Engineers	Lobby17
Solid State Logic	N2412
Sonic Solutions	SL4736
Sonifex Ltd.	C5236
Sony Electronics	SL2769K, SU11051
Sound Control Room.com	N4027
Sound Devices LLC	N3726
Sound Ideas	C1651
Soundcraft USA	N1018A
SRS Labs	N1502
Staco Energy Products	C1211
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Stainless Inc.	C1818

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RADIO/AUDIO EXHIBITORS

Stagetec	N2034
Studer	N1018
Superior Broadcast Products	C1930
Superior Electric	N702
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Sure Shot Transmissions	C11722
Swe-Dish Satellite Systems AB	MM108
Switchcraft Inc.	C3322
Symetrix Inc.	N1610
Systems Wireless	C2525
T.E.M. spa	N2128
Tape Guys.Com, The	7558
TASCAM	N2418
Tektronix	C7128
Telecast Fiber Systems	SU9824
Telefunken SenderSystema	N4612
Television Systems Ltd. (TSL)	SU8752
Telos Systems	N1416
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Tentel	C3942
Teracom Components	C2538
Texas Instruments	N402, SL2169
TFT Inc.	N2707
Thales Broadcast & Multimedia Inc.	C4709
Thales Components Corp.	C5406
Telex Communications	C9106
Thermo Bond Buildings	N1428
Tieline Technology	N3034
Tower Engineering Corp.	C1210
Towerline Software	N1023
Trenton Technology Inc.	SL5252
Trew Audio	N3826
TRF Production Music Libraries	C2925
TriMediaOnline.com	N1134
Trompeter	SU10621
T-Systems International GmbH	C9613
TWR Lighting Inc.	N2018
Unimar	N2129
United States Broadcast	C5446
UNITY: Journalists of Color Inc.	R718
Utility Tower Co.	2422
Valcom Limited	N1002
Valentino Music Production Library	C1652
Viaccess S.A.	SU7079
Video Equipment Rentals	SL4011
Videoquip Research Limited	C2523
Visability Solutions	N412
V-Soft Communications	N1306
Ward-Beck Systems Ltd.	C1914
Weather Central Inc.	C9617
Weather Metrics	C8925
Western Media	C2938
Wheatstone Corp.	N2802
Whirlwind	C7819
WhisperRoom Inc.	SL2172
Will-Burt Co.	C6441
WinRadio Software	N2523
Winsted Corp.	SU10640
WireCAD	C7211
Wireworks Corp.	C7113
Wohler Technologies Inc.	C6742
World Tower Co.	C2916
Walters Storyk Design Group	C2223
Xiran	SL676
Xytech Systems Corp.	C9739
Yamaha Corp. of America	N2434
Z Technology	C6840
Zaxcom Inc.	C7410
Zhongli Broadcast Technology Co. Ltd	C10440

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