

SOUND & COMMUNICATIONS

COVERING TELECOMMUNICATIONS
AND ELECTRO-ACOUSTICS

OCTOBER 1985

NEW
FEATURE
FIELD
REPORT
BENCHMARK'S SYSTEM 1000

THE BIDDING PROCESS

THE HOTEL/MOTEL MARKET
INSTALLATION PROFILE:
B.C. PLACE





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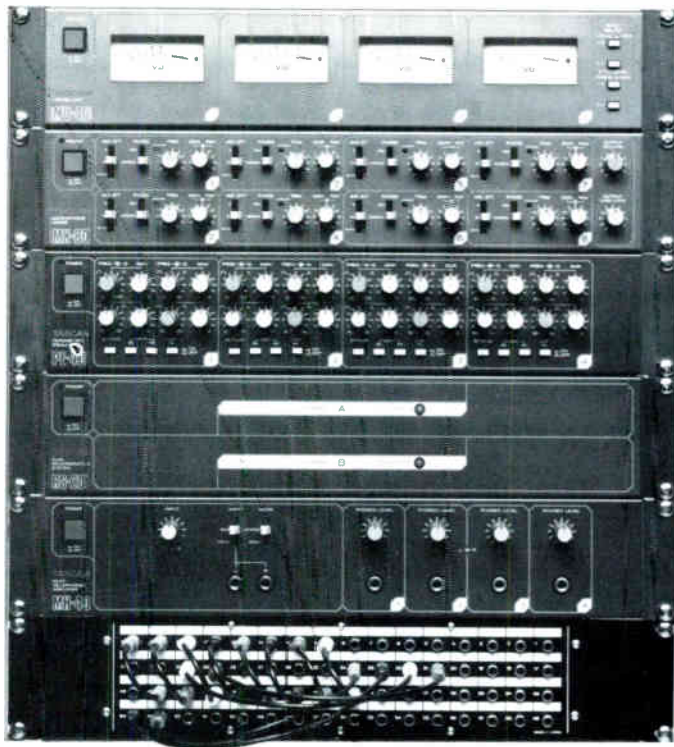
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Reader Service #215

World Radio History



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TASCAM
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Reader Service #201

SOUND & COMMUNICATIONS

OCTOBER 1985

Volume 31 #10

FEATURES

THE BIDDING PROCESS—POINTERS FOR THE PERPLEXED 14

One of the largest market segments in the sale and installation of engineered sound, telephone, and interconnect systems are the consultant-designed systems. Barry McKinnon explores this very enticing portion of the market and offers information and directions to the contractor through the labyrinth of red tape, pitfalls, and setbacks.

HOTELS & MOTELS—A SECONDARY SALES MARKET 20

Ever since the FCC ruling in 1978 which allowed telephone calls to be resold, telephone system updates and add-ons have been done in hotels and motels all over the country. *Sound & Communications* takes a look at this very lucrative market and what's in it for the telephone and interconnect contractor.

INSTALLATION PROFILE: B.C. PLACE 28

B.C. Place Stadium, which is located on the site of Canada's Expo 86, is a multipurpose sports and entertainment facility. Because of the building's construction and size, there were several factors that made the sound system requirements rather unusual.

COLUMNS

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Learning is continuous, whether it is a formal education or an informal lesson. In this month's editorial Chris Foreman shares his recent experiences with both.

SALES & MARKETING 10

Sound and communication sales representatives share their thoughts on what are the characteristics of a good sales rep.

FIELD REPORT 32

Sound & Communications reports from the field on Benchmark's System 1000, an interface product which consists of line amplifiers, mic preamps, distribution amplifiers, signal processors, and power amplifiers.

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ON THE COVER

A spec book, blueprints, a T-square, all familiar sights to the contractor preparing for a bid. This month's *Sound & Communications* offers pointers to the contractor interested in entering this sometimes perplexing market area (story, p. 14). Spec book and blueprints provided by Peter George Associates of New York. Photo by Doug Hanewinkel.

combining **SOUND MERCHANDISING & MODERN COMMUNICATIONS**

FOUNDED 1955

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Not just another microphone.

Independent testing proves the TE10 is better!

Recently, Telex engaged Dr. Eugene Patronis, Jr., professor of Physics, Georgia Institute of Technology, to test the TE10 condenser microphone against the Electro Voice BK-1, Audio Technica ATM31R and the Shure SM87. Tests were conducted with complete objectivity without the presence of any Telex personnel. It is of further interest that the competitors' microphones were purchased randomly "off the shelf", and all had Pro Net prices that were considerably higher than the Telex TE10.

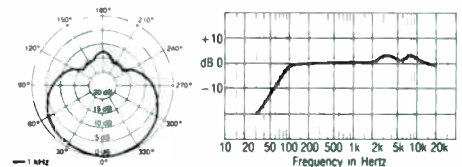
Telex ranks superior

Dr. Patronis tested the mikes by a wide variety of performance criteria and, overall, Telex ranked as a superior value. Telex fared especially well in the areas of **linearity, distortion and frequency response**. Here, Telex was either first or second in terms of performance. Put the TE10 to your own tests and you'll agree—this is a superior condenser microphone at an exceptional price.

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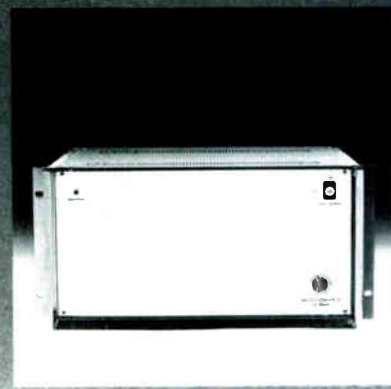
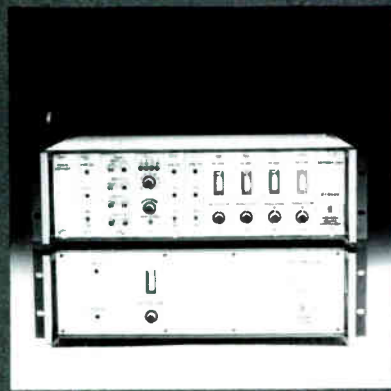
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Reader Service #225

IDEAS & VIEWPOINTS

INFORMAL AND FORMAL EDUCATION

by Chris Foreman

In this industry, as in most, education is an on-going process, whether it takes place in a classroom or in a conference room. Or, as in my case this month, whether it is in a sales meeting or at a convention seminar.

A Lesson in Sales Tactics

The lesson I learned had to do with being polite. I always have been—at least most of the time. And, in the past, when I wasn't exactly polite, it was an unplanned, and usually, an unfortunate incident. Recently, with an extremely important prospect, I was aggressively impolite—and it worked.

The situation was a prospective negotiated sale. I had made an initial visit and a written proposal. Now, the prospect had invited me to a meeting to discuss "cost cutting." I went, as prepared as I could possibly be, not knowing what to expect. The system was designed primarily around one manufacturer's equipment so I invited the territory sales rep to come along. I do that because it gives me the credibility I don't have by myself. A manufacturer always looks bigger than a contractor to a prospect.

That isn't the lesson, but it's a good thought, anyway. I know a lot of contractors who let their manufacturers' reps earn a commission without doing much, if any, work! Not me! I get my money's worth out of my reps by taking them on sales calls, making them straighten out my orders, get factory repairs done on time and so on.

Anyway, I and the sales rep arrived at the prospect's office and were immediately accused of pricing the system far beyond our initial estimates (which had been made at the first meeting). I've learned not to argue with what a prospect remembers. I know what we told him but I knew I'd never win the point. I apologized for the "bad communications." He softened.

Next, he pulled out his copy of the proposal and turned right to the page with the price quote. I never give line item pricing in a negotiated sale. It just muddies the waters and encourages nitpicking over individual pricing. This time, that policy backfired. My prospect was convinced I was hiding exorbitant pricing.

One Demerit Cancels Ten Merits

At this point, I had one merit, one demerit. That sounds like an even standoff but any salesman can tell you that one demerit cancels ten merits. I knew I was in trouble. I decided to take a chance.

"Okay Mr. Prospect," I began, "I'm gonna disillusion you."

I took him step by step through my proposal and my price quote. I explained my design philosophy. I revealed individual pricing (but only verbally). I let him ask questions but I took control and never once let him accuse me of anything. "In just a bit, here, I'll get to that," was my answer to more than one of his questions.

My strategy was two-fold: first, to be honest to the point of being frank. He needed that because he was truly suspicious that I was hiding something. I wasn't, and he realized that by the time I finished. Second, I took control of the meeting boldly and that gained his respect. By the end of the meeting that respect had turned into confidence and, on that confidence, I saved the sale.

You may not think I was particularly impolite. Yet there's a fine line between being bold and being down-right rude and I was at least at the edge of that line. All my up-bringing said to stay far to the polite side of the line. Yet, I put my foot on it and not only survived, I succeeded.

(continued on page 48)

TOA Defines "Quality"

It's not easy to do. But after 50 years of successfully dealing with concepts like system flexibility — reliability — power — and sophistication, we wound up with a proven track record of **quality**.

Our 900 Series of commercial sound and background music systems offer overload and short circuit protection. They incorporate a range of features that allow quick, clean, flexible installation and years of maintenance-free operation. TOA takes for granted the fundamentals of "good merchandise." That's because ours is **quality** merchandise.

Accordingly, TOA provides **everything** you need. Eight different Powered Mixers and Power Amps. 22 input modules with so many connector configurations, you can select from 46 module choices. Power Amps that double as integrated amplifiers. Choose your wattage — anywhere from 10 watts to 240 watts RMS. Choose your inputs — 2? 4? 6? Choose your outputs — transformer-coupled and balanced, or transformerless-direct? XLR or RCA, phone jack or terminal strip?

We give you tone signal generators. Mic Pre-Amps/Mixer Pre-Amps with bass and treble EQ controls. A dozen features that make your job faster, easier, and more profitable. Features that will acquaint your customer with quality.

You Get What You Pay For

When purchasing the quality of TOA's 900 Series, your customer acquires the very best commercial sound system that money can buy

So what does the customer get when paying for quality? Not just flexibility and outstanding specifications (0.1% THD, signal-to-noise of 108dB at max gain, 20-20kHz frequency response), but characteristics that cannot be measured in numbers: warmth, clarity, transparency and definition.

You need more than specifications to define **quality**.

You need TOA.

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Reader Service #245
World Radio History

S.U.N.Y. ALBANY ESTABLISHES TELECOMMUNICATIONS MANAGEMENT PROGRAM

The State University of New York at Albany's new Center for The Study of Telecommunication has instituted a Telecommunications Management Program to meet the needs of telecommunications managers and analysts in both the public and private sectors. The new center is a consortium of SUNY campuses in the Albany region, including six community colleges, Empire State College, and SUNY at Albany, with cooperation of SUNY College at New Paltz and the College of Technology at Utica-Rome. The center will examine such subjects as the impact of telecommunications on organization and on the management of information; development and uses of telecommunications systems in educational, business and public settings; the formulation of social and public policy affecting telecommunications and resulting changes in the socio-economic systems.

AUDIO ENVIRONMENTS & ROCKAMERICA TO DISTRIBUTE VIDEO PROGRAMMING

Audio Environments, Inc. and Rockamerica, a video subscription pool, have signed a pact to produce and distribute specialized video music programming to fashion outlets, restaurant chains, airlines, athletic clubs, tanning centers, and other retail locations, much the way AEI distributes foreground music to 17,000 clients. Rockamerica will produce the video programs, while AEI will provide the necessary hardware and consultation on how to best use it in the sales environment. Rockamerica president Ed Steinberg said: "This agreement expands the number of places where music videos can now be seen to include a whole new segment of the marketplace." AEI president Michael J. Malone said: "Our customers can now fill all their audio and video needs through AEI. We feel AEI's accounts offer huge market potential for rock video."

TIE ANNOUNCES KEY SYSTEM PHONE FOR SMALL BUSINESSES AND HOME USE

TIE/Communications, Inc. has unveiled a key-system telephone for small businesses or homes with up to two lines and eight stations, requiring no key service unit or power supply. The unit, called the Venture for businesses or Homebase for home installation, plugs into a standard telephone jack, according to a company release. The system, to be marketed through interconnects, supply houses, and independent phone companies was designed to address the very low end of the key market, according to president Thomas L. Kelley, who introduced a larger 3/8 and 5/16 systems in 1978 finding huge acceptance despite widespread industry skepticism.

ICIA STUDY SITES ARTIFICIAL INTELLIGENCE AS MAJOR GROWING MARKET

A recent market study by the International Communications Industries Association (ICIA) reports that Artificial Intelligence-enhanced software will create hundreds of special products and applications, with AI growth reaching \$2.8 billion over the next five years. There are currently more than 200 companies involved with AI—40 percent more than last year. Howard K. Dicken, president of DM Data, which conducted the research, said "Unlike most of the computer industry, systems that can think seem to be doing just fine."

In the next five years, AI improvements could have the same level of impact on software that spreadsheets or word processors have already had." For a copy, contact: ICIA 3150 Spring St., Fairfax, VA 22031-2399; (703)273-7200

TECHNOLOGY EXPANDS AES CONVENTION TO FIVE DAYS, OCT. 12-16

The tremendous growth of audio technology had made it essential to expand the 79th Audio Engineering Society Convention in New York's Hilton Hotel to five days, according to executive director Donald Plunkett. A day of technical papers was added in order to have time to discuss many technical research papers, particularly heavy in the area of sound reinforcement, among others. Manufacturers indicate that a good deal of product innovation will be unveiled at the exhibitor area. The entire Sound & Communications editorial staff will be on-hand to cover this event.

CROWN BYPASSES AES TO CONCENTRATE ON NSCA/CONTRACTOR'S MARKET

Indicative of the growth of the contracting market, Crown International a company which has regularly exhibited at the Audio Engineering Society Convention for the past 15 years, has opted not to participate in this year's exhibition, but will participate with the NSCA/ERA Electronic Sound & Systems Conferences throughout the fall. Marketing manager Charles Gushwa said, "Growth has opened up new product and market options for us. But with more resources at our disposal, we've found that we need to be even more critical of the way we use those resources." Crown, still a sustaining member of the AES, will send a contingent to attend the convention, particularly for the technical papers, but will keep its emphasis at home with R&D he said.

YAMAHA INTERNATIONAL CORP. OPENS NEW JERSEY R&D CENTER

Yamaha International Corporation has opened a new Research and Development Center in Florham Park, NJ, in order to showcase its music and sound product lines and gain input from end users and educational institutions. Professional Products division manager Bill Hinely said: "Our purpose is really twofold. First, we will use this facility to assist in the development of new technology. Second, we will use this facility as a vehicle to penetrate new and existing markets for Yamaha products." President Mike Miyake said: "I like to think of this research and development center as a listening center. We plan to seek out and listen to developers, engineers, educators, and end users." The company recently opened another center in Tokyo, and others are being developed.

EAW ENTERS COMMERCIAL MARKET WITH ITALIAN RCF PAGING PRODUCTS & SPEAKERS

Eastern Acoustic Works, a well-known manufacturer of one-box touring loud-speaker systems, announced just prior to AES, the formation of a new division to distribute RCF paging products and commercial loudspeaker enclosures manufactured in Italy to the US market. The companies have been working together for four years on the design of EAW's new studio monitors, and will address the broader installation market with a full line of RCF products, according to Kenneth Berger, EAW's marketing director.

ON SALES REP RELATIONS

by Laura Cupelo

In politics, when one thinks of famous ambassadors, names such as Ben Franklin, Winston Churchill, or more recently, Soviet leader, Mikhail Gorbachev may come to mind.

In the electronics industry, the independent electronic representative helps to fill the role of ambassador. He may not meet in Helsinki or Geneva, and trying to solve the nuclear arms race may not be one of his endeavors. But what is foremost on his agenda is better service to his customers and customers' clients.

How does a manufacturer know he's getting the best

properly informed as to where they can best find the sound equipment to suit their personal preference. Yet, she said serving the professional user tends to be more intricate.

"It's important," Lucia said, "to a contractor, for example, that he get the best sound system for a Broadway show. Because it could be critical to a whole theatrical performance."

A contractor may decide upon a particular rep firm for several reasons. One common determinant is matching a contractor's product need with a certain rep's product (supply and

sure the product is working and that the purchasing agent is happy with how the manufacturer is marketing the product."

Many manufacturers decide marketing strategies, but look to rep firms for feedback.

An effective sales force is contingent upon several factors. Most firms agree a good sales rep needs to have a working knowledge of the products he's selling.

"We refer to our sales force as 'sales engineer,'" said John Fetting, general manager of Bidwell Sales Associates, in Gardena, CA. "They not only sell the product, but also help contractors with any engineering problems that may arise."

Fetting said that he sees his independent rep firm as a sales agent for the factory. His responsibility to the manufacturer is to fairly represent the factory's products in the best light to all potential customers. By having a knowledgeable sales force, Fetting said you can present contractors products you believe in.

The Electronic Representatives Association (ERA), a trade association of 2,200 rep firms, is designed to support the reps in the association's general operations, according to Janet Hipp, director of communications. The association acts as a resource center for both the manufacturers and its members.

The association provides various services to further the education of its members, including:

Lines Available—A monthly bulletin where a manufacturer can list his product and the territories where he's looking for representation. Any interested firm can then contact the manufacturer.

Annual Management Conference—A four to five day program geared to the owners and executives of member firms dealing with management oriented activities. Such topics explored are time and territory management, field sales management, and better interfacing with suppliers.

One Hour Videotapes—These tapes can be purchased by members to help their sales people stay current and understand how their various products work. They also educate in the basics of electronics such as switches and relays, microprocessors, and electro-mechanical devices.

For the manufacturer, the ERA also provides an annual directory, *The Locator*, which is a listing of all 2,200 members.

Trade shows sponsored by the association and its various regional chapters are also a way for the contractor to talk to members and manufacturers about new products and technology.

Chuck Olson, owner of Chuck Olson Associates in Renton, WA, and a 30-year veteran of electronic sales, feels that a rep firm has to be customer cognizant.

"We're more a service agency than a sales agent," Olson said. A salesman educated on the most up-to-date equipment and con-

"The way a rep best services a manufacturer is by keeping the contractor satisfied by providing technical assistance and seminars."

service? What can contractors expect from their sales reps? What qualities exemplify an effective sales force?

With consumer lines, quantity of time may not be as important as quality of time. At the John B. Anthony Co. of Stamford, CT, 25 percent of the company's business is consumer. Rita Lucia, office manager, makes sure consumers are

demand). Other factors are pricing, reputation of a firm, and an effective sales force.

The John B. Anthony Co. works on a sell-in, sell-through principle.

"The sales person involved with the sell-in," Lucia said, "is only concerned with the sales of a product to a contractor. Sell-through entails follow-up; making

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For even greater realism, you can alter the reverb time of the HI and LOW frequency ranges in proportion to the MID range (RT60) and simulate the dampening qualities of absorptive materials in a room. So the sound can be as live or as dead as you want.

Programming is easy because of the REV7's logical front panel layout which gives you instant access to all functions and

the LCD readout panel which tells you at a glance the name of the program and the edit parameter selected.

So besides the 30 presets, you can store up to 60 of your own programs in the REV7's RAM. All available for recall from the front panel or the hand-held remote.

The REV7 features electronically balanced XLR input and output connectors. And balanced TRS phone jacks which will accept standard phone plugs. Both stereo and mono inputs can be connected producing, in either case, a simulated stereo reverb output.

There's even a three-band semi-parametric EQ so you can fine-tune the sound of your reverb to work in any environment. And, of course, MIDI compatibility.

Realistically speaking, there's no finer digital reverb at the price on the market today than the REV7. Available now at your Yamaha Professional Products dealer.

For a catalog explaining all the features and capabilities of the REV7 digital reverb, write: Yamaha International Corporation, Professional Products Division, P.O. Box 6600, Buena Park, CA 90622. In Canada, Yamaha Canada Music Ltd., 135 Milner Ave., Scarborough, Ont. M1S 3R1.

*Suggested U.S.A. retail price. In Canada, \$1,795 CDM.

Reader Service #291

 **YAMAHA**

scious of competitive products can best service a contractor. He keeps no definite call pattern so that his schedule can remain flexible to his customers' needs."

Educating contractors on the newest product to help facilitate his job, attentiveness to small detail, and follow-through on all dealer requests is part of the sales strategy at New West Audio in Hollywood, CA.

"Take care of the little problems for the dealer," Tim Schaeffer, owner of New West Audio said. "Help clean up freight bills and be as accessible to the contractors as you can. If a manufacturer contracts a

dealer and inquires about your credibility as a rep firm, you'll have to have a solid reputation."

Reputation must be built, said Elizabeth Pusecker partner of Pusecker Sales, in Upper Montclair, NJ, by a firm's appropriate decision in representation. Not all reps are right for all companies and vice versa.

If education, a general working knowledge, attentiveness to detail, and a conscious competitive attitude are important attributes when a rep deals with a contractor, what diplomatic skills must he exhibit when dealing with the manufacturer and acting as its

commissioned agent?

Joel Schwartz, president of LCA Sales Co. in Tuckahoe, NY, and senior vice president, Divisions of ERA, said, "You need to present a new product to the customer and properly administer the geographic sales territory. Market surveys are also important to a manufacturer who is looking for a new marketplace."

The way a rep best services a manufacturer is by keeping the contractor satisfied by providing technical assistance and seminars. Systems layout and buddy calls (accompanying a contractor to help with one of

his clients), order follow-up and order expedition to make sure a contractor receives the product when he needs it and that it arrives in its correct form are all ways a rep firm acts as the liaison between the contractor and the manufacturer.

"Getting involved with credits and collections," Schwartz said, "and solving problems between manufacturers and customers helps to solidify a smooth relationship."

For further information on the regional rep shows in your area, contact: ERA, 20 E. Huron St., Chicago, IL 60611; (312) 649-1333.

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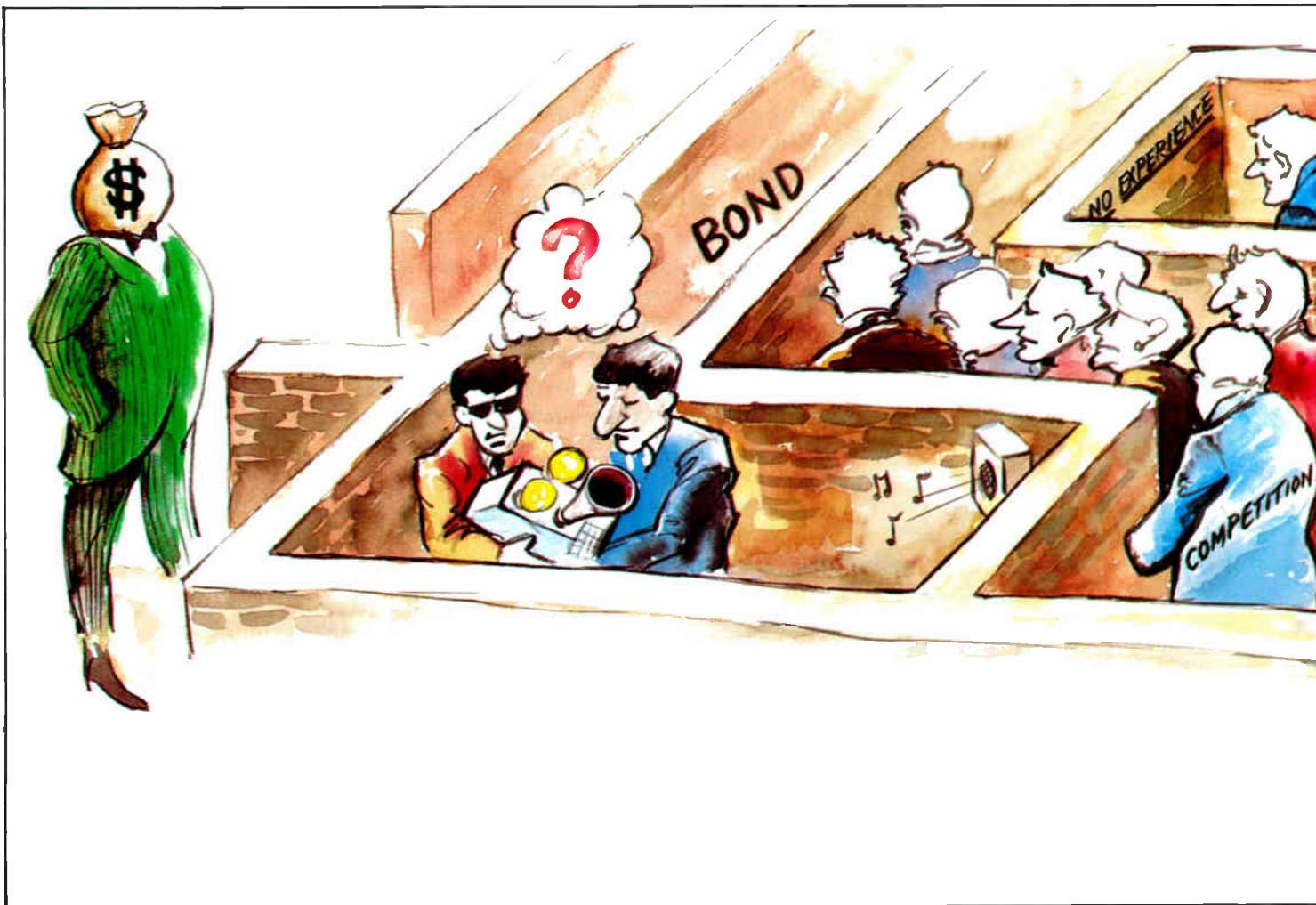


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Panasonic Industrial Company





One of the largest market segments in the sale and installation of engineered sound systems and telephone and interconnect systems are the consultant-designed systems, often put out to tender through a general or electrical contractor. This is a very enticing portion of the market for a lot of contractors as it allows a number of firms without in-house engineering staff to tackle large and often profitable jobs, as well as providing larger contractors with a good bread-and-butter type of income by keeping their contract installation people busy on a regular basis.

This can also be an intimidating and confusing area for the newer or smaller contractors, as the increased amount of red tape in tender sales of this magnitude can become an unescapable entanglement. How can the contractor get his product specified into these jobs? How can the contractor get on the list of companies that get asked for tenders? What does it take to become eligible

and qualified to do these installations? The worst comes when the contractor tries to find someone to ask, as nobody really wants to talk about the procedures, since the people already there don't want the competition and the people on the other side of the coin feel it's not their responsibility to tell you. So where does the contractor start?

To begin with, to be in with the 'in' crowd can be broken down into two steps: first, introducing and proving the viability of the product to the consultant or specifier, and second introducing and proving the viability of the contractor to the engineers or the general contractor. These are two very different areas of salesmanship and the approach and information content of each have to be targeted as differently.

There are a few things to identify before setting out on a journey to all of your local engineering firms and architects, those being:

(1) The size of the market area you cover with your particular product line in any exclusivity.



The Bidding Process

Pointers for the Perplexed

(2) Who specifies the types of jobs you want to be involved with?

(3) What engineering and application literature is available from the manufacturer?

Consulting and specifying is a business that deals in information. The consultant is hired to provide the specifications for the products most suited to doing the job the client requires, based on either performance or price or any other criteria the client may find important. With this in mind you can begin to formulate an approach to inform the consultant of the products you sell.

The first thing to consider is that the consultant is not the end user of the product. So instead of the usual sales approach you would make to a client, your approach to the consultant should be one of teacher and librarian. Because the consultant deals in information, it is beneficial to him to have as large a data base as possible. The more information he has available to himself, the better he is able to serve his client and stay ahead of other con-

by Barry McKinnon

“This can be an intimidating and confusing area for newer or smaller contractors, as the increased amount of red tape in tender sales of this magnitude can become an unescapable entanglement.”

sultants in his field as well.

How big is your market area?

This is not just a matter of how big your territory is, but rather how big an area are you prepared to service in the form of sales and installation. Selling the product on a cash-and-carry basis and selling and installing the product require different levels of commitment. If you don't have the product exclusively, who else handles it in your area? And how successful are they in tender sales? These two aspects of the market should determine how large a campaign you will wage to establish your products and your firm.

If your product is previously unknown and you are mostly exclusive in your market area, then the only way it will be specified for a project is if you tell the consultant about it. If the product is already known but not being specified into jobs, then it is possible that the consultant was either not told about it or not told *effectively* about it (or worse it is inappropriate for the job at hand). If the product is known and there are other dealers in your area who carry it then perhaps they have not been making the moves necessary to bring the product to the

consultant's attention. Or they have made the wrong type of approach and turned the consultant off to the product because of a dislike for the sales person or the approach of the company (which is a salvageable situation for a second dealer to attempt). If the product is well known and other dealers have been winning tender sales and installations then you can skip this section and proceed to making yourself known.

To a large extent, it is difficult to determine which of the above situations exist without a bit of risk taking. You may have to stick your neck out and see what is about to cut off your head. Research of this type is the same as any groundwork for a sales program and a phone book is always a good place to begin.

Finding the Specifiers and Supplying Literature

The place to start is the Architects, Consulting Engineers, and Acoustical Consulting sections of the phone books for the areas you are planning to tackle. There is a good chance that many of the ads will tell you what you need to know, and if not, your first feeler will be a bit of a shotgun ap-

proach. From there, write a letter that identifies your company and its association with the product or products and offer to provide interested parties with current catalogs and engineering and application literature.

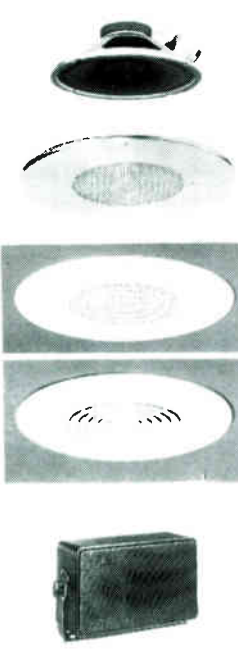
This can be important, there is no point trying to snow the consultant, you had best assume that he has a good working knowledge of the ways your system works, even if he is not familiar with the product. After all, he is designing the overall system for its intended use. Do not inflate capabilities or make claims that are not verifiable from the literature. All this will do is undermine the credibility of the product and yourself. If you consider the consultant's position, he is being asked to provide the best product for the job within the limit specified by the client. So, he is making decisions based on the products he knows the most about. This is where being a teacher and librarian are the most important. You have to be prepared to give the consultant adequately detailed information to allow him to design with. This is where manufacturers support in the form of engineering and application information is important. You should find out what is available and assemble some packages for distribution before beginning your approaches. Find out if the manufacturer offers a consultants mailing list for new and updated information as this will reduce the amount of maintenance required of the contact, without reducing the information received by the consultant.

Possibly, the most fundamental thing to keep in mind is that the consultant does not need to be the victim of "hard-sell." In fact, that's probably the fastest way to lose credibility. It is necessary to give him enough information to establish the viability of the product and its potential superiority over similar products, but it is not necessary to pound them on the head with it. Unlike many direct sales customers, the consultant should be considered an informed customer and approached as such. Be prepared to spend some time with him while he is learning about the product, either by phone or in person. Also be sure you don't pawn him off on a salesman who can't answer his questions. If his questions can't be answered from what you know about the product, then be prepared to contact the manufacturer and get the answers he needs.

Once these contacts have been made

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and the product is being specified, how do you get yourself in a position to sell and install it?

Preparing Your Firm to Bid

The process of establishing your firm on the bidder's list, and doing the jobs is fairly involved as there are several more salient points to be covered in the procedure, including:

- (1) Establish the firm as qualified and eligible to bid.
- (2) Establish the credibility required to obtain a bid bond.
- (3) Establish the contractor on the list of qualified bidders of the people who are doing the jobs.
- (4) Establish a proven track record of successful installations to become qualified for all the above.

You say the list doesn't look so long, but you will notice a bit of a catch in the order of events, a closed loop of sorts. It is this closed loop that is one of the most difficult to break into. Because of the loop nature of the requirements it does not matter much where you start, you cover all points eventually.

The main factors in being considered qualified are: financial stability to ensure that you won't go broke half way through the job, or won't get caught on credit hold and then become unable to get product to complete the job; technically competent to ensure that you can do the installation properly and have it function to spec when completed for a period somewhat longer than the warranty; adequate manpower to complete the job in the period required; stability of product lines to ensure that the products installed will be available in the future and that they will continue to be serviced by the original contractor or another local service outlet, preferably a warranty station; eligibility for a bid bond of adequate size so that no matter how badly you may mess up, it could all be done over again without costing the client anything.

So far it doesn't seem all that complicated, until you start trying to find the starting point for the maze. In most areas, in order to get involved in the entire process of contracting, be it sound and interconnect or plumbing, you will have to join the local contractor's association, which will at least allow you to find out about available jobs and to avail yourself of the association's drawings and spec book. Of course, to do this requires two things, the annual membership fee of the con-

tractor's association and meeting state or provincial requirements for contractors licensing. This may vary from area to area, but it is government run, so there are people to tell you how to do it and what is involved.

Let's assume you are a contractor and have already run the government red tape gauntlet and have sent your fee to the contractor's association, now what, you are all dressed up and have no place to go. You hear from the association that there is a job that has requirements for sound or telephone in-

terconnect and that the drawings are in and available for viewing. You begin the search through the two-inch thick electrical specification book and try to pick off all the required product in your youthful exuberance to bid a job. But wait, who are you giving the quote to? What is this bid bond?

The Bid Bond Catch

The bid bond is probably the worst Catch-22 of all of them. To bid a major job you will need an insurance bond, usually equal to the total value of the job. But it could be for any

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amount required by the client or contractor. As a contractor, you probably already have some sort of public liability insurance to cover possible accidents involving company vehicles. Your corporate insurance company would be the first people to talk to regarding a bid or performance bond. If they can't help you, they can probably direct you to a company who does this sort of thing.

The bond value available to you will be based on a couple of things, your company's net worth and past jobs successfully done. Your first bond won't be for much money unless you have a lot of capitalization. It's similar to a credit line. Every time you buy a bond and don't use it, they develop a little more faith in your ability and the next one could be bigger. This continues to work against you, in that you need a track record to get a performance bond and you can't do installations without having a bond. Do you get your chickens or your eggs first? This is one area you have to be prepared to walk before you run. You can't expect to get a half-million dollar bond your first time out unless you have a lot of green in the bank.

Approaching the Specifiers

For purposes of this argument, let us assume that you have convinced an insurance company to give you a bond of adequate size to cover the job at hand, and you've got all the information pulled off the drawings and your best prices all lined up. Who do you give them to? Occasionally, the general contractor will have such things as sound systems and telephones as a separate contract if they are very involved, but usually they are included in the specifications for the electrical contractor. This is when the contractor's association is very handy, as you can obtain a list of the electrical contractors who are bidding on the job.

Your salesmanship comes into play again here. With a half-dozen or so electrical contractors "chomping on the bid," you have a lot of ground to cover in getting these people interested in your firm. The electrical contractor is going to be concerned about two things: are you competent to do the job and is your price going to enable him to win the job. For the contractor, price will be a big consideration, and only experience in winning and losing bids will tell you how to bid jobs effectively. Because the electrical contractor will likely be receiving bids from

several subcontractors, some of which will be for alternate product than that specified, it can be important to ensure that the electrical contractor has confidence in you and your firm's ability to do a job with good prices and minimal hassle to himself. This is where the proven track record is very beneficial. Even if it is in the area of direct sales, having installations that pleased your customer can be the bottom line for a lot of the decisions.

With several electrical contractors involved, the only way to really ensure your bid will stand a chance is to approach all of them. It is also important to be scrupulous in this approach. In

the long run, it will be very beneficial to be consistent in your prices and terms with all of the contractors involved. This is because secret deals don't stay secret, and your reputation as a fair dealer can pay off in real world dividends. The people who are the shadiest to deal with usually end up the farthest down the list even when price is a consideration.

Even once you get some installations under your belt and have managed to break into the loop, situations will arise that fall outside of the standard guidelines. On very large or involved jobs, the consultant or engineers may

(continued on page 47)

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HOTELS AND MOTELS

A SECONDARY SALES MARKET

by John Frantz

New telephone technology for the hotel/motel business is a healthy segment of the surging telecommunications industry.

Technology advances have given hotel/motel owners and their customers flexibilities such as station message detail recording (SMDR), speed calling, call cost accounting, automatic dialing, least cost routing, etc.

What really gave this segment of the telephone technology business a boost was the Federal Communications Commission (FCC) ruling in 1978 that enabled telephone calls to be resold. "It's pretty hard to justify new telephone equipment, but if it can turn a profit it's a different story," noted John Demchuk, vice president of sales for Tadiran of Largo, FL.

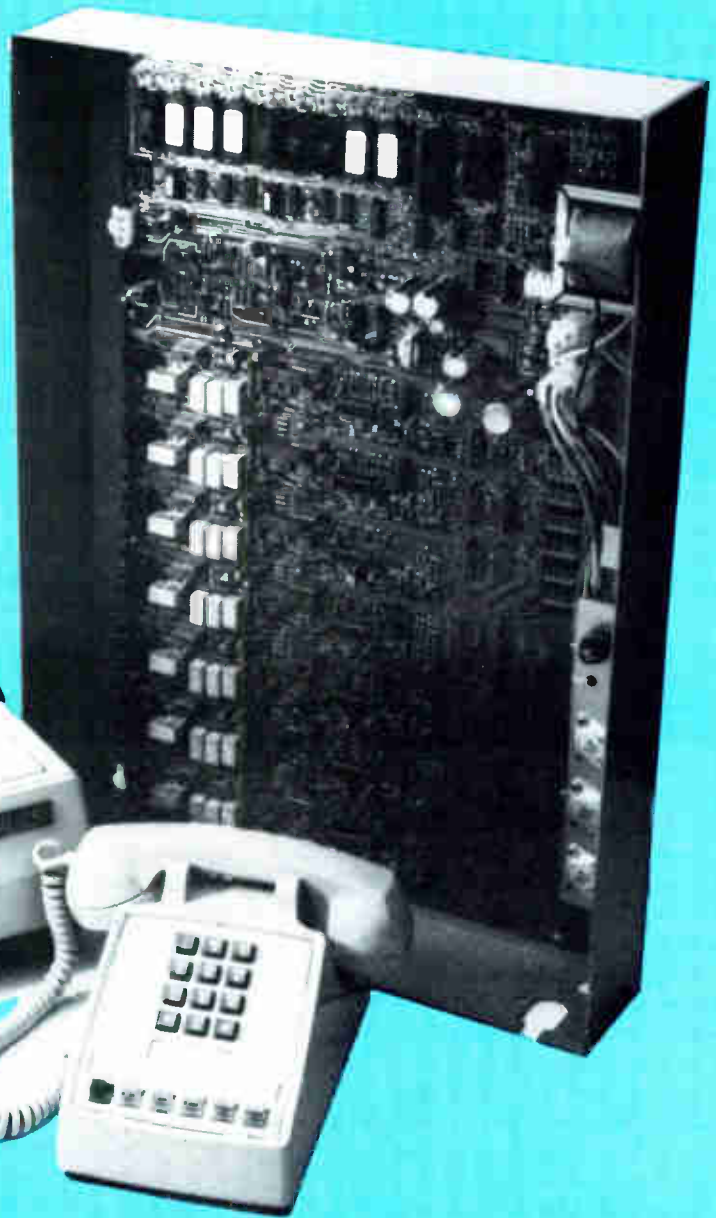
Reselling telephone calls is a profitable business and the hotel/motel application was a natural. Most guests don't realize it, but when they make a call from a hotel room with modernized telephone equipment, the hotel makes a profit. After dialing

the number, for example, it can be put through a least cost routing system that decides which of the many long distance telephone services, termed Other Common Carriers (OCC), is least expensive. Upon check-out, the caller is not only charged the AT&T rate, but will probably be charged an additional mark up sometimes totaling as high as 200 to 300 percent.

On the average, hotels/motels mark-up calls 30 percent. Added to a some 24 percent some OCC's are offering, the reseller is making approximately a 55 percent mark-up which can more than pay for his telephone expenses as a whole. Previously hotel/motel owners lost money on this area because they had to provide room telephone service as part of their drawing card for businessmen.

The Hobic System

Not long ago, the hobic system was the standard telephone system of many hotels/motels across the country. Hobic allows the local telephone com-



(Top) TIE Communication's Mercury Hotel/Motel Lodging Package offers display terminals which can be located at the front desk, the main office, and at housekeeping or maintenance locations.

(Inset) The Opus Telecom OT4050 is a transparent long distance dialing system designed specifically for the hotel/motel industry.

(Bottom) RCA Service Company's system with integrated voice/data communications features the Mitel SX-2000.



pany to place a customer's call and charge him for it through the hotel/motel invoice.

Today, many hotel/motel owners, especially the large chains, have taken advantage of the FCC ruling and have since installed updated equipment allowing them to resell phone calls and make a profit.

Not every hotel/motel owner has converted however, and some industry experts estimate only some 20 percent of the nation's hotels/motels have some type of telephone equipment that allows them to process or resell calls from customers. "Some hotels just don't want to bother with special phone systems," said TIE's Mike Whitman, national PABX manager, "They'd rather just go about the business of renting rooms."

"There's a lot of archaic systems out there," added Demchuk. "And believe it or not, close to 10 percent of hotels/motels don't have any kind of phone system at all."

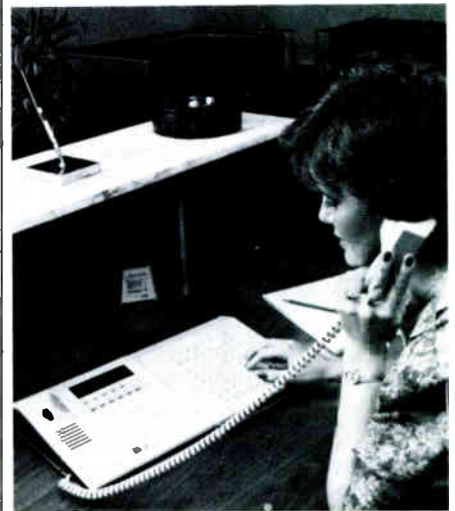
Fortunately, the hobic system was designed and installed in such a way that the existing wiring the system uses can easily be converted for a hobic-compatible call reselling system. Without the need to rewire, the con-

version is more economical to the client.

Many interconnects still play a part in this new technology, particularly those who are authorized dealers for the manufacturers that rely on dealer networks. Most installation work requires a different technology than just sizing equipment and standard wiring. Today's interconnect dealers that specialize in telephone system work for hotels/motels have become experts in software programming, interfacing in-house computers with telephone systems data insertion, etc.

Yet, interconnects face competition in this field not only from the long standing competitor, the local telephone company, but now from OCC's that are entering into this lucrative field. Some OCC's, in an effort to gain a major hotel chain as its future client, are courting clients with offers of free equipment just for the opportunity to service the millions of long distance calls made every year by guests.

According to William Fowle, director of marketing at the Wren Co. of Rowlett, TX, interconnect installers would seem to be the most logical choice to carry and install telephone systems because of their background



RCA's Ultracom CX telecommunication system combines key phone convenience with PABX capacity.

and experience.

Similarly, Daniel Costin, director of marketing for BFI Communications Systems, Utica, NY, said, "Interconnects don't seem to be grasping this additional revenue by the horns and they certainly should be."

A Giant in the Market

Of notable presence in the installation end of the hotel/motel telephone system market is the RCA division, RCA Service Co. of Cherryhill, NJ, which has installed a total of 1.3 million phone lines of which approximately half have been in hotels and motels, according to Ted Pensiero, manager of news and information. For hotels/motels RCA has installed everything from small key systems to large digital switches accommodating up to 2,000 phones.

RCA entered the industry many years ago when it began installing lines for hotels/motels that bought RCA television sets. Soon, the company started doing PABX system installations. Today RCA has 160 installation/service branches that report to 11 telephone specialty hubs. Although RCA doesn't make any equipment, it does represent Hitachi, Mitel, Iwatsu, TIE, and Summafour.

According to RCA, it has also begun to pick up third party service contracts from interconnects leaving the business. This will no doubt add to the strength of the company's position on the installation market.

How One Company Survives

A young company such as the four-year-old BFI has never stressed a dealer network, but prefers to sell its automatic dialer to OCC's such as Sprint.

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Belt-pack headset station has special features

The new two-channel belt-pack intercom station allows the operator to selectively monitor one channel or both simultaneously. It has a mike on/off switch and separate listen/volume controls for each channel as well as a special carbon headset input and separate sidetone adjustments. There is also a rack mountable version of this unit available with all the same features. Additionally, Telex has developed an entirely new line of intercom headsets to accompany these exciting Phase 2 changes. And, they are lighter and more comfortable than ever before! The new offering consists of single/dual side units, monaural and binaural units, a super lightweight and a new headset.

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"We often sell our system to an OCC that's trying to get a hotel's business," explained Costin. "They in turn sell it to the hotel so it will have access to their long distance network."

Adding up all of the above hard-to-beat marketing efforts with some interconnects' unwillingness to use hard-sell techniques quickly answers the question why interconnect firms don't install 100 percent of the telephone units today.

"There's no doubt about it," said Demchuk, "our dealers have to be aggressive, hit the streets, and keep in touch with the new technology."

Many companies, however, still rely totally on interconnects for distribution as well as installation and service. "Some companies bypass their dealers in an attempt to get their 'market share' statistics," said Demchuk, "but we're going to stay loyal to the interconnect segment and not spin off on some tangent."

After 1978, the "flood gates" were opened not only for bonified interconnects, but also for the hard-sell salesmen that could smell an easy sale and provide little installation or back-up assistance.

Most manufacturers agree the equipment out on the market is pretty good, however, many salesmen use techniques that draw hotels/motels into sales of equipment that doesn't perform in a way they were told it would.

As a result, the call reselling market combined with other telecommunications soon had growing pains in hotel/motel markets as well as others were call reselling could turn a profit.

The industry is still growing and more manufacturers are still entering a market that has softened somewhat in 1985, making competition fierce. "Only as far back as three years ago you could count the competition on two hands. Today there must be at least a hundred," added Demchuk who said a shake-out is now under way in the industry.

"There's still an awful lot of money to be made in this market," added Costin speaking mainly about direct dialing equipment.

Adding On Adds Up

The lure of extra profits sometimes can't justify replacing a large hotel/motel's phone system complete with wiring at a cost that often reaches in the millions. Most hotel/motels opt to simply update their existing switch system. Manufacturers have also realized this and have made their new

units compatible with older equipment.

"Instead of a \$1 million switch, we're selling peripheral equipment that used the hobic lines and can also route calls to OCCs for about one eighth the cost," explained Eric Hardow, vice-president of sales and marketing for Opus Telecom Inc., Framingham, MA. "For example, we can take a 10-year-old existing dumb switch and add to it to bring up to modern day technology."

In addition to the 1978 FCC ruling, Hardow pointed to AT&T's break-up and the 1968 Carter Phone Act as two boosts to the entire telephone industry.

The Carter Phone Act allowed other companies to compete with AT&T in the sales of telephones. Up until that point, technology for the industry was moderately paced, mainly because it had no competition. When others became eligible to compete more corporate money was spent toward research and development. It was that surge that now has entire telephone communications industry running into the future.

Another trend is to make a telephone system that can easily be added to as the user's needs grow. For example this Fall, BFI plans to introduce the System 4000, a modular unit that will offer the user a basic telephone communication system. Options such as SMDR, incoming remote program ability, less cost routing, tip and ring analysis, cost accounting, can be added to the basic automatic dialer unit. BFI has also made the new unit compatible and easy to interface with an IBM personal computer.

The PABX market has become saturated in the 1980s, according to Telephonic Equipment Corporation's John Meteer, director of marketing. While that deadens sales for PABX manufacturers, PABX accessory manufacturers like Telephonic have flourished.

While many hotel/motel operators refrain from replacing existing PABX systems, add-on systems such as automated operators and call sequencers are welcome additions to many existing PABX systems.

Although hotel/motels account for only some 5 percent of the firm's sales, Meteer sees the market a fruitful one for add-ons.

"If you're a PABX manufacturer coming in on the ground level and

you're trying to sell hotels a system on the way up, I think you'll find a saturated market," said Meteer, who named only a handful of stable competitors in the company's area of manufacturing. "As far as enhancements. I think our business is booming. Hotels don't want to get rid of a PABX they've spent a lot of money, they'd rather upgrade it."

Telephonic Equipment, which is located in Irvine, CA, offers its Automated PABX Operator and Automated Centrex DID Operator, two automated operator systems which can handle up to 30 simultaneous incoming calls and hold them until they

can be answered. Another segment of the add-on market is call sequencers, which can by-pass operators, ask questions and route the call to the appropriate guest.

Interconnects are the major dealers and/or installers of this type of equipment, Meteer said, although special deals are made by many manufacturers with large suppliers such as phone companies.

While PABX sales may be down, some PABX manufacturers are offering PABX systems that can be easily added on to such as the TIE Communications of Shelton, CT. TIE's initial Mercury digital voice and data

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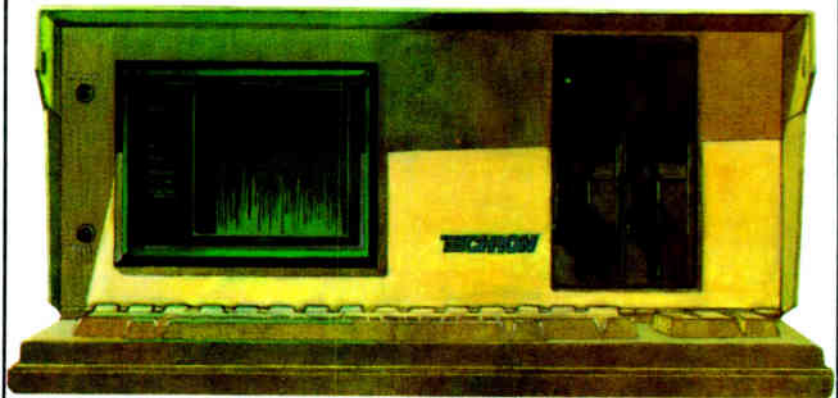
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Reader Service #212

system allows the user start small and grow with the system up to 1,920 rooms.

While most companies are aggressively going after the Marriotts, Holiday Inns, and Ramadas, Tadiran, self-admittedly a "quiet" and small PABX firm is one of the few firms mainly going after the "ma and pa" motel operations with less than 100 rooms. Tadiran manufactures the Tadex 60 and Tadex 120 PABX system that offers many of the same options add-on accessories offer, including SMDR. The Tadex systems are specifically designed for the hotel/motel market and offer management capabilities in one package. "We've included virtually everything a hotel needs for phone and management in one package," said Demchuk.

The Tadex system also offers one of the industry's few units that can immediately get a dial tone by simply plugging it in after unpacking. The simplicity of operation is due to an on-board default program the firm has spent a great deal of money and time on.

Looking Into The Future

The biggest problem many in the in-

dustry faces today is keeping abreast with the fast-paced technology. What is state-of-the-art today soon becomes archaic tomorrow.

Products that are now on the engineering drafting boards of many firms are voice/data or continuous communication systems. These systems are much more complex than the equipment available today because

"They may virtually make PABX systems as we know them obsolete."

they will have the ability to control all functions of an entire office.

Many manufacturers agree that only those interconnects with the proficiency to adapt will survive. The new wave of the future will coordinate every function from phone systems to computer mainframes. They may virtually make PABX systems as we know them obsolete.

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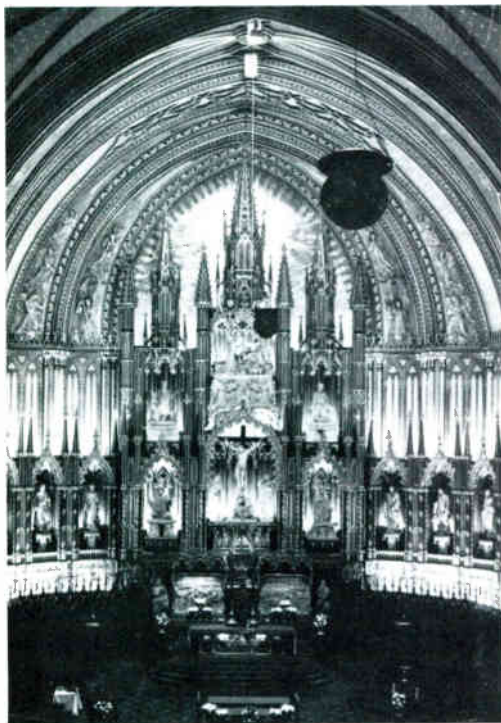
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The first major use of the system was during the Pope's visit. The church was filled to capacity with 5000 children and the Pope's security people were quoted as saying that this was the only church where they could understand all that the Pope said.

The priest, Monsignor Lecavalier, has nothing but praise for the system and calls the SoundSpheres his "religious satellites." During Christmas Midnight Mass the church accommodated over 4000 people

and there were no complaints except that some people very near the main entrance could not hear well. To this the Monsignor replied that there were vacant seats where the sound was perfect."

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0'	96.6 dB SPL (Under the SoundSphere closest to the altar)
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20'	97.6 dB SPL
30'	96.8 dB SPL
40'	96.7 dB SPL
50'	96.8 dB SPL
60'	97 dB SPL
70'	99.4 dB SPL
80'	100 dB SPL
90'	97 dB SPL
100'	95 dB SPL (under first balcony)
110'	96 dB SPL
120'	93.5 dB SPL
130'	93 dB SPL

*Sound and Communications, Feb. 1985

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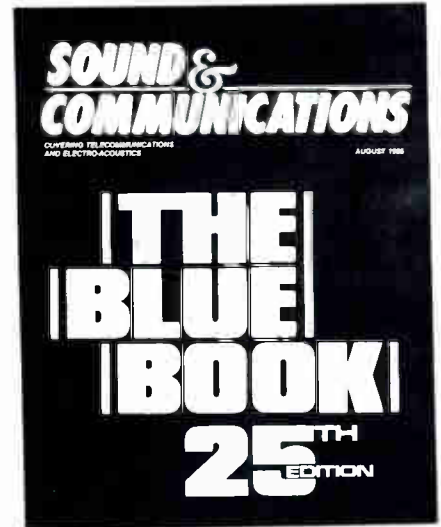
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Installation Profile:



(Top) A view of the main loudspeaker cluster from below. Two satellite clusters (inset) are suspended on cables from the stadium's teflon-coated fiberglass roof. The soundbooth (bottom) at B.C. Place overlooks the entire stadium.

B.C. PLACE STADIUM

by Frank Ramsey

“Due to the building’s construction and size, there were several factors that made the sound system requirements rather unusual.”

Located a few blocks from downtown Vancouver, B.C. Place Stadium is situated close to the shore line looking for all the world like an escapee from a Steven Spielberg movie. The structure gets its “other-world” look from its unique construction. The roof is 10 acres of teflon coated fiberglass, reinforced by steel cables and held up by air pressure differential provided by 16 100-horsepowered fans. The total weight of the roof is 280 tons including all of the hanging lights and speaker systems, and is supported by a mere .03 pounds per-square-inch air pressure differential. The building is not tiny. Overall length is 760 feet, overall width 623 feet, and the height to the center of the roof is 200 feet. With an internal volume of 370 million-cubic-feet, the sound system for this building has its work cut out for it. Being the home to the B.C. Lions CFL football team, the 60,000 fans that attend the games expect high quality intelligible sound.

The building officially opened on June 19, 1983 and has been proving its worth for football, baseball, soccer, concerts, trade shows, super cross, truck and tractor pulls, and indoor rodeos. The building seats 60,000 people for football and soccer, 55,000 for baseball, and offers 150,000 square-feet of exhibition space at floor level and an additional 80,000 square feet on the second concourse level, with total space for 800 display booths.

The building was designed by Phillips Barratt and built by Dillingham Construction, the acoustical consultant was Coffeen, Anderson, Fricke and Associates of Mission, KS.

Because of the building’s construction and size, there were several factors that made the sound system requirements rather unusual. The tremendous interior volume produced a reverb time in the nine second region, and the choice of plastic seats, rather than upholstered, reduced the amount of available acoustical absorption material. The only absorptive material used is the inside layer of the teflon/fiberglass roof and the Poligras artificial turf. Several areas of the building that were originally specified to have treatment change to allow the addition of private suites, thus adding wood and glass surfaces where none previously existed.

A distributed cluster concept was chosen, that utilized one main cluster at one end and twenty-six satellite speaker locations as well as one small cluster located right at the roof center point for field coverage.

An important consideration when choosing components for the clusters was weight. Because the speakers are

HR6040 horns with DH1012 drivers. These are all mounted on a frame equipped with winches that are able to position the cluster down for music and entertainment events and up for sporting events, therefore, keeping the clusters out of the trajectory of footballs and baseballs.

The center cluster consists of two

“Because the speakers are hung from the reinforcing cables on the fabric roof, light weight and high efficiency were important features.”

hung from the reinforcing cables on the fabric roof, lightweight and high efficiency were important features. The components that were chosen were manufactured by Electro-Voice. The main loudspeaker cluster consists of eight EV TL606D double 15-inch bass enclosures, eight EV HR4020 horns and DH1012 drivers, and 18 EV

EV TL606D bass enclosures, two EV HR6040 horns and DH1012 drivers, and two EV HR4020 horns with DH1012 drivers. The 26 satellite clusters are all identical and consist of one EV TL606D bass enclosure and four EV HR 6040 horns with DH1012 drivers.

To cover shadowed areas and bal-

cony underhangs, an additional 98 EV-100S speakers were positioned appropriately. To handle paging and hallway coverage, 850 eight-inch paging speakers were installed.

With the efficiency to weight ratio the Electro-Voice components offered, the amount of equipment required to achieve the target SPL brought the weight of the main cluster, including the frame, to 4,000 pounds, and the satellite clusters 340 pounds. An important consideration was to be sure that the satellite and center cluster were mounted to the roof before it was inflated, as was the frame for the main cluster.

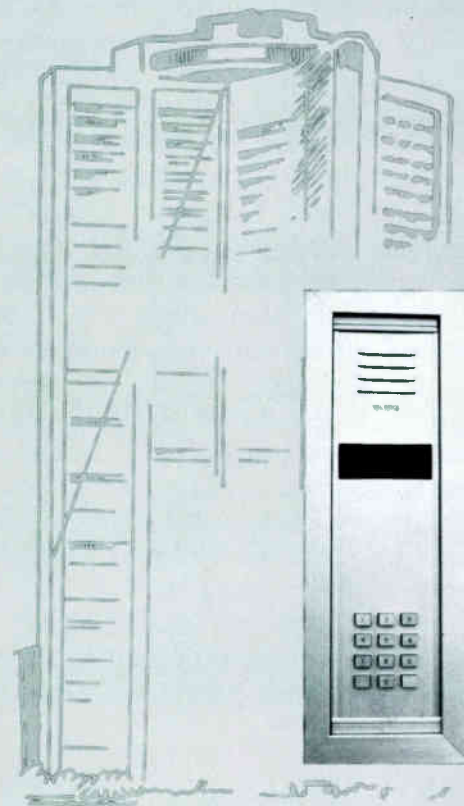
The speaker systems are powered from five rack room locations, one in each corner of the upper level, and one located behind the sound booth. This head-end rack room also contains Modular Audio Products DA's, Industrial Research delay lines, Richmond Sound Designs VCAs, UREI's LA-4A limiters, White Instrument's EQs, and Yamaha power amps for the main cluster, distributed systems, and fill systems. The other four rack rooms contain Yamaha amps to power the satellite clusters and central cluster. In all, just over 40,000 watts of Yamaha power amps are employed in the system.

The switching and control system for the clusters is quite unique. The system allows source orientation of the sound for several stage locations, as well as individual control of the upper seat deck horns for each of the 26 satellite clusters, which allows them to be turned off for smaller crowds. The delays are switched-in appropriately with the activation of single switch mode selectors on a building map switchboard in the sound booth.

The mixing consoles for the system are two Yamaha 916s, that can be used separately or together, modified with pan switches instead of pan pots and also modified to allow a maximum of ± 5 dB of equalization instead of ± 15 dB. In the sound booth there are also turntables, reel to reel tape machines, cart machines and cassette decks. Patch bays bring the lines from the four field mic box locations to the booth, each containing 48 mic lines and six line inputs. The first 32 mic lines are normalled to the board.

As well as the main sound system, there are several lounges and press rooms that have their own systems with wall mount selectors to choose between local mic inputs and radio

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program and the house feed signal. The control for these systems is also housed in the head end rack room. There are also portable systems utilizing EV S15-3A speakers and FM-12-3 monitors powered by portable racks with Yamaha power, White Instruments equalizers and fed by Yamaha mixers.

Jamie Engen, the audio man for the building, originally with Multicom of Burnaby that did the installation, has been with the building for a total of five years, including the construction and installation period. Jamie has seen nearly every type of function imaginable in the building and has not found the system lacking at all. "It's not as powerful as the systems that the Jackson Tour or Springsteen brought along, but for the musical events we do with the house system, and it's great."

Jim Siega, the supervisor of audio/visual services in the building has also found the system to his liking, because the flexibility offered by the permanent systems reduce the number of portable systems required. And Jim said he has enough to handle with the portable video systems, A/V equipment and particularly the Mitsubishi Diamond vision system the building has, including the slow-motion/instant replay system with its own cameras and switching, and the computer scoreboard. Jim's primary expertise lies in the video systems and he relies on Jamie to coordinate and handle the technical audio requirements for the media and performers that use the building's facilities.

The media are well taken care of by the building as well. CBC-TV is located across the street, and the televised press booth features audio and video bulkheads that provide camera cables and audio lines to permanent camera locations and to the mobile truck parking facility, making setup very fast. Radio and print media rooms are equipped with convenient phone line connections for broadcast loop and land line hookups.

B.C. Place Stadium will be a major showplace during EXPO 86 as well. It is located on the Expo 86 site and will feature major performance and demonstration events. The versatility of the building is impressive. Setup time takes only eight hours to lay or pickup the artificial turf, and for events requiring only 30,000 seats a giant curtain can be installed to partition the building in half, also effectively dropping the reverb time in half.

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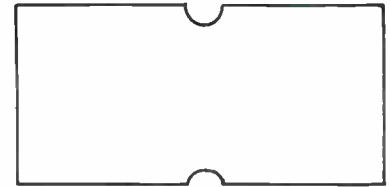
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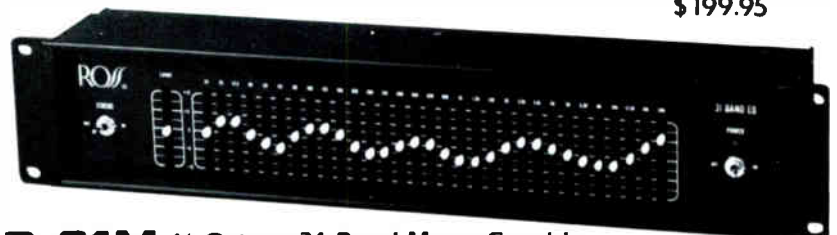
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Reader Service #240

BENCHMARK'S SYSTEM 1000

by Jerome J. Smith

Editor's Note—This is a Sound & Communications Field Report. Unlike products described in our Lab Test Report series, Sound & Communications did not test the Benchmark System 1000. Instead, we asked Jerry Smith to summarize the product's capabilities and design philosophy and its potential applications. Jerry also interviewed the manufacturer and talked with an end user of the System 1000. Because we did not test the product, the specifications, and some of the system description, given in this report are taken from the manufacturer's literature.

This is the day of merging technologies. Broadcast radio and television, cinema, and the recording industry can no longer live alone with occasional "casual" cohabitation. Today the chief engineers of these industries find themselves presiding over shotgun marriages between traditionally incompatible industries. What's more, these inter-industry marriages won't be allowed the opportunity to divorce. "What public demand has wrought—let no engineer break asunder!" The religions of Balanced Plus Four, High Impedance Single Ended and even the various sects of Dynamic Range, Noise Floor and Headroom must learn to live together. A new doctrine is needed. Recently a new product has appeared in response to these cries for compatible format and interface. A product that reflects the evangelical beliefs of its chief designer and the president of the company.

In response to our request for information on this system, the Benchmark

System 1000, we received the ubiquitous "literature" package. However, included was a document entitled *A Clean Audio Installation Guide*. This proved to be one of the most concise and well written discussions of audio installation and interface theory we've ever encountered. It highlights the practices necessary to achieve a professionally executed complex audio interface as well as the calculations and theories encompassed by those practices. Although the piece was written by Alan Burdick, the president of Benchmark, and clearly justifies the thrust of the System 1000, no mention of any particular product is made and the thrust of the piece is directed at audio installations in general. Burdick clearly believes in the urgency of providing better audio in all the segments of the "sound" industry. The concept of the System 1000 is a response to Benchmark's recognition of that urgency.

The System 1000 is primarily an interface product. It consists of line amplifiers, mic preamps, distribution amplifiers, signal processors, and power amplifiers. These are card mounted and designed to "plug into" a mainframe. The System 1000 adds some innovations to this common packaging approach.

The connector field on the rear of the cards reflects the latest computer industry thinking. Quoting from the product literature:

"In the System 1000, all of the cards developed interface to the outside world through 70 pin wire-wrap card edge con-

nectors. The high density of these connectors allow greater utilization of board real estate. For example, the DA-101 card has two loop-through inputs, two direct outputs, ten balanced 60 ohm outputs, four auxiliary lines that may be used as remote control inputs, patch in and outs, or additional audio inputs. This, of course, is in addition to the power busses that run to each card. By utilizing the .025-inch-square post technology built around the wire wrap card edge connectors, we have made it possible to connect directly to the wire wrap terminals of the card connector with AMP Module connectors. Since each input and output has its own connector, system configuration with the use of connectorized patch cables and connectorized pigtailed is very easy. Also, additional inputs and outputs may be added at any time while the system is hot without fear of shorting pins currently in use with a soldering iron.

"Card compatibility has been designed in power rails at the same position on each card having common power requirements. Whenever possible the input and output connector positions come up in the same locations from card to card."

The system provides power supply cards for the mainframe or separate power supplies for remote mounting. The customer can specify any special requirements. In interviewing System 1000 users, we were also told that the position of ground at the center of the 3 pin audio connecting modules allows immediate phase reverse capabilities. Patching from card to card with these patches is convenient. We also found



Benchmark's System 1000 has already been installed in two different television stations in the Dallas area.

the labeling to be excellent. The cosmetics of the package are well done, even elegant, with easily visible metering where appropriate.

The System 1000 offers a means of maintaining extremely high audio specifications while distributing audio throughout very complex systems. Other Benchmark products provide the means for converting audio products reflecting less current interface philosophies into components that are compatible with the latest development in audio interface format.

According to Burdick, "All equipment must have high impedance balanced inputs. This is absolutely necessary to reject the residual power line related voltage differences between pieces of equipment. For equipment that does not have balance inputs from the factory, use one of the many interface boxes available. Better yet, build in your own balanced inputs—this is preferable due to the control that you have over the grounds of the interface.

"All equipment should have balanced low impedance outputs. Satisfactory performance from unbalanced outputs can often be obtained using these rules of interconnection, provided the existing output is low impedance (100 ohms or less) and provided the line is not a long line in a high R.F. field."

His justification for these conclusions is amply supported in the *Clean Installation Guide*. The guide states:

"While not yet universally adopted, the voltage sourced balanced interconnect system is really the only viable alternative for the audio professional. The single ended IHF interconnect system found in 'semi-pro' equipment is out because of its inability to reject the normal power line related voltage differences (although now minimized by tying the equipment together with separate ground lines) that still exist between various pieces of audio equipment. The 600 ohm power matched system, developed in the days of vacuum tube equipment as a way to achieve maximum signal to noise

ratio, is on its way out. With modern operational amplifier technology it is no longer necessary, nor even desirable, to terminate audio lines with a "matched" low impedance. The foil shielded audio cable that we use today does not have a characteristic line impedance of 600 ohms but rather below 100 ohms.

"The voltage sourced interconnect system, with low (i.e. 60 ohm) source impedance and relatively high (i.e. 10k-100k ohm) input impedances, is becoming the accepted practice. A 60-ohm output impedance has been found by ABC-TV in New York to be the optimum source impedance for today's foil shielded cables. The advantages are: (1) less power drawn from the source equipment, (generally no 600 ohm load resistors) therefore less heat generated, (2) lower distortion (from low drive current) generated by the output stage doing the driving, (3) lower (14 dB lower) noise pickup by interconnect lines due to the lower source impedance, and most of all, (4) five to 10 times the cable length that may be driven for a predeter-

"A new doctrine is needed. Recently, a new product has appeared in response to these cries for compatible format and interface."

mined high frequency system cutoff.

"To understand this last statement you need to see that the output impedance of a piece of audio equipment combines with the capacitance of the cable doing the interconnecting to form an R-C low pass filter. If the shielded pair being used has 32 pF/ft capacitance between conductors, and the drive impedance is 600 ohms, assuming we are trying to feed a 1,000 foot line (not uncommon with TV remotes), and assuming that we are feeding a bridging (100 k ohm) input, then the high frequency cutoff of the interconnect is 8.34 kHz! Not exactly Hi-Fi. With the line "terminated" in 600 ohms the situation improves to 16.68 kHz, but is still no where near what we are looking for in the demanding world of high quality audio today. If we determine that we want a minimum of 30 kHz interconnect bandwidth, then the maximum cable length we can tolerate with a 60 ohm source impedance and bridging input is 2,763 feet or approximately 850 meters, a much improved situation."

The Benchmark System 1000 and its companion products the DIA-1 and DIA-2 Differential Input Amplifiers and the DOA-1A and 2A Output Line

level amplifiers provide engineers with the products required to retro-fit or upgrade complex systems to a voltage sourced interface. The DIA and DOA products are meant to be installed in existing equipment, allowing that equipment to receive or send properly loaded and grounded signals without adding any noise or distortion components to the signal. These products draw their power from the host equipment and can be ordered in XLR or phone jack configurations. Inputs to Hi-Fi or semi-pro equipment can be retro'd to accept balanced, high impedance signals. CD players, turntables, consumer or semi-pro consoles, and tape decks can be converted to balanced low impedance output devices. The customer can order the Benchmark components configured to match the power supply specifications of the host equipment or the owner's literature can be used to custom configure the products to the system.

Once all components send and receive compatible signals, the System 1000 provides a flexible and reliable means of achieving very complex system configurations without interactive problems. The value of incorporating

a system like this is obvious to those that experience the frustration of finding the program source we require available only on equipment that defies attempts to easily patch it into another system. The incidence of these kinds of frustrations has increased logarithmically with the proliferation of music videos, stereo FM, and now the advent of Stereo TV.

Ron Albrecht, maintenance supervisor of KXTX in Dallas, TX, a commercial television station with the Continental Broadcasting Network (CBN), discussed with us his station's use of the Benchmark products. Albrecht and the station staff installed the products in the production, on-air and mobile facilities one year ago.

KXTX uses the System 1000 to distribute audio, time code and tones throughout the station complex, including the satellite downlink. All of the station is one-inch VCRs, Beta VCRs, audio recorders, and news cameras send their outputs to one of the five System 1000 mainframes, a total of 47 channels. They are routed via a Utah Scientific 40 x 30 switcher. The remote truck also used a System 1000 mainframe.



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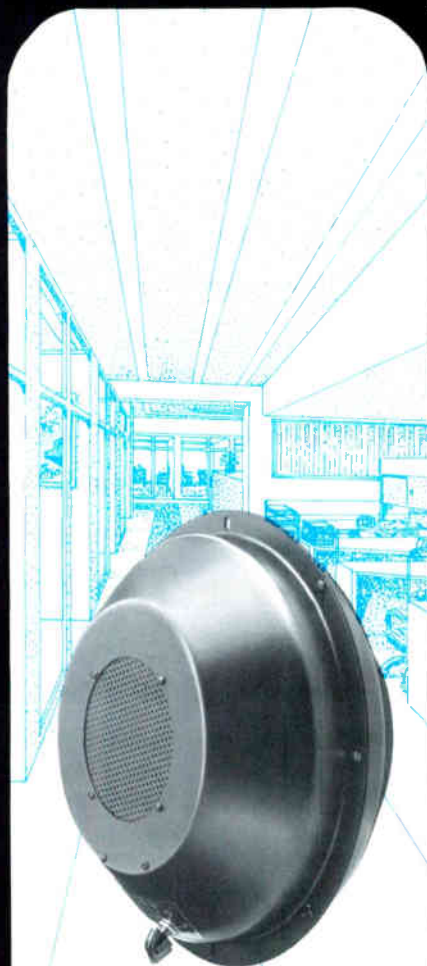


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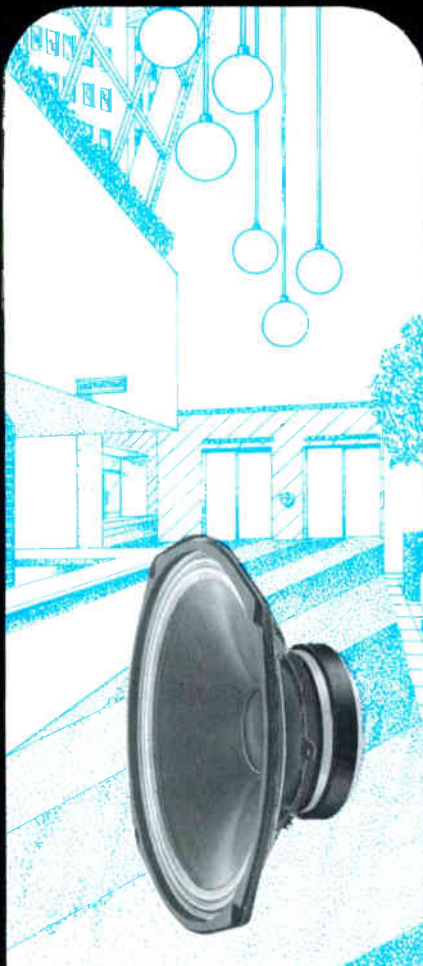
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Albrecht has given the results of the station's investment in an upgraded distribution system rave reviews. Reliability has been excellent but most importantly there was an immediate improvement in on-air audio quality. Cross-talk and hum have been eliminated. He commented on the adjustable gain feature of the line amps as especially useful when it's been necessary to incorporate semi-pro and Hi-Fi equipment into the signal chain. Albrecht said, "The adjustable gain allows standard +4 output to be derived from equipment with non-standard level." He also commented on being surprised that the equipment actually met or exceeded specifications that he thought would be shown to be exaggerated. "Very high performance with incredibly low distortion measurements." We couldn't find anything that Albrecht could tell us that was negative. He also mentioned that the station had just installed a Benchmark remote truck audio console.

System 1000: The System 1000 consists of numerous audio processing boards, a 5.25-inch card frame, the PS-101 internal +/- 15 V at 5 amp power supply. Redundant power supply configurations are available. A system 1000 card frame with internal

power supply will accommodate nine processing cards, while a frame with external supply will accommodate 12 processing cards. The card frame has extremely high density inputs and outputs.

DA 101 (Audio Interface Distribution Amplifier): The card consists of two instrumentation amplifier inputs, two gain stages, two broadband 10 watt power amplifiers and provisions for accessory daughter boards. As a stand alone the DA-101 may be: a two input and two output mono distribution amplifier, where the distributed audio may be either input or a mix of the two; a stereo 10 watt/channel monitor or headphone amplifier; a 40 watt bridged mono audio power amplifier or a time code distribution amplifier. Accessory daughter boards allow limitless processing capabilities including equalization, gain controllers (both manual and automatic), noise reduction, tone generation, matrix stereo generation and processing, etc.

Outputs:

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L+R and L-R generation and distribution.

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Gain:

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100 dB CMRR at 60 Hz, 80 dB at 20 kHz

Max in/out +26 dBv bal, +20 dBv, unbal.

12 Segment LED—switchable to either input, output 1 or daughter board. 13th segment peak o/l indicator.

MDA-101 (Microphone Pre-amplifier Distribution Amplifier):

The MDA-101 is a combination microphone preamplifier and six output distribution amplifier. Its six outputs provide feeds for the console itself, a feed for the telephone hybrid, feed for a two-way radio and intercom, feed for another console, i.e. production room, etc. In sound reinforcement, the MDA-101 is superior to the often used mic split transformers from many vantages. It brings the microphone signal up to line level before distribution, and distributes the signal from a lower (60 ohm) output impedance, making long runs far less susceptible to loss of high frequencies and noise pickup from SCR lighting or other RF sources.

Six 60 ohm outputs.

Gain variable from +12 to +70 dB.

Differential bandwidth is 200 kHz. Provision for accessory daughter boards. i.e. remote gain control, a safety limiter, patch out and in for external processing.

Noise EIN = -130 dBv.

THD 1 kHz = 0.002 percent, 20 kHz = 0.005 percent.

Input Z 60 ohms.

Output Z 20 k ohms.

Metering 12 segment LED meter, source selectable between output and accessory daughter boards.

13th segment peak o/l indicator.

DIA-1 and 2: The need for balanced inputs on all audio equipment is not universally understood. The result is

(continued on page 42)

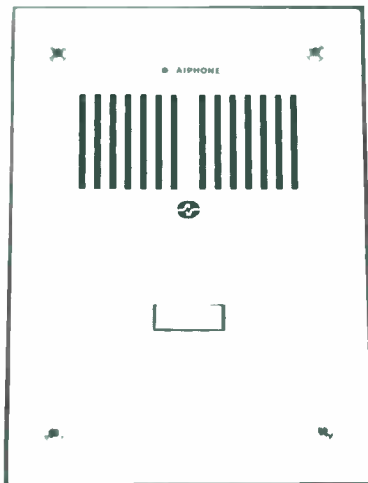
SOUND & COMMUNICATIONS

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PRODUCTS IN REVIEW



AIPHONE'S NEW INTERCOM FOR SECURITY APPLICATIONS

Audible monitoring of parking garages and other high-risk security areas is now possible with a new intercom circuit system from Aiphone.

The system can operate as a standard intercom during regular business hours, linking up to 80 substations with a master station. Vocal two-way communication between master and substation is activated by a standard call-button system. Substations in flush mount, wall mount and desk top styles are available.

After normal business hours, the substations can become voice activated by switching on the VOX circuit. Each substation has its own volume control switch which can be adjusted to the appropriate sensitivity level to meet the ambient noise. This allows the attendant at the master station to monitor substation areas and to be alerted by unusual noises. A tone signal and LED lights on the master display panel indicate the location of the noise.

A VOX circuit system with master and 20 remote stations lists at approximately \$170 per station.

□ Contact: Aiphone Corp., P.O. Box 90075, Bellevue, WA 98009; (206) 455-0510.

Reader Service #30

RUNCO'S NEW COMPUTER GRAPHICS VIDEO PROJECTOR

Runco Video Corporation has announced its Cinemabeam RGB features video projector, with standard features such as: 800-line resolution

from the 10 mHz video bandwidth and high resolution lenses; portability (67 pounds, 20 x 25 x 11 inches); internally variable throw ratios (screen projector distance) for in place image size changes; 10-minute convergence set-up; and direct IBM™ PC interface.

Other features include: seven-inch projection tubes and solid state circuitry for extended brightness and reliability, separate controls for corner convergence fine-tuning, comb filter and dynamic focus circuitry for maximum corner to corner sharpness, and five separate BNC connectors for a range of computer and video uses.



The unit's 800-line resolution, durability, rack/floor/ceiling mountability, and quick change front to rear projection are expected to have applications in corporate computer graphics and text presentations, sales training, and the computer/general education market.

□ Contact: James Wellnitz, Runco Video, 1163 Chess Dr., Suite J, Foster City, CA 94402; (415) 342-7459.

Reader Service #31



MISCO UNVEILS EIGHT-INCH WATERPROOF SPEAKERS

Misco has introduced the JC80WP, a new waterproof extended range coaxial to compliment the recently upgraded full range eight-inch waterproof speaker, JC8WP.

The new speakers feature a curvilinear cone made of vinyl-vulcanized to provide a smooth frequency response. The JC80WP, coaxial speaker, also features a treated paper cone tweeter which is phase-coupled to the low frequency driver to eliminate phase distortion and to produce ex-

tended frequency range.

Both the JC8WP and the JC80WP are designed for use in environments hostile to standard or weather treated speakers and can withstand total immersion in water for 96 hours. Indoor applications include industrial swimming pool, sauna, lockerroom, bathroom areas, and marine applications as well.

The JC80WP will handle 30 watts (program), has a sensitivity of 93 dB, 1W/1M, and a frequency response of 50 to 18 kHz.

□ Contact: Misco/Minneapolis Speaker Company, 3806 Grand Ave., Minneapolis, MN 55409; (612) 825-1010.

Reader Service #32

DUKANE'S NURSE CALL CAN HANDLE UP TO 1,000 CALLS

The Communications Systems Division of Dukane Corporation has announced the Dukane System 2030 Automatic Nurse Call System—a system which is capable of handling up to 1,000 individual call stations per nursing area.

Designed for communications in medium to large hospitals, Dukane's System 2030 features automatic answering—allowing station operators to answer incoming calls in automatic sequence.

Operators may also answer calls by dialing room numbers. System 2030's direct three-digit touch dialing allows fast dialing of patient rooms and staff stations. Additional rooms can also be added to the system.

Dukane's System 2030 Master station, available in a desk or flush mounted model, can be customized with a numerical grid illustrating all stations it serves or with a graphic representation of three nursing floor it



covers. Calls placed at system patient, staff or emergency stations are visually announced on the grid. Nursing personnel at the master station can deter-

(continued on page 39)

a closer look

by gary d. davis



NUMARK'S MMX 1000/2000 MUSIC MULTI MIXERS

Numark Electronics Corp. recently introduced its MMX 1000/2000 mixers, which are rack-ready, fully stereo, and boast balanced low-impedance operation at the +4 dBm pro output level. New low-noise semiconductors throughout mean impressive noise specs, according to the company.

Twelve stereo inputs on the rear are routed to six mix channels using the Source-Select switches, which eliminates repatching. There is full prefade cue, LED output meters, output EQ, and a processor loop on the output bus. Level faders control house, booth, and headphone monitor volume.

Five stereo line inputs, three phono inputs with RIAA preamp and four balanced mike inputs (with phase reversal switches) accept any modern audio source. A nifty transition fader on the phono half channels means smooth seques for DJs. In addition to a balanced house output you get unbalanced house, booth and tape half jacks.

All these features are standard on the three-rack-space MMX 1000. The 2000 is five spaces tall because of the additional three-band per channel EQ.

Comment: There is a technobish tendency to look down at any product that is tagged for "disco" use, and the lack of solid specs in the Numark release doesn't help overcome that resistance. In fact, the disco market was responsible for keeping a large percent of the audio equipment manufacturers healthy for several years. And now that discos are fading largely into mobile party rigs, less "disco" equipment is advertised. John Fairchild at Numark's West Coast office said that these mixers are built as modern-day replacements for units like the old Bozaks, with the rotary faders that some DJs were weaned on.

We have a built-in bias against

claims of "impressive low noise" without a supporting figure. Fairchild told us the E.I.N. at the mic inputs was -126 dBm, with a 15.7 kHz bandwidth. The low noise inputs consist of some new, secret (they won't say) Japanese ICs claimed to have very high slew rate and low noise, accompanied by a discrete, differential pair. Sounds good on paper, but Numark offered us no information on output S/N ratio.



The "nifty transition fader" is, of course, a cross fader for changing from one phono input to the other. The inputs are generally pin jacks, appropriate for the type of equipment to be used with the MMX 1000 and MMX 2000, where a few short cables from nearby tape machines and turntables that can operate on the same AC feed (no ground loop problems) are all one needs to accommodate. The mic inputs, of course, are an exception, and these have balanced XLR inputs. The outputs, again, are generally unbalanced pin jacks, although the mainhouse output (where the power amps may be some distance from the mixer) are transformer-isolated, floating XLRs with +25 dBm capability. That's a full 21 dB of headroom—not bad for a "disco" mixer!

□ Contact: Numark Electronics Corp., 7850 Alabama Ave., Canoga Park, CA 91034; (818) 346-8222.

Reader Service #52

B-82 FIXED/PORTABLE ALL WEATHER SPEAKER

Bertagni Electroacoustic Systems has an entire line of loudspeakers built with radiating surface panels of essentially flat Styropore (a special BASF-manufactured, high density styrofoam-like material). I had serious doubts



when first told of the existence of "foam speakers," but that was a few years ago, and several listening tests later, my reaction is different.

The BES B-82 is a complete loudspeaker system, with two independent magnetic circuits, and a "mechanical crossover" at 800 Hz (12 dB/octave). Alex Bergagni, the designer, said that there is a blocking capacitor, but that most of the crossover is accomplished by the compliance (a sculpted relief on the back of the radiating surface), and the method by which the motor assemblies are bounded to that surface. No enclosure, per se, is used...just an open, bronze-anodized aluminum framework with matching dark brown grilles. It's also weather-resistant, and total weight is 14.5 pounds. Feet and a carrying handle can be fitted for portable use, and an accessory bracket is available for permanent wall mounting.

In terms of performance, the B-82 is said to be omnidirectional, with a smooth frequency response (± 3 dB from 40 Hz to 19 kHz) that avoids feedback in live sound systems. Its sensitivity is 92 dB/1W/1M, and it is rated at 75 watts continuous power per EIA standard RS426A (100 watts program). THD at 96 dB SPL is rated at less than 1 percent at 400 Hz, 1,500 Hz, and 8,000 Hz... and less than 2.5 percent at 50 Hz; Nominal impedance is 8 ohms, minimum 5.5 ohms.

□ Contact: B.E.S. Inc., Commercial Sound Products Division, 12753 Moore St., Cerritos, CA 90701; (213) 926-0201 or (800) 592-4644.

Reader Service #53

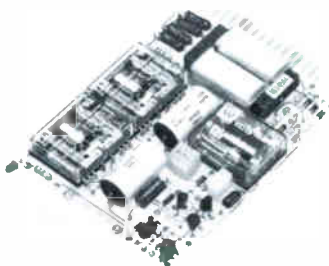
(continued from page 37)

mine at a glance all incoming patient calls by room and bed number, can tell call priority, and can scan the system to determine which calls are in the reminder mode for patients waiting for assistance. Audio tones distinguish emergency calls from normal calls. Three levels of patient care—normal, personal attention, or emergency are set at patient stations.

System 2030 features Remote Call Answering—increasing staff efficiency by enabling nursing personnel to answer patient calls from remote locations.

□ Contact: Dukane Corp., 2900 Dukane Dr., St. Charles, IL 60174; (312) 584-2300.

Reader Service #33



AUTO KEY UNIT FOR 1A2-SINGLE LINE CONNECTION

Plant Equipment, Inc. has unveiled the PE416AUTO is an 18-pin KTU designed to provide connection from a 1A2 key telephone system to a single line telephone set. Interrupted or continuous ringing is automatically sent to the distant telephone set when the line pickup key is operated at the key telephone system. Automatic DC signaling is sent to the key system when the single line telephone set goes off-hook. Local transmission battery is furnished via this KTU to the near-end telephone set and also the far-end telephone set. The unit will mount in all standard panels accepting 18-pin KTU's.

□ Contact: Plant Equipment, Inc., 28075 Diaz Road, Temecula, CA 92390; (714) 676-4802.

Reader Service #34

TELEX EXPANDS INTERCOM LINE WITH PHASE 2

Telex Communications, Inc. has in-

roduced Phase 2, an expanded and improved line of Audiocom™ intercom products that are compatible with all major systems, including Clear-Com. The units are modular, allowing components to be purchased separately for economical expansion of any intercom system.

The new IC-2M/A two-channel master station allows the program director to run an auxiliary program feed over one channel while preserving the other channel for communications and to selectively communicate with various individuals or with everyone on the system. It uses a full duplex audio system for simultaneous talk and receive functions, with a new 20 kHz light signaling system. An Interrupt Feedback (IFB) button allows live broadcast cueing while the on-air program is being monitored by the talent. The built-in power supply can support up to 50 headset stations, 16 speaker stations, or a combination of both. The IC-2M/A can also operate from an external power supply.

The system has a suggested pro net price of \$630.

□ Contact: Telex Communications, Inc., 9600 Aldrich Ave. South, Minneapolis, MN 55420; (612) 884-4051.

Reader Service #54

VICON OFFERS DESK-TOP VERSION OF PHASE EIGHT®

Vicon Industries, Inc., has announced the development of desk-top versions of the company's modular Phase Eight control (models V8DTB and V4DTB). Phase Eight embodies an important concept in design technology, utilizing modularity to optimize space without sacrificing cost efficiency, maintainability, or flexibility. The Phase Eight desk-top versions are available immediately.

The new compact, durable modular units are designed to house combinations of four or eight Phase Eight modules, for small system installations or for executive desk-top control. Vicon's Systems 19 and 29 Intelligent Monitors, as well as the company's General-Purpose and High-Performance Monitors, have been designed to be used in combination with the new desk-top Phase Eight units.

The four-unit Phase Eight measures 4.25 inches high and 11.5 inches wide; the eight-unit version is 4.25 inches high and 20-inches wide. The V8DTB and the V4DTB desk-top controls can be stacked, allowing system expansion even when space is at a premium.



Vicon's Phase Eight line of desk-top controls and the company's extensive line of monitors are coordinated and engineered to work together as a total system. When combined with the monitors, Vicon's desk-top controls form an attractive, integrated package. In addition, Vicon's Systems 19 and 29 Intelligent Monitors accommodate specially designed plug-in modules, granting a higher degree of flexibility, so that when combined with the new Phase Eight desk-top controls, the result is a powerful system.

□ Contact: Vicon Industries, Inc., 525 Broad Hollow Road, Melville, NY 11747; (516) 293-2200.

Reader Service #35

ELECTRET CONDENSER MIC FROM ASTATIC CORP.

Astatic Corporation has introduced an electret condenser microphone, the 980C. Wide frequency response (40 to 20,000 Hz), a tight cardioid pattern and pop free filter are some of the features. The 980C has the ability to utilize 9 to 52 V DC as the Phantom power source allowing versatility in input equipment interface. An optional power source (10-343) is used when Phantom power is not available from mic input.

The 980C retails fro \$148.50.

□ Contact: Astatic Corp., P.O. Box 120, Conneaut, OH 44030-0120; (216) 593-1111.

Reader Service #65

CROWN'S NEW PH-1 BATTERY PHANTOM POWER SUPPLY

The Crown PH-1 is a single-channel, transformer-isolated, phantom

power supply operating on two 9 V batteries. It supplies simplex phantom powering for the Crown PZM® or PCC® series microphones. The PH-1 also will power other condenser microphones that operate on 18 volts or less, simple powering. Supply voltage is +18 VDC on pins 2 and 3 with respect to pin 1 of the input connector.

Since the PH-1 includes a 1:1 isolation transformer, the output of the PH-1 can be unbalanced with no ill effects. The steel-and-aluminum chassis and SLR-type connectors help the PH-1 withstand the rigors of daily professional use.

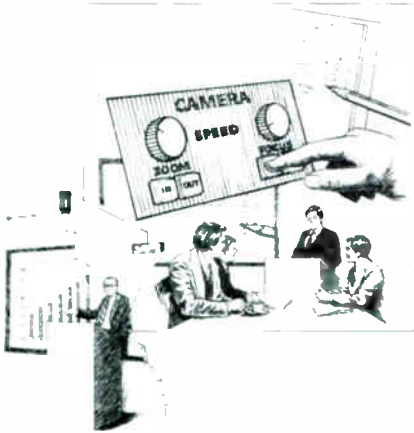
Suggested list price is \$49.95.

□ Contact: Crown International, 1718 W. Mishawaka Rd., Elkhart, IN 46517; (219) 294-8000.

Reader Service #36

VIDEO-CONTROL-CENTER LECTERN BY AVTEC

Avtec Industries announced the development of a meeting room lectern with the capabilities of a true video control center. With equal convenience, it can present hard copy, computer graphics, vu-graphs, or 3-D product samples onto a screen for audience viewing.



Named Vantage Point, the new video lectern provides conference rooms, auditoriums, or training centers with presentation capabilities. Vantage Point includes a video camera system with a remote controlled zoom lens. The camera is concealed above the ceiling, directly over the lectern. The lens picks up the image from the dis-

play area on the lectern and sends it to a video projector for presentation. The speaker has the capability to "zoom in" and instantly focus on any material being presented. A built-in color monitor at the lectern allows the speaker to see precisely what is on the screen without turning away from the audience.

□ Contact: Avtec Industries, Inc., 5 Audrey Place, Fairfield, NJ 07006; (201) 882-9460.

Reader Service #37



COMMUNITY INTRODUCES MULTI-USE LOUDSPEAKERS

Community Light & Sound has introduced a new series of performance/installation loudspeakers, the CS25 and CS35, which provide high-sensitivity with cost-effectiveness.

Basing the new speakers' design on the company's years of in-house research and installation experience, the units are intended for establishments that can't justify huge cash outlays for a "wall of sound" approach and can't afford equipment breakdowns.

The CS25 features a 12-inch driver with a single high-frequency horn, while the CS35 has a 15-inch driver with an integral high-frequency horn and ducted port assembly. According to the company, a specially designed filter network on the horns provides both units with exceptional crossover characteristics and high sensitivity—in fact, the CS25 and CS35 both provide a 2-6 dB higher sensitivity than other loudspeakers in the same price range.

The CS35's 15-inch driver is cooled with a ferrofluid that increases power handling. According to CL&S, both loudspeakers incorporate driver protection systems that are reliable—they are automatic systems that don't use fuses and allow the cabinet to always operate. This last feature was utilized to foster the confidence that working

musicians and club owners require in their sound reinforcement.

The CS25 has a suggested retail price of \$239, the CS35, \$289.

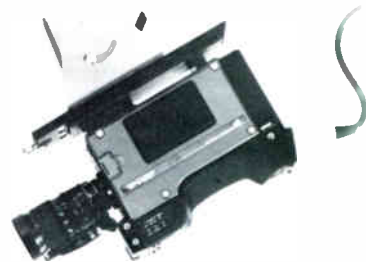
□ Contact: Community Light & Sound, Inc., 333 E. Fifth St., Chester, PA 19013; (215) 876-3400.

Reader Service #38

SHARP TELECONFERENCING VIDEO CAMERA SYSTEM

Sharp Electronics Corporation has introduced a professional quality color video camera system designed for non-technical teleconferencing users.

Features include a teleconferencing



remote panel that incorporates power and control capability for three cameras using only 3.5-inches of rack space. Camera control is via a single coax cable, eliminating the need for-camera cables.

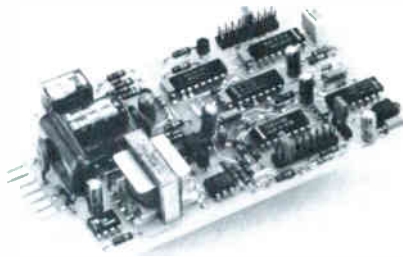
An auto capping feature reopens the lens automatically to the proper F-stop with the lens set on manual, and a remote standby switch to cap the lens and shut off beams is provided to avoid image burn-in and preserve tube light.

□ Contact: Sharp Electronics Corp., 10 Sharp Plaza, Paramus, NJ 07652; (201) 265-5600.

Reader Service #39

MONROE OFFERS NEW PHONE ANSWERING DEVICE

Monroe Electronics, Inc. has announced its new Model 3137B Unattended Telephone Answering Device. This FCC registered three-inch by five-inch circuit card is designed to couple unregistered customer equipment to the public telephone network. The 3137B may be user programmed to auto-answer an incoming call on up to 10 rings, signal an incoming call without answering, or go off-hook on an external logic command. A bi-



directional 600 ohm audio path is maintained during the off-hook condition. Disconnect can be programmed to occur on the central office calling party disconnect signal, on expiration of an internal timer or on an external logic command. Wall and rack mount enclosures with power supplies are available to house from one to ten Model 3137Bs. Power requirement is 12 VDC at 1.09 ma. idle and 60 ma. off-hook.

□ Contact: Don Pritchard, Monroe Electronics, Inc., 100 Housel Ave., Lyndonville, NY 14098; (716) 765-2254.

Reader Service #40



SWITCHING SYSTEM FOR HAZARDOUS CONDITIONS

Designers and production engineers who must control equipment located in hazardous areas can apply fiber optic technology to gain safe, non-electrical switching. A Fiber Optic Snap-Acting Switching System from Unimax Switch combines a fiber optic snap switch and an infrared LED-based transceiver, connected via a high-strength fiber optic cable to provide reliable long-term operation.

The snap switch configuration is the same as an electric precision snap switch. Therefore, the fiber optic switch can be substituted directly for

an electrical switch. Featuring a mechanical life of 50 million operations minimum, the switch offers precision switching and immunity to electro-magnetic interference. It is available in single—or dual—connector models.

The transceiver is equipped with a snap-acting relay for activating or deactivating any electrical system in petrochemical, nuclear power and refineries, food and chemical processing plants and other industrial areas. With the single connector switch model, the transceiver can be placed 100 yards or more from the fiber optic switch. The dual connector switch provides an even greater range.

□ Contact: Jim Andrus, Unimax Switch Corp., Ives Road, Wallingford, CT 06492; (203) 269-8701.

Reader Service #41

ASUZI INTRODUCES PRO-616 ELECTRONIC KEY SYSTEM

Asuzi, Ltd. has announced the introduction of the PRO-616 electronic key telephone system. The first of a family of telecommunication systems, the PRO-616 can handle up to six lines, three intercom paths, and 16 stations.

With over 50 features, such as hands free answerback on intercom, system/set speed dialing, and built-in external music and paging interfaces, Asuzi offers a choice of three telephones, including a built-in speakerphone, and BLF/Speakerphone.

□ Contact: Asuzi, Route 5, 310 Frontage Road, Greer, SC 29651; (803) 879-0066.

Reader Service #66

NEW JBL EQS WITH MORE HEADROOM & LOWER NOISE

Providing improved headroom and lower noise than conventional integrated-circuit gyrator designs, the new JBL 5547 graphic equalizer and 5549 room equalizer use a new solid-state hybrid to synthesize the inductor in the LC circuit, according to JBL.

The equalizers, designed for professional studio and sound reinforcement applications, provide minimum phase shift consistent with amplitude response, and smooth minimum-ripple combining action over control range.

The 5547/5549 systems feature ease of operation. Front panel input and output level controls let the user adjust the signal level through the equalizer, allowing system response to achieve optimal headroom and signal/noise ratio. An LED display presents signal level for determination of precise control settings.

The 5547 active graphic equalizer has 30 1/3-octave bands centered between 25 Hz to 20 kHz, with 12 dB boost or cut available at each center frequency. The 5549 provides corrective room equalization and a 0 to 15 dB cut-only range.

Both models incorporate high and low-frequency end-cut filters.

□ Contact: JBL Professional, 8500 Balboa Blvd., Northridge, CA 91329; (818) 893-8411.

Reader Service #69

PROGRAMS AND CONTROL PARAMETERS FOR REVERBS

Lexicon Inc. has offered expanded software packages for the 224XL Digital Reverberator/Effects Processor and the 200 Digital Reverberator/Room Simulator, giving them broader capabilities. Both models now offer additional reverb programs and enhance-



ments. Retrofit kits are also available.

With the enhanced software, the Lexicon 224XL digital reverberation and effects processor offers four new reverb programs: inverse room, rich chamber, rich plate, and rich split.

In addition to simulating the ambience of a very small room, the inverse room program produces gated sound. It provides an unusual, attention-getting reverb sound that drops off abruptly and unexpectedly. The inverse room program also simulates backwards reverb in real time.

The rich chamber program emulates the sound of a wide variety of acoustic spaces, from tiny to gigantic, in addition to synthesizing reverberation that does not exist in nature. The rich plate program has been improved to pro-

duce denser, smoother sound similar to that of a gold-foil plate. Both the rich chamber and rich plate programs now feature a time-dependent gate which provides precise control over the reverb tail. The new rich split program now enables users to create split reverbs with different, independently variable sizes when the 224XL is split into a pair of separate reverbs.

□ Contact: Lexicon Inc., 60 Turner St., Waltham, MA 02154.

Reader Service #42

VICON ADDS CCTV CAMERAS TO PRODUCT LINE

Vicon Industries Inc. has announced the addition of a full line of two-thirds-inch closed-circuit television cameras to the company's product line. The selection of cameras, ranging from the General-Purpose series to the High-Performance series, complements Vicon's full line of products, which has been expanded to include CCTV monitors and time-lapse video cassette recorders.

Vicon's entire line of cameras is manufactured to accept standard C-mount lenses. In addition, the High-Performance camera series is also compatible with Vicon's designed bayonet-mount lens. The design of the bayonet mount eliminates the cable connecting the lens and the camera body, giving



the whole camera unit a streamlined look. Vicon cameras and lenses are fully integrated to form a single unit.

The VC200 features a resolution of 600 lines or better (horizontal, center), and the VC225 features a resolution of 650 lines or better. Three pickup tube options, the Vidicon, Newvicon,TM and Ultricon,TM offer a broad range of sensitivities. Both models feature auto-

matic circuit functions including automatic gain control, automatic beam control and automatic black level clamp. The VC225 also includes automatic electronic focus control. The VC200 has an automatic light compensation range of 200,000:1 in the Vidicon model; the VC225 has an automatic light compensation range of 500,000:1 in the Vidicon model.

Vicon's High-Performance two-thirds-inch camera series, model VC250, is designed for more demanding operating conditions. Bright, clear images result from a resolution of better than 700 lines. The VC250 offers all the features of the VC225, as well as an automatic light compensation range of 600,000:1 in the Vidicon model, an automatic gain control of 12:1.

Vicon's VC225 will be available for delivery in Fall 1985; the VC200 and VC250 will be available in early 1986.

□ Contact: Vicon Industries, Inc., 525 Broad Hollow Road, Melville, NY 11747; (516) 293-2200.

Reader Service #51

FIELD REPORT

(continued from page 36)

that many pieces of otherwise good audio equipment are unable to reject the normal power line related voltage differences found between chassis of equipment. These voltage differences add with the desired signal, and the result is always less than pleasant. Because they retrofit into existing equipment, may be obtained in many + and - gain configurations and may be used with virtually any (up to + and - 200 volts) existing supply voltages the DIA-1 and two differential input amplifiers, provide the optimum answer to the need for balanced inputs in equipment. The DIA-1 uses split (+ and -) supplies, the DIA-2 uses a single + supply.

Differential input

THD = 0.0012 percent and 2 kHz, 0.0025 percent at 20 kHz 102 dB avg. and 118 peak s/n ratio typ.

13v/μsec slew rate = TIM free operation

Bridging 100 k differential input impedance.

DOA-1A and DOA-2A Line Level Output Amplifiers:

Interfacing a Compact Disc player, FM tuner, audio or video cassette machine to the professional audio environment can be very frustrating. The devices provide an optimum answer to the need for a professional level interface. Variable gain from off to +26 dB.

Balanced outputs.

Variable gain, infinity to +26.

Distortion 0.0009 percent at 2 kHz.

Slew rate, 18V/μsec typ.

Noise -92 dBv out at A= +14 dB

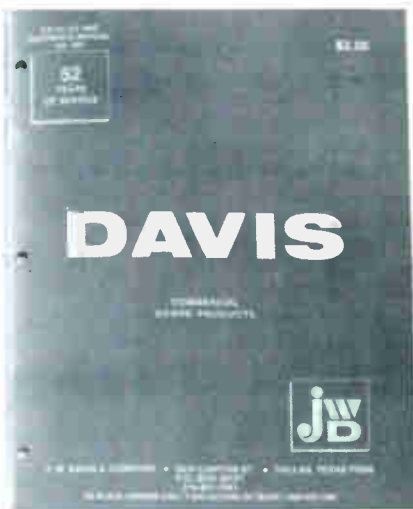
10 k ohm input impedance minimum.

60 ohms balanced output impedance.

Sound & Communications invites interested manufacturers with unique or unusual products to submit a short description, a photo and any available literature to the editor for consideration in our Lab Test Report and Field Report series.

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New Catalog & Reference Manual Available From J. W. Davis

A new edition of J. W. Davis & Company's Catalog and Reference Manual is now available free to qualified electronic systems installers and equipment dealers. Included in the catalog are installation recommendations and technical notes related to audio fundamentals plus many of the most frequently needed mathematical formulas. The 74-page book also contains a broad range of product information covering audio equipment, intercom, nurse call, video and fire alarm systems. In addition, numerous installation components such as remote control switches and speaker mounting braces are offered.

Contact: J. W. Davis & Company, P.O. Box 26177, Dallas, TX, 75226-0177; 1-(800) 527-5705 or 1-(800) 442-1564 in Texas.

Special Prepublication Savings Offered on NATA Sourcebook

The North American Telecommunications Association has made available its 1986 NATA *Telecommunications Sourcebook* at a special prepublication price.

According to the association, the 1986 *Sourcebook* offers a comprehensive knowledge of all the latest marketing trends, the newest equipment, the manufacturers, contractors, suppliers, and service available in your own area and throughout the country.

If you order now, before publica-

tion, pay only \$30 as a member; \$60 as a non-member. After publication, any remaining copies will be sold for \$40 and \$75 respectively.

Contact: NATA, 2000 M St., Suite 550, Washington, DC 20036; 800-LET-NATA or (800) 538-6282.

Winsted Catalog Features Security Support Systems Line

A new catalog of security support systems is available free from the Winsted Corporation. The 12-page



full-color illustrated catalog includes information, specifications, and pricing on Winsted's full line of modular furniture designed especially for professional security systems.

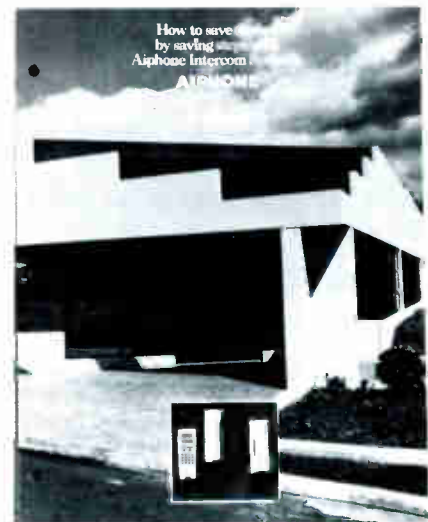
Included in the catalog are security/surveillance consoles, monitoring and reception centers, electronics equipment cabinets, stands, racks, tables, and accessories.

According to the manufacturer, Winsted's modular designed systems offer efficiency and flexibility of arrangement for all brands of security electronics equipment.

Contact: The Winsted Corporation, 9801 James Circle, Minneapolis, MN 55431; (612) 888-1957.

Aiphone Offers Brochure on Industrial & Business Intercoms

A new color brochure on intercom systems for office and warehouse use is now available from Aiphone Corp.



The 12-page brochure features the company's eight most popular intercoms, including the latest microprocessor systems. Full-color photographs show the systems in realistic settings to help customers envision them in their own facilities.

In addition, easy-to-understand definitions are provided to help customers understand such sophisticated features as absence memory, memory call-back and camp-on busy.

Products shown cover the full range of system sizes, from two to 480 stations. Included are the RAX, RCX, YKX, YAZ, LAF, DX, TB-F, TB-H, and AP-M.

Contact: Aiphone Corp., P.O. Box 90075, Bellevue, WA 98009; 1-(800) 692-0200; (206) 455-0510 in Washington.

Talk-A-Phone Mini-Catalog Includes Hands-Free Intercoms

Talk-A-Phone Company has made available a new mini-catalog. The new literature contains hands-free automation intercom as well as standard models. Applications for the systems include office, business, home, and apartment installations. Specialty applications include: self-service gas stations, fast food drive-ups, drive-up banks, mass transit cashiers, security for motels, office buildings, plants and factories.

Contact: Talk-A-Phone Company, 5013 North Kedzie Ave., Chicago, IL 60625; (312) 539-1100.

FACES AND PLACES



ANDREW M. MUSCI



FREDERICK BRADBURY III

Bogen's Sales Department Promotes Musci and Bradbury

Two members of Bogen's sales department have received promotions, it was announced by Carl C. Dorwaldt, vice president, marketing.

Frederick Bradbury III has been named sales manager, telco products. "Fred has led us in rapid growth in the telco field," Dorwaldt said. "Our growth rate in this field exceeds that of the industry." Bradbury was previously with sales for Anixter Bros., Inc.

Andrew M. Musci moves up from sales engineer to marketing specialist. As such, he will research and analyze new markets for Bogen products. Dorwaldt said that Musci's work will "augment our market awareness and bring us even closer awareness of the needs of our customers." Musci came to Bogen from Altel Sound Systems Inc.



JAMES J. GANCI



MEL HULKOWER

Speco Appoints Ganci and Hulkower to VP Positions

Louis W. Keller, president, Speco Division Components Specialties, Inc. has announced the appointments of James J. Ganci to vice president and general manager, and Mel Hulkower to vice president/sales and marketing.

Both Ganci and Hulkower have been with Speco for several years.

James Ganci moves up from his previous position of general manager. Mel Hulkower, was previously director/sales and marketing.

Symetrix Appoints Blankenship National Sales Manager

Symetrix, Inc. has appointed Roy C. Blankenship national sales manager.

Blankenship previously was employed as a manufacturer's representative with Michael Chafee Enterprises, based in Florida. His experience includes retail sales, marketing, computer operations, and manufacturing. Blankenship's duties will include domestic sales, operations, and marketing.

AKG Acoustics Promotes Ravich, Talbot, and Majernik

AKG, Acoustics, Inc. has announced the appointment of S. Richard Ravich to the post of vice president and general manager of AKG Acoustics, Inc. Prior to his promotion, Ravich served as vice president of marketing.

AKG products and distribution are not new to Ravich. He has been associated with the company as top marketing executive for the past eleven years during which his expertise has had marked influence on marketing, production management, sales management, advertising, and administration.

It was also announced that David Talbot has been promoted to the position of sales manager, Professional Products.

Talbot is expected to continue with customer application training as well as dealer relations in coordination with AKG rep organizations. Talbot's experiences have been spread throughout the audio business, and range from consumer sales, audio and broadcast engineering, clinics and seminars to systems design, setup and analysis.

In addition, Robert C. Majernik was promoted to vice president and treasurer of AKG. He has been employed by AKG for the past six years, serving in the capacity of controller.

Majernik's previous work experi-

ences have all been in the general accounting field with broad exposure in accounting and data processing functions, budget and business analysis, automated inventory control, and tax preparation.

F. Davis Merrey, New President for Altec Lansing Corporation

Robert D. Pabst, Audio Division vice president of Gulton Industries has announced that F. Davis Merrey, Jr., will be president of Altec Lansing Corporation.

Merrey holds a B.S.E.E. degree from the Virginia Military Institute and a M.B.A. degree from Golden Gate University. He has worked as manufacturing manager for Transaction Systems, and was later manager of product development for Litton Dental Products. He joined Electro-Voice in 1976 as manager of one of their plants, and later was made general manager of Electro-Voice's EV-TAPCO facility in Seattle, WA. In 1981, he became Electro-Voice's vice president of operations.



F. DAVIS MERREY



WILLIAM SETON

Harmony Music Names Seton To Head Pro Sound Department

Harmony Music and Sound has named William Seton to head and develop its newly formed professional sound department, it was announced by Robert Feltz, vice president and general manager.

Prior to joining Harmony, Seton held engineering technical positions for Walt Disney World, Comcast Sound Communications, and the opening ceremonies for the 1984 Summer Olympics in Los Angeles. He is also a Syn-Aud-Con graduate.

REP NEWS

Bertagni Electroacoustic Systems has appointed 14 sales representatives to its commercial division. They are: **Peregrine Southwest Reps**, Houston, TX; **Powerline**, Evanston IL; **Forristal-Young Sales Co.**, Kansas City, MO; **McFadden Sales, Inc.**, Columbus, OH; **L.C. A. Sales**, Tuckahoe, NY; **The Smith Company**, Hartford, CT; **World Wide Electronics**, Pembroke Pines, FL; **Mel Foster Technical Sales, Inc.**, Edina, MN; **Design Factors**, La Habra Heights, CA; **Avwest, Inc.**, Fountain Hills, AZ; **Henry W. Phipps Co., Inc.**, Roswell, GA; **Roger Ponto Assoc.**, Bellevue, WA; **Roy Colen Sales**, Mill Valley, CA; and **J. C. Electronics**, Honolulu, HI.

Aiphone Corp. has appointed **Mel Foster Technical Sales Inc.** of Edina, MN, as its commercial sales representative for Minnesota, North and South Dakota, and western Wisconsin.

With more than 62 years experience in technical sales, the Mel Foster com-

pany will conduct Aiphone's sales through its audio division. (David Voelke, division head, can be contacted at (612) 941-9800.)

Carl C. Dorwaldt, vice president, marketing for **Bogen** has announced the appointment of **Sproch Sales, Inc.**, as Florida sales representative.

The appointment, which became effective on September 1, 1985, gives the Fort Lauderdale agency full responsibility for sales of all Bogen products in the state of Florida, which is Territory #13 in the EIA Unit Territory Plan. The sales corporation, founded in 1961, is headed by Elaine Sproch and has its major experience in the sound equipment field.

The election of four industry leaders to lifetime membership in the **Electronic VIP Club** has been announced by Sanford Levey, the president of the Electronic Distributors, Inc., Chicago, IL. New members are **Blair K. Haas**, **Bud Industries**, Willoughby, OH; **Eugene Haas**, **Instrument Dynamics Inc.**, Wakefield, MA;

Gary McLaughlin, **Telcom Marketing**, Englewood, CO; and **David H. Hyers**, **Naudain Associates Southern**, Gaithersburg, MD.

Blair Hass is vice president, marketing, of Bud Industries, a manufacturer of cabinets and closures, active in the Electronic Industries Association/Distributor Products Division, and a third-generation electronic VIP. He is not related to Eugene Haas, a White Pin member of the Electronic Representatives Association, who is also active in the IEEE and on the Electro Show Board of Directors. McLaughlin and Myers are also ERA activists, serving with distinction on the ERA National Board of Directors.

Cetec Raymer has named **Northshore Marketing, Inc.** of Seattle, WA, to represent their full line of audio products in Oregon, Washington, west Idaho, west Montana, and Alaska.

The appointment, which became effective on September 1, 1985, is (continued on page 48)

multimixer

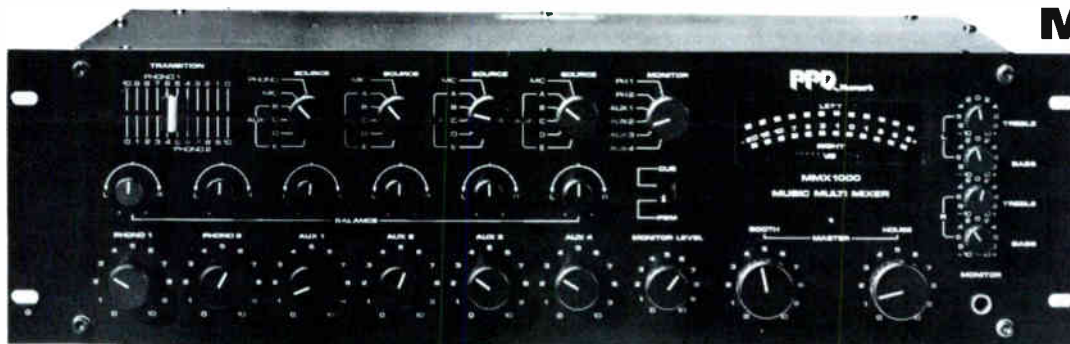
MMX1000

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INTERFACE AIDS IN ADDING ALERTS TO KEY SYSTEMS

Telephone alerts such as chimes, horns, and strobes can be added to electronic key systems that are equipped with a dry contact closure with the aid of an interface module which has been introduced by Wheelock, Inc. A built-in relay in the dry contact interface module (DCI) minimizes the load on a key system's dry contacts to prevent overcurrent conditions which can damage the contacts and require expensive service time to repair. The DCI module handles any inductive, resistive or capacitive load up to 300 mA at 24 VDC and provides a compact all-in-one package for adding up to five telephone extension alerts.

Contact: Wheelock Inc., 273 Branchport Ave., Long Branch, NJ 07740; (201) 222-6880.

Reader Service #44



RACK MOUNT CABINETS FOR SECURITY ELECTRONICS

A line of rack mount cabinets for security electronics equipment has been introduced by The Winsted Corporation. Available in standard 14-inch, 21-inch, and 28-inch heights, and all 16-inches deep, the high-tech cabinet components are designed to house electronic equipment and offer flexibility in cabinet arrangement.

The line includes modular Add-A-Rack cabinets for arrangement of multiple cabinets. Corner filler kits are of-

fered for use in arranging cabinets at a 90-degree angle. Rack wedges allow cabinets to be tilted at 15 degrees for easier, glare-free viewing.

All cabinets are standard EIA 19-inch width, available in plastic laminate in grey and beige finish. Vented bottoms keep electronics cool.

Contact: The Winsted Corporation, 9801 James Circle, Minneapolis, MN 55431; (612) 888-1957.

Reader Service #45



VALCOM'S NEW MIC ADAPTER FOR PAGING

Valcom has introduced the V-9939 microphone adapter, designed to be used with Valcom's one-way paging equipment. Used in conjunction with a stand alone paging system or as an access a selected zone of a multi-zone system, the V-9939 works with most high or low impedance microphones that have a push to talk switch. Screw terminals are provided for all connections.

Contact: Valcom, 1111 Industry Ave. S.E., Roanoke, VA 24013; (703) 982-3900.

Reader Service #46

TOUCHTONE TOLL RESTRICTOR FROM MA BEST

Ma Best Telephone Products has announced its new touchtone toll restrictor, the PTR-28, for controlling and eliminating unauthorized toll and long distance telephone calls.

A standard touchtone telephone may be plugged into the PTR-28 by the user so he may program into the memory in the PTR-28 exactly which types of telephone calls may be called, plus which types will be restricted for use by employees.

The PTR-28 is connected to any touchtone telephone line using two modular plugs into the two modular

jacks in the restrictor. The memory in the restrictor is non-volatile and will not be effected by a power failure.

The user may select specific area codes and telephone exchanges that may be called by employees. He may also select specific area codes and telephone exchanges that may not be called by employees.

In addition, a special bypass code number of up to eight digits may be programmed to allow the owner, or principals of a business make unlimited types of calls, without any restriction. The restrict program and the bypass code may be changed.

Contact: Ma Best Telephone Products, P.O. Box 4522, N. Hollywood, CA 91607; (818) 760-8500.

Reader Service #47



APHEX INTRODUCES AURAL EXCITER® CHIP & LICENSING

Aphex Systems Limited has introduced the basic Aural Exciter circuitry on a low-priced, monolithic chip dubbed the MAX™ (Monolithic Aural Exciter) circuit.

The MAX circuit is available on a licensing basis from Aphex for use in a variety of products. The first licensees are: AKG, Munich, Germany, Gentner Engineering, Midvale, UT; and Numark Electronics Corp., Edison, NJ. Each company is using the circuit for uniquely different products.

According to Aphex president, Marvin Caesar, several other companies are negotiating for use of the circuit. "Professionals involved with sound have known the benefits of the Aural Exciter for years," he said, "now that musicians are using it, electronic music equipment manufacturers are interested in it...and there are many applications in the consumer electronics, sound contracting, and tele-communications that can benefit from the circuit."

Contact: Aphex Systems Ltd. 13340 Satcoy St., North Hollywood, CA 91605; (213) 765-2212.

Reader Service #48



GOOSENECK MICROPHONE ARMS FROM UNIPRISE

The Uniprise Corporation has introduced a new line of black flexible gooseneck microphone arms.

The finish has been developed for non-reflective uses such as in video applications. According to the manufacturer, it has enhanced durability and wear characteristics and will withstand a 200-hour salt spray test as well as standard adhesion tests.

The arms are designed for consistent quiet movement throughout. Three size combinations are available: .315 O.D./ .160 I.D.; .460 O.D./ .250 I.D.; .585 O.D./ .295 I.D. Lengths are available from six inches to 30 inches.

All three sizes are available with standard 5/8-27 male and female fittings. A 5/16-24 male fitting is available for the .315 O.D. as well.

Contact: Uniprise, 15 Hickory Dr., Roslyn, NY 11576; (516) 621-6987.

Reader Service #49

DABURN ELECTRONICS ANNOUNCES LINE OF CABLE

Daburn Electronics & Cable Corp. has introduced a line of miniaturized shielded control and instrumentation cable for use in interconnecting electronic equipment, control, instrumentation, telemetry, remote control equipment, and sensitive recording instruments: Daburn series number 2550.

The cable is run to MIL-W-16878D; it is rated at 600 volts, and operates at 105°C. Its PVC jacket resists acid, alkali, flame, moisture, solvents, and fungus. The cable is stocked in 2,3,4,6,8,12,15, and 20 conductor constructions, on 500 and 1,000-foot standard spools.

Contact: Daburn Electronics & Cable Corp., 70 Oak St., Norwood, NJ 07648.

Reader Service #50

SPECIFYING

(continued from page 19)

require individual qualification of contractors to bid the job. This could mean detailed personal interviews with the contractor and engineers, or lists of installations of similar systems that the engineer may want to inspect. And as with any situation, a thousand successful installations won't make up for one mistake. A bad reputation can be developed overnight and become a real up-hill battle to eradicate. So it pays to take a good hard look at each job and determine whether you want to be involved in it. Many of the so-called prestige installations can quickly become a can of worms.

Major jobs are not the only time to talk to electrical contractors. Developing good working relationships with several electrical contractors may provide you with additional smaller contracts, such as a sound system which is included as an afterthought or as a very minor clause in the specs. The electrical contractor may seek out someone knowledgeable he has worked with in the past to take the minimal information in such situations and transform them into a sound system that

fits the budget.

Experience—The Best Teacher

Experience is the very best teacher in this field. Familiarity with this system will show you who the "winningest" electrical contractors are and which engineering and architectural firms do the design work that includes the type of work that is of interest to you. In some cases, the consultants that design of sound systems and telephone and interconnect systems may not be locally-based, but may be a well-known national organizations. In cases such as this, you have to hope that they actively pursue data directly from the manufacturers.

It is generally not practical to attempt to provide them with information unless you happen to have a product without a national distribution such as foreign-source equipment or a product you are designing and building for specific applications. In cases such as this, it will likely be worthwhile to make a presentation to them and see what sort of applications they may find for it. In the cases of products that you are developing, it could be the fastest way to establish them in the marketplace.

APPLICATION FOR MEMBERSHIP



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Please complete the application and mail it to NSCA.

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National Sound and Communications Association

IDEAS & VIEWPOINTS

(continued from page 6)

I never recommend my sales tactics, especially the dangerous ones! I can only say that this worked for me (and that variations on this tactic have worked for me many times in the past). The secret to knowing when to use a tactic like this one is to be able to analyze what's really happening in a sales meeting. In this one, the problem wasn't price, it was a lack of confidence. The bold tactics I used were an attempt to restore that confidence and, in this case, I learned they work.

AES

On a more formal note, the New York AES convention is upon us again. It always comes up faster than I expect it. Yet, I always look forward to seeing what has become a rather large group of only-at-convention friends. And I particularly look forward to finding out what's new from the manufacturers and to attending the papers, workshops, and seminars.

If you're like me, you don't think about AES very often. It comes into my awareness only when a particularly interesting local meeting or a national

convention comes up. This year, however, AES caught my attention several times. Most recently, it was the official ballot that got me thinking. I was pleased to see a large group of candidates apparently eager to sacrifice their time and reputation to become an AES officer. I knew most of them, too. I guess that either means a lot of my friends are getting politically active or it means I've been in this business a long time. Anyway, I voted and I hope you did too. It's the best voice we have in one of the most important societies we have.

A Step in Another Direction

In either case, an informal sales meeting or a more formal convention seminar or technical paper, we are responsible for furthering our own education. Also in either case, the lessons we learn enable us to take advantage of opportunities which previously may not have been within our grasp, such as a prospective sales or utilizing a new technology.

So, in taking control of our education and future, I would like to tell you a little more on my next proposal for a market expansion program.

If you don't recall the proposal, read

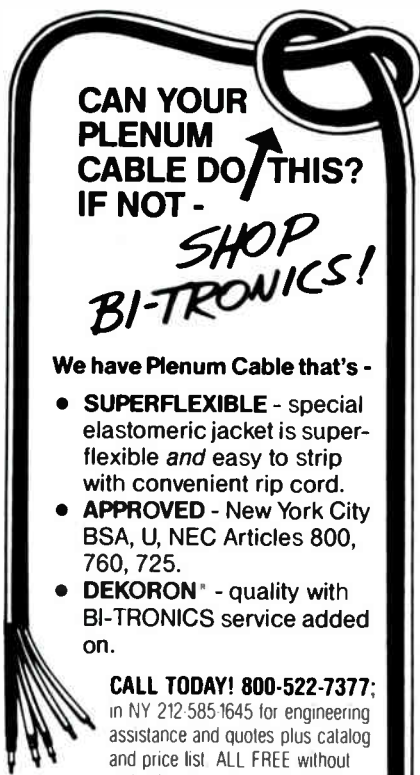
Ideas & Viewpoints in the August issue. August is the Bluebook issue so it stands out and I expect that you still have it. In that editorial, I proposed a program designed to expand our market(s)—to make the pie bigger. The program would be run through the NSCA.

There will be a way for everybody to participate. The program will need volunteer efforts (seminar speakers for example) and monetary contributions (for travel expenses and advertising). Think of it as priming the pump. In the end, the entire industry will benefit but there's a certain amount of front work required.

I have three questions for you: 1) Do you support such an effort in principal? 2) Will you support the actual effort even if your favorite market segment isn't on the initial agenda? 3) What type of contribution (time, money, expertise) are you willing to make?

See you at AES...

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REP NEWS

(continued from page 45)

fective on September 1, 1985, gives Northshore Marketing the distinction of representing all three sound product companies in the Cetec Corporation: Cetec Raymer, Cetec Ivie, and Cetec Vega, according to Hugh Wilcox, executive VP, Cetec Raymer.

Martin Audio Video Corporation of New York City, has been named "**Dealer of the Year 1984-1985**" by **Lexicon Inc.** This is the second, successive time Martin Audio Video has received Lexicon's Dealer of the Year award. It was presented recently to **Courtney Spencer**, vice president and general manager and **Brian Zolner**, manager of advanced products.

Repcon '85, the annual fall electronics exhibition meeting and show of the **New York Chapter of the Electronic Representatives Association (ERA)** which was held October 2 and 3 in Flushing Meadow Park, NY, this year expanded the education seminars that were offered. Four seminars were added to the agenda with two different topics being discussed each day of the show, it was announced by **Lou Keller Associates, Inc.**, show co-chairman.

"Based on the success of last year's seminars, we expanded the educational aspects of the two-day event," said **Stan Axelrod** of **Stan Axelrod Associates**, and co-chairman.

On the show schedule was **Robert V. DeGennaro**, president of **Video Surveillance Corp.**, with a seminar entitled "**Let's Look Behind the Scenes at Video Surveillance.**" Followed by **Kenneth R. Laird**, director, commercial marketing and sales, **TeleConcepts**, his subject "**Getting Started in Telephone Interconnect—One of Today's Most Promising Markets.**" "There are Two sides to STereo TV," was the topic chosen by **David Rhoades**, founder of **Rhoades National Corp.** The final seminar by **Glenn M. Stawicki**, sales manager, **Blonder-Tongue Laboratories**, was "**Satellite Master Anenna TV—How it Affects the Distributor and Contractor Today.**" **Ed Hulse**, senior editor of **Home Satellite Marketing Magazine**, gave an overview speech of the home satellite marketplace.

To have your rep news listed, please send your information to: Rep News, Sound & Communications, 220 Westbury Ave., Carle Place, NY 11514.

DATE	EVENT/COMMENT	LOCATION	CONTACT
October 22-23	Sound Engineering Seminars Two-Day Seminar in Audio and Acoustics by Syn-Aud-Con.	Ramada at Tyson's Corner Washington, D.C. area	Synergetic Audio Concepts Don Davis (714) 728-0245
October 22-24	Northcon/85 —High-tech electronics exhibition and conference.	Portland Memorial Coliseum Portland, OR	J. Fossler (213) 772-2965
October 30-31	Sound Engineering Seminars Two-Day Seminar in Audio and Acoustics by Syn-Aud-Con.	Perimeter North Inn Atlanta, GA	Synergetic Audio Concepts Don Davis (714) 728-0245
November 4-8	110th Meeting of the National Council of Acoustic Consultants/ Acoustical Society of America.	Nashville, TN	ASA (212) 661-9404 NCAC (201) 379-1100
November 6-10	30th Annual Convention International Planned Music Association.	Lake Buena Vista Palace Hotel Orlando, FL	Oland Chan (215) 667-6666 Steve Randall (801) 328-4245
November 10-13	10 Years of Excellence Southeastern Telecommunications Association's Conference.	Diplomat Hotel Hollywood, FL	SETA (804) 746-3195
November 13-14	Sound Engineering Seminars Two-Day Seminar in Audio and Acoustics by Syn-Aud-Con.	Perimeter North Inn Atlanta, GA	Synergetic Audio Concepts Don Davis (714) 728-0245
November 13-15	The Annual Communications Managers Assn. Telecommunications Conference/Exhibition.	Long Island Marriott Hotel and the Nassau Coliseum Uniondale, NY	CMA (201) 766-3824
November 18-19	Electronic Sound & Systems Conferences, Inc. Regional educational conference and exhibit sponsored by the NSCA and ERA.	The George Washington Lodge King of Prussia, PA	Bob Barba (312) 593-8360
November 19-22	Wescon/85 High Technology Electronics Exhibition and Convention.	Moscone Center Brooks Hall/Civic Auditorium San Francisco, CA	J. Fossler (213) 772-2965
November 21-22	Electronic Sound & Systems Conferences, Inc. Regional educational conference and exhibit sponsored by the NSCA and ERA.	The Sheraton-Washington N.E. New Carrollton, MD	Bob Barba (312) 593-8360
December 2-3	Electronic Sound & Systems Conferences, Inc. Regional educational conference and exhibit sponsored by the NSCA and ERA.	The Westin Oaks Galleria Houston, TX	Bob Barba (312) 593-8360
December 3-6	North America Telecommunications Association Show.	Infomart Dallas, TX	NATA Convention Dept. Washington, DC 20036 (202) 296-9800
December 5-6	Electronic Sound & Systems Conferences, Inc. Regional educational conference and exhibit sponsored by the NSCA and ERA.	The North Park Inn & Convention Center Dallas, TX	Bob Barba (312) 593-8360
December 9-13	Video Expo Orlando Exhibit of the latest video equipment and technology.	Hyatt Regency, Grand Cypress Orlando, FL	Video Expo (800) 248-KIPI (914) 328-9157 in NY

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Reader Service #204

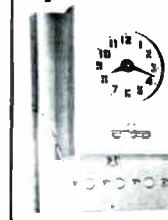
Electrical Wire & Cable
Lorum Street, Tomsbury, Mass. 01876
Tel. (617) 851-4541

Manufacturers of quality sound & communications cable.
Stock & price list mailed on request

Reader Service #208

CLOCK AND PROGRAM SYSTEMS

by MONTGOMERY



NEW! MULTICIRCUIT — Provides complete automatic operation of 1 to 5 separate schedules on 1 to 5 groups of signals. Signals adjust from 2 to 25 seconds. Calendar switch regulates automatic operation. Clock and program mechanism set by turning hands. Special signals, by push-buttons, do not disturb automatic operation. 12 or 24 hour models.
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CONCERT SOUND SYSTEM, excellent condition, little use: Klipsch MCM & La Scalas; Crown amps & elec.; Electro-Voice monitors, mikes & mixing. Calliope, Box 3402, Littleton, CO 80161. Phone: early a.m. or late p.m. (303) 795-8835.

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***Time-Master
keeps the music going in time
with the business.
Without changing tapes!***



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corded promotional announcements between musical tapes. Our unique endless loop tape cartridges allow playback of six different cartridges, each containing up to 10 hours of music, providing a total of 60 hours with no repeats. □ If your customers are busy business people, recommend Time-Master. The *only* background music system in the business that changes tapes *automatically!*

To find out more, contact Custom Music[®], Rowe International Inc., 75 Troy Hills Rd., Whippany, NJ 07981. 201-887-0400. □ Rowe International, Subsidiary of Triangle Industries, 75 Troy Hills Rd., Whippany, NJ 07981-3608. (201) 887-0400.

CPC-180
CUSTOMUSIC[®]
SOUND SYSTEMS THAT STAND ALONE

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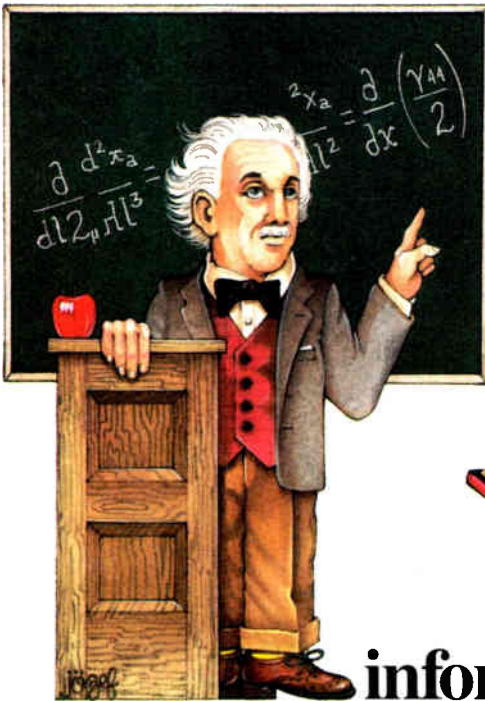
legislation



deliberation



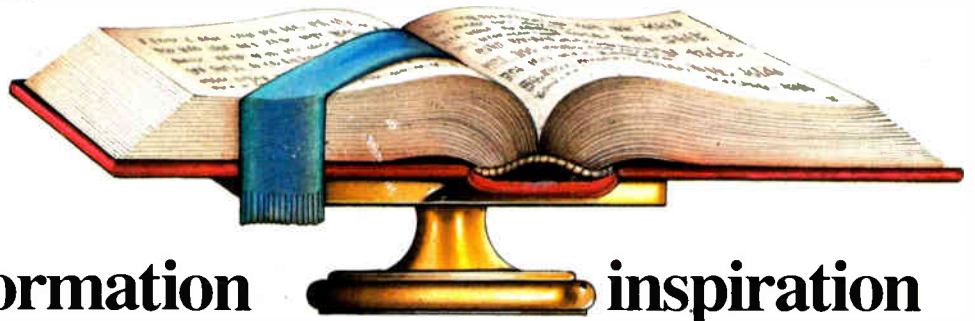
observation



information



conversation



inspiration

The Shure Automatic Microphone System... wherever microphones and people gather.

AT&T World Headquarters. The Pentagon. Bally Casino. St. Peter's Cathedral. Alberta (Canada) Provincial Courts. Ft. Wayne City Council. Wherever speech-related multi-mic systems are needed, the Shure Automatic Microphone System (AMS) provides the perfect solution. It combines microphone, mixer and logic technology in a totally integrated package.

The AMS System turns on and off automatically with the sound source—smoothly, quickly and quietly. Unlike other multi-mic systems, set-up is quick and simple with no need for complicated readjustment after the initial installation. Add-on options include the AMS 880 Video Switcher

Interface. It's these features that make the Shure AMS the number one choice for multi-mic applications—from security monitoring to churches, courtrooms, conference rooms, legislative chambers and broadcast studios.

Shure's Automatic Microphone System—the right mic, wherever microphones and people gather.



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Reader Service #286