

CEDTM

Communications Engineering Digest/The Magazine of Broadband Technology

January 1982

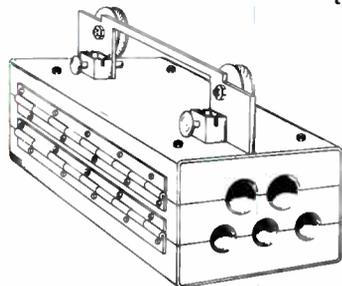


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Western Cable Show:
• Product Review
• Technical Sessions
Feed-Forward Trunk Amplifiers



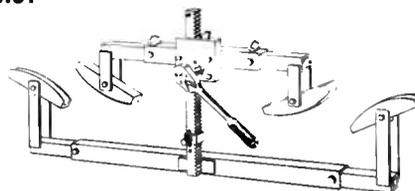
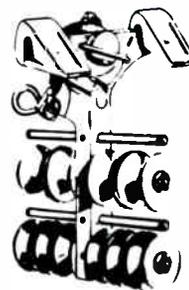
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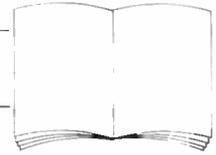
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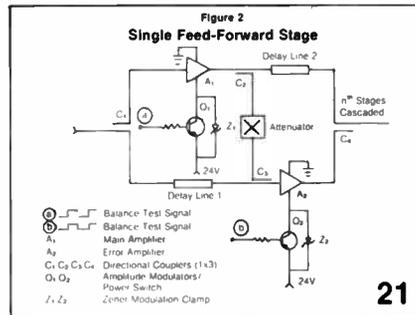
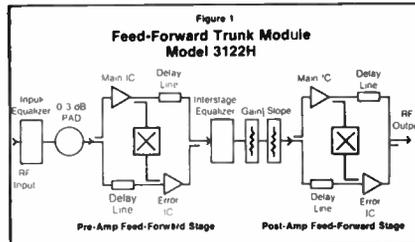
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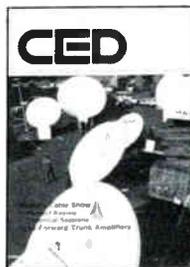
Microprocessor Monitoring Of Trunk Amplifiers 21

Deterioration in the hybrid IC of a feed-forward stage of a super-trunk amplifier system can be detected with a headend microprocessor system.



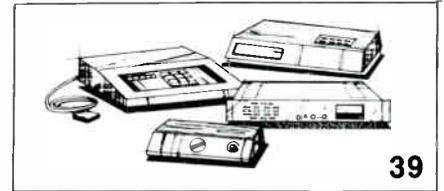
Western Show Tech Sessions: New Technologies And Manpower 30

Cable-ready receivers, signal leakage, system design, status monitoring systems and the manpower needs of the cable industry were among the topics discussed.



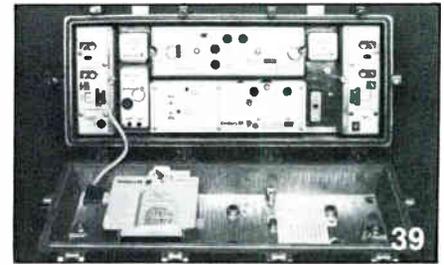
About the Cover

Earth stations sprouted overnight like mushrooms in the parking lot of the Disneyland Hotel in Anaheim, California, last month at the 13th annual Western Cable Show. Photo by Rob Stuehrk.



Tech Review 39

An overview of new products from more than 100 manufacturers.



International News 84

German postage authorities award IBM videotex contract.

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"Our 400 MHz distribution equipment from Scientific-Atlanta exceeded performance specs even after 36 amplifiers."

-Ted E. Hartson

Manager of Engineering Services, Capital Cities Communications, Inc.



Bill Pruitt of Omnicon and Ted Hartson check proof-of-performance results for Omnicon's new 400 MHz system in Plymouth, Michigan, a suburb of Detroit.

When Omnicon Cablevision — a subsidiary of Capital Cities Cable — began work on their new 400 MHz system in Plymouth, Michigan, they came to Scientific-Atlanta for distribution equipment. Trunk amps. Line extenders. Splitters, taps, and passives.

And as Ted Hartson put it, "We had set high standards for performance.

"Scientific-Atlanta's 400 MHz distribution equipment looked very good on paper. But only after the system was up and running did we find out just how good it really is.

"We checked the system with a proof-of-performance test at the end

of a cascade that included thirty-six trunk amplifiers, a bridger, and a line extender.

"To our knowledge, this was the longest 400 MHz cascade anywhere, and the first time such a cascade had been proofed."

The results? Impressive.

"Frequency response was excellent, with a total peak-to-valley figure of 3.4 dB. Picture quality was as good or better than many 300 MHz systems.

"As far as we're concerned, this is conclusive evidence that high-performance 400 MHz distribution is no longer just theory. It's a practical reality — with a lot of help from Scientific-Atlanta."

Omnicon proof-of-performance results

CH. #	S/N	CTB*	X-MOD
4	44	-57	-51.5
D	45	-51	-53
R	45	-45	-54
QQ	44	-46	-57

*measured with CW carriers

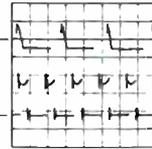
Send for detailed proof results

We'd like to send you details on the Omnicon proof-of-performance tests so you can evaluate the results for yourself. For more information, call Solomon Webb at (800) 241-1966. Or write us.

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Get a Dish

It's free dish giveaway time, again. In an effort to establish Southern Pacific's SpaceNet I as a major cable bird, Satellite Syndicated Systems is spearheading a campaign to urge companies that have acquired transponders on the SpaceNet bird to distribute up to 1,000 free TVROs so that cable systems can carry their programming. According to SSS spokesman Bill Sullivan, programmers are expressing strong interest in the idea and six companies have made definite commitments so far. The dish distribution will begin some time before the 1984 launch of the SpaceNet I satellite.

Changing Spectrum

One of the problems with the DBS systems that are being proposed is the effect the service will have on present terrestrial microwave users. Unless the Federal Communications Commission divides the 12 GHz band to separate effectively the terrestrial and satellite users, many terrestrial users will be displaced to make way for the new technology. According to Irving Goldstein, president of Satellite Television Corporation—one of the leading candidates for a DBS system—his company intends to reimburse all non-profit microwave users for expenses incurred while changing frequencies. However, Goldstein said all other companies "have been on notice since 1977" that the FCC was considering allocating frequencies in the neighborhood of 12 GHz for DBS, and should bear the costs themselves. "No one has an absolute right to spectrum on a permanent basis," Goldstein said.

Mass Appeal

While much attention in the converter manufacturing industry is focused on the inadequacies of some products, Pioneer Communications of America is directing its attention towards its ability to mass produce converter equipment. According to President Bob Matsumoto, Pioneer's mass assembly facilities are currently manufacturing several tens of thousands of converters per month and have additional production capacity available to meet projected industry new-build needs of approximately two to three million converters through 1986. Pioneer's production capability, according to company officials, was a factor in winning contracts from the cable companies that received New York City borough franchise recommendations. A company spokesman said that Pioneer converter and VIP systems were bid by the cable operators who received franchise recommendations for 41 percent of the total homes-passed in New York City boroughs.

More Icing

Seeking more customers for its K-band transponders, Satellite Business Systems may make some modifications in its Transponder Capacity Service, according to company officials. The company's goal is to lease its four remaining transponders available under the Transponder Capacity Service, which have stayed unused while all available C-band transponders have been taken. The modifications may include elimination of a 15-minute pre-emption clause that has bothered some potential customers, as well as a change in a provision regarding complete terminations of service in the event of a launch failure of SBS-3.

Reach Out and See Someone

Ma Bell doesn't want its customers to merely "reach out and touch someone." Now it wants customers to see each other as well. AT&T has just announced plans to develop a videoconferencing service. The company plans to file with the Federal Communications Commission to offer the service in 16 cities next year and 42 cities by 1983. AT&T's videoconferencing network will consist of studio rooms on the customers' premises and rooms in Bell System buildings. Bell's rooms would be available for videoconferencing on a rental basis. "We've found that meetings by video teleconference are shorter, more direct and more productive than many in-person meetings," said John D. Foster, AT&T Long Lines' marketing director. The company first proposed establishing a video conferencing network in an FCC filing last March.

Teletext Tellers

Citibank is just one of many banking institutions that is thinking about getting into the cable TV business. Presently, the firm is conducting a 125 home-banking experiment using telephone lines in Queens, New York. In addition to home banking, the service offers bill-paying and other banking transactions. A terminal is being put together. Citibank officials say, that will serve as a home computer with a hand set hooked in. Citibank Vice President J. Fred White said that company officials are considering connecting the experiment to a cable network in the future. "The strategy is to go into homes nationwide," White said. The project, which has been operational for about four months, is a study of the possibilities of using teletext. "This is what the future looks like for the banking industry," White added.

Transponder Transition

On December 28 at 5:35 a.m. (EST), RCA Americom began the process of moving its Satcom I customers to the recently launched Satcom III-R. The bird is not slated to be fully operational until January 31, and the transition period is designed so cable companies can make the necessary earth station adjustments to pick up signals from the new satellite. During the transition, RCA will provide a dual feed for its customers that use the RCA uplink facilities in order to provide a smooth change-over. The carrier is also preparing for the January 14 launch of Satcom IV. The bird is scheduled to lift off from Cape Canaveral at 8:50 p.m. (EST) with an "ideal launch window" of 40 minutes beginning at that time.

Whattaya Mean New?

An old nemesis of the cable television industry has compounded its historical insults by lumping cable television into a category referred to as "new" technologies. The National Association of Broadcasters has released an 87-page book entitled *New Technologies Affecting Radio and Television Broadcasting*. The "new" services are: cable, MDS, STV, low-power stations, VHF drop-ins, DBS, high-definition television, videotex, new receiver technology, videocassette records and videodisc players. Compared to the rest of the group, cable is the granddaddy of them all. If the broadcasters try to take on the other "newcomers" as vigorously as their attempt to stifle cable, they may end up feeling older and older very soon.

Seminars



January

11-15: The fourth annual **Communications Networks 1982** exposition will be held at the Atlanta, Georgia, World Congress Center. Contact Bill Leitch, (617) 879-0700.

12: The **Coalition for Women on Cable** is conducting a cable TV information workshop in Austin, Texas. Contact Suzanna Musick, (512) 477-3887.

13: The **New England Cable Television Association** winter conference will be held at the Sheraton Tara Hotel in Nashua, New Hampshire. Contact Gary Cain, (603) 224-3373.

15-16: The Rocky Mountain Chapter of **Women In Cable** will be holding a two-day seminar on "Management Skills" with analysis for women at the Rodeway Inn in Littleton, Colorado. Contact Pat Cramer, (303) 779-5999.

20: "Basics of Cable Television," a cable education course presented by the New York Chapter of **Women In Cable**, will be held at the Urban Coalition Building in New York City. Contact Jean Paiva, (212) 683-2900.

20-22: Magnavox CATV Systems will be holding a field training seminar in its Mobile Training Center in Los Angeles. Contact Kay Hinkle, (315) 682-9105.

25: A panel discussion entitled "Where are we now?" sponsored by the Rocky Mountain Chapter of **Women In Cable** will be held at a location to be determined. Contact Pat Cramer, (303) 779-5999.

25-27: Magnavox CATV Systems will be holding a field training seminar in its Mobile Training Center in Los Angeles. Contact Kay Hinkle, (315) 682-9105.

26-28: The **American Newspaper Publishers Association** will be holding an electronic publishing seminar at the Shoreham Hotel in Washington, D.C. Contact Kathleen Criner, (703) 620-9500.

27: "Basics of Cable Television," a cable education course presented by the New York Chapter of **Women In Cable**, will be held at the Urban Coalition Building in New York City. Contact Jean Paiva, (212) 683-2900.

28-30: Magnavox CATV Systems will be holding a field training seminar in its Mobile Training Center in Los Angeles. Contact Kay Hinkle, (315) 682-9105.

28-30: The first national conference and exposition for low-power television, **LPTV '82**, will be held at the Sheraton Washington (D.C.) Hotel. Contact Arlene Curtiss, (203) 852-0500.

February

3: "Basics of Cable Television," a cable education course presented by the New York Chapter of **Women In Cable**, will be held at the Urban Coalition Building in New York City. Contact Jean Paiva, (212) 683-2900.

4-5: "Videotex: Market Experience and Development" is the topic of a seminar/course by the New York University School of the Arts. Contact William Herring, (212) 598-3338.

7-10: The annual convention of the **National Religious Broadcasters** will be held at the Sheraton Washington Hotel in Washington, D.C. Contact the NRB, (201) 575-4000.

9-10: A seminar sponsored by the **Cabletelevision Advertising Bureau** will be held at the Waldorf-Astoria Hotel in New York City. Contact Saralee Hyman, (212) 751-7770.

9-10: The **Arizona Cable Television Association's** annual convention will be held at the Phoenix Hilton Hotel. Contact the ACTA, (602) 257-9338.

10: "Basics of Cable Television," a cable education course presented by the New York Chapter of **Women In Cable**, will be held at the Urban Coalition Building in New York City. Contact Jean Paiva, (212) 683-2900.

14-15: The **Idaho Cable Television Association's** annual convention will be held at the Red Lion Rivershore Hotel in Boise. Contact Randy Merrell, (208) 785-5705.

17: "Basics of Cable Television," a cable education course presented by the New York Chapter of **Women In Cable**, will be held at the Urban Coalition Building in New York City. Contact Jean Paiva, (212) 683-2900.

17: A one-day conference on "The Economics of Marketing Cable TV Security" sponsored by **Paul Kagan Associates** will be held at the Four Seasons Hotel in San Antonio, Texas. Contact Judy Pinney, (408) 624-1536.

17-19: The 22nd annual Texas Show sponsored by the **Texas Cable TV Association** will be held at the San Antonio Convention Center. Contact Bill Arnold, (512) 345-8888.

23-25: Turner Broadcasting System is sponsoring an advertising/production seminar at the Atlanta Hilton. Contact Jayne Greenburg, (404) 898-8587.

23-25: NEPCON West '82 will be held at the Anaheim (California) Convention Center. Contact Cahners Exposition Group, (312) 263-4866.

23-25: The fourth Video Expo San Francisco, sponsored by **Knowledge Industry Publications**, will be held at the San Francisco Civic Auditorium. Contact Barbara Katz, (914) 328-9157.

24-26: The **American Newspaper Publishers Association** will be conducting a seminar on newspapers and cable television at the Fairmont Hotel in Denver. Contact Kathleen Criner, (703) 620-9500.

March

3-5: The annual convention of the **Arkansas Cable Television Association** will be held at the Arlington Hotel in Hot Springs. Contact the association, (501) 661-7676.

7-9: The annual convention of the **Ohio Cable Television Association** will be held at the Hyatt Regency in Columbus. Contact the OCTA, (614) 461-4014.

8-9: A seminar on teleconferencing technologies, sponsored by **Cross Communications** and **Colorado Video**, will be held in Boulder, Colorado. Contact Thomas Cross, (303) 499-8888.

11-16: The **National Association of Television Program Executives'** 19th annual conference will be held at the Las Vegas Hilton in Las Vegas, Nevada. Contact NATPE, (717) 626-4424.

16-18: Information Gatekeepers Inc., is sponsoring COMSEC '82, the international communications security conference and exposition, at Boston's Hyatt Regency Cambridge. Contact Michael O'Bryant, (617) 739-2022.

29-31: The 1982 Information Utilities conference, sponsored by **Online, Inc.**, will be held at the Rye Town Hilton Hotel and Conference Center in Rye, New York. Contact Jean-Paul Emard or Jeff Pemberton, (203) 227-8466.

April

4-7: The 60th annual convention of the **National Association of Broadcasters** will be held at the Dallas Convention Center, Dallas, Texas. Contact the NAB, (202) 293-3500.

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Operating Systems	Yes	Yes

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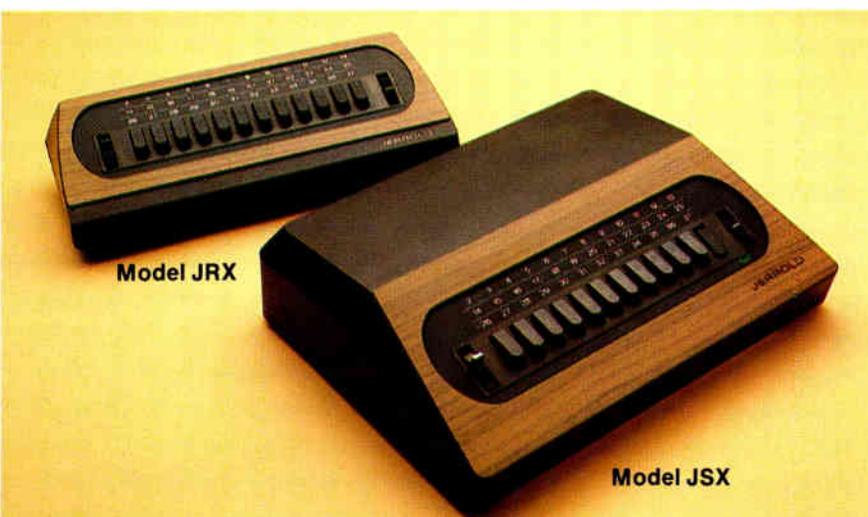
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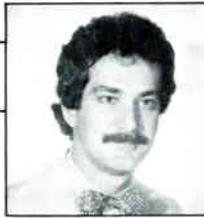
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PCTE Designation Program Deserves Fighting Chance

Cable television engineers and technicians can be a tough lot. Proud of their technical knowledge but seldom recognized for it, broadband engineers quietly accept the demands placed upon them by management. And the demands are formidable. The chief engineer for a typical large system must maintain and operate a complex plant with two-way capability, perhaps with computer-driven addressability for multiple pay services. Scrambling and decoding system components must be maintained, and earth stations for satellite-fed programming must be operated, not to mention microwave transmission, off-air antennas, towers, a fleet of installation and repair trucks, sophisticated testing equipment, and an entire headend with racks of modulators, processors, receivers, down converters, and various video and audio components. In addition, there's local origination and studio equipment.

On top of all this, he or she must keep abreast of developments in status monitoring, digital technology, high speed data transmission and networking, advances in regional interconnection, fiber optics and lasers, cable emergency alarm systems, two-way interactivity, videotex and teletext, and developments leading to higher frequencies and increased channel capacity. As the industry enters a major rebuilding period, more demands will be placed on engineers and technicians. Moreover, management expects engineers to be managers (people oriented), even though the mind-set that leads to an appreciation of the laws of technology, in many cases, is antithetical to the mind-set that comfortably deals with human behavior.

Cable engineers are expected, however, to be accomplished in all these areas. While each of these areas can be easily mastered when taken singly, it is the diversity of demands that makes the job difficult. As Tom Polis said at the Western Show, "What makes an engineer in our industry unique is not his education but the requirements we are currently putting on him."

One response to intense requirements and lack of individual recognition is to become cynical, and cynicism is pervasive among technicians and engineers in the industry. But such an attitude can be corrosive to morale and counter-

productive. It is exemplified by the response that some engineers have expressed regarding the Society of Cable Television Engineers' intention to institute its new Professional Cable Television Engineer (PCTE) designation program.

The response some engineers have expressed in a quick, knee-jerk fashion is that the program is just the SCTE's attempt to achieve importance and the appearance of accomplishment. Others have said that it's just another SCTE attempt to make some money or to drum up some interest in its activities. Still others have said the SCTE is just trying to imitate the larger professional societies.

None of the above is true. The SCTE's designation program is clearly an important opportunity for the community of cable television engineers and technicians to finally attain professional stature and public recognition for their experience and expertise. A comprehensive Personal Data Form will permit engineers and technicians to document their experience while a broad-based test will establish the expertise in cable technology gained through education, experience and reading. Engineers and technicians should not fear the testing phase of the program as it will, no doubt, examine breadth rather than specialization of knowledge.

Polis has said elsewhere (*CV*, 9/28/81, p. 56), "The benefits (of the PCTE Designation) include self-esteem and respect in the cable television industry and a better ability to compete in the job market. It will initiate the advancement of industry standards, upgrade the education, skills and experience of the engineering and technical person in the field." Moreover, the designation will establish the cable television engineer and technician as a visible professional force in the industry. **CED** supports the program and invites every engineer and technician, as well as the entire industry, to do the same.

George Sell

CED

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For details, contact Wavetek Indiana, Inc., 5808 Churchman, P.O. Box 190, Beech Grove, IN 46107. Phone Toll Free 800-428-4424. In Indiana (317) 787-3332. TWX: 810-341-3226.

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Electronic Mall Features Interactive Electronics

NEW YORK, NEW YORK—Visitors to the Electronic Mall Conference held here at the St. Regis Hotel, December 9-10, were able to do some window shopping for approaches and strategies to the new one-way and two-way interactive home electronic services. Dubbed a "Business Strategy Conference," the Electronic Mall was shopped by businessmen, telecommunications consultants, financial analysts, information providers, potential tele-merchants and videotex/teletext system representatives. While the turnout was rather small, the conference offered a taste of what to expect at Videotex '82, scheduled for June-28-30 at the New York Hilton.

Organized by Gary Arlen of Arlen Communications and coordinated by Online Conference Ltd., the conference featured hardware and software demonstrations and presentations by various experts in the field of teleservices. Talks ranged from the sharing of experience gained in several teletext trials and telemarketing experiments to "how to" presentations in the areas of advertising, merchandising, banking and financial transacting, travel services, electronic mail services and ticket sales via electronic media. Several speakers offered advice on consumer behavior, methods of selling, the economics of tele-shopping, what to expect in terms of technical capabilities and legal pitfalls of the unfamiliar environment of the Electronic Mall.

Videotex '82, in early spring, follows on Videotex '81, which attracted 1,500 delegates in Toronto last May. It also continues the series of World Conferences held in London at Viewdata '80 and '81. Videotex '82 promises to be the major videotex meeting in the coming year.

Baton Rouge Cable Picks TOCOM

BATON ROUGE, LOUISIANA—Cablevision of Baton Rouge has become the latest system to employ the TOCOM 55 Plus addressable converter system. Cablevision, a member of the Daniels cable group, has placed an order in excess of \$3 million with TOCOM for the 55 Plus programming control system, 16 headend video processors and 18,000 addressable terminals.

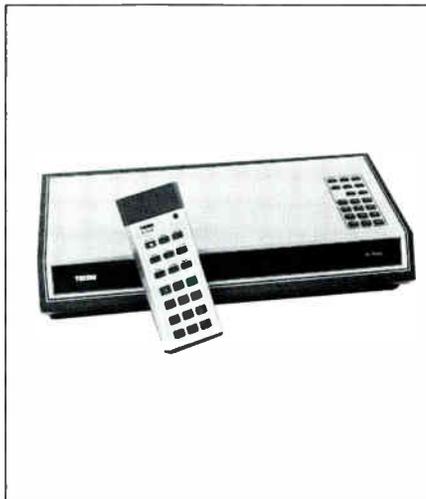
The Baton Rouge system, with 56,000 subscribers, is being upgraded from two channel block converters to 35 channels with the TOCOM converters. Cablevision

plans an upgrade to 55 channels before the end of the decade.

The TOCOM product was selected, according to Cablevision Vice President of Operations Bob Nelson, after extensive research into addressable converters currently on the market. "We were particularly impressed by the effectiveness of TOCOM's base-band encoded scrambling technique. It provides the level of security we were seeking," said Nelson.

Flexibility was another factor in Cablevision's choice of the TOCOM system. The TOCOM product, according to Nelson, will allow for future expansion of the Baton Rouge system, including the addition of teletext.

The 55 Plus is the company's most recent major product addition. The system includes one-way addressable



Cablevision of Baton Rouge has placed a \$3 million order for the TOCOM 55 Plus addressable converter system.

converters, two-way interactive home information terminals and computer system headend equipment.

The system has already been installed in Storer operations in suburban St. Louis and Kenton/Boone Counties, Kentucky, as well as in United Cable's system in Aurora, Colorado. Two more systems are now being installed in Sammons Communications Fort Worth, Texas franchise and Televent's East San Francisco Bay Area system.

TOCOM recently increased manufacturing and warehousing space for its addressable converter products, and new facilities in Matamoros, Mexico and double shift operations will enable the company to produce 20,000 55 Plus converters per month, by mid-1982, according to company officials.

SCTE News



SCTE Announces New Manuals, Videotapes

ANAHEIM, CALIFORNIA—Thomas Polis, SCTE president, announced at the Western Cable Television Show that several new monographs, manuals and videotapes will be available to SCTE members in the coming year. The new publications are designed to aid chapters in upgrading the technical knowledge of their members, providing guidelines for training programs and supporting chapters in developing local activities.

Polis announced a new technical monograph series, two of which have been produced. One monograph will cover new digital technology and the other will present technical information on integrated circuit amplifiers. Another manual being produced concerns personal development and training. Other books being planned will cover membership surveys and guidelines, strand mapping guides, health and safety trips and several reprints of industry and FCC reports.

The videotapes in the works include training aids covering microwave path studies, signal leakage regulations, spectrum analysis, how to interpret financial reports, guidelines on studio design and local origination, video as a training tool, and documentation and system mapping practices for proper maintenance of system records.

Also, in conjunction with the Professional Cable Television Engineer Designation Program, the SCTE will soon publish a study guide with bibliography of useful reading materials for preparation for the PCTE qualification tests.

Business Notes



★ **General Instrument Corporation** has restructured its cable television electronics business into two operating units, Jerrold Subscriber Systems and Jerrold Distribution Systems. The change is expected to provide better management focus on the individual requirements of these distinctly different cable TV electronics businesses, according to Jerrold. Colin J. O'Brien has been promoted to the position of vice president and deputy group executive, Broadband Communications Group. Kenneth E.

Coleman has been named vice president and assistant general manager at the newly-formed Jerrold Distribution Systems Division. Timothy da Silva has been named vice president and general manager at the Jerrold Subscriber Systems Division. Both Jerrold divisions will be headquartered in Hatboro, Pennsylvania.

★ **California Microwave, Inc.**, has announced that its subsidiary, Satellite Transmission Systems, Inc. (STS), has completed installation of several major satellite video uplink earth stations. In October STS completed installation of Warner Amex Satellite Entertainment Company's new transmit earth stations located in Hauppauge, New York. The station will transmit nationwide Warner's movie channel, music channel and "Nickelodeon." Also in October STS put into service AT&T's Coram, New York satellite earth station for transmission of NBC's video programming.

★ **Catel and Tomco Communications, Inc.**, have been merged under the banner of United Scientific Corporation, a subsidiary of Data Design Laboratories (DDL). DDL is traded over the counter. Tomco, founded in March 1970 by Tom Olson, is best known for the development of standby and backup systems for CATV and pay TV. The company was purchased by DDL in October 1981. Catel, started

in 1968 and managed by Frank Genochio, manufactures equipment for the coax transmission of video, audio and data using FM techniques. It has been a division of USC since 1971. According to Edward T. Bolton, president of USC: "With the merger of Catel and Tomco, our annual sales to the CATV and CCTV markets are expected to increase substantially because of the compatibility of the two product lines."

★ Tele-Media Company has purchased more than \$2 million worth of **Jerrold** converters. Most of the converters will be 36-channel addressable units for Tele-Media's new system near Erie, Pennsylvania. Other Tele-Media systems to receive converters under the terms of the purchase agreement are located in Ohio, Pennsylvania and Florida.

★ **Microwave Filter Company** has begun operating the "Earth Station Clinic," a new service for earth station operators and equipment manufacturers. In a system designed to learn more about different types of terrestrial interference and their effects on picture quality, a three-meter earth station has been equipped for hookup to any leading receiver unit. Using this system, MFC engineers seek out or simulate terrestrial interference and study its effect on picture quality as relayed through differ-

ent receivers. Specialized filters and traps are designed to eliminate the interference, and variations of these are then customized for each receiver type. Receiver manufacturers are invited to submit their receivers, on loan, for testing at the clinic and individual earth station operators are encouraged to present their specific interference problems for study.

★ **Scientific-Atlanta, Inc.**, has received an order for over \$1 million from Prime Cable of Marlborough, Inc., a Massachusetts-based cable TV company. The order calls for cable television equipment and systems construction to provide a broad service, including an institutional network, to subscribers in the Marlborough, Massachusetts, service area. The equipment order includes a 54-channel head-end, three satellite earth stations and complete distribution electronics with coaxial cable and taps and passives.

★ **Pico** has contracted to acquire substantially all of the outstanding shares of Transifier, Inc., a Lantana, Florida corporation. The transaction is subject to approval by Pico's board of directors. Transifier, Inc., manufactures television signal distribution equipment. The Transifier product line enables Pico to offer a complete signal distribution system in the CATV, STV, MATV and MDS markets, according to Pico.

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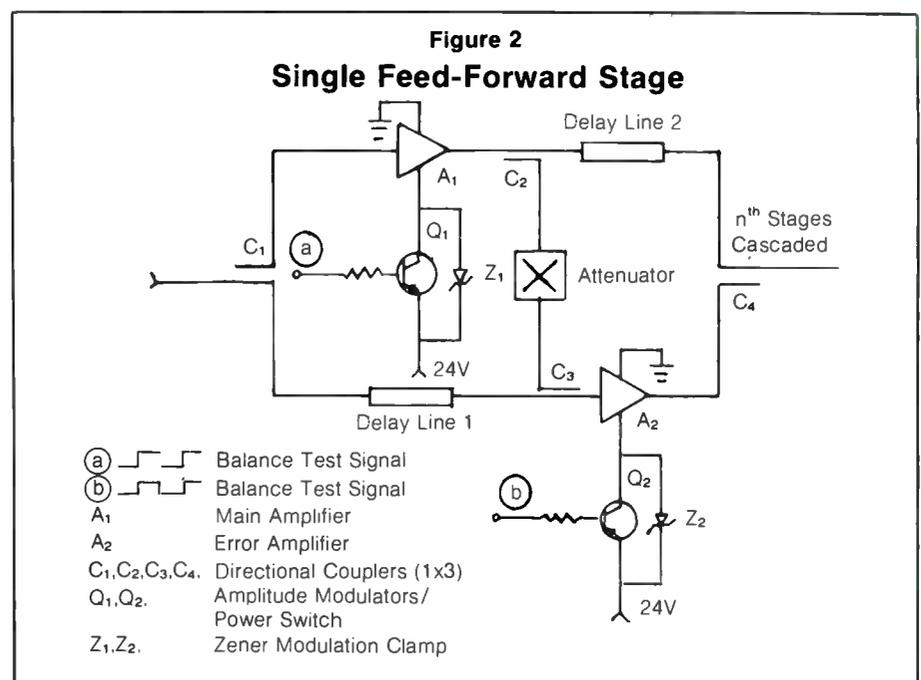
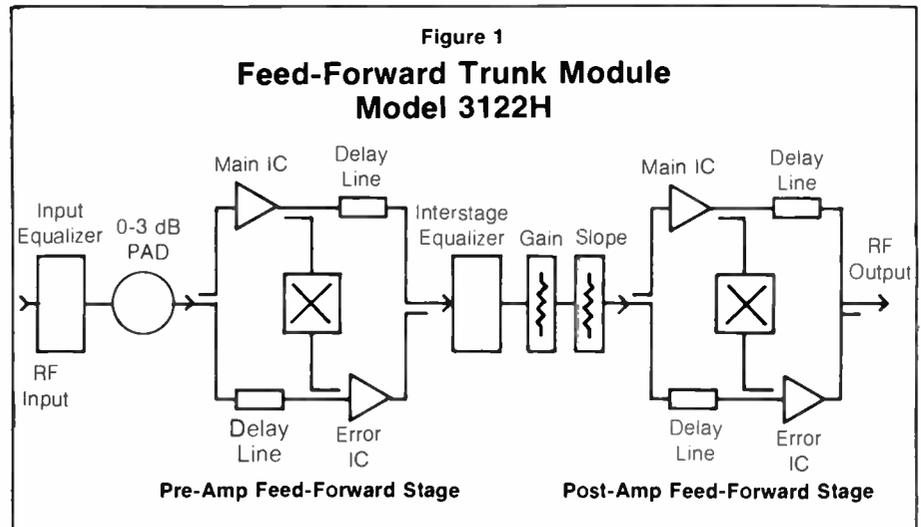
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Microprocessor Monitoring Of Trunk Amplifiers

By Robert M. Blumenkrantz, P. ENG.,
Century III, Inc., Vancouver, B.C.

During the past year, extensive distortion and temperature testing has been conducted, confirming specifications of one of the most advanced microprocessor-controlled CATV amplifiers thus far designed. This amplifier utilizes two 21.5 dB gain feed-forward stages. One stage is used as a preamplifier and the other as a post amplifier, as shown in Figure 1. A method of determining the loop cancellation of each feed-forward and the status of each RF hybrid IC in the trunk has been devised.

The feed-forward amplifier design is completely symmetrical, as shown in Figure 2. The two RF hybrid ICs are matched and the feed-forward stage is then balanced for sufficient loop cancellation. This results in the required amount of distortion reduction. The balanced feed-forward amplifier inherent design is such that the long term stability is excellent. The feed-forward loop cancellation check enables one to determine if a component has failed which would affect the balance of the feed-forward stage. The feed-forward amplifier exhibits some of the properties of the basic "push-pull" amplifier, but in addition provides the cancellation of all distortion products (2nd, 3rd, 4th, 5th, 6th, etc.). The magnitude of distortion cancellation is directly proportional to loop cancellation. The detection of an RF hybrid IC which has failed is sometimes difficult in the feed-forward configuration. If an RF hybrid IC failure occurs, the overall gain through the amplifier remains constant as the feed-forward stage is a redundant amplifier. An RF hybrid IC failure results in a 20 to 40 dB increase in distortion through the feed-forward stage. The distortion contribution



by a failed RF hybrid IC stage may only degrade distortion level of the entire cascade by a few dB. Consequently, the only method known until now was to take an expensive distortion test set into the field, remove the amplifier from the system and test its performance. This difficulty in system testing the feed-forward stage has encouraged the development of a method of measuring the loop cancellation. The measurement technique will allow either remote or local testing of a feed-forward amplifier without removing the module from service.

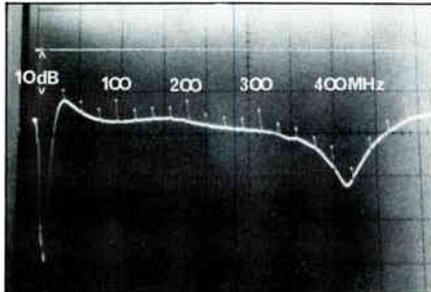


Figure 3
Feed-Forward Input Loop Null

Basic Feed-Forward Stage

The need to mass produce a large quantity of balanced and stable feed-forward "stages" led to the design of a delay line that could be easily tuned. The tuneable delay lines provide a means of controlling the shape of the loop null cancellation curve (Figures 3 and 4). Once tuned, the feed-forward stage

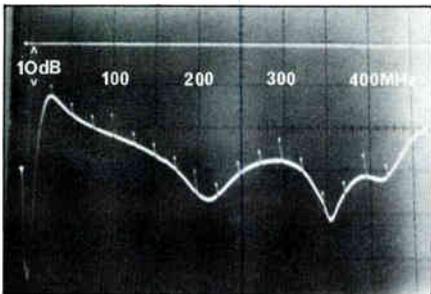


Figure 4
Feed-Forward Output Loop Null

remains set to the desired null point provided that no other changes occur that would affect the overall gain or phase of any of the individual RF hybrid IC amplifiers. The null attenuator sets the proper gain balance of the feed-forward stage.

Once the feed-forward stage is set to the degree of balance necessary, the cover is placed over the entire stage sealing the hybrids and couplers from possible damage. The amplifier may then be aligned according to conventional methods. The methods used to determine the degree of loop cancellation remotely is accomplished by introducing a small amount of unbalance in the form of a modulation that is fed to each hybrid in the

trunk station (Figure 2). The level of modulation at the end of the cascade on any unmodulated carrier shows the degree of loop cancellation of the particular feed-forward stage under test. It is also possible to determine if an RF hybrid IC has partially or completely failed. By modulating the main RF hybrid IC and then the error IC, it is possible to determine in which of the two hybrids the failure has occurred.

Modulating Hybrid Amps

The balance check modulation is derived through amplitude variations introduced by changing the supply voltage to the hybrid IC under test. In effect, this generates amplitude modulation appearing on all of the carriers in the system at a level that is inversely proportional to the degree of loop cancellation. As the loop cancellation degrades, the resultant tone level increases.

This test need only be performed infrequently and for short periods of time; therefore, it does not interfere with normal system specifications.

When a single hybrid is modulated by varying the supply voltage with a square

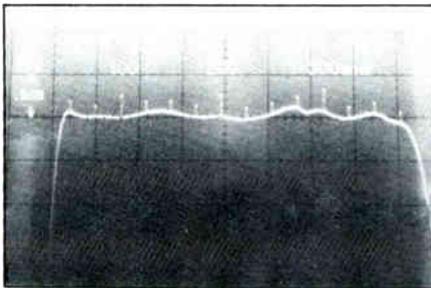


Figure 5
Unmodulated Feed-Forward Stage

wave, the modulation appears on all carriers (Figures 5 and 6).

The depth of modulation is directly proportional to the amplitude of the square waves minimum voltage (V_x). In a balanced feed-forward stage this relationship is modified by the degree of null balance present in each signal loop, provided each hybrid is modulated one at a time.

It is possible to install a receiver at the end of the cascade which can detect this

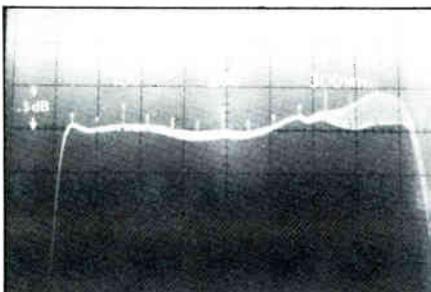


Figure 6
Modulated Error Amplifier

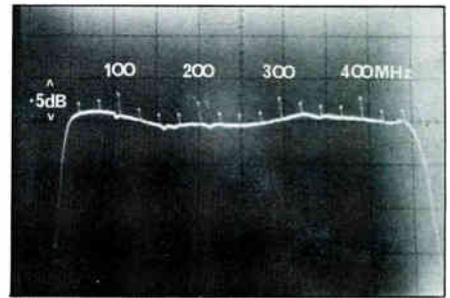


Figure 7
Unmodulated Feed-Forward Stage

modulation. With the aid of a status monitor system, we can interrogate each of the feed-forward stages in the cascade. Each "tone" level can be converted into a voltage and expressed as a ratio in dB with respect to 100 percent amplitude modulation. This information can be used as a reference and compared with future readings. Any increase in the received tone level indicates reduced loop cancellation which may have resulted from deterioration of an individual hybrid IC. A complete hybrid failure (no signal passing through it) would generate an excessively large "tone" level when testing the feed-forward stage (Figure 6).

A balanced feed-forward stage results in a smooth frequency response curve (Figures 7 and 8). When modulating the main and error hybrid individually we see the percentage of modulation as it varies with frequency. Figures 9 and 10 show the depth of modulation as it varies with frequency shown by an increased width of the response trace.

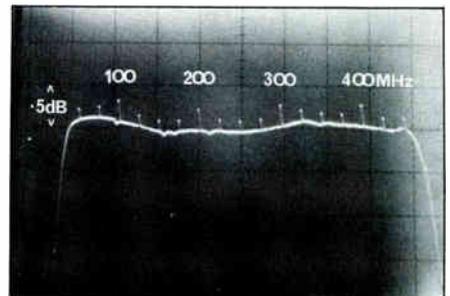


Figure 8
Single Feed-Forward Stage

Figure 11 is a composite of spectrum analyzer displays showing channels 2 (55.25 MHz) and N (241.25 MHz). At Channel 2 we see identical sideband amplitudes when modulating the main and error hybrids. Channel N demonstrates the high degree of cancellation present in the output loop null (Figure 4). Figure 12 shows the depth of modulation that is possible with various values of V_x for a standard hybrid IC and for a feed-forward stage at Channel 2 (55.25 MHz). The value of V_x chosen is 5.1 volts below the 24-volt supply. This operating point provides sufficient tone level while provid-

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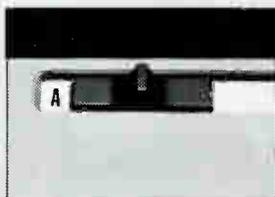


"As for reliability, Pioneer has fewer converters returned for repair than any other converter supplier and most other companies are not approaching the Pioneer sales volume.

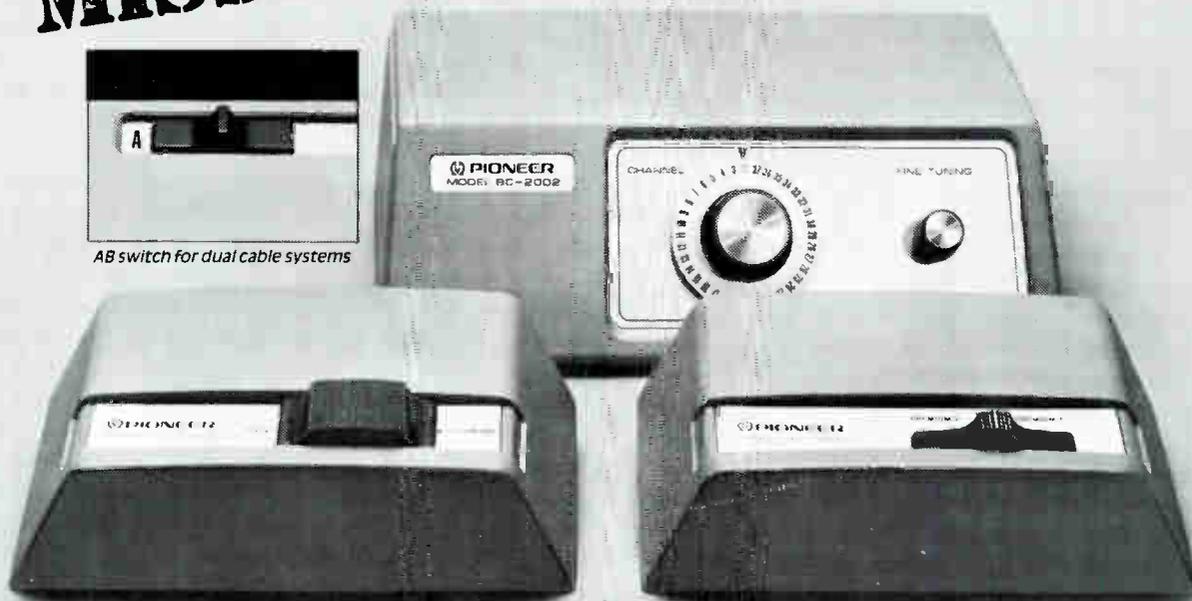
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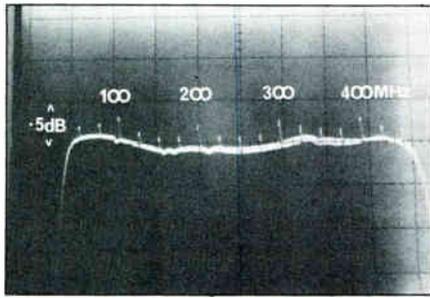


Figure 9
Modulated Error Amplifier

ing a minimum failsafe supply voltage of 18.9 volts in the event the control signal is lost (normally ground). A balanced feed-forward stage returns a "tone" level of about -50 dB (Figure 12). The modulation depth is controlled by the zener diodes Z1 and Z2 connected across transistors Q1 and Q2 (Figure 2). Q1 and Q2 are normally saturated with a collector-to-emitter voltage drop of 200 millivolts at 300 ma collector current. When the base

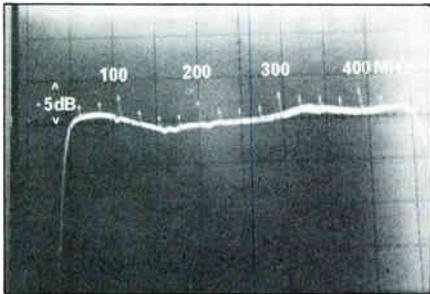


Figure 10
Modulated Main Amplifier

of Q1 or Q2 is raised above ground the transistors switch off and the supply voltage drops to 18.9 volts due to the 5.1 volt drop across the zener diode. In Figure 2 points "A" or "B" are connected to the status monitor transponder module. These are normally held at ground potential. When testing the feed-forward stage the transponder module delivers a 4.7 kHz wave to either point "A" or "B".

The "Tone" Receiver

A receiver capable of detecting low amplitude tones and filtering them from an

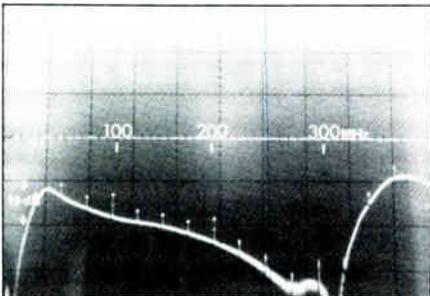
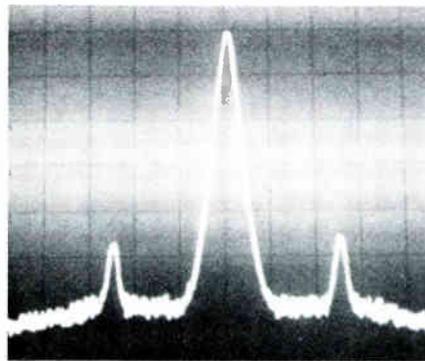
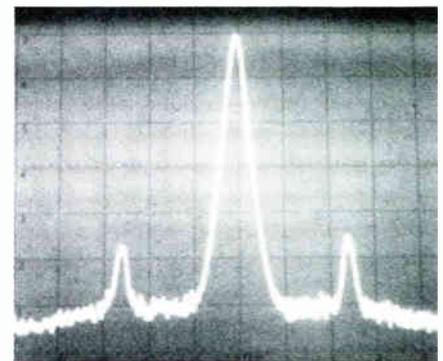


Figure 12
Modulated Main Amplifier

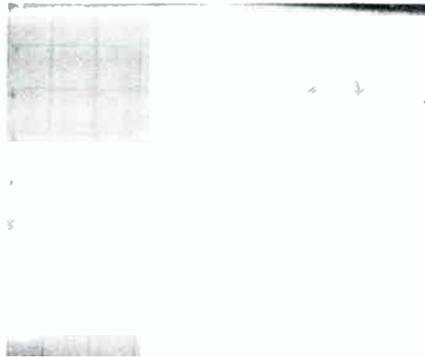
Figure 11



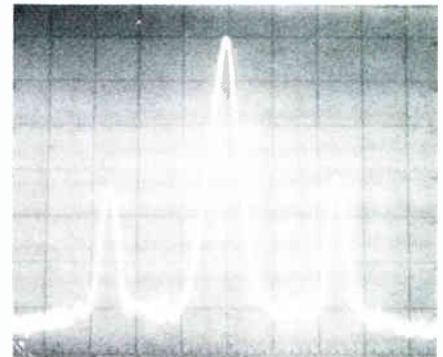
Channel 2 Main Amplifier Modulated



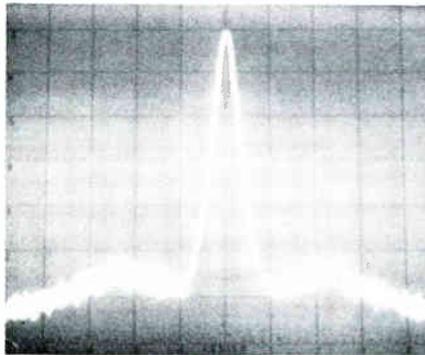
Channel 2 Error Amplifier Modulated



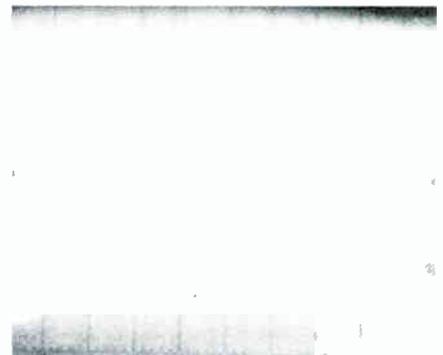
Channel 2 Main Amplifier Modulated (Failed Error Amp.)



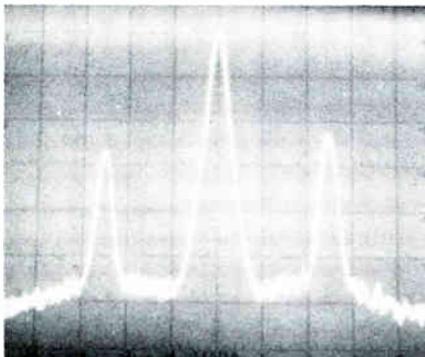
Channel 2 Error Amplifier Modulated (Failed Main Amp.)



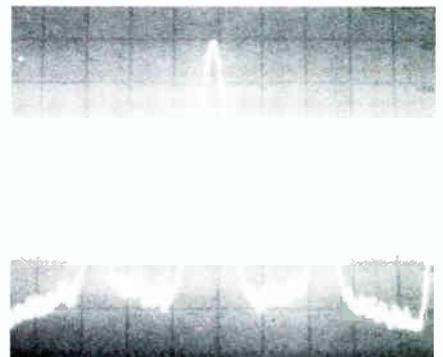
Channel N Main Amplifier Modulated



Channel N Error Amplifier Modulated

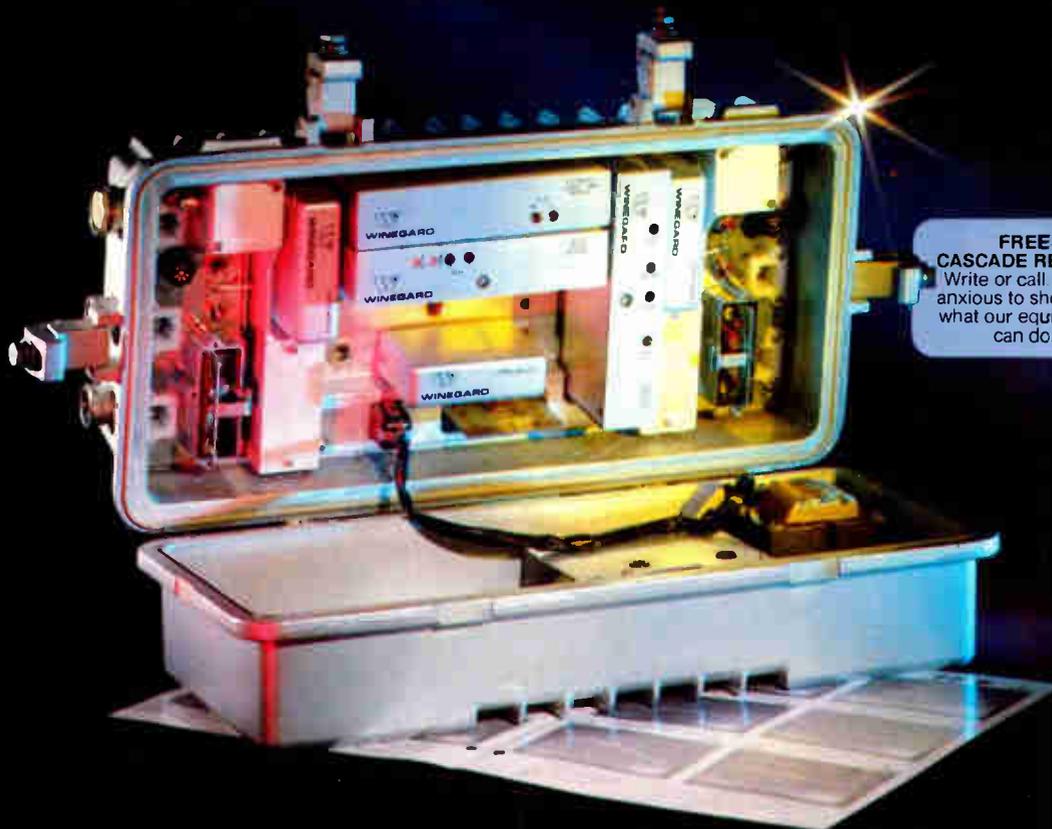


Channel N Main Amplifier Modulated (Failed Error Amp.)



Channel N Main Amplifier Modulated (Failed Main Amp.)

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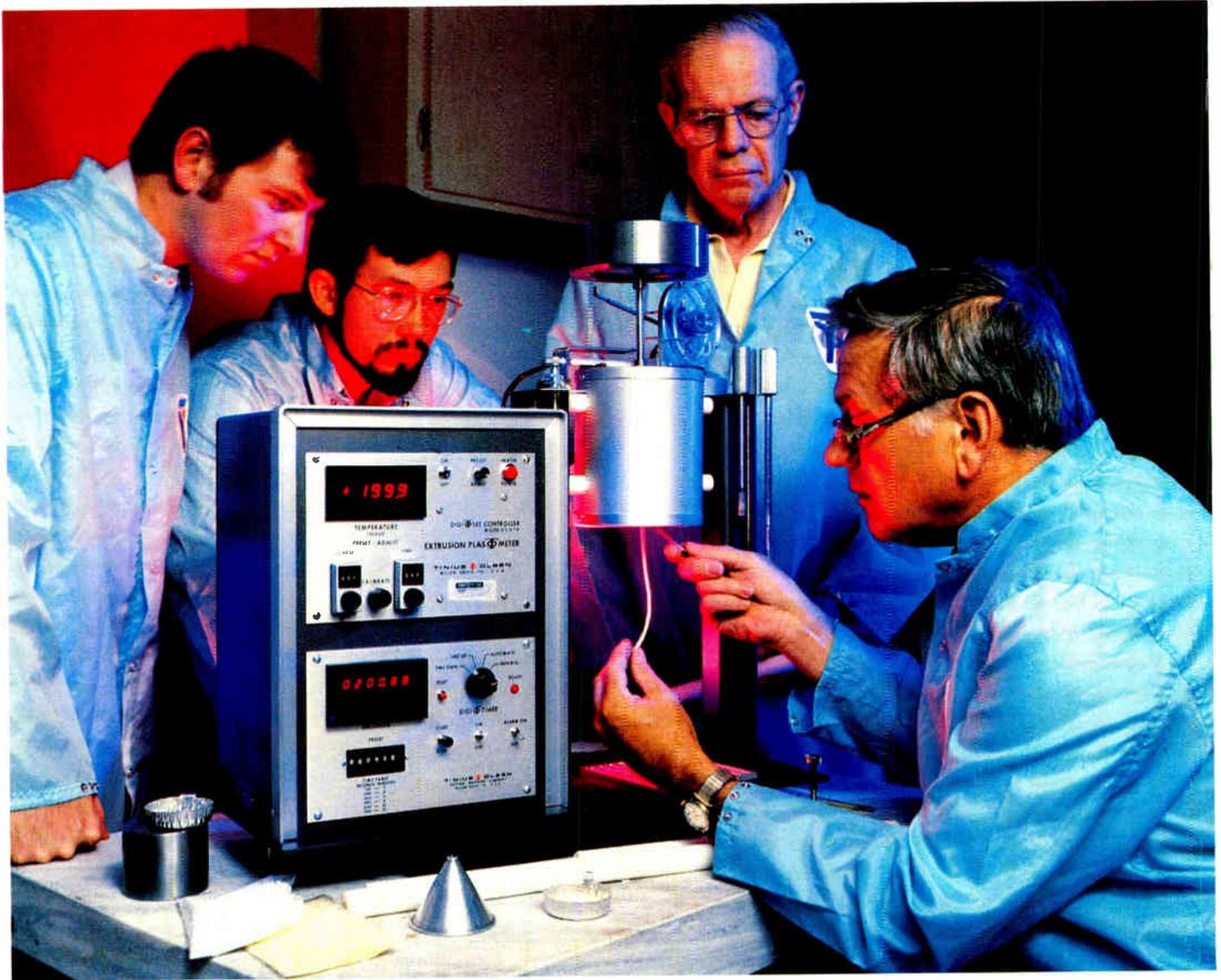
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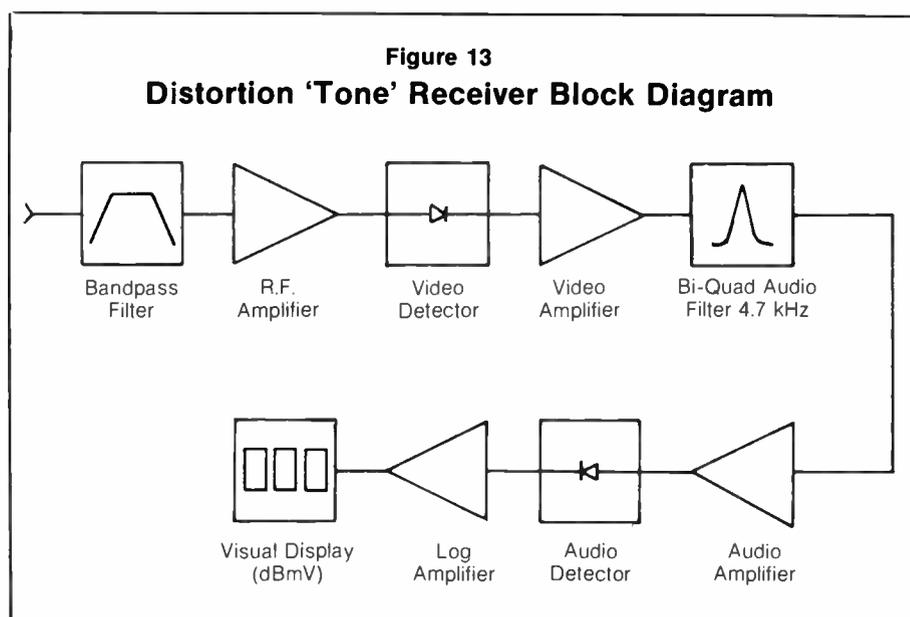
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unmodulated carrier at the end of the system is shown by the block diagram in Figure 13. The carrier is selected with a bandpass filter and then amplified by the RF amplifier. The carrier is then detected and the detected video modulation is amplified by a video amplifier. A bi-quad filter then separates the 4.7 kHz component of the modulation. This modulation was initially introduced by the microprocessor-controlled transponder in the feed-forward stage under test. This "tone" is amplified and then converted to a DC voltage by the audio detector. The DC voltage is then applied to a log amplifier. The output signal from the log amplifier feeds an analog-to-digital converter which then drives the visual display. The output display then indicates the tone modulation level directly in dB. This information can be processed and sent back to the headend on the upstream portion of the trunk cascade, where the status monitor can display the information. The receiver may also be used in the field or on a test bench where it will provide loop cancellation data on each feed-forward stage in each trunk station. In general, distortion improvement is directly proportional to the depth of loop null cancellation present in each feed-forward stage. The receiver will normally be receiving an unmodulated carrier in the vicinity of Channel 2 (55.25 MHz) since this frequency provides identical levels for both the error and main RF hybrid ICs (Figure 12 and 14).

Conclusion

This article has attempted to demonstrate a method of determining the relative operating condition of each feed-forward stage in a status monitored trunk system. While it is not meant to be equivalent to an accurate distortion



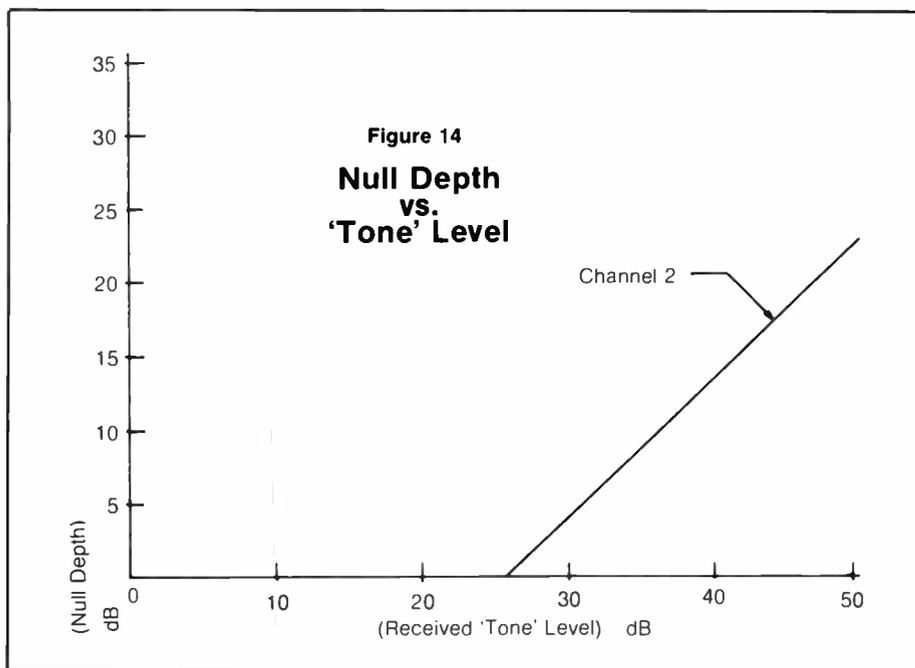
analyzer in its ability to measure absolute levels of distortion, it does give an excellent reference for the operation in determining trouble spots which are likely to arise in a feed-forward super trunk cascade.

It is now possible to prevent system down time as the result of RF hybrid IC failure. Low distortion super trunk systems which rival the performance of microwave and that of fiber optics are now possible using advanced techniques which are presently understood by today's CATV operators. Upgrading cable systems already in existence can be an economically rewarding experience when applying feed-forward technology. Expansion of existing systems miles beyond their present coverage area is now possible with a microprocessor monitored feed-forward super trunk.

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As a design engineer consultant for Century III electronics, Robert M. Blumenkranz has developed the feed-forward and other trunk amplifier associated systems. He also designed interactive two-way pay television systems for Mediatronics Ltd. in Vancouver, British Columbia. He is a member of the IEEE and holds an FCC Radio Telephone First Class License and an Advanced Radio License. He received his B.S.E.E. from the University of Miami in 1967. He would like to thank Ron Solomon, engineering manager of Century III, for his assistance in the preparation of this article, and to express his appreciation to Sandra Sosnovich for the artwork support.



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Western Show Tech Sessions : New Technologies and Manpower

The California Cable Television Association's Western Cable Television Show and Convention featured morning and afternoon technical sessions organized by Judy Baer, executive director of the Society of Cable Television Engineers.

The morning sessions were moderated by Richard Covell, Western vice president of the SCTE. The compatibility problems between certain scrambling techniques and the cable-ready receivers were aired, and new ideas were presented that may help resolve present and future difficulties. The persisting problem of signal leakage and aeronautical frequency clearance was discussed. Information was presented on status monitoring systems and a computerized system design and mapping technique for those in attendance.

The afternoon session was devoted to a panel of speakers who offered their thoughts on the manpower and technical training needs of the cable television industry. Representatives from three MSOs, one marketing consultant and the leadership of both the NCTA and the SCTE offered various approaches, suggestions and perspectives on the problem of finding, training and keeping qualified technical personnel to meet the present and future needs of the industry.

Cable-Ready Receivers

The first talk in the morning session, delivered by Elliott Kohn of RCA Laboratories' technical staff, dealt with "Scrambling and Cable-Ready Receivers." The talk emphasized the compatibility problems in systems using in-band scrambling methods and where subscribers own cable-ready TV sets. In such systems, a converter is still required whether the TV set is cable-ready or not. Redundant equipment is required because the decoding is done at the interface channel, Channel 3. The tuner on the cable-ready set must be kept on Channel 3 and remote control features are limited to muting, volume control and on/off. A second tuner must be provided by the cable operator for descrambling functions. The cost is borne by the subscriber who already has borne the additional cost of a cable-ready set. Also the video signal gets converted more times than normal and the picture quality is not as good as it could be if it were all done in one process.

Kohn explored a possible future solution to this problem, suggesting that the front-end box (converter) could be part of the cable-ready set and be much simpler than converters now being supplied. A slot for a decoder module in the back of the set could be fitted with multi-pin connectors for interfacing with a standard sized box. Every TV set that claims to be cable-ready could have this feature and suppliers of decoder modules could manufacture them to be compatible with any cable-ready set.

Kohn pointed to several advantages for both system operators and subscribers. A customer could buy any TV set he wants with

a high quality tuner he likes and with the number of channels he needs. He could have a full-feature remote control system and it would not need anything else except the decoder module supplied by the cable operator. For the cable operator, the decoder module would cost less than the current converters. The customer would never handle the unit or even throw switches on it. It would not have a tuner, which is the most expensive and power-hungry part of the current converters. The TV set would provide the power to the module.

The broadband cable would connect directly to the set. According to Kohn, it could be an addressable system and it could be tiered. The cable operator would provide just the decoder module that would receive his addressed information.

Kohn discussed several categories of signals at the connector, the most important of which would be a loop-through of the cable from the tuner in the set to the IF amplifier. This would allow the module idea to be compatible with any scrambling method presently envisioned.

Signal Leakage

Clifford Paul, head of the FCC's Cable Television Bureau, was unable to attend the conference, apparently due to FCC budget cut-backs on travel. Thomas Polis, president of the SCTE, substituted for him, and spoke on the issue of "Signal Leakage and Aeronautical Frequency Clearance." Polis reported that only four incidents have been reported, the most recent of which involved the system in Flint, Michigan last November. An overpassing aircraft detected a leak and in this case the FCC exercised its option to impose forfeitures on operators that do not abide by the rules, according to Polis.

The rule in question, FCC Rule 76.610, states that if a system is operating frequencies within 108 to 136 MHz and 220 to 400 MHz and if the power on the frequency is 28 dBmV and closer than 100 KC to an existing aeronautical frequency, the cable system must off-set that frequency by 100 KC in order to clear it for aeronautical use. Polis emphasized that operators must file with the FCC for the frequency whether it is being added to an existing system or a new one.

Polis said "the problem is a political issue more than a technical issue," but it's a problem for system operators nonetheless. Polis suggested some reading on the problem: Section 76.610 of the FCC rules, the Advisory Committee's Report on Aeronautical Frequencies ("the only technical documentation of the problem that exists") and the FCC listing of aeronautical frequencies with which an operator may be able to pre-clear frequencies and save filing time and hassles.

Polis reported on possible new rule making that may come about. The required threshold may be increased from 28 dBmV to 38 dBmV, thus eliminating problems with audio carriers or any



Laser beams and colored lights added to the Western Show splendor at the Disneyland Hotel.

digital carriers in these bands. The off-set requirement may be reduced from 100 KC to 12.5 KC and a standard channelization program may be interwoven between the existing aeronautical frequency assignments. Harmonically related carrier (HRC) systems may not be able to benefit from the interweaving proposal but provision's may be possible with waivers. The leakage limits may also be increased from 20 mV per meter to 50, which would be easier to maintain.

Polis warned that the FCC may begin actual field testing in the coming year in addition to its inspections at system headends. All documentation regarding compliance must be kept at the headend and it is not sufficient for copies to be kept at MSO corporate headquarters. In fairness to the FCC's position, Polis pointed out that the FCC wants to establish operator's credibility as to whether systems are tight and well maintained while it continues its tug-of-war with the FAA.

System Design

The third speaker in the morning sessions was Robert Sturm, president of Cable Systems Design Group, who discussed what operators should look for in a high quality map and gave a presentation on his company's computer-aided system design and mapping technique. Named the Cablegrid 2000, the system is a stand-alone FORTRAN-based drafting system that offers electronic archiving of system data as well as other computer graphics capabilities.

Status Monitoring

Jay Staiger, product manager for Magnavox CATV Systems, spoke on "Status Monitoring - Digital System Sentry." Staiger suggested that the main benefits of status monitoring are the efficient use of technical staff and the reduction of subscriber dissatisfaction with operating system performance. Digital System Sentry, which is a Magnavox trade name for its status monitoring system, is a computer-controlled configuration that includes amplifier station modules for data reception, micro-

processor control of status monitoring and feeder disconnect, as well as a return module containing switches for feeder return path and trunk return path. The system is also designed to be compatible with other computer controlled systems incorporating bridge gate control.

System functions of the Digital System Sentry, according to Staiger, include measurement of the actual level of the data carrier at the output of the trunk amplifier, return trunk disconnect control, feeder disconnect control, return disconnect monitoring, and two auxiliary control lines for various applications, including a switch for a 6.0 dB attenuator which allows for locating return path ingress without shutting off transmission of return data.

Technical Manpower

The afternoon session, "Forecasting Technical Manpower Needs in the Cable Television Industry," was moderated by James Chiddix, SCTE Region One director. On the podium were Joseph Van Loan of Viacom Communications, Alan Lerner of Teleprompter Corporation, Richard Johnson of Cox Cable Communications, Jim Bloxham of Communications Marketing, Inc., Wendell Bailey, NCTA vice president for science and technology and Thomas Polis, SCTE president.

Richard Johnson spoke about "Implementing Effective Training Programs in CATV," with emphasis on Cox Cable Communications' San Diego training program and how to implement it in other cable systems. Johnson urged that the first step in planning a program is to set goals and decide on a teaching method. The San Diego program seeks to develop a ready source of pre-qualified employees and to keep the skill of present employees up to date. The method used is a weekly in-house training program with on-the-job experience and an optional home study NCTI or CIE course.

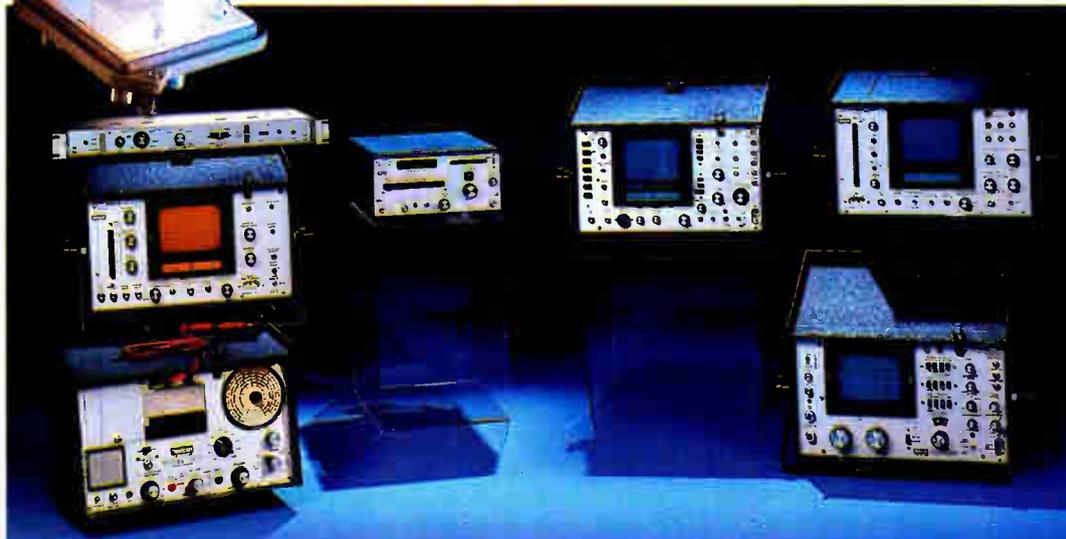
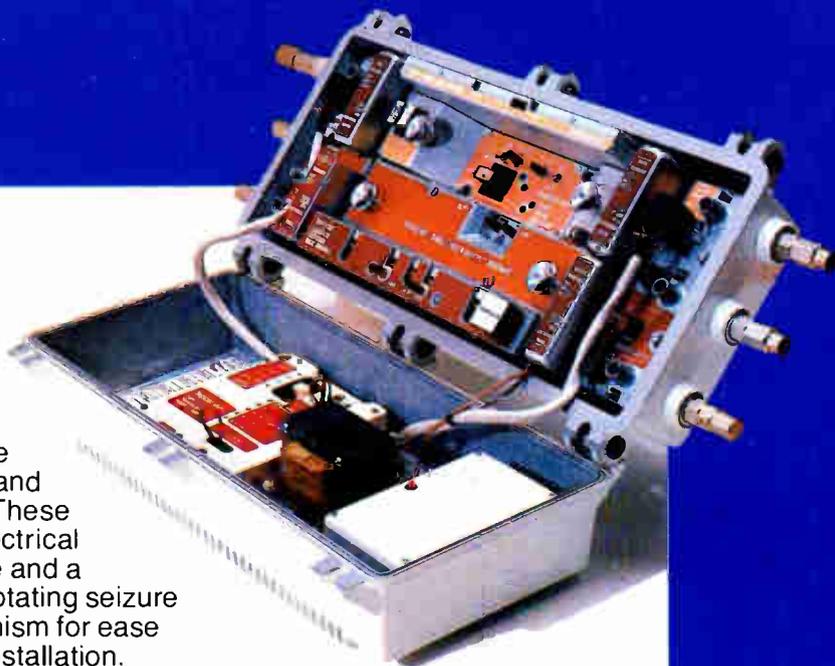
Employees are brought into the program if they have some electronics training and an installation background. After one and a half weeks training the employees are sent out as service technicians. If they do well, they are then sent to school for plant

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maintenance where they study system design and trouble-shooting and obtain hands-on experience with amplifiers. Then if they score a minimum of 85 percent on a test they move on to the position of plant maintenance technician. Retesting every six months assures a pool of ready employees waiting for an opening, he said.

The same basic procedure is followed for the position of sweep technician and a headend technician. The program reduced a 30 percent system related service call problem to just ten percent. It has stimulated a higher degree of motivation, and fewer technicians are required to maintain systems at a higher performance quality, according to Johnson. Equal Employment Opportunity requirements are also met since anyone who is qualified can progress.

Alan Lemerman discussed the results of a "needs" questionnaire that Teleprompter sent to its system managers. The managers expressed a need for a formalized training program organized by the corporate headquarters. Lemerman went on to lay out the particulars of a uniform training program and the organizational structure that Teleprompter is implementing to deliver that program.

Several courses are in the works. New employees receive a 15-day installation course, and experienced technicians attend a one-day trouble-shooting course. Courses in cable maintenance, as well as trunk amplifiers review courses are also available.

Lemerman explained that an organizational structure is being pulled together to disseminate the training program and courses. Technical training managers are being identified in 16 districts. Managers are being selected on the basis of technical competence and the ability to effectively communicate their experience and technical knowledge to novices. The training managers will develop courses using TPT's formula with classroom instruction, small group meetings, work in the field and regional seminars. The training aids are drawn from videotapes, manuals and local resources.

Lemerman went on to talk about plans for a National Operations Training Program organized by Teleprompter's corporate offices. But, true to the subtitle of his talk, "Or Every Manager a Trainer," Lemerman pointed out that "ultimate training responsibility will still reside at the local level."

Finding Employment

Jim Bloxham, president of Communications Marketing, Inc., addressed the question of developing "A Realistic Approach to Finding Employment in the Industry." Dealing primarily with the problem of employee migration or technician "churn," Bloxham explained that technicians move from job to job for many reasons. He stressed that compensation is not the primary reason. In order to determine why technicians shift jobs, Bloxham said that he would like to see management place "an emphasis on communication on a one-to-one basis with an employee that you consider valuable."

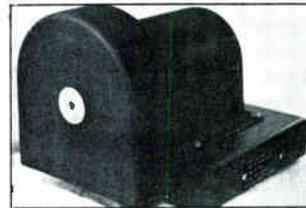
Some technicians change jobs out of a need to keep touch with new technology, Bloxham said. Some find that they can't communicate with their superiors or see their ideas taken without credit given to them. Long work hours may contribute to personal problems. Job security may be threatened by corporate mergers and the introduction of new management. Bloxham pointed out that some employees may desire more responsibility and some less.

Bloxham concluded by suggesting that technicians seek the advice of a professional employment agent who can help them meet all their requirements for job satisfaction.

On Track?

Wendell Bailey, NCTA vice president for science and technology, addressed the question, "All Things Considered. Is the Cable Industry on Track?" Having spent much of his career with AT&T and MCI, Bailey knows full well the competition for

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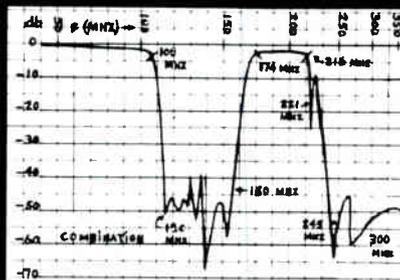
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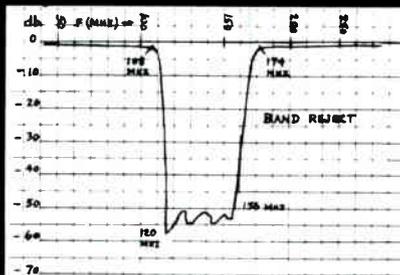
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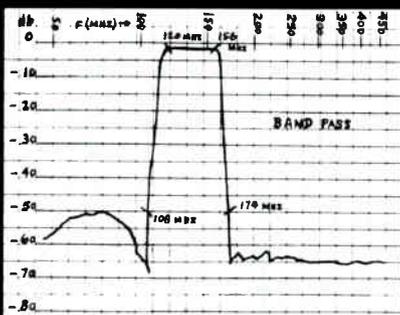
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technical manpower. He indicated that AT&T employs about one million people and is expanding in the traditional telephone area at a rate of 18 to 20 percent and needs the same type of people as the cable industry does. Currently, 40,000 people are employed in cable operations, and "over the next five years I suspect we'll have to double the number of employees that we have in the industry today," Bailey said.

Cable is competing with just about everybody for technical personnel. Every line of work and every area of society needs technical people. The question of technical excellence requires a commitment by the whole of society. Bailey pointed out that in America only 70 out of 10,000 persons are engineers. In Japan, out of every 10,000, 400 are engineers. "This is not to say they are better than us in a lot of things that Americans perceive them to be better at in pure technology, but they have a commitment to technical excellence that makes us look rather shabby," Bailey stressed.

The industry needs to become concerned about technical quality, he said. With the industry holding itself out as a natural purveyor of any broadband communications, Bailey said, "Some of the cable operators in this industry are going to wake up and realize that it's one thing for Laverne & Shirley to fade out for half an hour a month and a totally different matter when it's a bank's data. It may, in fact, be your own financial information."

Professionalism

The final speaker in the afternoon technical session was Thomas Polis, president of the SCTE. His talk was titled "Professional Societies: An Emerging Role in Cable Television." Polis began by listing the present and future technical demands that are being placed on the broadband communications engineer. "What makes an engineer in our industry unique is not his education but the requirements we are currently putting on him," Polis said. The professional societies have a role to play in alleviating some of the problems faced by engineers and technicians, according to Polis.

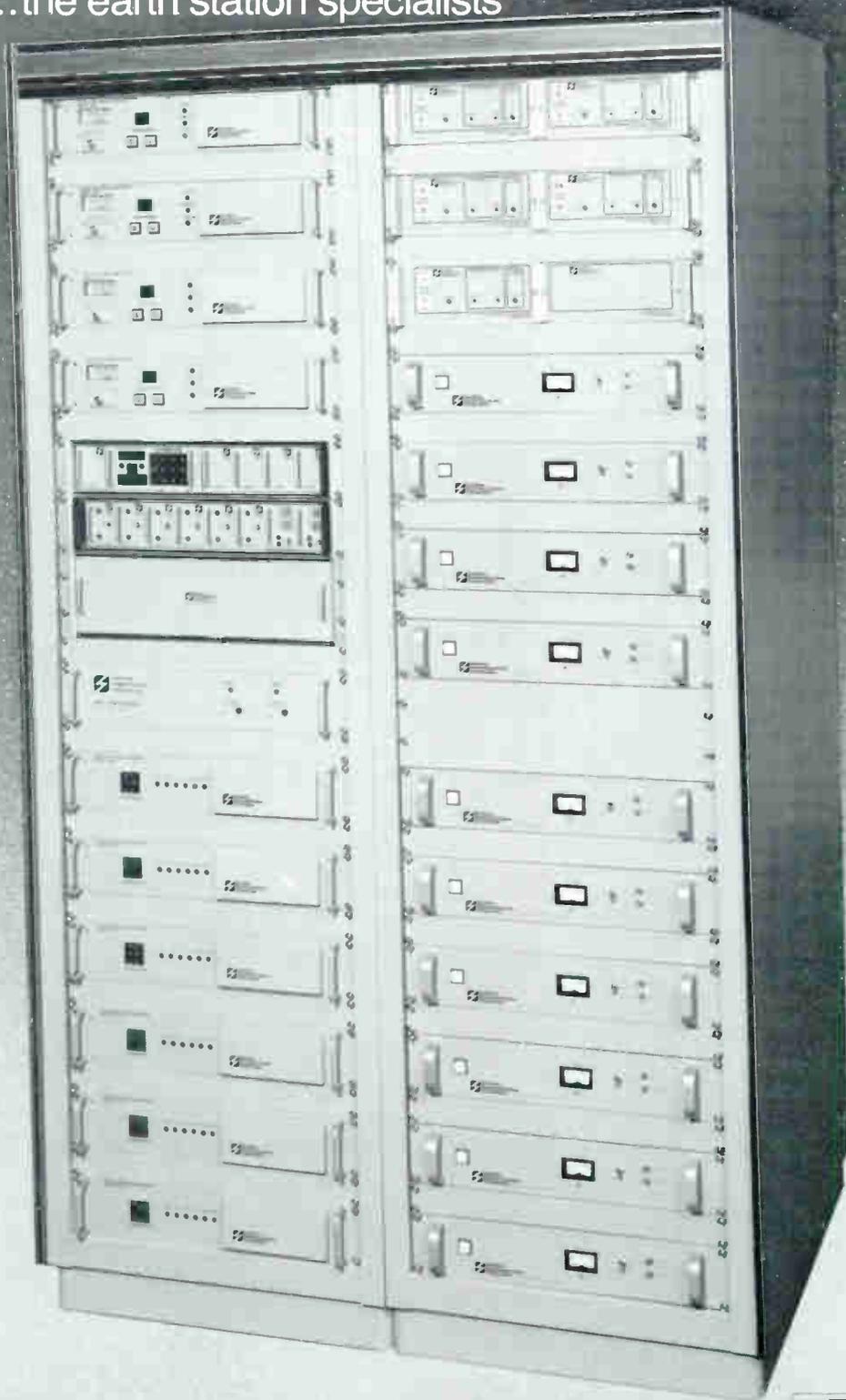
Polis reported on several of the things that the SCTE is currently doing and plans to do in the coming year. Local chapters around the country are starting training programs and compiling lists of people who are willing to volunteer time to establishing chapter activities. Printed materials are being supplied to support the chapters, including a new technical monograph series (two have been produced so far, covering digital technology and IC amplifiers). Programs on videotape have been produced and more educational tapes will be coming. Tapes planned for the coming year cover such topics as microwave path studies, signal leakage, spectrum analysis, regulation guidelines, financial reports, studio design and local origination, video as a training tool and documentation and drafting practices for maintaining of system records.

The most important program the SCTE introduced is the Professional Cable Television Engineer Designation Program, said Polis. This voluntary program consists of two parts: qualifications from job experience and an examination. Polis indicated that the SCTE will soon be publishing a study guide with a bibliography of useful reading material for preparation for the testing program. He said that the industry was polled on the question of whether engineers established in the field should be exempt from the qualification requirements; the consensus was that everyone should be required to seek qualification. It is believed that the program will create incentives for younger technicians if the more experienced engineers are qualified.

Polis suggested that the study guides be incorporated into in-house programs, and companies are encouraged to carry this out. The first test will be scheduled in conjunction with the May 1982 NCTA convention. Subsequent testing sessions will be scheduled to coincide with large industry meetings. The SCTE designation program will go far in helping the industry identify qualified personnel and give recognition to the accomplishments of technicians and engineers in the industry, Polis maintained.

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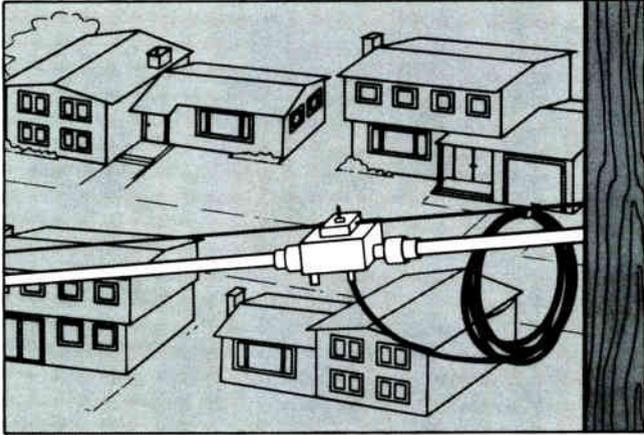


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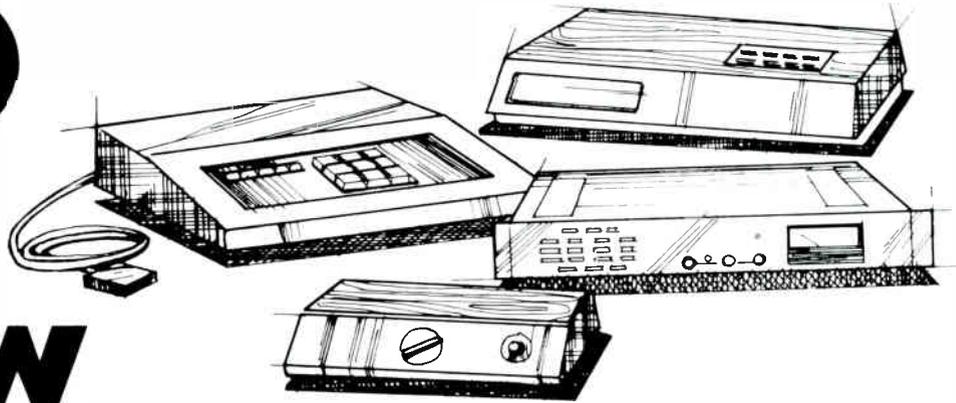
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CEC Tech Review



A record 11,000 conventioners flocked to Anaheim last month to tour the booths and participate in seminars at the 13th annual Western Show. In this issue, **CEC** highlights products featured at the show by over 100 of the approximately 250 exhibitors. Products introduced over the last six months are also included.

Addressable Systems

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Look for money saving features. Hughes downconverters can be mounted at the antenna and each can feed as many as 12 low-cost receivers as you expand. And they use low-cost trunk cable instead of expensive 4 GHz cable. Our diplexers allow sharing of your existing cable.

Look for 24 channel agility. Hughes has always believed that built-in channel agility with threshold extension is the life insurance policy of a satellite receiver. Satellites do fail. Channels do get reassigned. And with Hughes all you have to do is push a button on the front panel. You can even do it by remote control.

Look for "Hughes" on the name plate. It's your guarantee of all the above, and more. Hughes

ultra-reliable microwave integrated circuits and built-in test and alignment circuits mean much less down time, easier maintenance. Complete your system with our unique expandable antenna.

Check out our 2 year warranty. Because our system has been field-proven for many years, we have the confidence to offer a full 2-year warranty, backed by a 48-hour exchange program.

For more information write or call:

Hughes **MICROWAVE™
COMMUNICATIONS
PRODUCTS**

P.O. Box 2999, Torrance, CA 90509
(213) 517-6233 or toll free outside
of California (800) 421-5748.

HUGHES

HUGHES AIRCRAFT COMPANY

Addressable Systems

Home Terminal Unit

CableData has announced its entry into the addressable converter market with a home terminal unit (HTU) that is one-way addressable, activates/deactivates all services, performs upgrades and downgrades automatically, provides 54 channels, 64 tiers, and 64 special events, complete security, a remote control unit, and is fully upgradable to two-way.

The addressable HTU is controlled by the same Tandem computer that controls the business office activities. Because CableData's DDP software is already driving both the billing and the addressable unit, it can be further enhanced to deliver other software already driving both the billing and the addressable unit, it can be further enhanced to deliver other software-oriented services to subscribers, according to the company.

With the system being software intensive, the HTU is capable of intelligent two-way communication while being one-way addressable from the headend. The subscriber can call up any part of a nine-option "cable info" display. The selectable options include "watch TV", "program guide", "special events", "community directory", "message from office", "account status", "services purchased", "events purchased", and "parental discretion code". With each option, specific "pages" can be called up by the subscribers for detailed information on, for example, local weather, cable billing status, coming events, pay-per-view advertising, etc.

For information, contact CableData, 3200 Arden Way, Sacramento, California 95825; (916) 485-2911.

Addressable Wallplate

Delta-Benco-Cascade is marketing an addressable wallplate for hotel pay TV systems.

The IT-1-6SM addressable wallplate allows remote control of basic service and up to six pay channels. The pay channels can be controlled individually. Each unit has a unique address, programmed prior to installation, enabling the service to be controlled from the headend.

The wallplate is equipped with anti-tampering screws, a custom PMOS LSI logic with error detection circuitry and modular construction.

Bandwidth is 10 to 400 MHz.

For information, contact Delta-Benco-Cascade, 124 Belfield Road, Rexdale, Ontario, Canada; (416) 241-2651.

E-Com

E-Com Corporation has announced

a full multi-service addressable system for CATV operations. Called the TRU-500 system, it is comprised of three major component groups: the TRU-500 head-end communications controller (HCC), the area controller (ACU) and a variety of service modules. The system is capable of premium control, pay-per-view, security, energy management, utility meter reading, videotex and addressable control, among other services.

The service modules include the customer service module (CSM) which is inserted in series with a drop cable using standard "F" connectors. It has eight inputs and eight outputs. Inputs may be used for security zones, thermostats, etc., while the outputs deliver commands for load shedding and other services. For utility meter reading, one output is used to interrogate the meter and one input is used to accept the data readout.

Another service module is the premium television control module (TCN) which is strand- or pedestal-mounted and will provide up to 16 channels with independent control on each of four drops.

In applications requiring connection to home computers, videotex decoders or home shopping/banking terminals, the videotex/data interface (VDI) is employed.

For information, contact E-Com Corporation, 320 Essex Street, Stirling, New Jersey 07980; (201) 647-6700.

Multidrop System

Electroline Television Equipment, Inc., has developed an addressable system designed to control subscriber access and/or subscriber premium service in "home-run" wired multidrop buildings. Called Electroline's Addressable System (EAS), it uses continuous scanning to control subscriber service or service level from a central location.

The EAS is modular, allowing the cable operator to build the system to his specific needs, according to the company. The system provides for easy audit of subscriber status and can be utilized for apartments, hotels, hospitals and other applications where management of CATV service is required.

The EAS consists of three elements: the EAS-1024 microprocessor control unit; the EAS-64 demodulator/decoder unit; and the EAS-16 wideband multitap switch assembly. The control signals are transmitted in a selected band via the cable network to the EAS 64-M demodulator/decoder unit and the EAS-16 switch assembly for control of subscriber services. In applications where the control unit is in close proximity to the switch assembly, interconnection between the model EAS-1024 control unit and the EAS-64/EAS-16 switch assembly is made through external cable using TRS-422 standard.

The system can be installed in two configurations depending upon the desired location of the control unit.

For information, contact Electroline, 8750 8th Avenue, St. Michel, Montreal, Quebec, Canada. H1Z 2W4; (514) 725-2471.

Gardiner

Gardiner Communications Corporation has announced that it will introduce low-cost addressability for smaller cable systems in 1982. An addressable converter will be introduced for 20-channel systems with up to 10,000 subscribers that will not require two-way system capability.

The hardware in the home will cost less than \$40 and the computer control will be configured to provide billing and accounting functions. Individual access to any of eight mid-band channels will be possible, as will programming of special events on a pay-per-view basis.

The entire converter can be turned on and off. According to company officials, orders can be placed in January for June 1982 delivery.

For information, contact Gardiner Communications Corporation, 1980 South Post Oak Road, Suite 2040, Houston, Texas 77056; (713) 961-7348.

Software Package

Oak Communications Systems is marketing a new headend software package which combines the control features of Oak addressable system software to a remote or local billing and customer service computer.

Called the Interfaceable Addressing System (IAS), the software interfaces the billing service with the cable system's computer via a direct communications channel. The chief advantage of IAS, according to Oak officials, is that it can be interfaced with any major business management system. IAS provides three special control functions: special events, high priority refresh and tiered decoder tests.

The software allows operators to market up to 50 special events, such as one-time only programming events or continuing events such as college classes or multi-part entertainment specials.

For information, contact Oak Communications Systems, P.O. Box 517, Crystal Lake, Illinois 60014; (815) 459-5000.

Telease

Telease, Inc., has introduced an addressable converter that offers subscribers the ability to control viewing programs while giving cable operators greater security and improved spectrum efficiency.

The Multiple Audio Addressable Secure Television (MAAST) system enables

subscribers to prohibit viewing of an entire program or to automatically delete those parts of the audio and/or video that are objectionable.

With MAAST the subscriber can purchase control service which can be operated from the transmitter. This feature, combined with MAAST IPC, gives broadcasters the opportunity to retail home videocassettes during normal "off hours". The converter will turn on the VCR, unscramble the program, and turn off the VCR automatically.

MAAST uses a high security audio scrambling, incorporating sophisticated cryptographic techniques. MAAST will permit the transmission of up to five 15 kHz audio channels with each video channel and also has the capability of sending data in the video spectrum simultaneously with the transmission of standard or pay TV programming or can use full channel capacity for data.

For information, contact Telease, Inc., 1875 Century Park East, #930, Los Angeles, California 90067; (213) 552-1055.

Mini-Hub

Times Fiber Communications, Inc., featured its Mini-Hub fiber optic subscriber distribution system at the Western Show.

Developed primarily for the urban

high-rise market, the system is a fiber optic, addressable, computer-controlled distribution system designed for high subscriber density areas. The typical system configuration includes a subscriber keypad, a residential interface unit that is permanently wall-mounted, a large core dual-fiber optic cable link with the Mini-Hub remotely located in the building's basement, and one of several optional subscriber program controllers for addressable operations.

The Mini-Hub system is modular for future upgrading and comes in various capabilities, including locally programmable (series 8100), addressable (8200), interactive store and forward transactional (8300), interactive real-time security option (8400) and interactive real-time videotex option (8500).

For information, contact Times Fiber Communications, Inc., Cable Television Division, 358 Hall Avenue, Wallingford, Connecticut 06492; (203) 265-8500.

Amplifiers

Multiple Dwelling Amplifiers

Broadband Engineering has announced a complete line of multiple dwelling amplifiers for loop-through and home-run cable and MATV systems in

apartments, condominiums, hotels and motels. The amplifiers are designed with hybrid modules and are capable of full channel loading for the design bandwidth, according to the company.

The model MDA-300-30-T has a bandwidth of 50 to 300 MHz, and the MDA-440-30-T has a bandwidth of 50 to 440 MHz. Two-way models are also available in both bandwidths.

Specifications for the series include: gain, 30 dB; noise figure, 8.0 dB; cross-modulation, -62 dB; CTB, -60 dB; and second order, -70 dB. Slope control is 8.0 dB of cable maximum, and gain control is provided via a plug-in-pad.

For information, contact Broadband Engineering, P.O. Box 1247, Jupiter, Florida 33458; (305) 747-5000.

Century III

Century III has introduced three new amplifiers, the model 4130B feed-forward line amplifier, the model 2100B/400 trunk amplifier, and the model 2130B/400 line amplifier.

The model 2100B/400 trunk amplifier features the same corrosion resistant finned housing that has proven successful in minimizing internal temperature in other Century III products. A modular construction permits six distinct amplifier station model configurations within the common eight-port housing. A common motherboard accommodates MGC trunk.

CATV indoor distribution amplifiers from Blonder-Tongue

Backed by more than 30 years of technical and manufacturing experience, Blonder-Tongue sets a standard of quality in the industry that's hard to beat. These DA series amplifiers are no exception.



- DA-30**
Wideband Distribution Amplifier
- Flat Response - 50-300 MHz
 - 40 dBmV Output per Channel for 21 Channels
 - Front Panel Gain and Slope Controls
 - Slim Line Design - Easy to Install

- DA-51**
2/3 Wideband Distribution Amplifiers
- Specifically Designed for CATV "Drop" Distribution Systems
 - Wide Frequency Range for Incorporating MID/SUPER Bands with VHF/FM



- DA-33**
Wideband Amplifier
- Ultra-Wide Bandwidth 0.5 MHz-300 MHz
 - Push-Pull Hybrid IC Amplifier
 - Exceptionally High Output

- DA-21**
CATV Distribution Amplifier
- Ideal CATV Distribution Amplifier in Small Apartment Buildings



For more information on these fine DA Series Amplifiers, give CWY a call.

CWY Electronics
405 N. Earl Avenue
Lafayette, IN 47904

Toll Free (800) 428-7596
Indiana (800) 382-7526



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"The best-selling closure in the world."

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This high quality is based on 25 years of Marketing, Engineering, Manufacturing, and Distribution expertise.

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Reliable Electric / Utility Products are the stars of the CATV marketplace through our advanced design. Our closures feature a larger

housing capacity and work space than comparable models and include features like: vents, louvers, screens, padlock hasps, and 3-Point locks.

Splitters, couplers, taps, line extenders, and amplifiers from virtually any manufacturer mount in our closures

with one of three mounting brackets.

In addition, our closures are designed to last twenty-five years. A superior five-step finishing process helps guard against corrosion and weathering.

It pays to protect your valuable start-up investment so insist on the best, Reliable Electric / Utility Products.

For more information on these closures and our connecting, grounding, and labeling products write or phone the address below.



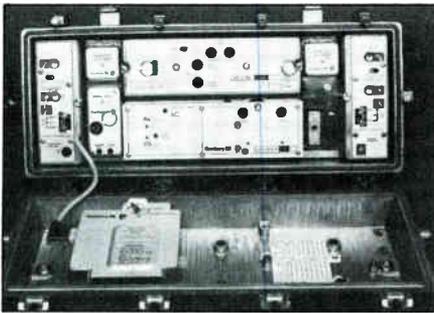
Reliable Electric / Utility Products / 11333 Addison Street / Franklin Park, Illinois 60131 / 312-455-8010

RELIANCE
COMM/TEC

AGC/ASC trunk, MGC trunk bridger, AGC/ASC trunk/bridger, intermediate bridger and terminal bridger functions by use of appropriate modules. Hybrid integrated circuits provide push-pull signal amplification for both the trunk and bridger functions. Signal levels are maintained by automatic gain and slope control (AGC/ASC) circuits which respond to either dual modulates, unmodulated, or video carriers. Three gain options are available in both trunk and bridger modules, providing added flexibility in system design.

Conversion of the model 2100B/400 trunk amplifier to a two-way sub-split or mid-split trunk amplifier station is possible with the installation of appropriate modules.

For information, contact Century III



The model 2100/B400 trunk amplifier from Century III.

Electronics International, Inc., 3880 E. Eagle Drive, Anaheim, California 92807; (714) 630-3714.

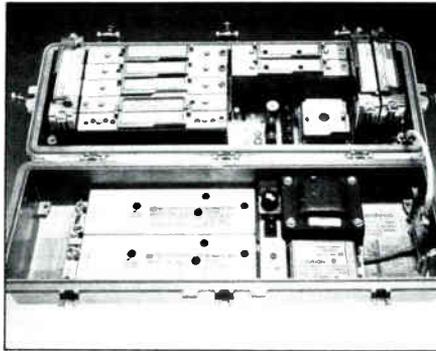
Jerrold Division

Jerrold Division of General Instrument has announced that its line of distribution products has been increased in bandwidth to 450 MHz.

The distribution system product line, which includes headend equipment, distribution amplifiers, taps and all other system components, can now handle 66 channels.

The amplifier line, Starline 450, features integrated circuits with sufficient tolerances to permit the increased upper bandwidth limit.

For information, contact Jerrold Divi-



Jerrold's Starline 450.

sion, General Instrument, 2200 Byberry Road, Hatboro, Pennsylvania 19040; (215) 674-4800.

Extender Amplifier

RCA Cablevision Systems has introduced a new midsplit line extender amplifier. The model 270 series is to be used with the model 272 TM midband split trunk systems.

The line extender splits the frequency band with 158 to 330 MHz in the forward direction and 5.0 to 110 MHz in the reverse direction. It can be ordered with two-way circuitry or with downstream capability only.

For information, contact RCA Cablevision Systems, 8500 Balboa Boulevard, Van Nuys, California 91409; (800) 423-5651.

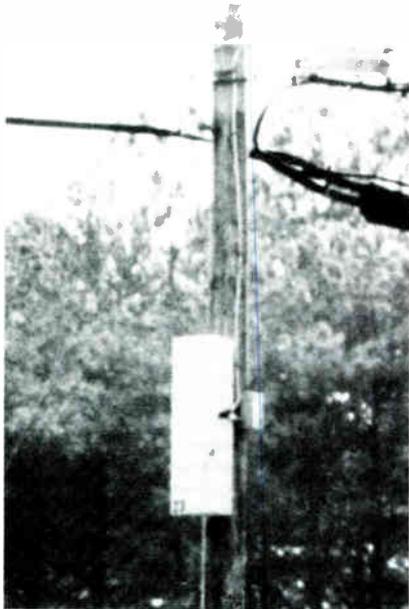
Sylvania

Sylvania CATV Transmission Systems has introduced its 400 Plus series 5000 amplifier station. The station can deliver up to 450 MHz, with bandwidth determined by the amplifier modules and equalizer series selected.

Second order distortion in the amplifier (52 or 60 channels, Channels 2 and 13 on Channel R) trunk at 33 dBmV: -83 dB; bridging module at +47 dBmV: -70 dB.

The station can be updated to include

LECTRO STANDBY POWER FIVE YEAR WARRANTY



SV-L-4-60-BC

After five years of field operations in the heaviest lightning areas of the U.S.A., Puerto Rico and Mexico, where the most frequent power failures occur, we found by the records kept that Lectro Standby Power supplies had such a low failure rate we could offer a warranty unprecedented in power supplies in the cable industry.

That means there is no cost to you other than shipping charges to and from our factory, unless the unit has obvious physical damage. We will repair at no charge, and return the unit within one week of receipt.

Lectro has proven that you do not have to pay high prices for reliability.

Our five year warranty now gives you further proof of this. Sales over the past three years show that Lectro is now the leader in standby power.

**Why not use
the leader in
your system!**



LECTRO PRODUCTS

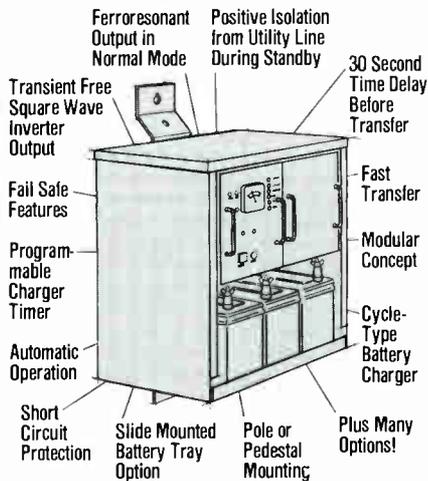
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Status Monitoring Interface Available

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Its outstanding performance features determine how PowerVision® performs — providing an uninterrupted source of 12 amperes of clean 30 or 60 volt square wave power to CATV systems.

The PowerVision NB113C is the practical solution to power problems — only 24 inches wide, 23 inches high and 12½ inches deep, it weighs 98 pounds without batteries. And, for easy service, the electronic modules may be readily changed without interrupting cable service.

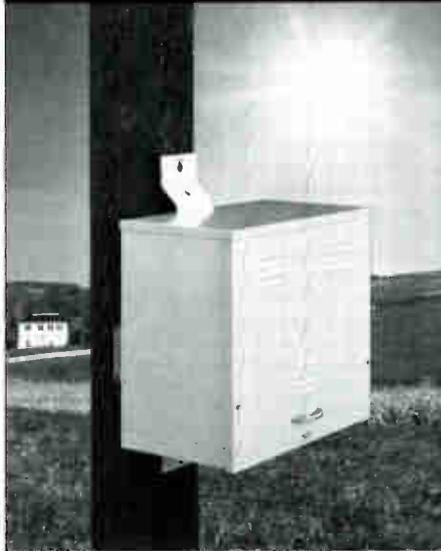
For additional ordering information contact:



POWERVISION®

1044 Pioneer Way, El Cajon, CA 92020
(714) 588-1272
2840 Coronado, Anaheim, CA 92806
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This is WHAT... PowerVision Performs.



WHAT PowerVision® performs... is mainly benefits for the CATV operator who needs reliable standby power to keep the show going on — with an uninterrupted source of 12 amperes of clean 30 or 60 volt square wave power.

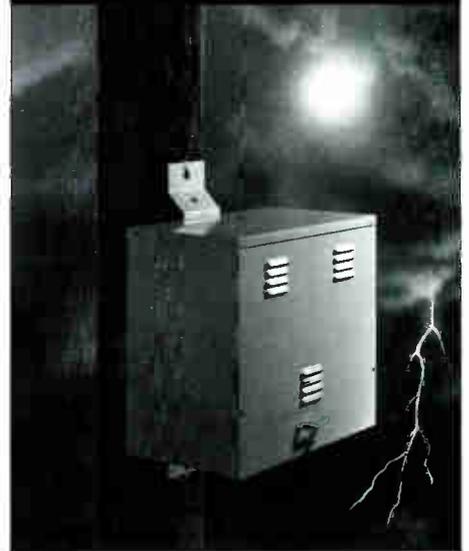
The PowerVision NB113C features automatic operation, modular service concept, fast transfer, short circuit protection and positive isolation from the utility line during standby operation. Many other advantages designed into the model NB113C include ferroresonant power regulation, stand-by power modules, static transfer switch, bypass switch and status indicators, long life battery charger, circuit protection and a long list of options including status monitoring, elapsed time meters, lightning arrestors, transorb amplifier protection and exercisor automatic cycling.

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This is WHEN... PowerVision Performs.



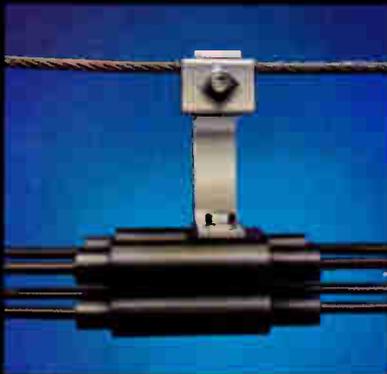
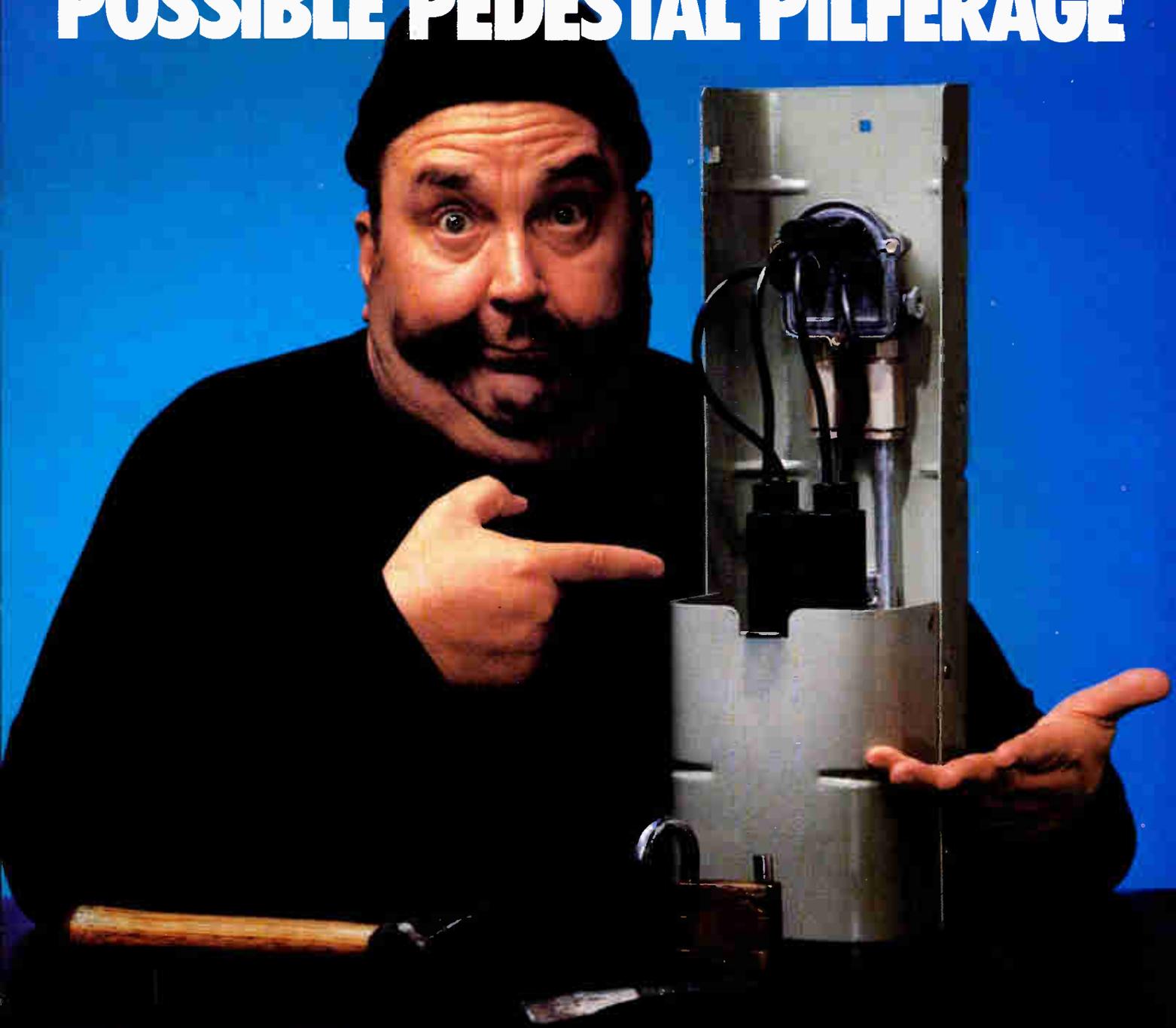
WHEN PowerVision® performs... that's what makes CATV operators believe in its reliability. Temperature, weather extremes and altitudes from sea level to 10,000 feet pose no problems for the PowerVision NB113C with its coated surfaces providing resistance to salt spray, battery acid, frost, chipping, peeling and sunlight.

The PowerVision NB113C features automatic operation, modular service concept, fast transfer, short circuit protection and positive isolation from the utility line during standby operation. Many other advantages designed into the NB113C include ferroresonant power regulation, standby power modules, static transfer switch, bypass switch and status indicators, long life battery charger, circuit protection and a long list of options including status monitoring, elapsed time meters, lightning arrestors, transorb amplifier protection and exercisor automatic cycling. For additional ordering information contact:

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MFE-4

PICO does it again! They have solved another security problem.

The Multiple Filter Enclosure from PICO, molded from high impact nylon, adds great security while organizing traps and decoders in pedestals, on the strand, or in apartment house lock boxes.

Your security is highly enhanced by the "Tampruf"® bolt that is recessed into the body of the Multiple Filter Enclosure.

A four section Multiple Filter Enclosure fits into a 4 inch pedestal, and you can install up to a maximum of 16 filters in an 8 inch pedestal. Optional waterproof boots are also available to seal out moisture.

It's another innovation from PICO, and in security, that's the name you can grow with.



1001 Vine Street, Liverpool NY 13088
Telephone: (315) 451-0680

a status monitoring system.

For information, contact CATV Division, GTE Products Corporation, 10841 Pellicano Drive, El Paso, Texas 79935.

Texscan/Theta Com

Texscan/Theta Com has added a high-split amplifier for institutional networks to its T-400 series of amplifiers. The high-split amp, designed for large franchises, features a filter cross-over of 220 MHz, according to the company.

The firm is also shipping 440 MHz models of its T-400 series. The amplifiers offer a composite triple beat of -92 dB at an operation level of +25/32 dBmV, and 0.5-30 MHz sublow two-way capability.

For information, contact Texscan Theta Com, 2960 Grand Avenue, Phoenix, Arizona 85068; (800) 528-4066. (602) 252-5021.

Cable

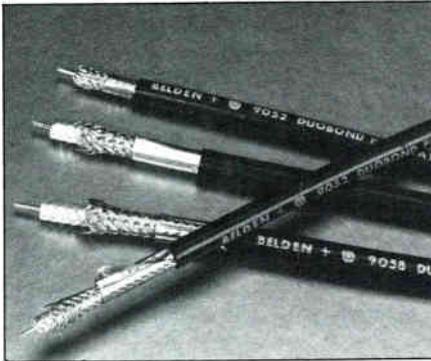
Duobond Plus

Belden Corporation has introduced its new Duobond Plus CATV coaxial cable.

The coaxial cable provides signal protection with three shields using standard "F" connector sizes. Three shields surround the solid copper covered steel

conductor and cellular polyethylene core: the Duobond II inner foil bonded to the core, a medium to high coverage braid and a special heavy-duty outer foil shield called Duobond Plus.

For information, contact Belden Corporation, P.O. Box 1980, Richmond, Indiana 47374; (317) 983-5200.



Belden's Duobond Plus™ CATV drop cable.

CCS Cable

CCS Cable displayed its line of quad-shield drop cable. The cable is shielded with aluminum braid and aluminum tape and is available in two types, RG 59 and RG 6.

For information, contact CCS Cable, 5707 West Buckeye Road, Phoenix, Arizona 85043; (800) 528-3341.

Capscan

Capscan Cable Company has brought out its fourth generation aluminum sheath (3/4-inch) trunk and feeder (half-inch) cable. The cable is available in various constructions: plain, jacketed, burial, armored and messengered in the half-inch size.

The trunk cable has the following attenuation figures: at 300 MHz, 0.91 dB per 100 feet, and at 400 MHz, 1.07 dB per 100 feet.

The attenuation figures for the feeder cable are: at 300 MHz, 1.32 dB per 100 feet, and at 400 MHz, 1.55 dB per 100 feet.

For information, contact Capscan Cable Company, P.O. Box 36, Adelphia, New Jersey 07710; (800) 631-2217, (201) 462-8700.

Comm/Scope

Comm/Scope has announced the formation of a subsidiary, Comm/Scope Sales and Marketing, that will handle all Comm/Scope products and products of other M/A-COM subsidiaries, according to David Frye, advertising manager.

The new subsidiary is staffed by Comm/Scope's current sales department.

For information, contact Comm/Scope, Box 199, Catawba, North Carolina 28609; (704) 241-3142

THE PERFORMERS

No Matter Where The Buried CATV Cable Or Sheath Fault Is,
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Simplify your buried CATV distribution cable locating job. Every time. In complex joint service areas or isolated drops. Without being misled.

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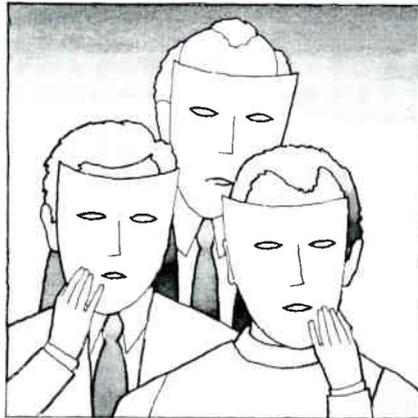
Are you ready for (And is it ready

Of all the buzzwords in this industry, few are hotter than the term "addressability." And that's good, because sooner or later, addressability is in the future of every cable operator.

But today addressability seems to be raising more questions than answers. Since we invented advanced addressable systems, and have more systems in use today than anyone else, we'd like to provide the answers, and demonstrate why addressability makes the future of cable TV more promising than ever.

"Addressability is being offered by several manufacturers today. And from what I see and hear, it's all pretty much alike."

True, addressable systems are being offered by many companies. But they're not all alike, and the differences are more striking than the similarities.



The heart of addressable hardware is the computer, and many different ones are used. Oak utilizes an IBM Series 1 computer for its demonstrated reliability and nationwide sales and service backup from the manufacturer.

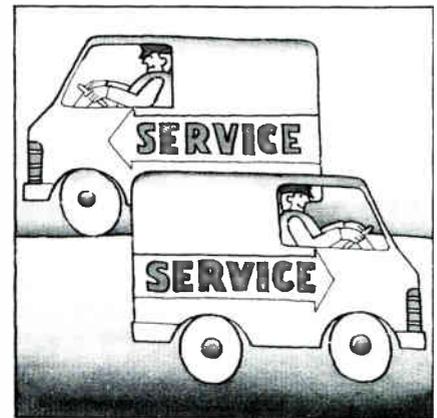
But by far the most important part is the software. It's the "engine" that runs the hardware by programming the computer to respond to your needs.

Oak takes full responsibility for developing all the software for its addressable systems and has modular programs available for you to "pick and choose" the kind of input and output you want from the system. Oak programming has a simplified design so your own people can be trained to use it in about an hour. That's not always possible with other addressable systems, and it is something you should consider.

"Sure, I've heard a lot about addressability, and I've seen the price tag. Sorry, I'm not a heavy hitter and I think it is out of my league."

No question, addressable systems cost more. That's because they're more economical in operation.

With addressability, you can stop spending a fortune on field service. All your connect/disconnect and service level changes are handled from the office. That could solve a lot of your "late pay" or "no pay" problems too.



And an addressable system can be "married" to your billing system to greatly improve your invoicing accuracy and promptness. At today's financing costs, that can mean a lot to your cash flow.

addressability? for you?)

In fact, if you'd like to see just how economical addressability can be in your system, ask your Oak representative for a complete Addressability Analysis. You'll see addressability can turn out to be more of an investment than an expense.

"Right now my business is terrific. Why should I tinker with my system and risk the safety of what I've got?"

Today you're in fine shape. But tomorrow you're going to have a lot of opportunities to do even better. Pay-per-view, multi-pay marketing, and tiering are just the beginning of what you can offer your subscribers with an addressable system.

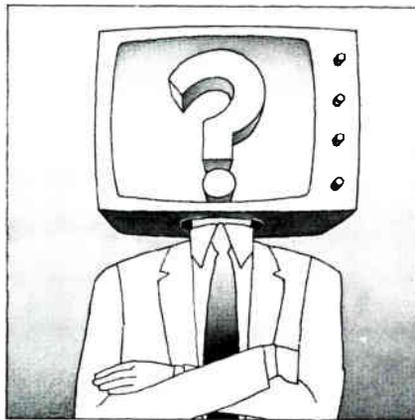


With addressable control, there's almost no limit on the advanced packaging you can sell: college courses, hobby classes, business and personal financial programs.

And addressability will give you the capability to run cost/benefit analyses on all your programming. You can track viewing trends to change your offerings as your viewers change their tastes.

Unless you believe tomorrow will be exactly like today, you're going to need addressability; to keep up with developments in marketing your services; to keep up with your customers and what they want; to keep your system operating as smoothly tomorrow as it is today.

"So who are you and why should I trust you?"



We're Oak Communications Systems (formerly Oak Communications CATV Division). We've been involved in the cable TV industry for over 20 years. We made

addressability the state of the art in 1978 with TotalControl.

Today, over 300,000 cable subscribers and 600,000 STV subscribers are serviced with Oak addressable systems. And we back our addressable equipment with the *only* effective 1-year warranty in this business.

But we're not resting on a reputation, we're continuing to build one with the largest engineering staff in cable TV, and new manufacturing facilities coming on line right now.

See for yourself how far ahead we are at the Western Show. If you will not attend the show, send for our free brochure ADDRESSABILITY EXPLAINED for a detailed look at what this concept means for your operation.

Find out why "Oak, the First Choice in Addressability" isn't a bald-faced boast, but rather an accurate description of our place in the industry. It is a position earned through performance.

OAK

Oak Communications Systems
P.O. Box 517 Crystal Lake, Illinois 60014
Subsidiary of Oak Communications Inc.

Fused Disc Coaxial Cable

General Cable Company has introduced a new size coaxial cable, 11.5 mm (.450-inch) Fused Disc® M-III. It is the latest addition to General Cable's Fused Disc M-III product line, which features metric sizing and 450 MHz bandwidth.

M-III cables, applied in aerial, buried and submarine environments, are now available in the new 11.5 mm (.450-inch) size, as well as in 13.0 mm (.500-inch), 14.5 mm (.570-inch), 16.5 mm (.660-inch), 19.0 mm (.750-inch) and 25.0 mm (1.0 inch) sizes.

For information, contact General Cable Company, CATV Division, 1 Woodbridge Center, Woodbridge, New Jersey 07095.

Plenum Cables

A new data and audio/video coaxial cable that can be installed in air plenums without conduit is being marketed by the Times Wire & Cable Division of **Times Fiber Communications, Inc.**

Times' PL series cables utilize a high velocity fluorocarbon dielectric. This dielectric is bonded to the center conductor, preventing signal degradation or shorting from moisture which may collect in the cable, according to the company.

For information, contact the Industrial

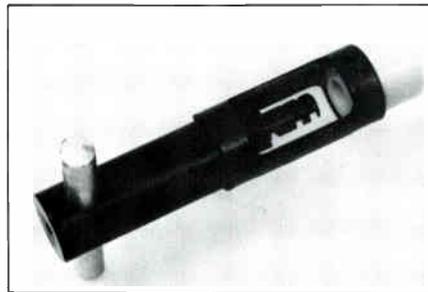
Products Group, Times Fiber Communications, Inc., 358 Hall Avenue, P.O. Box 384, Wallingford, Connecticut 06492, (203) 265-8500.

Cable Accessories

Stripping/Coring Tool

Ben Hughes Communications Products Company has introduced the SCT series, designed to strip and core all foam polyethylene cables, from the first to third generation, in one simple operation. With the tool steel blade as the only moving part and no adjustments required, the only maintenance required is occasional lubrication of the blade.

The tool strips and cores in about the same time it takes to just core the cable.



The SCT tool from Ben Hughes strips and cores polyethylene cables.

The SCT tool will prepare the aluminum sheathed coaxial cable with a squared off end without distortion or knurled end for a better electrical contact with the connector. The SCT series is available from all CablePrep distributors from the .412 to the .875 sizes.

For information, contact Ben Hughes Communication Products Company, P.O. Box AS, Elm Street, Old Saybrook, Connecticut 06475; (203) 388-3559.

Heat Shrink

LRC Electronics, Inc., has brought out a new line of heat shrink tubing. The tubing offers high resistance to weather conditions and common chemicals, according to the company. The sleeves are flame retardant and resistant to ultra violet interference. The tubing comes in three standard sizes: 1.1, 1.3 and 1.7.

The firm has also brought out the F-11 QS, a new F-style connector for RG 11 drop cable.

For information, contact LRC Electronics, Inc., P.O. Box 111, Horseheads, New York 14845; (607) 739-3844.

Crimping Tool System

An electric/hydraulic compression connector crimping system has been developed by **Panduit Corporation**. The system includes a CT-920CH crimping



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head which develops 12 tons of force, a CT-900HP 10,000 psi electric/hydraulic pump, a ten-foot factory filled non-conductive hose and remote controls.

The tool offers a crimping range of #8 AWG through 750 MCM for copper lugs (400 MCM copper splices) and #6 AWG through 600 MCM for aluminum lugs (400 MCM aluminum splices).

The CT-900HP pump features adjustable pressure settings, a visual fluid level check and an on/off control switch. Parker-type hydraulic fittings are used on the pump, the remote crimping head and the hose which is supplied pre-filled with non-flammable hydraulic fluid.

For information, contact Panduit Corporation, 17301 Ridgeland Avenue, Tinley Park, Illinois 60477; (312) 532-1800.



Panduit Corporation's CT-920 hydraulic crimping tool system.

Electronic Measuring Wheel

Poleline Corporation has introduced the "Polewalker," an electronic measuring wheel for reliable outdoor measuring under the most adverse terrain conditions.

Accurate within three percent, the model #PW-20 can be either walked or "pulled" behind a vehicle. Featuring an LCD electronic "read-out," the #PW-20 automatically records up to 10,000 feet without resetting, plus continuous "read-out." The 3/8-inch LCD lettering (black on gray) is clearly visible in the brightest sunlight. An "on-off" toggle switch and "reset" button switch is built into the LCD. Special design prevents "false read-out" in reverse wheel direction.

For information, contact Poleline Corporation, a subsidiary of RMS Electronics Inc., 50 Antin Place, Bronx, New York 10462; (800) 223-8312, (212) 892-1000.

Coring Tools

SignalVision, Inc. has added new sizes to its line of cable coring tools. The new sizes are .625-inches, .875-inches, and 1.0-inch. The tools are available with a T-handle and ratchet type snap-on handle.

For information, contact SignalVision, Inc., 23011 Moulton Parkway, Laguna Hills, California 92653; (714) 583-3196.

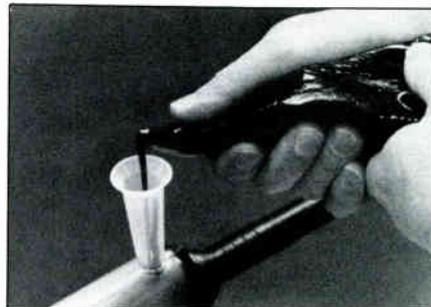
Plastic closures

Three new clear plastic closures for CATV field cable splice protection are available from **3M's TelComm Products Division**. The CX-8990 closures vary in length from 153 mm (7 3/16 in.) to 397 mm (15 5/8 in.) and handle cable diameters from 16 mm (1/4 in.) to 38 mm (1 1/2 in.). Finished splices can be strung overhead or buried.

The closures come with 3M 4407 moisture-proof hard encapsulant for physical protection. The material is packaged in two-part unipak bags for mixing and pouring without the need for tools or a container.

The CX-8990 closures provide a splice life that is equal to or better than the cable itself, according to 3M.

For information, contact 3M, TelComm



The CX-8990 clear plastic closure from TelComm Products.

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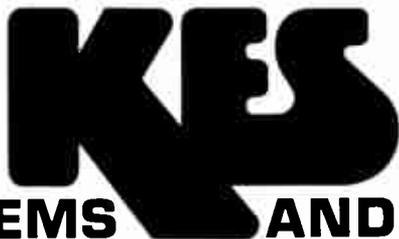
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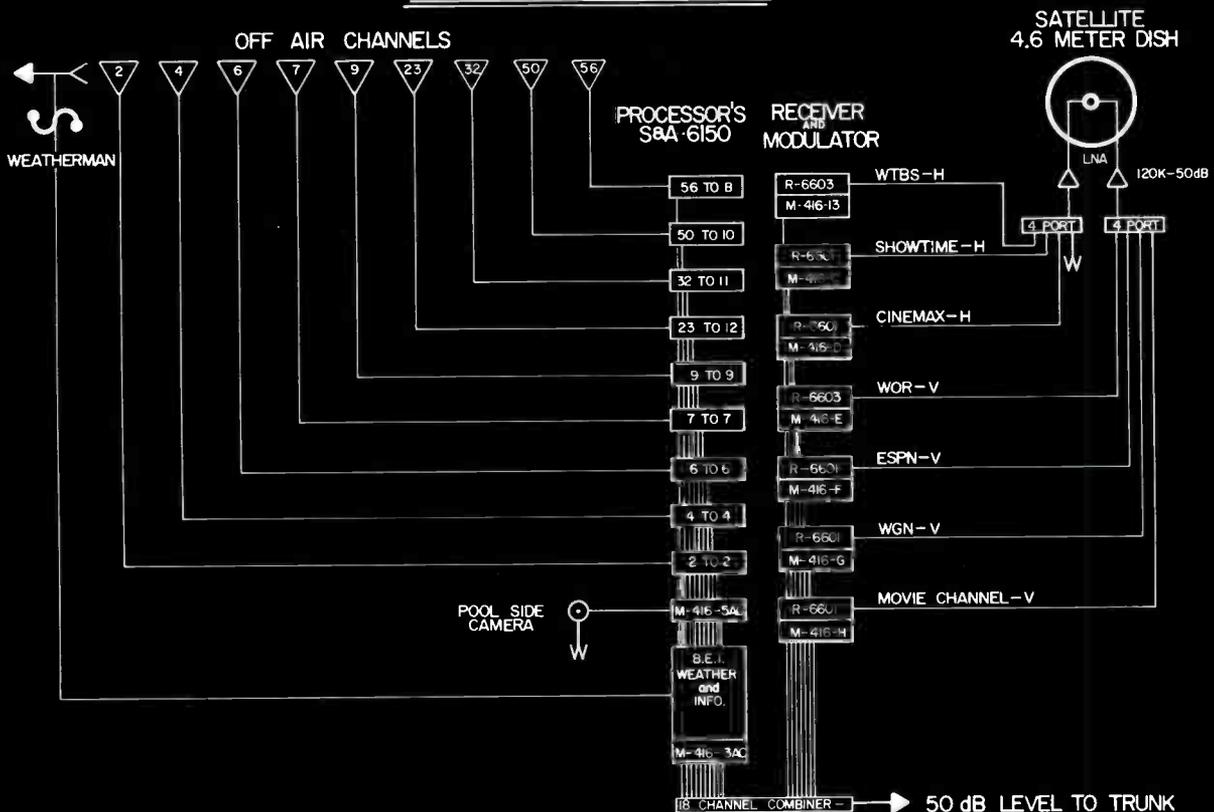
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18 CHANNEL SYSTEM



Products Division, Department TL81-33,
P.O. Box 33600, St. Paul, Minnesota
55133; (612) 733-1186.

Construction Machinery

Ditch Witch

Ditch Witch is marketing two new 14-HP class trenchers.

The HP-1410 is designed for ease of operation, according to the company. One lever shifts from start to drive to dig modes. The hydrostatic ground drive has one drive range, eliminating the need to shift once the trencher is in drive.

The HP 1420 features the same ease of operation as the HP-1410 and can be walked through a standard yard gate.

For information, contact The Charles Machine Works, Inc., P.O. Box 66, Perry, Oklahoma 73077; (405) 336-4402.

Trailer-Mounted Lift

A trailer-mounted one-man aerial personnel lift has been developed by **Durnell Engineering, Inc.** The telescoping TML-33 Dur-A-Lift® has maximum working height of 33 feet, with 18-foot, three-inch reach over side at 20-foot working height. Boom travel is -2 to +83°.

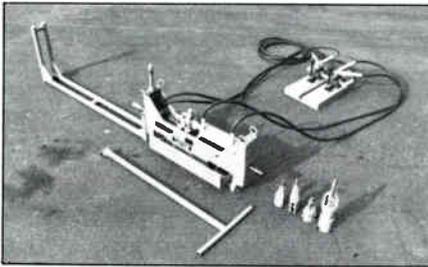
Lift, trailer and outriggers have been designed and welded into a single, integral unit. Power source is electro-hydraulic, with battery pack wired to an on-board battery charger. Motors actuate lift and 360° rotation (non continuous) are controlled by the operator in the bucket. Two-speed operation of both elevation and rotation is standard. A second set of controls, with safety override, is mounted in the enclosed trailer compartment.

For information, contact Durnell Engineering, Inc., Highway 4 South, Emmetsburg, Iowa 50536; (712) 852-2611.

Cable Installer

Elephant Industries has brought out a new pipe and cable installer.

The model EIM-DS (driveway special) pulls one-inch and two-inch pipe. It can operate in a six-foot by six-inch trench.



The pipe and cable installer from Elephant Industries.

Built-in levelling jack hydraulic gates lock the installer in the trench. The unit weighs 173 pounds and can be operated by two men.

For information, contact Elephant Industries, P.O. Box 3626, North Fort Myers, Florida 33903; (813) 995-3783.

Telsta A-28C Lift

General Cable's Apparatus Division has brought out its 1982 model Telsta A-28C maintenance vehicle. The unit has a working height of 33 feet and a side reach of 20 feet. The truck also features a small mounting pedestal to maximize storage space, according to the company. The A-28C is available with three power sources: DC motor-driven; chassis engine-powered; or auxiliary engine/generator driven.

For information, contact General Cable, Apparatus Division, P.O. Box 666, 5600 West 88 Avenue, Westminster, Colorado 80003; (303) 427-3700.

Bi-Directional Trencher

The **J I Case** DH4 trencher features a hydrostatic drive trenching attachment that permits forward/reverse and infinitely variable digging chain speeds and has a 43 HP liquid-cooled diesel engine.

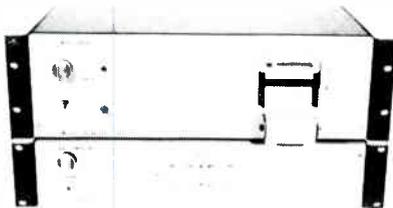
Two hydrostatic systems power the unit. One system powers the ground drive, the other system powers the attachments.

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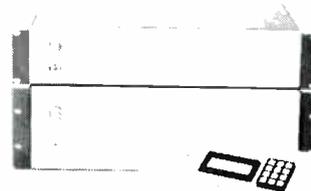
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The DH4 trenches up to 16 inches wide and up to 72 inches deep. Offset trenching depths are 8.0 inches wide/48 inches deep or 10.0 inches wide/36 inches deep.

For information, contact J I Case, Light Equipment Division, P.O. Box 9228, Wichita, Kansas 67277.



The DH4 trencher from J I Case.

Vermeer Manufacturing

Vermeer Manufacturing Company is marketing a trencher that is equipped with a hardened, replaceable grader edge on the backfill blade and a large diameter end idler.

The trencher, the V430, offers fuel consumption of 1.56 gallons per hour of continuous operation. The unit has a 16.5-gallon fuel tank.

For information, contact Vermeer Manufacturing Company, Pella, Iowa 50219; (515) 628-3141.



The V-430 trencher from Vermeer.

Converters

Remote Heads

Diamond Cable Electronics has brought out a remote channel selector designed to upgrade push-button converters.

Called the Digital Head™, the unit is a microprocessor-controlled digital replacement remote head used to replace electrical mechanical push-button remotes. So far, models are available for Jerrold 30-channel RSC and the Jerrold 36-channel RX 6. Diamond is developing heads for other Jerrold converters.

For information, contact Diamond Cable Electronics, 1023 State Street,

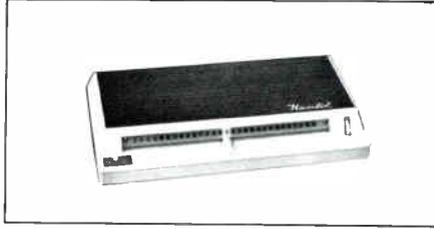
Schenectady, New York 12301; (518) 382-8000.

116-Channel Converter

Hamlin USA, Inc., has built a 116-channel remote control converter, the model MCC-5000D. The converter has a 58-channel display with a sliding switch and a button that switches dual cables. The converter features a lighted dial.

Electronic specifications include: gain, 2.0 dB min, 5.0 dB max; noise figure, 11 dB nominal, 13 dB maximum; second order distortion, -66 dB worst case; and cross-modulation, -66 dB worst case.

For information, contact Hamlin USA, Inc., 35 Corporate Woods, #209 Overland Park, Kansas 66210; (913) 381-7469, (206) 246-9330.



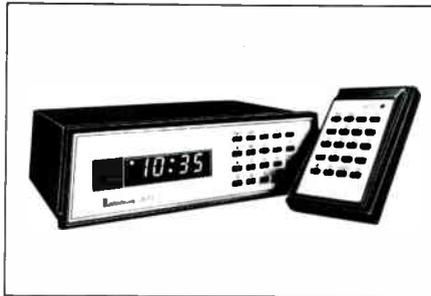
The Hamlin MCC-5000D 116-channel remote converter.

Lindsay America

Lindsay has introduced its second generation cordless CATV converter, the Jet 1. The converter is comprised of a 20-key battery-driven remote transmitter and a programmable receiver/converter consisting of a 4.0 digit clock/channel illuminated display and a local 20-key (override) master panel.

Converters are available for 35 or 52 channels.

For information, contact Lindsay America, Consumer Electronics Division, 2608 East Hills Drive, Williamsport, Pennsylvania 17701; (717) 326-7133.



The Jet 1 from Lindsay America.

NABU Manufacturing

NABU Manufacturing Corporation has introduced its new Commander 6000 series 60-channel cordless remote converter with remote volume control.

The converter features an integral clock with 24-hour programmable wake-up and sleep control, programmable channel skipping to eliminate unwanted

channels, favorite channel recall and LED display.

The remote volume control is incorporated in the handheld unit as is the audio muting capability. The remote keypad is duplicated on the set-top unit for convenience.

For information, contact NABU Manufacturing Corporation, 485 Richmond Road, Ottawa, Ontario K2A 3Z2; (613) 725-3300.

RCA Cablevision Systems

RCA Cablevision Systems is marketing a 58-channel set-top converter that utilizes a signal control direct address channel switching technique which is easy to operate.

The converters are available with a field programmable all-channel in-hand decoder which will accept up to 16 tag levels for flexibility in tiering of services.

The units are also designed to be upgraded to an addressable system.

The converter accepts CATV signals in the 54 MHz to 402 MHz range and converts any selected frequency to Channel 2 or 3, as ordered. The selected channel then passes through two filters down-converted and filtered at the output channel frequency. The result is sharp, clear reception, according to the company. A digital version, the KS series 58, is also available.

For information, contact RCA Cablevision Systems, 8500 Balboa Boulevard, Van Nuys, California 91409; (800) 423-5651.



The 58-channel set-top converter from RCA.

RMS

RMS Electronics has expanded its line of converters with the Converter-Matic™ series. The series includes one, two, three and seven channel block converters and 20-channel, 32-channel, 36-channel, 40-channel and 60-channel converters.

As an example of the specifications in the series, the 40-channel converter has a dynamic input range of -6.0 to +20 dBmV; output pass band flat within 1.5 dB; gain of 0 min., 9.0 dB max; noise figure of 11 dB typical, 13 dB max; cross-modulation, -60 dB or better; return loss, input: 7.0 dB min; output: -14 dB and L.O. leakage

(input), -10 dBmV.

For information, contact RMS Electronics, Inc., CATV Division, 50 Antin Place, Bronx, New York 10462; (800) 223-8312, (212) 892-1000.

Sylvania

Sylvania CATV Transmission Systems is marketing its model 4040 programmable step-top converter.

The channel inhibit option is incorporated in the model 4040 by plugging one of two circuit cards into a 22-pin connector. The system can inhibit any number of channels that are in sequential order or any two ranges of sequential channels.

For information, contact CATV Division, GTE Products Corporation, 10841 Pellicano Drive, El Paso, Texas 79935.

Earth Stations

Eleven-foot Dish

Antenna Development & Manufacturing, Inc., is marketing its 11-foot polar-mount antenna. The panelized aluminum dish weighs approximately 200 pounds (mount weighs 265 pounds) and comes with a remote controlled polarization rotation system.

The firm is also marketing the dish as part of a package that includes LNA, 24-

channel tuneable receiver and cabling.

For information, contact Antenna Development & Manufacturing, Inc., P.O. Box 1178, Poplar Bluff, Missouri 63901; (314) 785-5988.

Simulsat®

Antenna Technology Corporation is distributing range patterns for Simulsat®, its multi-beam antenna.

The patterns revealed that the antenna has a capture angle of 57°, five degrees more than the capture range ATC originally promoted for its antenna. The tests also revealed that the antenna achieves a uniform 44 dB on every feed position within the 57° arc, one half dB more than ATC originally estimated, according to Peter Nelson, vice president of marketing. The range tests were confirmed by Comsearch.

For information and copies of the range tests, contact Antenna Technology Corporation, 3353 South Highland Drive, Suite 514, Las Vegas, Nevada 89109; (702) 733-9658 (305) 851-1112.

Microdyne

Microdyne Corporation featured its five-meter and seven-meter satellite TVRO antennas that provide high gain at 4.0 GHz and 12 GHz.

Each antenna has a precision formed parabolic reflector surface of molded

fiberglass, extruded tubular aluminum back-up structure, and pedestals with a square frame structure of welded steel members mounted on a circular ring which rotates for full 360° azimuth range.

Telescoping portions expand the range of elevation from 10° to 65°.

For information, contact Microdyne Corporation, P.O. Box 7213, Ocala, Florida 32672; (904) 687-4633.

Transportable Dishes

Microwave Associates Communications has announced the availability of its three- and 3.7-meter transportable earth stations.

The trailer-mounted dish comes with a DC-powered collapsible Az-EI mount. The mount receives its supply voltage

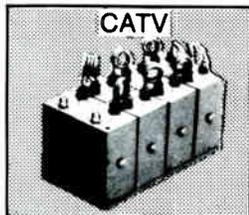


M-A/COM's 3.7-meter transportable earth station.

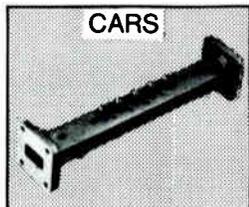
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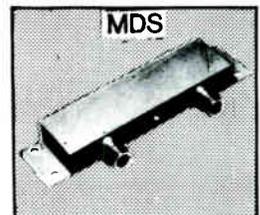
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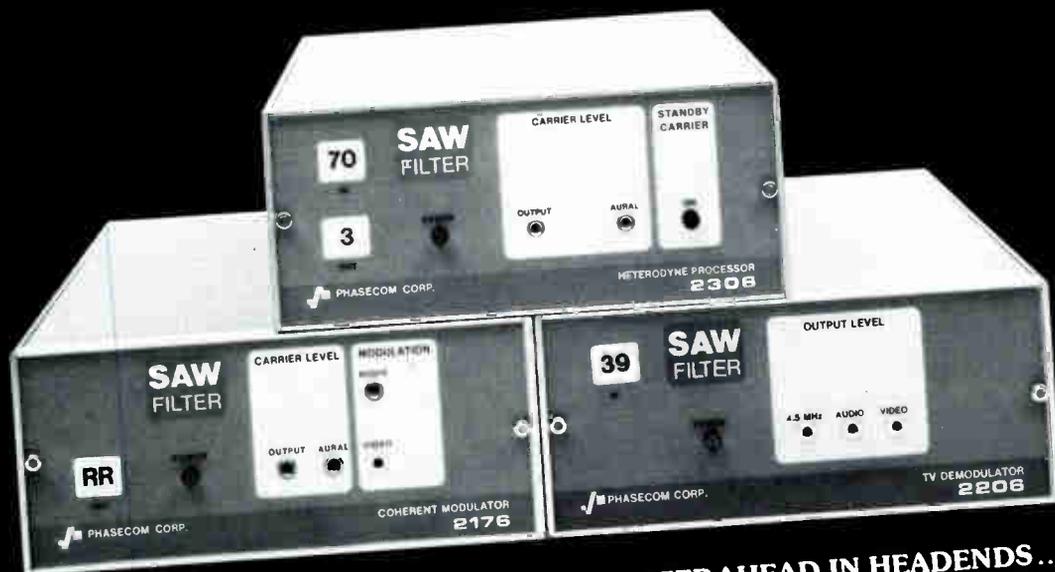
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The portable system is ideal for special event coverage, video conferences, RFI analysis and other one-time uses, according to the company.

For information, contact Microwave Associates Communications, 63 Third Avenue, Burlington, Massachusetts 01803; (617) 272-3100.

Prodelin

Prodelin, Inc., a M/A-COM components company, has added two segmented fiberglass earth station antennas to its product line.

The new antennas, both five-meter, are available in Cassegrain and prime focus feed configurations. Both antennas use a 12-segment compression molded fiberglass reflector and are mounted on a stable azimuth/elevation type 360° circular track, permitting alignment of the antenna with any visible satellite in the domestic geostationary orbit.

For information, contact Prodelin, Inc., P.O. Box 131, Highstown, New Jersey 08520; (609) 448-2800.

DBS System

SATCOM, Inc. has introduced its 12 GHz direct broadcast satellite TVRO terminal system.

The DBS is a complete, integrated system including a low-noise down-converter, an indoor tuner and a four-foot diameter antenna (with feed) and polar mount. The down-converter has an input frequency of 11.7 to 12.2 GHz with an output frequency to the tuner of 960 to 1460 MHz.

For information, contact SATCOM, Inc., 1756 Junction Avenue, San Jose, California 95122; (408) 286-6000.



The SATCOM 12 GHz earth station.

Tele-Wire Supply

Tele-Wire Supply is now marketing the new earth station package from Blonder-Tongue. The package features either a 4.6-meter or three-meter dish, earth station modulators, receivers and Blonder-Tongue's new low-noise converter.

For information, contact Tele-Wire Supply Corporation, 122 Cutter Mill Road,

Great Neck, New York 11021; (516) 829-8484 (call collect).

Enclosures

CWY Electronics

CWY Electronics has introduced a new series of apartment security boxes and CATV pedestals.

The apartment boxes feature a reinforced front cover, all welded weather-proof construction, a half-inch plywood mounting on the back, a heavy hasp lock and a knockout for an optional key lock.

The CATV pedestals are rectangular

for ease of internal installation. The hinge system allows the cover to be completely removed.

For information, contact CWY Electronics, 405 North Earl, Lafayette, Indiana 47904 2898; (800) 428-7596, (800) 382-7526.

High Security Enclosure

Pico is marketing an enclosure designed to provide a high degree of security for traps and decoders in pedestals, on the strand and in apartment house lock boxes.

The enclosure, called the Multiple Filter Enclosure (MFE-4), is molded from

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E-Com's TRU System has demonstrated its reliability and economy as a way to provide remote water meter reading services to virtually any size of municipality.

The TRU System consists of TRU-50 dedicated modems which read and transmit meter readings through your cable system to a TRU-100 master modem at your head-end. Readouts and reports appear on a standard CRT set or high-speed printer. Connections can be made directly to a billing computer in a municipal office or at your facility.

The capital cost for the Remote Water Meter Reading System is surprisingly low. And proven reliability, through tests underway in Clinton, Michigan and other centres means low operational and maintenance costs as well.

Check out E-Com's TRU System. It is an excellent source of new CATV revenues and a good way to increase market penetration.

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A multi-tiered, 54-channel, fully addressable
converter system with remote volume control.**

The Z-TAC scramble is secure. The scramble is not only 5-mode, you can make almost limitless variations at the encoder. It's designed to lock-out unauthorized viewing and assure maximum revenues. Z-TAC is truly format agile.



5-MODE BASE BAND SCRAMBLING.

The Z-TAC system offers 20 categories of services that will allow control of all 54 channels. Tiering allows customers to put together

COMPUTER
SPACE COMMAND
WITH REMOTE
VOLUME CONTROL.

a customized selection of program categories: sports, news, movies, pay-per-view events, etc. with over one million possible combinations. And these categories can be changed at will. Decoders are authorized by signals from the encoder.

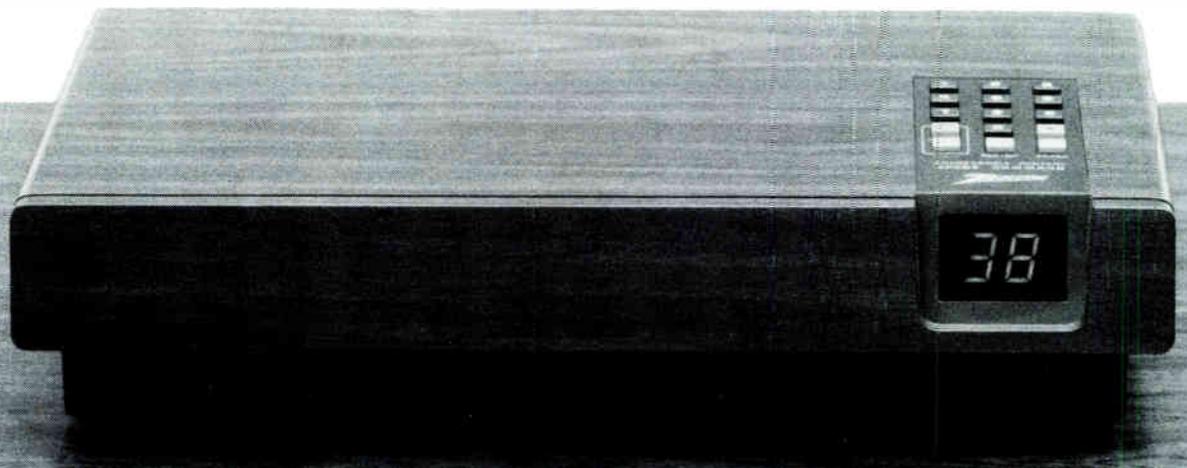
Z-TAC offers full head-end addressability. Each decoder has its own individual address consisting of a market code and a subscriber number. Both are part of the decoder's unique memory. Over 537 million discrete subscriber addresses are possible—each one fully addressable. Market code prevents the functioning of a decoder moved to another system. Decoders which have been lost, stolen, or are of no-pay status are addressed OFF—no video, no audio received.

Z-TAC offers cable operators the most advanced converter system in the business plus the advantages of Zenith reliability and service. For complete specifications and further information, contact: Zenith CATV sales, 1000 Milwaukee Ave. Glenview, IL. 60025 Phone: 312-391-7600. See us at the Western Meeting, Booth 730.



ZENITH[®]

THE QUALITY GOES IN BEFORE THE NAME GOES ON.



MAAST®

INTRODUCING A NEW TV TECHNOLOGY FOR THE 80'S

MAAST®

Multiple Audio Addressable Secure TV

All broadcasters, cable systems and satellite systems can utilize the new MAAST technology from *Telease* to expand services to their communities. Think what you could do with a computer-based system offering these features:

Multiple Audio

Up to 5 audio channels: multi-lingual—stereo—audio for tele-text—computer communications—facsimile—remote control—and more.

Addressable Control Eligibility (ACE)

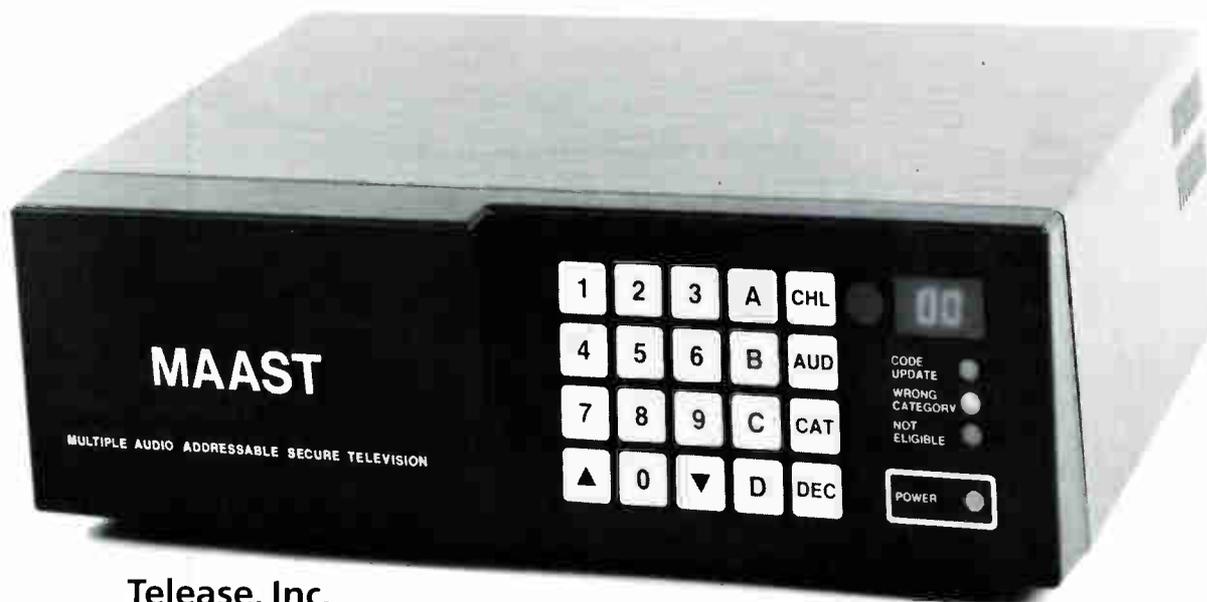
Permits control of program viewing by subscriber groups—full tiering on one or more channels.

Secure or Normal Transmission

Military level security in the scrambled mode. Also permits normal broadcasting, but adds extra audio channel capacity for MAAST terminal users.

Teletext/Vu Data Option

Can provide Teletext and Vu Data services.



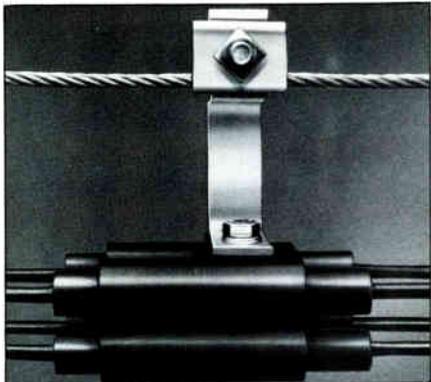
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Total Pay-TV Company
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high-impact nylon and equipped with a recessed "Tampruf"™ bolt. A four-section MFE fits into a four-inch pedestal, and 16 filters can be installed in an eight-inch pedestal.

For information, contact Pico Products, Inc., 1001 Vine Street, Liverpool, New York 13088; (315) 451-0680.



The Multiple Filter Enclosure from Pico.

Reliable Electric/Utility

Reliable Electric/Utility Products has unveiled its new ModCab modular metal cabinet for underground plant applications.

The ModCab unit is adaptable for any size requirements and has an aluminum frame with galvanized steel panels.

For information, contact Reliable Electric/Utility Products, 11333 Addison Street, Franklin Park, Illinois 60131; (312) 455-8010.

Headend Components

CATV Modulator

CADCO introduced its new CATV modulator. The new design features plug-in options for configuring each channel within the headend, with flexibility to move channels or make changes without obsoleting major items.

The plug-in options include: video and audio inputs or composite video/audio input (modulator); a VHF TV input or a UHF TV input (processor); phase lock (off-air or reference); full low-pass equalization and FCC predistortion; and output-up converters (sublow, lowband, high-band, midband, and super-band).

For information, contact CADCO, 2706 National Circle, Garland, Texas 75041; (214) 271-3651.

Coaxial Cable Modem

Comtech Data Corporation has announced the availability of its M500C, a coaxial cable modem designed to allow the transmission of high speed digital data (56 KBS to 7.0 MBS) and broadband.

Using QPSK modulation techniques yielding a 1.4 BPS/Hz spectrum utiliza-

tion, aggregate transmission rates of up to 500 MBS are possible, according to the company. The M500C cable modem will operate at specified frequencies from 5.0 MHz to 440 MHz.



The M500C cable modem from Comtech Data Corporation.

For information, contact Comtech Data Corporation, 350 N. Hayden Road, Scottsdale, Arizona 85257; (602) 949-1155.

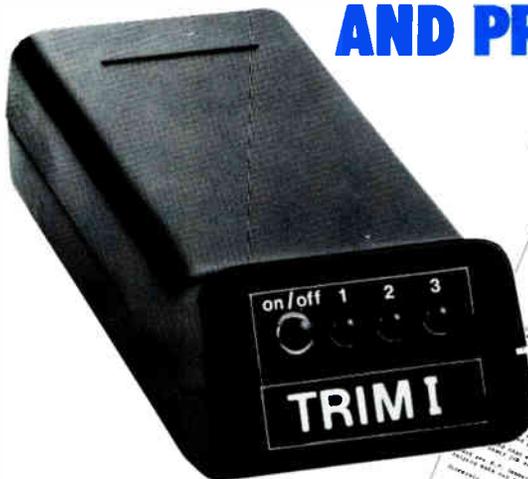
Commander Headend

Jerrold Division of General Instrument featured the Commander Headend System at the Western Show.

The system components include the Satellite Commander TVRO Receiver that provides frequency agile 24-channel synthesized tuning and a digital channel display. No manual tuning is necessary.

Also included is a new modulator and processor with SAW filter, both of which

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John A. Long

Superior Cable Systems



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Toll-Free: 800-345-8286 (U.S.) 800-662-2428 (PA only)

are scrambling compatible. The processor is capable of receiving a previously scrambled signal.

For information, contact Jerrold Division, General Instrument Corporation, 2200 Byberry Road, Hatboro, Pennsylvania 19040; (215) 674-4800.

Test Set

LNR Communications, Inc., has introduced its model C/T-70 test set for testing transmission quality in message, digital and video transmit/receive loops. By injection of controlled levels of calibrated 70 MHz noise, the C/T-70 makes possible accurate measurement of FM/

FDM message receiver quieting curves, bit error rate vs. EB/NO measurement of digital service, or continuous-random-noise vs. C/T measurements for video links, according to the company.

For information, contact LNR Communications, Inc., 180 Marcus Blvd., Hauppauge, New York 11788; (516) 273-7111.

Broadband Data Modems

Scientific-Atlanta, Inc., has introduced two modems designed to enable cable television systems to offer data transmission services, the model 6400 and the model 6410.

The model 6400 broadband data modem translates high-speed voice and data for transmission over local cable system. One feature of the 6400 modem is its frequency agility. The customer need not specify frequency upon ordering the unit, but can manually adjust both transmit and receive frequencies at the business sight.

The model 6410 broadband data modem is a low-to-moderate speed modem offering superior flexibility, according to the company. The modem can be manually adjusted to any data format or mode of operation the customer might require at any speed between 110 bits per second and 19.2 kilobits per second.

For information, contact Scientific-Atlanta, Inc., One Technology Parkway, Box 105600, Atlanta, Georgia 30348; (404) 441-4000.

TOCOM

TOCOM, Inc., featured its III-A central data system for monitoring up to 3,000 home terminals over coaxial cable.

Storage of up to 62 characters of demographic information for each home terminal is possible.

CDS communicates downstream on the cable plant with home terminal response in the 18 to 26 MHz range. Modulation is in an FSK mode.

For information, contact TOCOM, Inc., P.O. Box 47066, Dallas, Texas 75247; (214) 438-7691.

SMATV and MATV

Tomco Communications, Inc., has extended its line of CATV modulators, converters and processors to serve the SMATV and MATV markets.

Among the products introduced for these markets are:

The model SSR-500 all-channel satellite receiver/all-channel modulator. The unit can modulate receiver output on any of 38 cable channels.

The model SM-600 all-channel TV modulator, which offers "crystal stability on all channels 2 through W, and all spurious outputs in or out of band are greater than 55 dB below the selected channel video output level," according to the company.

The C-1000 converter system which can accept four UHF/VHF converter assemblies or similar VHF/VHF assemblies. Dual-conversion VHF conversions are also available and require two internal mounting spaces at the headend.

The SR-500 MATV signal processor, which is designed for re-processing VHF signals from CATV feeds on the MATV and SMATV systems.

For information, contact Tomco Communications, 1145 Tasman Drive, Sunnyvale, California 94086; (408) 734-8401.

HEAT SHRINK

New From LRC

The Material

LRC heat shrink is produced from irradiated, cross-linked polyolefin. The cable wall sleeves are flame retarded and provide ultraviolet and corrosion resistance. The material withstands exposure to common chemicals and severe weather conditions. LRC medium wall thickness tubing provides a tough, flexible insulation suitable for aerial and direct burial cable installations.

The Advantages

LRC offers heat shrink for individual connector types cut to insure proper cable overlap. Available in three sizes, LRC's heat shrink accommodates all six cable sizes. When using LRC connectors, only entry and splice lengths are needed. The flexibility of custom size tubing eliminates waste and reduces inventory. With the addition of heat shrink tubing to LRC's established line of connectors you now have the advantage of single supplier convenience.

LRC ELECTRONICS, INC.
901 SOUTH AVE., HORSEHEADS, N.Y. 14845
PHONE 607-739-3844
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Texscan Corporation has expanded its long standing history of services to the CATV industry by the addition of VIEW WEATHER, Texscan Infomet's satellite-delivered weather information service.

Now, Texscan has the capability to provide you with national, regional, state, and local weather information 24 hours a day.

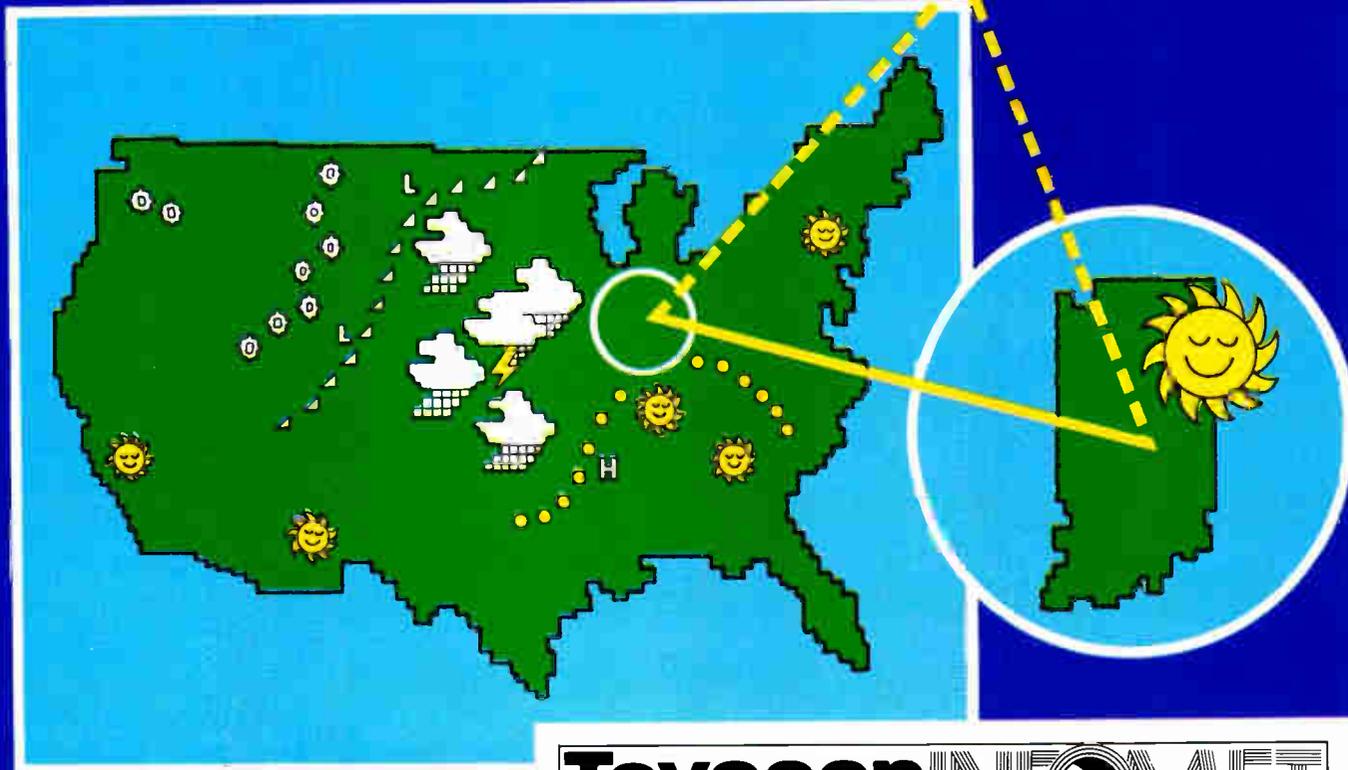
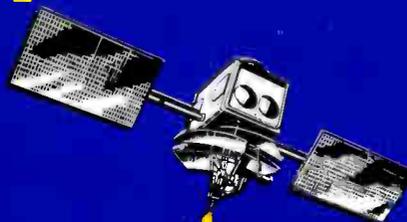
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Texscan GmbH

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VIEW WEATHER

Line Equipment

Splitters, AB Switches

The Drop Shop Ltd. is marketing new splitters and coaxial locking AB switches.

The new splitter, the DSFM-2, features one FM tap output and two TV outputs. The splitter is designed to allow for second set and FM combination installations for the new "music video" concept.

The AB-2LK locking AB switch is designed to permit parental control over which pay television channels their chil-

dren will be able to watch.

For information, contact The Drop Shop, P.O. Box 284, Roselle, New Jersey 07203; (201) 241-9300.

Directional Coupler

Macom Industries is marketing an indoor-outdoor directional coupler. The die cast single-port directional tap has a 5.0 to 450 MHz bandwidth and is available in eight models with different isolation factors: 6.0 dB, 9.0 dB, 12 dB, 16 dB, 20 dB, 24 dB, 27 dB and 30 dB. The tap is designated DC, followed by the isolation level.

For information, contact Macom Industries, 1508 Cotner Avenue, Los Angeles, California 90025; (800) 421-6511, (213) 473-8484.

Digital System Sentry

Magnavox CATV Systems, Inc., has unveiled its Digital System Sentry (DSS), a status monitoring and trunk-feeder switching system. From the headend the DSS monitors the status and performance of trunk line components and can be used for system trouble shooting. It has been especially geared for maintaining the integrity of cable security systems, according to the company.

One feature of DSS is a 6.0 dB attenuation switch that performs the task of checking the return path of two-way interactive systems, such as cable security. The three-position switch allows the operator to turn the CATV signal on or off or to have 6.0 dB of attenuation through the switch.

The DSS also measures the absolute level of output from each amplifier and prints out the data. The DDS will print the time that a malfunction occurs and the time that it is repaired.

In the DSS, each trunk amplifier must be equipped with the model 5-CC/DSS control module. The unit combines AGC/ASC, status monitoring, return feeder switch and return trunk switch control functions into a single module.

For information, contact Magnavox CATV Systems, Inc., 100 Fairgrounds Drive, Manlius, New York 13104; (315) 682-9105.

Plug-In Productivity.



Put your Cable System to work as a high speed data communications network using Comtech Coaxial Cable Modems.

Here's how . . .

Connect the Comtech M500 Cable Modem to your system. You can now transmit high speed data (56 Kb/s to 7 Mb/s) bi-directionally on your CATV or broadband coaxial system. Aggregate data transmission rates of up to 500 million bits per second are possible.

Applications include high speed computer graphics, data collection and processing, process automation, robotics and transmission of high speed composite streams for multiplexors, as well as digitized voice between PBXs. The M500 is totally compatible with existing CATV systems and requires no external filtering.

A Comtech Data Coaxial Cable Modem is one of the answers to the productivity challenge of the 80's. M500 Applications Notes available on request.



COMTECH Data Corporation

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Creative Solutions in Data Communications.

350 North Hayden Road Scottsdale, Arizona 85257

(602) 949-1155 TWX 910-950-0085



The model 5-CC/DSS control module is installed in trunk amplifiers as part of Magnavox's Digital System Sentry.

Pay TV Devices

15-Tier Descrambler

Eagle Comtronics, Inc., has developed a 15-tier descrambler. The initial model can be used with any present or future converter with Channel 2, 3, or 4 output.

The scrambling/descrambling function of the product is achieved through

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Company **CATV**
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sync-suppression in-band. The unit features a potted, tamperproof tier identification matrix.

For information, contact Eagle Com-
tronics, Inc., 4562 Waterhouse Road,
Clay, New York 13041; (315) 622-3402.

Key-Lock Parental Control

Gamco has developed a parental control device that features key-lock control.

Called the Mini Trap, the unit is available from one to five channels (up to ten video) in any configuration, according to the company. Individual channels may be selected for video/audio or video capacity.

For information, contact Gamco, CATV Product Sales, 1000 Woodbridge Center Drive, Woodbridge, New Jersey 07095; (201) 636-6888.

Intercept

Intercept Corporation has introduced a line of parental control traps.

The Pro-Line parental control traps are available in two series: the PT 100 series for video only and the PT 200 for video and audio. In both series the traps come in four configurations: Lowband 2-6, Midband A-1, Highband 7-13 and Superband J-W, with trap attenuation ranging from -55 dB to -60 dB, video, and -42 dB to -46

dB, audio. Return loss ± 10 MHz from the trap is 18 dB and insertion loss is 0.2 dB. The traps are equipped with complete RFI shielding.

For information, contact Intercept Corporation, 215 Entin Road, Clifton, New Jersey 07014; (201) 471-2212.

Starbase Two-Way

Jerrold Division of General Instrument has introduced a new model of the Starbase add-on descrambler that provides two-way capability for impulse pay-per-view.

With Starbase Two-Way, a subscriber tunes to a channel carrying a special event, keys in an authorization code and receives the programming.

The unit, which is added to the addressable Starcom IV converter, handles impulse pay-per-view through the existing addressable downstream 106.5 MHz channel and a single upstream channel operating in the 18 MHz to 30 MHz range.

For information, contact Jerrold Division, General Instrument, 2200 Byberry Road, Hatboro, Pennsylvania 19040; (215) 674-4800.

16-Tier Descrambler

RMS Electronics has introduced its model 16D scrambler, which can descramble from one to 16 channels or tiers.

The compact unit (5.5 inches by 5.5 inches by one inch) can upgrade any existing converter (except block type) with output on channel 2, 3 or 4 to a sync-suppression descrambler. It offers low noise and dynamic -10 to +25 dBmV.

For information, contact RMS Electronics, Inc., CATV Division, 50 Antin Place, Bronx, New York 10462; (800) 223-8312, (212) 892-1000.

Teletext Decoder

Zenith Cable Products unveiled its Z-TAC teletext decoder model TX-1000. This product is an enhancement to Zenith's Z-TAC (tiered addressable converter) for reception of tiered teletext services.

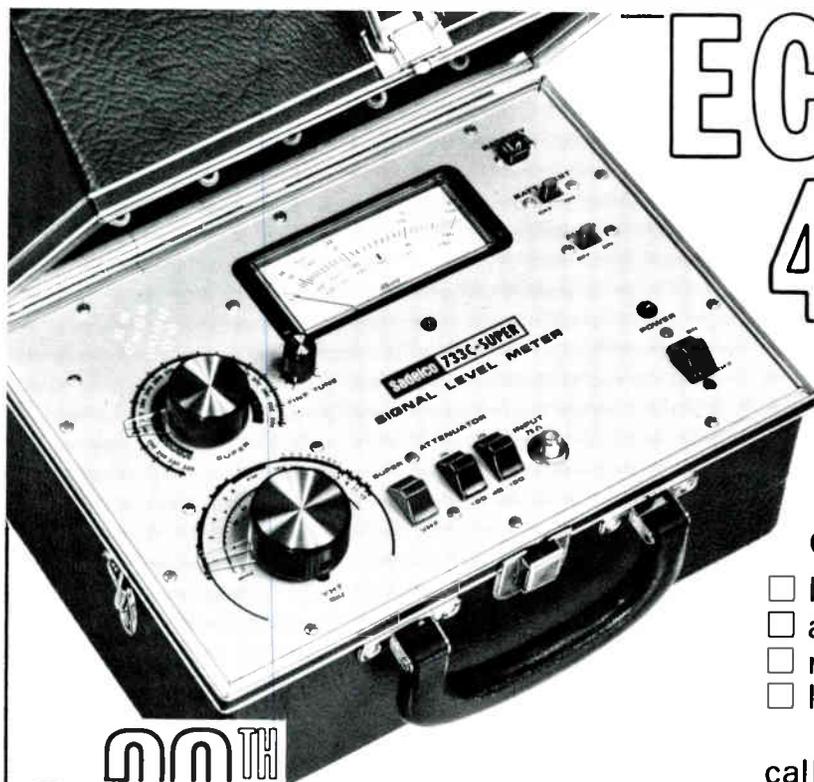
Based on British teletext technology, its features include text, graphics, 15 colors, flashing and double height characters. Individual tiering of each page transmitted affords maximum flexibility in designing user services.

For information, contact Zenith Cable Products, 1000 Milwaukee Avenue, Glenview, Illinois 60025; (312) 391-7600.

Power Supplies

Alpha Technologies

Alpha Technologies has introduced



ECONOMY 400 MHz

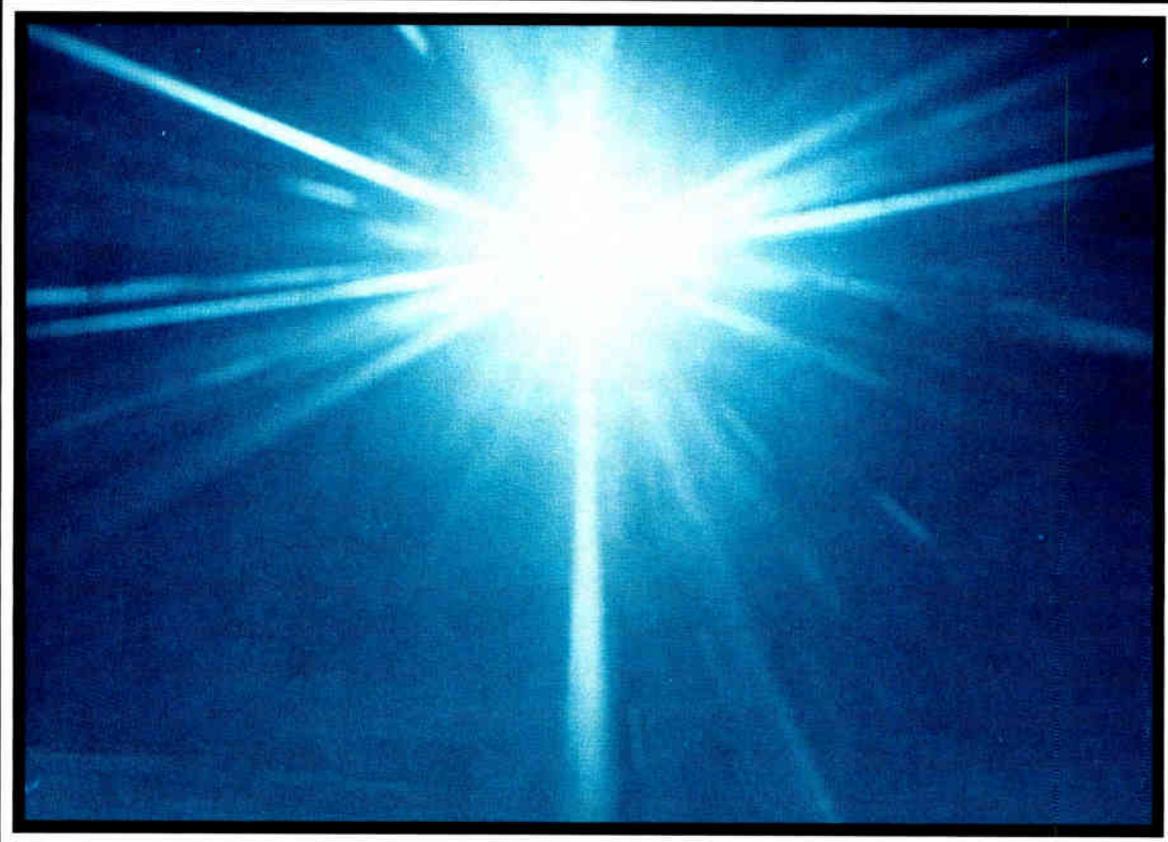
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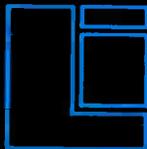
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a microprocessor interface to power supplies. The AP681 logic card consists of discrete and CMOS components which control the power supply in normal, standby and battery charging modes. Monitoring and timing functions are performed by microprocessor. Should the microprocessor develop a malfunction, or should the AC output of the power supply become shorted accidentally, back-up protection is provided by logic circuitry which functions independently of the microprocessor, according to the company.

For information, contact Alpha Technologies, Inc., 7305 East Evans Road, Scottsdale, Arizona 85260; (602) 948-4484; (206) 671-7703.

Cable & Computer Tech

Cable & Computer Technology, Inc., has brought out its series 90 power supply featuring battery charging. The modular unit can also be upgraded to provide status monitoring.

Battery charging is accomplished through a dual-mode float battery charging logic, extending battery life by as much as 50 percent, according to the company.

Transfer time from batteries to line power is field adjustable up to 120 seconds.

For information, contact Cable & Computer Technology, Inc., 1501 S. Harris Court, Anaheim, California 92806; (714) 937-1341.

Power Supply Monitoring

Communications Distribution Corporation has announced that Lectro standby power supplies can now be updated to accommodate status monitoring. The system, the ASCII, is based on the standard used on most teletype and home computers and does not require a computer programmer, according to the company. To interrogate a power supply in the system, an operator need only type four ASCII characters and a question mark.

Should a power outage occur, an alarm will indicate that the supply has been switched to standby. Further monitoring of the battery parameters will indicate expected standby time. After the outage is over, the ASCII senses line AC voltage and returns the power supply to normal operation.

For information, contact Communications Distribution Corporation, P.O. Box 567, Athens, Georgia 30601; (404) 353-1159.

PowerVision

Lester Equipment Manufacturing Company has added two models to its

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for monitoring, service and testing communication equipment
100 kHz - 2 GHz

The Model 632B-1 is well suited for wide range distortion and noise measurements, test

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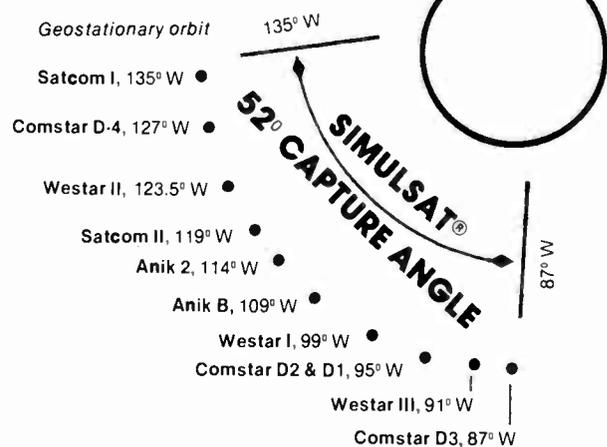


Only SIMULSAT® can see all domestic satellites at once with consistent performance on each bird. This means that you can see from Satcom I (135° W) to Comstar D3 (87° W) with the performance characteristics of a 4.6 meter antenna. This is the only existing antenna in the world to accomplish this.

Simulsat is not just an idea on the drawing boards, it's in operation today, working for major MSO's and Television Broadcasters.

New programs and services are constantly being added to a continually increasing number of satellites. In the past, multiple satellite reception required the construction of an Antenna Farm. Simulsat can save you valuable capital and real estate. Make a smart investment for your business and let Simulsat be your plan for the future.

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Eastern Office
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Orlando, Florida 32809
(305) 851-1112

line of PowerVision CATV standby power supplies.

The model NB 213C provides an uninterrupted source of 12 amps of clean 30 or 60 volt square wave. The ferro-resonant power regulator module converts unregulated utility power to 12 amp 30 or 60 VAC quasi-square wave power with ± 2 percent line and load regulation. The modular unit offers a transfer time of 16 msec.

The model NB 350 is a fully uninterruptible power supply that provides up to 950 watts of power at 115 VAC, 60 Hz. In the event of a power failure, the inverter operates from a 36 volt battery pack for up to 3.5 hours of standby time.

For information, contact Lester Equipment Manufacturing Company, Inc., 2840 Coronado Street, Anaheim, California 92806.

Inverter Power Supply

RMS has introduced the model INV-60/30 inverter power supply. The unit is designed to provide a regulated 60/30 volt square wave output voltage on a CATV system, with any existing AC ferro-resonant power supply.

When the AC input fails, the model transfers the output of the ferro-resonant supply to the inverter's output. Upon return of the utility power, the load is transferred back to the AC ferro-resonant source.

The model INV-60/30 "pulse width modulated" inverter has many features such as soft start, under voltage shut down and output short circuit protection. Output voltage is a selectable 60 V or 30 V.

For information, contact RMS Electronics, Inc., CATV Division, 50 Antin Place, Bronx, New York 10462; (800) 223-8312, (212) 892-1000.

Satellite Receivers And Modulators

Automation Techniques

Automation Techniques has unveiled its GLR-750 satellite receiver.

The unit features crystal-controlled frequency synthesis for thumb wheel selection of 24 transponders. It also has two audio subcarrier demodulators.

For information, contact Automation Techniques, Inc., 1846 North 106 East Avenue, Tulsa, Oklahoma 74116; (918) 836-2584.

Blonder-Tongue

Blonder-Tongue has announced that its model 4928 earth station modulator is now available for superband channels.

The unit is equipped with a video low pass filter that limits the input video to 4.2

MHz. Adjacent channel interference is eliminated since spurious signals from the TVRO receiver are prevented from entering the modulator, according to the company.

For information, contact Blonder-Tongue Laboratories, Inc., One Jake Brown Road, Old Bridge, New Jersey 08857; (800) 631-5491.

Low-Noise Amplifiers

Boman Industries, Satellite Products Division, introduced two new low-noise amplifiers: model LNA-900 and model LNA-912.

The model LNA-900 is a 105°K low-noise amplifier with a lightning protection circuit.

The model LNA-912 is a 105°K low-noise amplifier with a lightning protection circuit and voltage feed-through coaxial cable.

For information, contact Boman Industries, Satellite Products Division, 9300 Hall Road, Downey, California 90241; (800) 421-2533, or in California (800) 352-2553.

TVRO post amplifier

A new post-amplifier, for use in satellite video receiving terminals where the TVRO antenna must be located at significant distance (up to half a mile) from the receiver electronics, has been introduced by **Hughes Aircraft Company's Microwave Communications Products**.

The unit, designated model IFLA 463, operates over a frequency range from 950 to 1450 MHz, has 40 dB gain and a noise figure of 5.0 dB. It is available as a single unit or as part of a dual/redundant panel with single or redundant power supply.

For information, contact Hughes Microwave Communications Products, P.O. Box 2999, Torrance, California 90509; (213) 517-6100.

Converter, Translator

LNR Communications, Inc., has introduced a new low-profile RF to IF converter and a Ku to C-band frequency translator.

The model DC4-E1 converter is designed for small terminal satellite earth stations. Available in single thread and redundant configurations, this unit offers low phase noise and good frequency stability for digital and voice carriers, such as QPSK and FM-SCPC, according to the company.

LNR's model DC12/4 translator provides block downconversion of the entire 11.7-12.2 GHz frequency assignment to 3.7-4.2 GHz. Also, the unit can be used to downconvert a Ku-band video signal into an unused channel in a 24 channel C-band TV receiver at a cable TV headend.

For information, contact LNR Com-

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munications, Inc., 180 Marcus Boulevard, Hauppauge, New York 11787; (516) 273-7111.

Phasecom

Phasecom has begun marketing the model 106 earth station modulator manufactured by its Israel subsidiary, Phasecom Israel, Ltd.

The model 106, comparable with Phasecom's domestically built model 2106, has a maximum output level of 90 dBmV at least, gain of ± 0.5 dB at 87.5 percent modulation, and differential phases of $\pm 0.5^\circ$.

For information, contact Phasecom, Corporation, 6365 Arizona Circle, Los Angeles, California 90045; (213) 641-3501.

Services

CATV Services

CATV Services displayed for the first time the Antronix line of passives, including splitters, amplifiers, traps and pole line hardware. The distributor also handles such lines as Gilbert connectors, CCS Cable, test equipment from Wavetek and Midstate and headend equipment from Tomco.

In addition to its new products, CATV

Services markets reconditioned cable TV equipment.

For information, contact CATV Services, Inc., 3270 Seldon Court #5, Fremont, California 94538; (800) 227-1200, (714) 681-0512, (415) 651-4331.

Earth Station Troubleshooting

Comsearch, Inc. has announced a new service: providing satellite earth station troubleshooting. Technicians from Comsearch's Electromagnetic and Environmental Control (EMEC) Division provide on-site support to determine the cause and provide a solution for service interruption problems for any C-band and Ku-band earth station anywhere.

For information, contact Comsearch, Inc., 7633 Leesburg Pike, Falls Church, Virginia 22043; (703) 356-9470.

Cablegraphics

Gill Management Services is marketing a new product for use in data analysis of cable systems. "Cablegraphics" is a software and hardware package which will summarize data such as subscriber growth and revenue information in graphic form, enabling cable operators to have access to statistics in a format other than the traditional chart.

For information, contact Gill Manage-

ment Services, 2050 Bering Drive, San Jose, California 95131; (408) 998-8078.

Cablegrid 2000

Jackson Enterprises has unveiled its new strand mapping and graphics capability. Through an affiliation with Cable Systems Design Group, Jackson Enterprises offers the Cablegrid 2000, a computer-aided drafting system and supplements its system construction capacity with a design staff for personalized service, on-site, if required.

For information, contact Jackson Enterprises, P.O. Box 6, Clayton, Ohio 45315; (513) 836-2641.

KES

Klungness Electronic Supply announced at the Western Show that it has changed its name to **KES**, according to Marian Gammey, customer service manager.

For information, contact KES, P.O. Box 885, Iron Mountain, Michigan 49801; (800) 338-9292 (906) 774-1755.

KMP Computer Services

KMP Computer Services featured two CATV accounts receivable computer-based systems. One is designed for systems with 800 subscribers. The other

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system is a multiple-terminal system for up to 30,000 subscribers.

For information, contact KMP Computer Services, 703 Central Avenue, Los Alamos, New Mexico 87544; (505) 662-5545.

S.A.L. Communications

S.A.L. Cable Communications announced at the Western Show that it has become a national distributor for the full CATV equipment line from Magnavox.

Also, final arrangements have been completed for S.A.L. Cable Communications to become a national distributor for M/A-COM earth station equipment.

For information, contact S.A.L. Cable Communications, 10 Hub Drive, Melville, New York 11746; (516) 694-7110.

Stereo Modulators

Stereo processor

The **Catel** CMTV-2000 stereo processor is a single unit processor designed for Warner Amex's MTV service, or any other satellite subcarrier service using separate L+R and L-R subcarriers.

The processor offers a fully isolated 600 ohm balanced mono output for TV modulator audio, as well as the stereo RF output in the 88 to 108 MHz band. Other frequencies in the 4.0 to 200 MHz are also available.

For information, contact Catel, 1400-D Stierlin Road, Mountainview, California 94043; (415) 969-9400.

Stereo Transmission

Leaming Industries has introduced a series of stereo transmission systems for receiving stereo audio from satellites and sending it over cable systems.

Each model is designed for use with a different signal processing method.

The FMU 202C and 203C handle composite stereo on adaptive deviation subcarriers. It transmits stereo on one subcarrier with standard stereo multiplex, augmented by adaptive deviation.

The FMU 215C is for dual-subcarrier matrixed transmission. It transmits L+R on one subcarrier and L-R on a second subcarrier, with stereo generation and FM modulation at the receiving site.

The FMU 215C offers automatic audio and video switching as well as tone detection. The FMU 203C has audio switching but no tone detection. FMU 203C also offers local advertising stereo synthesis, a function that is offered as an external option for the FMU 215C.

Leaming is also marketing the FMT 723, which takes any monaural baseband program and converts it to stereo in the FM band.

For information, contact Leaming

Industries, 180 McCormick Avenue, Costa Mesa, California 92626; (714) 979-4511.

Stereo Demodulator

Wegener Communications, Inc., has developed a new option for cable systems that wish to carry The Movie Channel in stereo. The option, the model 1711 dual demodulator, can be added into the existing Wegener 1601 mainframes to transmit a stereo signal.

The model 1711 demodulates the two TMC subcarriers, L+R (6.8 MHz) and L-R (5.8 MHz) and decodes them into left and right channels. The channels are then fed into the 1691 stereo modulator.

For information, contact Wegener Communications, Inc., 150 Technology Park, Atlanta-Norcross, Georgia 30092; (404) 448-7288.

Test Equipment

Cable Locator

Anixter-Pruzan is carrying two new Dynatel® products: the Dynatel® 500C cable locator and the Dynatel® 573 cable and sheath fault locator.

The 500C can identify single cables in multiple service runs, locate the buried ends of cut cables and trace around sharp curves and in areas of AC power line interference, according to the company.

The 573C is equipped with a fault meter that verifies the existence of sheath faults before locating begins.

The Dynatel® products are manufactured by TelComm Products Division, 3M.

For information, contact Anixter-Pruzan, 4711 Golf Road, Skokie, Illinois 60076; (312) 677-2600.



The Dynatel® 500C cable locator.

Sweep System

Avantek, Inc., has announced the introduction of its CR/CT-4000 remote automatic sweep system with full 5.0 to 440 MHz (58 channel) bandwidth coverage. Using a permanently-installed head-end transmitter (CT-4000) and a portable,

battery-operated tracking receiver/spectrum analyzer (CR-4000), the system permits technicians to view the total response of the CATV system without interfering with subscribers' reception.

The CT-4000 transmitter, installed at the CATV headend, continuously generates a signal approximately 30 to 35 dB below the video levels, which sweeps through the 5.0 to 440 MHz frequency range in approximately 25 milliseconds.

For information, contact Avantek, Inc., 3275 Bowers Avenue, Santa Clara, California 95051; (408) 496-6710



The Avantek CR/CT-4000 remote automatic sweep system.

Fault Locator

James G. Biddle Company is marketing the Biddle digital radar cable test set. According to the company, the tester automatically computes distance and direction to the fault, whether the cable fault is one foot away or 13 miles away.

For information, contact James G. Biddle Company, 510 Township Line Road, Blue Bell, Pennsylvania 19422.

Step Attenuator

ComSonics, Inc., announced three new additions to its test equipment product line.

A mini-sized step attenuator with a range of 0-102.5 dB in 0.5 dB steps and a frequency range of .1-1000 MHz was introduced, as well as a carrier modulation sensor and a video sync sensor. The carrier modulation sensor will indicate presence or failure of TV modulated carrier or TV modulation signal on the carrier. The video sync sensor will sense video presence or failure. Both sensors have optional 12 or 24 Vdc.

For information, contact ComSonics, Inc., P.O. Box 1106, Harrisonburg, Virginia 22801; (800) 336-9681.

Spectrum Calibrator

Sadelco, Inc., has introduced a new spectrum calibrator/white noise generator that covers present and future CATV frequency ranges from 4.5 to 450 MHz and is accurate to within 0.25 dB.

For information, contact Sadelco, Inc., 75 West Forest Avenue, Englewood, New Jersey 07631; (201) 569-3323.

Field-Strength Meter

Texscan is marketing the Digitech 1, a microprocessor-controlled field-strength meter. The unit has a digital readout on frequency and level covering the 4.0 to 450 MHz range. UHF is optional.

The Digitech 1 has a measurement range of -40 to +60 dBmV and accuracy of ± 0.5 dB at 25°C.

For information, contact Texscan Corporation, 2446 North Shadeland Avenue, Indianapolis, Indiana 46219; (317) 357-8781.

RF Leakage Detection

Vitek Electronics, Inc., a subsidiary of Augat, Inc., has introduced a compact, calibrated RF leakage detection receiver designed to detect leakage from a cable system.

The calibrated dual-scale meter indicates relative field strength, and maximum distance scale is calibrated to the FCC specifications for leakage from a cable in the 54-216 MHz region.

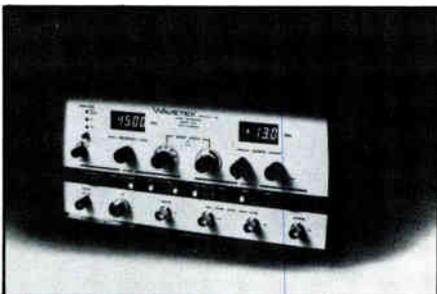
For information, contact Vitek Electronics, Inc., 4 Gladys Court, Edison, New Jersey 08817; (201) 287-2626.

Microwave Sweep

Wavetek Indiana has announced a new generation of economical digital display generators.

The model 1084 has three operating modes: CW, ΔF and full sweep. Frequency in the CW mode is set by a ten-turn potentiometer and displayed with a resolution of 1.0 MHz on a 3.5 digit display. In the ΔF mode, center frequency is selected by the ten-turn potentiometer; the sweep width range of 500 kHz to 1000 MHz is controlled by a 100 MHz/step selector and a 100 MHz vernier. The model 1084 features one percent display linearity.

In the full sweep mode, the start frequency is 3.5 GHz and the stop frequency is 4.5 GHz. The ten-turn potentiometer and 3.5 digit frequency display operate as a variable marker. The marker produces a bright spot on the display by momentarily delaying the sweep ramp for approximately 2.0 msec. Accuracy is ± 10 MHz. External marker input is standard.



The model 1084 microwave sweep generator from Wavetek Indiana.

For information, contact Wavetek Indiana, Inc., 5808 Churchman, P.O. Box 190, Beech Grove, Indiana 46107; (317) 787-3332.

Video

Weather Service

BEI has added two options to its CG-800 character generator system. The options are a digital tape interface that can handle 110 pages of memory and a weather service offering rain and relative humidity.

The CG-800 Marquee is interfaced with the Heathkit digital weather computer to produce color digital weather and message channel.

For information, contact BEI, P.O. Box 106A, Olathe, Kansas 66061; (913) 764-1900.

Compact Video

Compact Video Sales, Inc., displayed its RTS intercom system for studio use. The system includes the TW intercom system and the IFB4000 interruptible feedback system.

For information, contact Compact Video Sales, Inc., 1104 West Chestnut Street, Burbank, California 91506; (213) 843-3232.

Compuvid

Computer Video Systems unveiled two additions to its Compuvision family of products, the Compuvid TL and the Compuvid JR.

The Compuvid TL is an adaptation of the Compuvid data display system that enables operators to use the system as a message/titler. The microprocessor-based Compuvid TL uses the standard Compuvid system with the addition of a gen/lock sync feature that provides the ability to join with external video sources for an added range of display possibilities.

The Compuvid JR is a data display system that employs some of the popular formats. The entire system is in one chassis with all operations in the keyboard housing.

For information, Computer Video Systems, 3678 West 2150 South No. 2, Salt Lake City, Utah 84120; (800) 453-8822.

Slide Store System

Harris Video Systems is marketing its IRIS digital video slide show system, which can store up to 5,928 video stills, according to the company.

The system accepts four users, one of which is a computer control channel. It offers almost simultaneous access by any of the users.

For information, contact Harris Video Systems, 1255 East Arques Avenue, Sunnyvale, California 94086; (408) 737-2100.

Ikegami Electronics

Ikegami Electronics is marketing its ITC-350 three-tube color camera. The camera features an f/1.4 lens and up to 12 dB of added video gain, making it ideal producing low light level pictures, according to the company.

For information, contact Ikegami Electronics, 37 Brook Avenue, Maywood, New Jersey 07607; (201) 368-9171

Monochrome Video Monitor

Lenco, Inc., has introduced the PMM-921 12-inch monochrome video monitor. The addition to Lenco's monitor line offers over 900 line center resolution and provides sharp, bright picture viewing even under high ambient lighting conditions, according to the company.

For information, contact Lenco, Inc., 300 North Maryland Street, Jackson, Missouri 63755; (314) 243-3147.

Camera/Recorder

Panasonic/Video Systems Division has brought out a combination ENG color video camera and videotape recorder. The camera/recorder is equipped with a three-tube color prism optic system and half-inch cassette tape for broadcast quality audio, according to the company. Recording time is 20 minutes, audio and video.

For information, contact Panasonic/Video Systems Division, 1 Panasonic Way, Secaucus, New Jersey 07094; (201) 348-7183

Automated News System

A multi-channel automatic information display system that permits cable television operators to store more than 10,000 pages of news, weather, sports, classified advertising and other information, as well as schedule them for display and playback on any number of television channels, has been placed on the market by **System Concepts, Inc.**

The system, called Electronic Video Press (EVP), includes a full-featured intelligent central processing unit with eight-inch floppy disk.

For information, contact System Concepts, Inc., 2440 South Progress Drive, Salt Lake City, Utah 84119; (801) 974-0992.

Character Generator

Teledac, Inc., has introduced the T-1016 character generator.

The unit features 16 pages of memory with 28 x 10 characters per page, a five-color selectable color background, a standard quartz stable clock, automatic page centering and erase page or line command, page transfer command, and 95 characters upper/lower case, leading and trailing black edges.

For information, contact Teledac, Inc., 1575, Taschereau, Longueuil, Quebec, Canada J4K 2X8; (514) 651-3716.

Programmed Insertion

Tele-Engineering Corporation has developed a programmable option for its Ad Machine, a cue-tune receiver that automatically inserts commercials from a videotape player to local spot availabilities on satellite channels. With the option, the Ad-Q, a cable operator can program the sequence the commercials are inserted, according to the company.

The company is also marketing its PVS-100 programmable video selection system. The microprocessor system can handle matrix switches up to matrices of 96 by 96 channels and up to 10,000 switching commands per week.

For information, contact Tele-Engineering Corporation, 2 Central Street, Framingham, Massachusetts 01701; (617) 877-6494.



The PVS-100 programmable video selection system from Tele-Engineering.

Color Graphics

Texscan MSI featured its animated color graphics system's capabilities at the Western Show. The animated display system offers a resolution 320 X 204, two bit/pixel screen format with 256 colors.

The editing possibilities include a "brush stroke", repeatable patterns, and a 90°, 180° or 270° rotatable pattern. Three octaves of synthesized sound with three audio channels permit electronic music for background to animations.

For more information, contact Texscan MSI, 3855 South 500 West, Suite S, Salt Lake City, Utah 84115; (801) 262-8475.

Videotape Editor

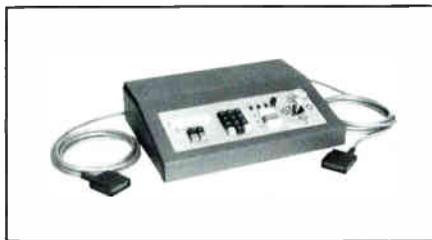
A microprocessor-based VE-90 video-

tape editor with the efficiency and precision of joystick control is now available from the Professional Video Division of **US JVC Corp.**

With continuously variable tape speed and single-handed control, the VE-90 operates on control track or standard SMPTE time code. It is compatible with most 3/4-inch and professional 1/2-inch VCRs and comes configured with JVC Tapehandler players and recorders.

A status display generator provides a signal to an external monitor of important editing data including: edit number, tape time, record and source in/out points, edit durations, type of edit, VCR status and more.

For information, contact US JVC Corporation, 41 Slater Drive, Elmwood Park, New Jersey 07407.



The VE-90 videotape editor from US JVC Corporation.

Video Newspaper

Video Data Systems™ has announced the VNS-2500 video newspaper™ system.

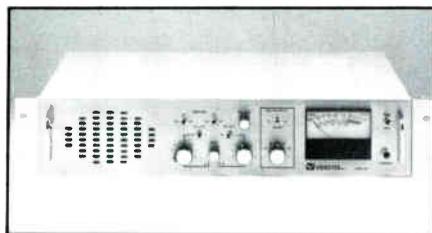
The newspaper channel is automated and can include live and taped newscasts, videotaped commercials, background music and audio spots, visuals stored on a "slide store" disk, glossy photos, static messages and animated graphics, said Kenyon.

For information, contact Video Data Systems™ at 5630 Waterbury Way, Suite B102, Salt Lake City, Utah 84121; (801) 272-9296.

Audio Program Monitor

Videotek has introduced a new audio program monitor to its line of color television monitors and test equipment.

The APM-8R is capable of monitoring up to eight audio sources from a single rackmount panel. Either high or low impedance, balanced or unbalanced sources can be monitored.



The APM-8R audio program monitor from Videotek, Inc.

For information, contact Videotek, Inc., 125 North York Street, Pottstown, Pennsylvania 19464-9990; (215) 327-2922.

Miscellaneous

Wireless Residential Alarms

CableBus Systems Corporation is marketing a complete line of wireless residential alarm equipment including wireless receivers, window and door transmitters, a personal emergency transmitter, photoelectric smoke detectors and motion sensors.

The receivers and transmitters are from Linear Corporation, the smoke detector is provided by Chloride Pyro-jector and the infrared motion detector is made by Colorado Electro-Optics.

For information, contact CableBus Systems Corporation, 7869 S.W. Nimbus Avenue, Beaverton, Oregon 97005; (503) 643-3329.

Drafting Systems

Cable Systems Design Group, Inc. has developed the Cablegrid 2000, a computer-aided system for drafting, map storage and electronic archiving.

The equipment components include a 36-inch X 48-inch free-standing drafting tablet with power lift base and a four-button cursor, a unit consisting of the Cablegrid 2000 computer and a 19-inch diagonal graphic display with alphanumeric terminal and keyboard, and a free-standing graphic plotter that generates the finished hard copy.

For information, contact Cable Systems Design Group, Inc., 1225 Connecticut Avenue, NW, Suite 100, Washington, D.C. 20036; (202) 463-7999.

Paraceptor Antenna

Conifer Corporation has introduced the next generation of its Paraceptor MDS receiving antenna series. The Paraceptor series includes two models: PT-1000 (18 dBi min. gain) and the PT-1800 (21dBi min. gain).

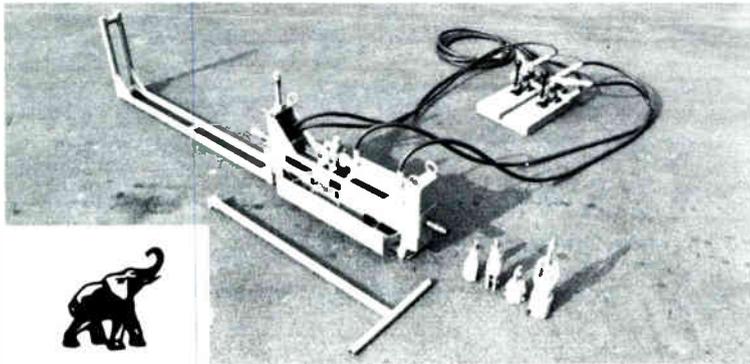
The Paraceptor design has been modified to reduce overall wind drag by over 25 percent and reduce the total weight by 20 percent without affecting gain characteristics, front-to-back ratio and VSWR.

For information, contact Conifer Corporation, 1000 North Roosevelt, Burlington, Iowa 52601; (319) 752-3607

Traffic Control

Control Com, a subsidiary of Burnup & Sims, and Multisonics, Inc., have joined

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150 Technology Park / Atlanta-Norcross, GA 30092

forces to produce a computerized traffic control interface system which will eliminate the need for municipalities to lease telephone lines or to install city-owned wire pairs to operate traffic signals.

The Control Com system uses cable as a replacement for the leased telephone lines. The interface system allows municipal authorities, which already have computerized traffic control systems, to use their present equipment with two-way cable.

For information, contact Multisonics, 6444 Sierra Court, P.O. Box 2295, Dublin, California 94566; (415) 829-3300.

Alarm Control Panel

Moose Products, Inc., has announced its MPI-25 burglar and fire alarm control panel. When plugged into the MPI 207 module, the panel is compatible with cable security systems, according to the company.

The control has both instant and delayed open and closed-circuit inputs for hooking up remote sensors and panic buttons. The control is equipped with one panic button and others can be added, according to Moose.

For information, contact Moose Products, Inc., 1510 Tate Boulevard SE, Hickory, North Carolina 28603; (800) 438-8175, (704) 322-2333.

TEST

TEST (Tanner Electronic Systems Technology, Inc.) brought out its line of MDS antennas and accessories.

Its Parabolic 21 antenna provides 21 dB gain, and the Parabolic 25 provides 25 dB gain. The high-gain, grid-dish antennas pull in weak MDS signals, extending MDS services into fringe and deep fringe areas, according to the company. The antennas can be equipped with tilt bracket that allows the antenna to be tilted up or down in a 35° range for alignment with the transmitter.

For information, contact TEST, 16130 Stagg Street, Van Nuys, California 91409; (213) 989-4535.

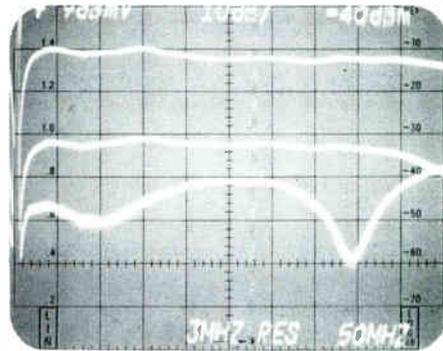
TRW Semiconductors

TRW Semiconductors has developed a new series of "super chip" hybrid CATV amplifiers offering 3.0 lower distortion and a 2.0 dB lower noise figure than other amplifiers on the market, according to the company.

The amplifiers come in three models: the CA 5600 with 34 dB of gain and the CA 5100 and CA 5200 with 18 dB gain.

For information, contact TRW Semiconductors, 14520 Aviation Boulevard, Lawndale, California 90260; (213) 679-4561.

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- Corrosion resistant aluminum alloy housing
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- Color coded db value
- Modular construction, interchangeable tap plates
- Low insertion loss
- High tap to tap isolation
- Full 5-400 MHz frequency range

The ICM series of multi-taps provide 2 or 4 way subscriber taps over a broad range of tap values. Modular design enables the operator to remove the base plate and circuit board as a unit without removing the center seize or the strand mounting. Changing the base plate will not affect downstream operation. The housing is fabricated from a corrosion resistant aluminum alloy. Stainless steel hardware is used throughout, including the strand clamp. The housing and all ports have separate moisture sealing gaskets and the subscriber ports have a puncture sealing rubber membrane. All connector ports, including subscriber ports, have large shoulders and anti-slip ribs for use with shrink sleeving. Housing and cover plate as well as the subscriber taps have drip skirts. The unit can be either messenger or pedestal mounted. The ICM is color coded to denote the db value of the component unit.

Specifications:

Bandwidth	5-400 MHz
Return loss	20 db min. (all ports)
Tap-to-Tap Isolation	30 db min.
Response flatness	± .25 db
Power Passing	6 amp. AC/DC
Tap loss	± 1 db of assigned value
Impedance	75 ohms
Input/Output ports	5/8" female
Subscriber ports	F type female
Tap plate torques	12 ft./lbs. removal torque 15 ft./lbs. securing torque

Model No.	Tap Loss* (db)	Max. Insertion Loss (db) 50 MHz	400 MHz	Tap to output isolation (db)
ICM400/2-8	8	3.4	4.0	26
ICM400/2-11	11	—	2.0	28
ICM400/2-14	14	0.8	1.4	30
ICM400/2-17	17	0.5	1.0	32
ICM400/2-20	20	0.4	0.8	35
ICM400/2-23	23	0.4	0.8	38
ICM400/2-26	26	0.4	0.8	41
ICM400/2-29	29	0.4	0.8	47
ICM400/2-32	32	0.3	0.6	47
ICM400/2-35	35	0.3	0.6	50
ICM400/4-7	7	—	—	21
ICM400/4-11	11	3.4	3.9	26
ICM400/4-14	14	1.6	2.0	29
ICM400/4-17	17	0.9	1.6	32
ICM400/4-20	20	0.6	0.8	35
ICM400/4-23	23	0.4	0.8	38
ICM400/4-26	26	0.4	0.6	41
ICM400/4-29	29	0.4	0.6	44
ICM400/4-32	32	0.4	0.6	47
ICM400/4-35	35	0.4	0.6	50

* Average tap loss is within ± 1 db of assigned value.

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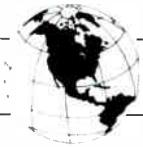
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International News



German Postal Contract Awarded to IBM

BONN, WEST GERMANY—The International Business Machines Corporation (IBM) has won the contract to supply the West German Postal Ministry with a central computer for its videotex project, called bildschirmtext.

Under terms of the initial contract, valued at about \$22.5 million, IBM will supply the Postal Ministry with its system 4300 and series I computers. This contract gives IBM an opening into what is expected to be a profitable source of computer contracts in the 1980s.

West Germany operates pilot videotex programs in West Berlin and Dusseldorf and will introduce the system nationally in 1983. One million users are expected by 1985.

In its pilot program, West Germany uses a modified version of the British Prestel.

AT&T, European Agencies Battle over Videotex

WASHINGTON, D.C.—AT&T and the Consortium of European Post and Telecommunications Agencies (CEPT) continue to battle over international videotex standards. At a recent FCC meeting, Councilative Committee for International Telegraph study groups heard AT&T fight for its presentation level protocol (PLP), the accepted de facto North American standard, while CEPT pushed for its own set of standards.

The meeting had been scheduled to consider a plan to establish an American panel of technical experts to study the videotex standards issue in order to define a position for American officials at international meetings.

AT&T discussed its proposed session level protocol (SLP) which would allow terminals and databases to operate under several different standards. The CEPT objected, saying the SLP would complicate terminals and add to consumer costs, slowing the introduction of services. AT&T argued that the U.S. demands the more sophisticated graphics and coloring that is available with PLP.

According to a CEPT spokesman, AT&T supporters such as CBS, Times Mirror and Knight-Ridder Newspapers "misunderstood" CEPT's position and claims its plan to combine AT&T's and CEPT's standards would not hinder either side. Rather, it would benefit all, according to the spokesman.

However, AT&T stands by its proposal, maintaining that the SLP will resolve all difficulties between incompatible standards, terminals and databases.

Telidon, Battelle Seek Data Capability for Videotex

NEW YORK, NEW YORK—In an effort to increase the market penetration of Telidon technology, Telidon Videotex Systems, Inc. (TVSI), and Battelle Columbus Laboratories have joined to create an advanced database capability for the videotex system.

In conjunction with Battelle Columbus Laboratories, Infomart (the Toronto-based parent of TVSI) is developing a hybrid database search and videotex display system using Telidon technology and Battelle BASIS data management software to provide comprehensive textual, numeric and graphic information retrieval, according to TVSI Vice President Larry Pfister.

The new capabilities for Telidon, as a result of his venture, will include:

- Keyword search, associate retrieval and full inverted file access;
- Expanded gateway access to third party value-added services; and
- Improved portability for Telidon data through Telidon/BASIS availability on a wide range of host processors.

Pfister said that the advanced applications will expand Telidon's market potential. "Immediate prospects for delivery of the new service include 50 worldwide users of the BASIS information management system and existing Telidon clients and prospects who have need for a more powerful search capability in their videotex systems or wish to add high quality graphics to their existing database libraries." He noted that because BASIS is supported in a wide range of computer systems, including DEC, IBM, Control Data and UNIVAC, a very large base of additional host systems could be brought on line to Telidon networks very quickly.

The program's initial target will be the cataloging of the Canadian Record Catalog for the record, retail and broadcast industries. Using the Canadian Independent Record Production Association as the primary information provider, the bilingual database will catalog recordings for cross reference and will include information on such topics as a record's label, affiliation and distributor to its chart positions.

Augat Forms Canadian Company

MANSFIELD, MASSACHUSETTS—Augat, Inc., has established Augat Electronics, Inc., of Canada in Mississauga, Ontario. Augat Electronics, Inc., will market and sell the entire Augat product line in Canada, including the products and services of all subsidiaries.

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Theta-Com's new T series of trunk amplifiers is completely modular. It can be purchased in 300 MHz (T300), 330 MHz (T330), or 400 MHz (T400) versions. This amplifier can be configured for one-way 300 MHz operation and upgrad-

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“OUR NEW SONY ALL KNOWN

“Finally there’s a ¾-inch recorder that doesn’t just inch along,” says Fred Rheinstein, president of The Post Group.

A major post-production facility in Hollywood, The Post Group counts among its clients all three networks, PBS, and major cable TV and syndicated production companies. It will edit the new syndicated children’s show “We’re Moving” entirely on the BVU-800.

“The 800 is amazingly fast. To be able to go backward and forward at 40 times play speed means you can search for your edit points—and find them—more than twice as fast as ever before,” continues Rheinstein. “And this machine goes from its highest speed to a still frame. Instantly. Without slewing or breaking up.

“It also has a direct-drive system, which promises greater reliability and accuracy.

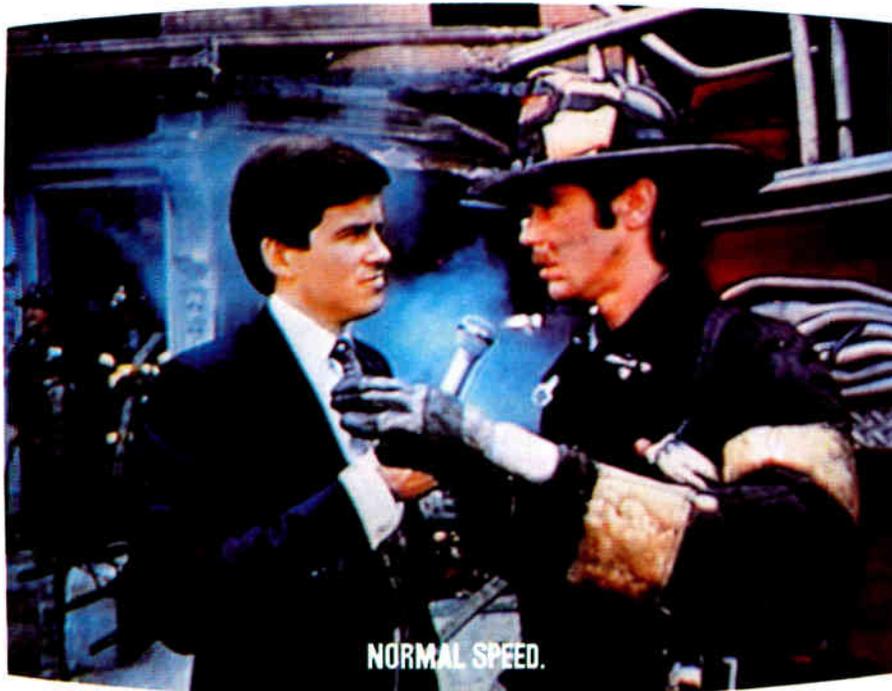
“We have extremely critical clients,” says Rheinstein. “They’re used to the best performance, in terms of picture quality and in terms of flexibility. This new Sony can deliver it.

“It’s the perfect combination of U-matic economy and broadcast quality. It’s a true mastering process; with the BVU-800, there’s no need to transfer to one-inch and lose a generation in order to edit your tape.”



U-MATIC BREAKS SPEED RECORDS."

Fred Rheinstein, THE POST GROUP



Other breakthroughs incorporated in the BVU-800 include its ability to make machine-to-machine cuts without a separate controller; its adjustable, removable edit control panel; and its narrow, front-loading design, which makes rack mounting possible.

"We've always bought a lot of Sony, because we can depend on the company for reliability and innovation," says Rheinstein. "Now, with the BVU-800, Sony makes its competitors look like they're operating in reverse."

Sony makes a full line of 1-inch and 3/4-inch broadcast equipment, including cameras, recorders, editors and digital time-base correctors.

For more information, write Sony Broadcast, 9 West 57th St., New York, N.Y. 10019. Or call us in New York/New Jersey at (201) 368-5085; in Chicago at (312) 860-7800; in Los Angeles at (213) 537-4300; or in Atlanta at (404) 451-7671.

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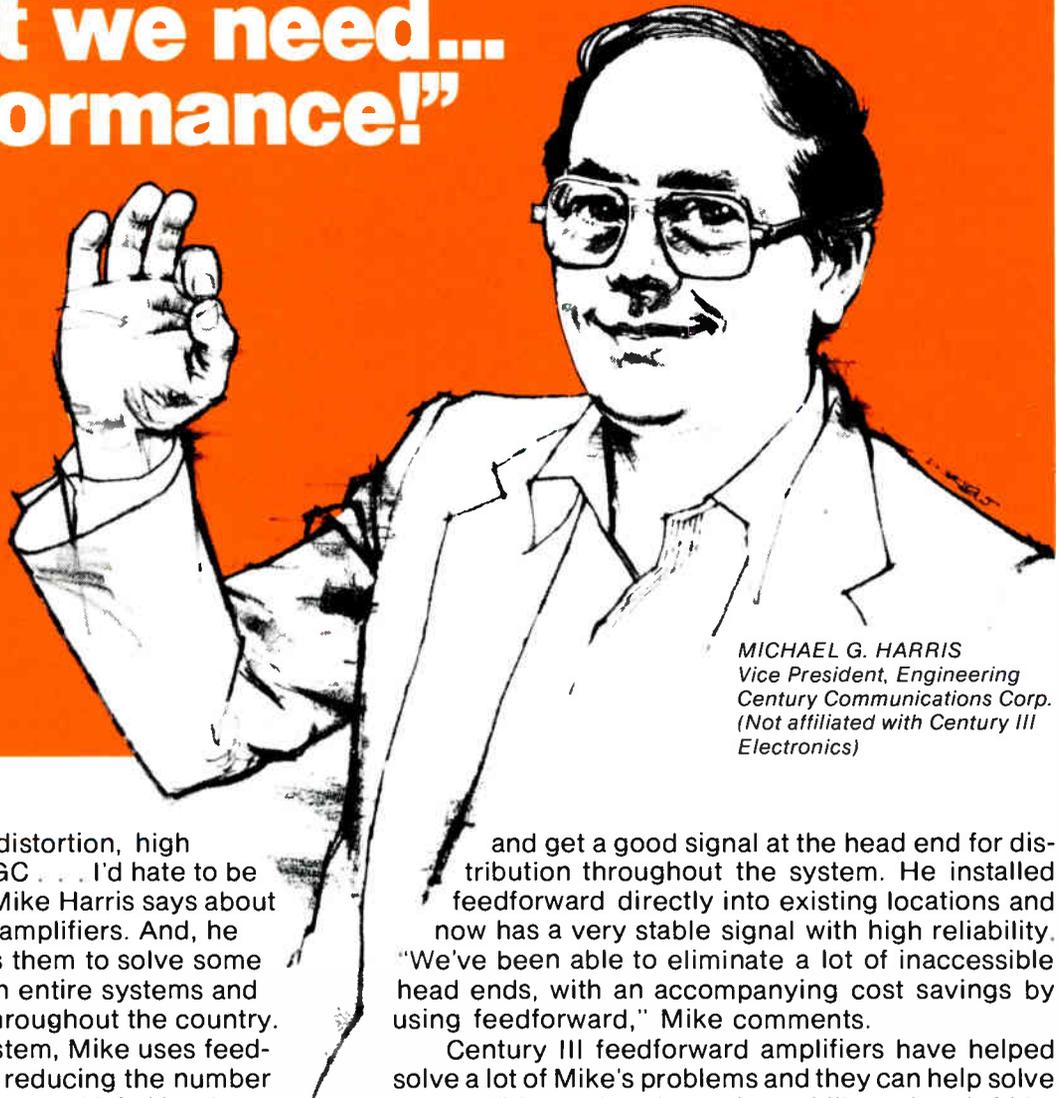
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*When used in conjunction with the BVT-2000 digital time-base corrector.

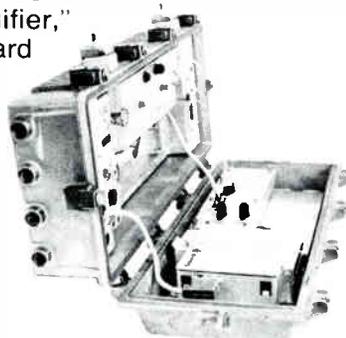
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“Higher gain, less distortion, high reliability and *superb* AGC . . . I'd hate to be without it.” That's what Mike Harris says about Century III feedforward amplifiers. And, he should know. Mike uses them to solve some pretty tough problems in entire systems and long-haul applications throughout the country.

In a Connecticut system, Mike uses feedforward entirely, greatly reducing the number of amplifiers required. He used it in Huntington, West Virginia to upgrade a low band run to a 21 channel system by simply replacing the low band amplifiers with feedforward amplifiers. In Virginia, Mike had to contend with a dead run of cable 10 or 12 miles long through some very inaccessible areas. “It had to go 6,000 feet across a mountain without an amplifier,” he says. “Use of feedforward made this possible.” And, in San Pablo, California, Mike needed to increase his bandwidth



and get a good signal at the head end for distribution throughout the system. He installed feedforward directly into existing locations and now has a very stable signal with high reliability. “We've been able to eliminate a lot of inaccessible head ends, with an accompanying cost savings by using feedforward,” Mike comments.

Century III feedforward amplifiers have helped solve a lot of Mike's problems and they can help solve yours. With 50-plus channel capability at bandwidths from 45 to above 400 MHz, they're ideal for complete systems, high-level distribution and long-haul applications. Give Century III a call today for feedforward answers and information on our complete line of broadband products.

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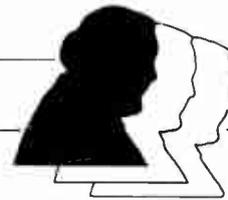
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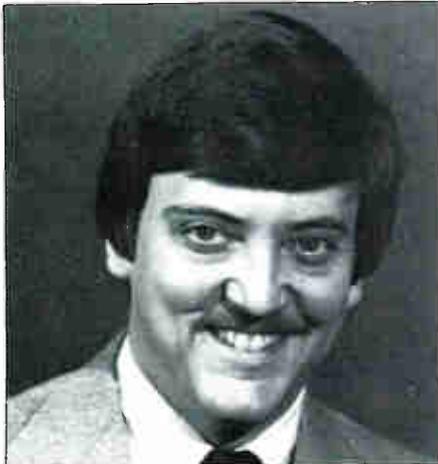
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People News



★ **Dennis Dougherty**, former manager, inventory control of **North Supply** Company's Electrical Security/Alarm Division, has been promoted to product marketing manager—CATV. Dougherty will be responsible for product marketing management to cable television companies.



Dennis Dougherty

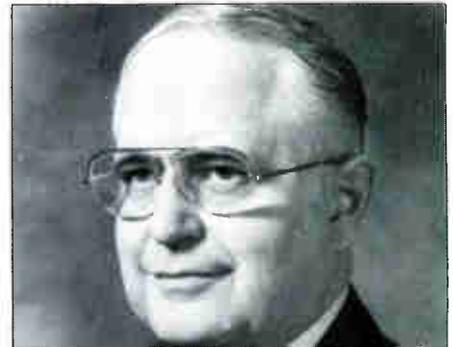
★ **William O'Neil** has been appointed manager of fiber optic product engineering at **Times Fiber Communications, Inc.** O'Neil will be responsible for providing the necessary engineering to take components for fiber optic systems from the design stage to volume production.

Before coming to TFC, O'Neil was vice president of engineering at Electro-Optic Devices Corporation in Waltham, Massachusetts. He has also served as president of Amplifier Design and Service, Inc., and as chief engineer at Spencer Kennedy Laboratories.

★ **Arlington TeleCommunications** has announced the appointment of **Lawrence W. Lockwood** as vice president of engineering.

Lockwood brings with him over 20 years of experience in telecommunications and other related fields. Previously, he was president of Lockwood Associates, a scientific and engineering contracting service. Lockwood was involved in many NASA projects, including the

analysis and design of the visual simulation systems for the Apollo and space shuttle programs.



Lawrence W. Lockwood

★ **Robert E. McNanley** has been promoted to vice president of engineering and technical services for **Communications Technology Management, Inc.** McNanley was director of engineering and technical services since joining CTM in November 1980.

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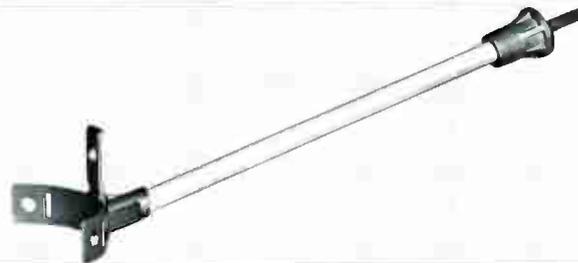
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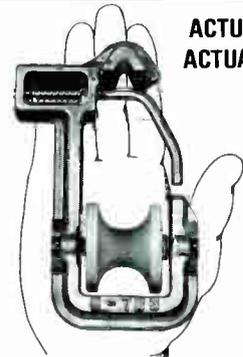
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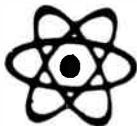
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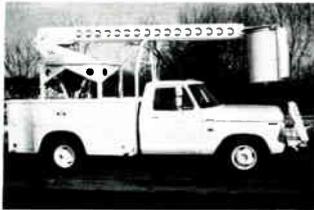


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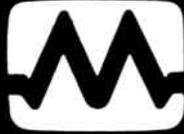
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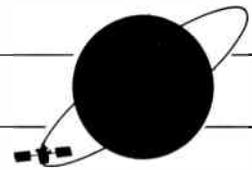


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ACSN	Weekdays: Weekends:	6:00 a.m./4:00 p.m. 6:00 a.m./1:00 p.m.	192*/#	F1,#16	The Movie Channel		24 hrs.	None	F1,#5
AETN	Mon.-Sat.: Sunday:	4:00 p.m./7:00 p.m. 4:00 p.m./6:00 p.m.		F1,#16	Modern Satellite Network	Weekdays: Weekends:	noon/5:00 p.m. 8:00 a.m./1:00 p.m.	243*/#	F1,#22
BET		11:00 p.m./2:00 a.m.	018*/#	F1,#9	MTV: Music Television		24 hrs.	None	F1,#11
Bravo		8:00 p.m./6:00 a.m.		Comstar D-2, #3H	National Christian Network		6:00 a.m./8:00 p.m.	073*/#	Comstar D-2,#4V
CableText		24 hrs.	None	F1,#6 Vertical Blanking	National Jewish Network	Sunday:	noon/4:00 p.m.		F1,#16
CBN		24 hrs.	None	F1,#8	Nickelodeon		8:00 a.m./9:00 p.m.	311*/# (E,C,M) 519*/# (P)	F1,#1
CBS Cable		4:30 p.m./4:30 a.m.	524*/#	Westar III, #6	North American Newstime		24 hrs.	None	F1,#6
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Cinemax		24 hrs.	None	F1,#20 (E,C) F1,#23 (M,P)	Preview Channel	Weekdays:	10:00 a.m.-1:30 p.m.	207 */#	F1, #21
CNN		24 hrs.	None	F1,#14	Private Screenings	Fri.-Sat.:	12:00 a.m./3:00 a.m.		Westar III,#7
Cable News Network II		24 hrs.	None	F1 #15	Reuters	Weekdays:	4:00 a.m./7:00 p.m.	None	F1,#18
C-SPAN	Weekdays: Sundays:	10:00 a.m. to 6:00 p.m. Precedes USA Network, three to four hours	195*/#	F1,#9	SIN		24 hrs.	None	Westar III, #8
ESPN		24 hrs.	None	F1,#7	SPN		24 hrs.	None	Westar III, #9
Episcopal Television Network		Sunday 6:00 p.m.-8:00 p.m.		F1, #16	Showtime		24 hrs.	None	F1,#12 (E,C) F1,#10 (M,P)
Eros		Mon.-Sat. 12:00 p.m.-5:00 a.m.		Westar III, 7 12 (Fri., Sat.)	Trinity (KTBN)		24 hrs.	None	Comstar D-2, #9V
Escapade		8:00 p.m./6:00 a.m.		Comstar D-2,#4V	USA Network		24 hrs.	None	F1,#9
Eternal Word Television Network		7:00 p.m./11:00 p.m.		Westar III,#12	Calliope: Weekdays: 6:00 p.m. to 7:00 p.m.; Saturdays: 8:30 a.m. to 11:30 a.m. The English Channel. Tuesdays: 11:30 p.m. to 1:30 a.m.; except January 12, when the program will not be shown and January 26, 10:00 p.m. to 11:00 p.m. Saturdays: 12:00 p.m. to 1:00 p.m., except January 2, 12:00 p.m. to 3:00 p.m. and January 16, 23:12:00 p.m. to 2:00 p.m. Sundays: 10:30 p.m. to 12:30 a.m.				
GalaVision	Weekdays: Saturdays: Sundays:	8:00 p.m./3:00 a.m. 3:00 p.m./3:30 a.m. 1:30 p.m./3:00 a.m.		F1,#18	WFMT		24 hrs.	None	F1,#3 Subcarrier
HBO		24 hrs.	Program 729*/# Scramble 835*/# Duplication 940*/#	F1,#24 (E,C) F1,#22 (M,P)	WGN		24 hrs.	None	F1,#3
HTN		8:00 p.m./2:00 p.m.	517*/#	F1,#21 (P)	WOR		24 hrs.	None	F1,#17
					WTBS		24 hrs.	None	F1,#6

E=eastern M=mountain
C=central P=pacific

Alert tones listed are for sign-on, sign-off.

All program times are listed for the eastern time zone, unless otherwise noted.

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