

The Role and Scope of Digital Signal Processing in Communication Systems, R. Benjamin, *The Radio and Electronic Engineer*, 48: 266-270, June 1978.

Trends in relative costs encourage sophisticated signal processing in order to make fuller use of the capacity of communications channels. This implies features of subtlety, adaptation, transformation and manipulation which are most expediently handled digitally. The variety, diversity and pervasive nature of these techniques in modern communication nets are illustrated, and their impact on overall system design is discussed. Three specific techniques are included for illustrative purposes: (1) the design of multi-valued discrete signals in the phase/amplitude plane; (2) the adaptation of Fourier analysis to equally-spaced narrow frequency lines; and (3) the compensation of tape recorders for both steady and transient differences in tape speed between recording and replay.

The B.R.T.'s Computer-Controlled Television Continuity Suite, W. De Boeck, *E.B.U. Review*, 1968: 76-85, Apr. 1978.

The R.T.B./B.R.T. television production center in Brussels contains two complex and sophisticated computer-controlled television continuity suites. The two suites are identical. One is used for the Belgian Dutch-language service provided by the Belgische Radio en Televisie (B.R.T.), and the other for the French-language service of the Radiodiffusion-Télévision Belge (R.T.B). This article deals specifically with the B.R.T. installation which was brought into operation 1 October 1974, but it may be assumed that the R.T.B. presentation suite operates in a similar manner. In the suites the operations are carried out by a computer-assisted real-time system which was designed and built by the Thomson-C.S.F. company to specifications drawn up with the assistance of R.T.B./B.R.T. engineers. The computer itself is an XDS type 10020 which was built under license in France by the Compagnie Internationale pour l'Informatique.

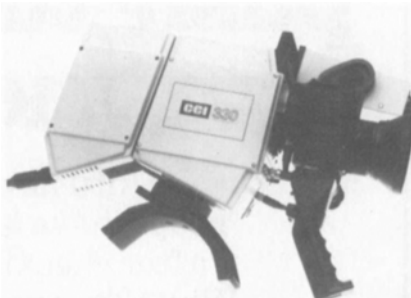
Airborne Television Transmission, M. W. Harman and J. Middleton, *BBC Eng. No. 109*: 26-37, Apr. 1978.

Certain countries with favorable climates have already obtained satisfactory results using high-flying aircraft and captive balloons to provide a rapid solution to their television coverage problems. In general, these techniques have been considered or applied in situations with no existing ground station network or where unused parts of the radio spectrum are available for broadcasting. While the United Kingdom has no immediate plans to re-engineer the VHF television broadcasting bands, at present used for 405-line black-and-white transmissions, it is worth considering various methods, conventional or otherwise, that might be used to rearrange the channeling for 625-line color. Some of the propagation effects of transmitting from high-altitude aeriels have been investigated, and the results obtained are submitted as a contribution to Band III service area prediction under such conditions.

Approximate cost comparisons are made between different methods of transmission based on both capital and revenue expenditure.

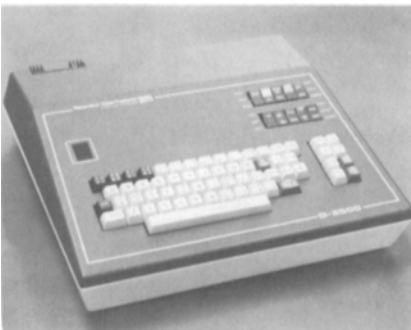
New Products & Developments

Further information about these items can be obtained from the addresses given. As in the case of technical papers, the Society is not responsible for manufacturer's statements, and publication of these items does not constitute endorsement of the products or services.



A digitally controlled broadcast color television camera system, the CEI-330, has been announced by Commercial Electronics Inc., 880 Maude Ave., Mountain View, CA 94043. The 330 extends cable range between camera head and electronics unit to 2400 ft, reportedly without compromising color control or signal-to-noise ratio. Two components, a camera head addition and an auxiliary power supply plus one board, change the earlier CEI 310 field production camera system to the 330 remote configuration. The 3-lb camera head addition provides viewfinder control switches and micro-cable connectors. Buffer amplifiers add timing and test signals while offering matched impedance for TV81 cables.

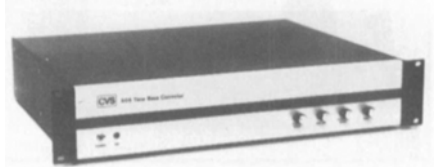
The CEI micro-cable carries three (RGB) video signals, viewfinder video and camera head control, on-off switches for beam, tally and test, IC and program sound (for headset), two spare analog channels, and one spare on-off control. Modular configuration makes possible either field or studio use. CEI camera systems are priced from \$24,000; remote systems from \$54,000. Existing 310 systems can be upgraded to 330 for about \$12,000.



A television character generator, the Datavision/3M D-2500, was announced by 3M Company, P.O. Box 33600, St. Paul, MN 55133. The device features a broadcast quality video mixer, three-speed vertical roll and horizontal crawl, two character sizes, automatic centering, word flash, character edging, and an internal

random access memory. Three type fonts are available in upper and lower case — video gothic, piper roman, and helvetica semibold.

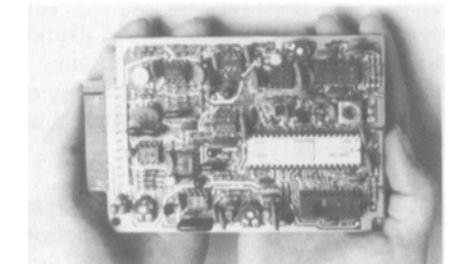
The D-2500 will generate full-size characters, 28 scan lines in height, having a resolution equal to 1120 video elements. The smaller size characters have a height of 20 scan lines. Large and small characters can be intermixed on the same line. The D-2500 provides internal four-page memory with random access to 40 lines of titles; if needed, an unlimited memory capacity using cartridge storage can be added. The price of the character generator, including one type font, is \$5495.



An analog time base corrector, Model CVS 506, was announced by Consolidated Video Systems, 1255 E. Arques Ave., Sunnyvale, CA 94086. Designed for nonbroadcast heterodyne VTR formats, including ¾-in U-Matic, Beta, and VHS, the CVS 506 eliminates skew, jitter, flagging, and other picture distortions.

In operation, the CVS 506 removes multiline errors using a one horizontal line floating correction window that tracks the VTR. A special circuit automatically adjusts tracking rate to tape condition. Other features include a built-in process amplifier and automatic color/monochrome selection.

The CVS 506 is 3½ in (89 mm) high, 19 in (484 mm) wide, and weighs 4.5 kg. Power requirements are 117 V + 10% or 235 V + 10%. The price is \$3900.

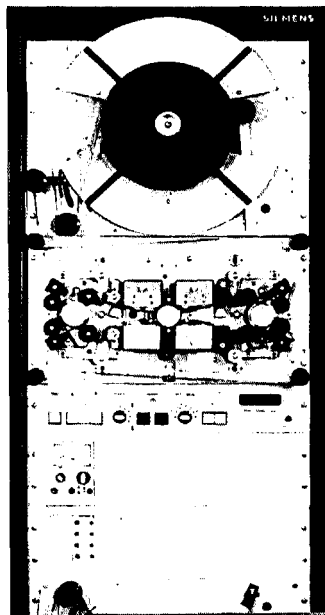


An LSI microprocessor-based OEM pitch shift module, Lexicon Model 20, was announced by Lexicon, Inc., 60 Turner St., Waltham, MA 02154. It is designed to produce off-speed audio intelligibility in tape, disk, and film editors, previewers, and sound reproducers over a range from ½ to 2½ times normal sound speed. Use of a digital intelligent splicing technique allows the module to provide speech time compression and expansion with noise-free splicing.

With a continuously adjustable ×20 – ×0.4 pitch shift range, the Lexicon Model 20 offers a 100–5000-Hz, +0/–3-dB frequency response;

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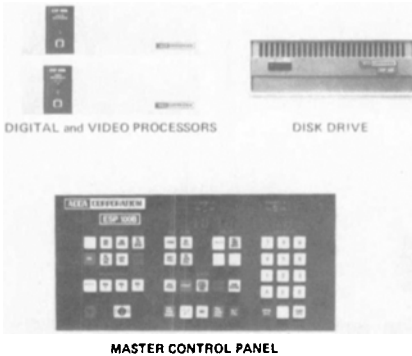
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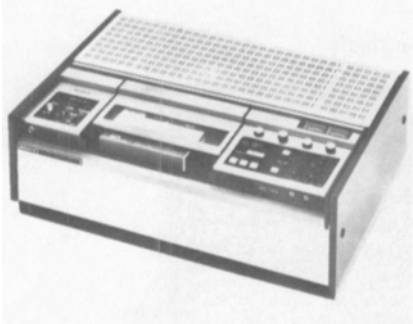
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greater than 56 dB dynamic range; and 0.6% total distortion and noise. Easily integrated into systems, the module requires a +12 Vdc at 150 mA and -12 Vdc at 50 mA, and an audio input to function. Provisions for slaving control of an external dc motor to the selected pitch factor are included. The price of each module is \$170 on 100 pieces per year.



An electronic still processor, Model ESP-100B, was announced by ADDA Corp., 1671 Dell Ave., Campbell, CA 95008. The microprocessor-based system stores up to 200 digital still frames on-line on a fixed disk. Stills can be accessed in 1/2 s, and still sequences can be programmed in advance to appear automatically and in order. Recall and display of any still frame is nondestructive so that stored data remains unaltered during access and display operations. Other features include freeze-frame capability, whereby graphic artists can create stills from moving feeds such as 2-in, 1-in, or 3/4-in videotape recorders, 16mm film chain, and live camera, network, or satellite feeds. The system is designed for use by stations in small to medium sized broadcast markets. The price of the ESP-100B is \$42,000.



Two videocassette recorders, the LVO-7000 and TVO-9000, were announced by Sony Video Products Co., 9 West 57 St., New York, NY 10019. Model LVO-7000 (shown above) is a two-hour machine utilizing 3/4-in tape and is capable of playing back one-hour tapes recorded on the U-Matic format. Features include connectors, allowing usage of a time base corrector; and a video dub system said to improve multiple generation copies. The price of the LVO-7000 is \$4200.

The TVO-9000 also utilizes 3/4-in tape and can record in six time modes — 72 min, 12 h, 24 h, 48 h, 72 h, and 96 h. The recorder features still frame, slow motion, and step back capability during playback. Also included is a head drum that allows playback of the picture material free of guard noise regardless of recording speed when playback is in normal mode (72 min). The price of the TVO-9000 is \$7500.



An audio noise-reduction system for broadcast use, Model 148, has been announced by dbx, Inc., 71 Chapel St., Newton, MA 02195. Specially designed for broadcast control rooms where play-only capability is required, Model 148 is said to improve the sound quality of cartridge tape machines, to extend the useful life of "obsolete" reel-to-reel tape playback units and to quiet audio tracks on videotape recorders. The system eliminates tape hiss when recording a live source and prevents the noise build-up normally encountered in transferring information from one recording medium to another. It does not remove noise that is present in the original signal or the residual noise of the mixing board. The 148 provides eight channels of playback (decode) noise reduction in a plug-in modular chassis plus space for a spare module. It provides 30 dB of noise reduction and 10 dB of headroom improvement. The 148 system employs two types of playback only modules, the 408, a dbx module for tape playback and the 409 for playback of dbx encoded disks. Price of the 148 is about \$3000.

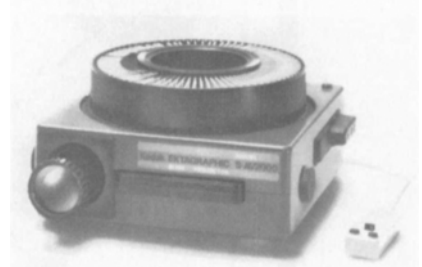


A compressor/limiter for professional audio applications, Model 165, has been announced by dbx, Inc., 71 Chapel St., Newton, MA 02195. The 165 features the newly designed Over Easy™ compression circuit which gradually adds the desired amount of compression over the range of several dB resulting in virtually inaudible compression. An additional design feature is the use of feed forward gain reduction which allows the 165 to achieve even infinite compression with complete stability and inaudible distortion. The feed forward circuit also makes it possible for the attack and release rates to follow the signal envelope automatically to further simplify operation and preserve the naturalness of any given sound. Manual control of the attack and release rate is provided for if special-effect compression is desired. A front-panel switch activates the attack and release rate controls. A front-panel master-slave switch enables full control of two units and a special input at the level detector allows creation of special effects. Model 165 is priced at \$550.

Tin-halide short-arc lamps (said to be the world's first) have been added by North American Philips Lighting Corp., Hightstown, NJ 08520, to its line of projection and photographic lamps. The new lamps have a color rendering index of 90 R_a and provide nearly daylight conditions during use. An efficiency of 80 lm/W make possible a significantly smaller lamp requiring much less power than that required by other types of lamps. The new lamps produce considerably less radiant heat because of the limited infrared radiation present in its operating spectrum. The tin-halide lamps have a lifetime of 1000 h or more. They require only a simple



coil and ignitor and operate on normal ac current. Applications include microscopy, projection, film and photographic lighting, studio and stage lighting, and other fields where color rendering and heat dissipation are important. The lamps are available in 250-, 500-, and 1000-W sizes. Prices range from about \$100 to \$150 each.



The Kodak Ektagraphic slide/projector, Model S-AV2000, made by Kodak in West Germany, has been announced by Eastman Kodak Co., 343 State St., Rochester, NY 14650. It is similar to the Carousel projector, but is of extra-heavy-duty construction and is adaptable to multiple voltages and frequencies making it useful for audiovisual users who travel internationally. The projector offers advanced features for external control applications and is capable of supplying power for control devices. It is said to provide even illumination and to maintain consistent color temperature. The projector accepts three short-focal-length lenses offered by Kodak. The lamp door is on the side to allow lamp changes without moving the projector. Also included is space for a spare lamp.

The projector has a built-in voltage selector switch with four positions — 110, 130, 220-230, and 240-250 V. It operates at either 50 or 60 Hz frequency. It uses an EHV tungsten-halogen 24-V, 250-W lamp. It can provide either high- or low-light output.

The projector accepts the Kodak Ektagraphic Universal slide tray and the Carousel S slide tray, type 2 (made in West Germany), each holding slides up to 1/8-in thick. It also accepts the Carousel Transvue 80 slide tray which holds slides up to 1/10-in thick. A built-in thermal safety switch shuts off the machine if the temperature rises above normal. After cooling, it automatically returns to the "on" position. Other features include a 6-pin socket for connection of the remote control which performs forward and reverse slide changes and focusing. A 12-pin socket permits connection of control and dissolve units. The projector accepts 28-, 35-, 90-, 150-, and 180mm lenses as well as the 70-120mm zoom lens designed for it. The price (without a lens) is about \$499.50.

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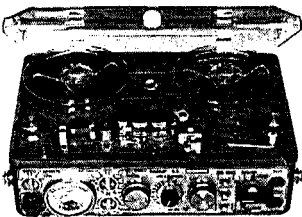
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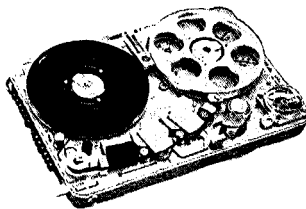
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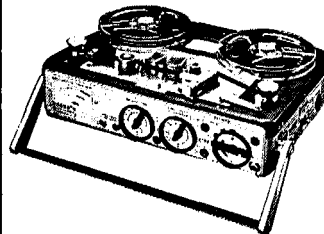
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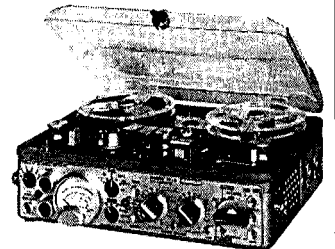
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