PRINTOUT

by Joseph B. Sidowski

PRODUCTS

Time Delay Relay

Priced at \$29 and up, the Model 319B time delay relay is available in 10 ranges from 1 sec to 30 min; the unit is repeatable to 1% of range. The timer is voltage regulated; ac and dc models are available.

Automatic Timing and Controls Co.
King of Prussia, Pa.

Programmable Controller

The Tenor stepping drum programmable controller steps in response to signals from sensing units. Plastic plugs on the drum circumference actuate switches to control sequential operations. The plugs are easily inserted into the drum to establish a read-only memory for a given sequential program. They are easily changed to accommodate program changes. The drums themselves can be replaced in seconds so that individual programs can be set up on individual drums and then stored till needed.

Tenor Corporation
170720 W. Rogers Drive
New Berlin, Wis. 53151

Blood Pressure

The Phoenix Model PM4 portable blood pressure monitor is designed for use with standard pressure transducers. The unit will operate for 10 h on internal rechargeable nickel-cadmium batteries. External recorders or oscilloscope for pulsatile displays can be connected through output jacks on the front panel.

Phoenix Electronix, Inc.
19211 Sierra Gerona Road
Irvine, Calif. 92664

Cassette Tape Transport

Phi-Deck is marketing a remote controlled cassette tape transport for under \$100. The unit features four-motor reliability, quick head engage, programmable logic, no tape coasting, and low power (ac or battery).

Phi-Deck
The Economy Co.
III Division
Oklahoma City, Okla. 73125

Flatpack Relays

The NF flatpack 2 and 4 Form C relays operate at 300 and 480 mW, respectively. Operate and release times are 10 msec and 5 msec. The relays come with 6-, 12-, 48-, and 60-V coils. Resistive load ratings include: maximum voltage 220 V ac or dc; maximum current of 2 A. Prices: \$2.59 for the 2 Form C; \$3.37 for 4 Form C (1K).

Arrow-M Corp.
250 Sheffield St.
Mountainside, N. J. 07092

D/A Converters

The DAC80 series converters have built-in internal reference and output amplifier. They are offered with choice of 12-bit binary (CBI) or three-digit BCD (CCD) input codes. Voltage-output modes provide selectable ranges of ± 2.5 , ± 5 , ± 10 , 0 to +5, and 0 to +10 V. Ranges of $\pm$ or -2 mA are offered by the current-output models. Price: \$49 for voltage and \$39 for current outputs.

Burr-Brown Research Corp.
International Airport Industrial Park
Tucson, Arizona 85734

Video Terminal

The Elite 1520A offers unbuffered Teletype compatibility, 24 80-char line display using 60-char ASCII set and a RS232C or TTY current loop interface. The terminal contains a display, keyboard, storage, control logic, and interface. The unit can drive an external printer or a slave monitor. Price: \$1,555.

Datamedia Corp.
7300 N. Crescent Blvd.
Pennsauken, N. J. 08110

Switches

A switch prototype kit containing 32 switches is available for \$17. If purchased individually, the switches would cost \$69. The kit contains two thumbwheel switch assemblies, three keyboard switches, and 27 snap action. The snap-action switches include five subminiatures, five miniatures, two low-torque, four for panel mounting nine assorted types, and two for low-energy application.

Cherry Electrical Products Corp.
P. O. Box 718
Waukegan, Ill. 60085

Fiber Optic Tape Reader

Model 7000 is the first Remex punched tape reader to use a fiber optic light distribution system. The light source is easily replaceable. Available configurations are RRT-transport only without electronics, and RRK-with electronics for stepper motor/driver, directional control, and read amplification of output from eight data holes and one sprocket hole. Neither unit contains power supply. The reader accepts five- to 8-level tape, including six-level advanced-feed tape with IR transmissivities to 57%. Stepper motor/sprocket drive permits stop on char.

Ex-Cell-O Corp.
Remex
1733 Alton St.
Santa Ana, Calif. 92705

Cartridge Disc Drive

The disc on the 7905A is rack mountable and is 10½ in. high, including power supply. Usable data capacity is 10 megabytes in the front-loading cartridge and 5 megabytes on resident disc. Seek time is 5 msec track-to-track, 25 msec average. Data transfer rate is 7.5 megabits/sec. An associated microprocessor-based formatter permits interface to any processor and provides for error correction, multiprocessor access, and automatic macro I/O operations.

Hewlett-Packard Co.
1501 Page Mill Road
Palo Alto, Calif. 94304

CRT Terminal

Mini-Tec Data Screen Model 2400 contains a 12-in. nonglare raster/scan CRT with 54-in. display area. Display consists of 1,920 char, 80 char/line x 24 lines; .2 x .08 in. char size; 64 displayable char; and 5 by 7 dot matrix. Refresh rate is 50 or 60 Hz. Blinking, underline, alternate with char cursor is positioned by computer and cursor address readout. Display also contains field tab and blink, field protect, switch-selectable roll-up through 9 600 baud, and remote monitor output socket. Memory is MOS, 2,048-char capacity.

Tec Inc.
Systems Div.
9800 N. Oracle Rd.
Tucson, Ariz. 85704

Microcomputer Systems

The Series 70 systems are available from single board level, in an enclosure with power supply and console, up to a fully desk-mounted system with peripherals and software. The systems feature Intel 8080 microprocessors and are compatible with

Intellec 8/Mod 80 software. The basic unit includes: operator terminal controller, 4 kilobytes of RAM expandable to 16K, 1 kilobyte of reprogrammable ROM expandable to 4K, autostart bootstrap, and floppy disc controller. An IBM-compatible floppy disc or 3M tape cartridge may be installed. Memory is expandable to 64 kilobytes of p/ROM or RAM. A typical operating system includes 16K RAM, 4K p/ROM, MICRO-DOS system software, CRT, line printer, single floppy disc random access storage, dual 3M tape cartridge bulk storage, communication interface, and ROM programming facility.

Applied Data Communications
1509 E. McFadden Ave.
Santa Ana, Calif. 92705

Micro Digital Cartridge Tape Drives

The MDR-212 magnetic tape drive series are designed for the market that has been served by cassettes. The self-contained Reelette tape cartridge weighs ½ oz, measures 1½ in. in diam, and contains 80 ft of tape.

American Videomatics Corp.
795 Kifer Rd.
Sunnyvale, Calif. 94086

Add-On Memory for PDP-11

The Monostore VII/PDP-11 memory is hardware and software compatible with the PDP-11 Unibus. Its memory is based on 4K x 1 NMOS dynamic RAM and provides up to 128K x 18, in a single 5½-in.-high freestanding or rack-mount chassis. Standard units are wired for 64K or 128K with word lengths of 16 or 18 bits. Weight with power supply is 35 lb.

Monolithic Systems Corp.
14 Inverness Dr. E.
Englewood, Calif. 80110

Electronic Voice System

The Votrax Model VS-6 provides synthesized speech with unlimited vocabulary. It accepts standard ASCII char as commands to produce phonetically programmed human speech and can produce continuous speech with an input data rate as low as 150 bits/sec. Interface options make it compatible with virtually all computer and communications equipment. The same company markets a line of limited vocabulary digitized speech systems.

Federal Screw Works
Vocal Interface Division
500 Stephenson Hwy.
Troy, Michigan 48084

Image Digitizer

Computer Eye 108 allows any picture that can be sensed by a TV-type camera tube to be input for

computer processing. Standard hardware and software interfaces are available for PDP-11 and PDP-8, HP2100, Interdata, and Nova computers.

Spatial Data Systems, Inc.
508 S. Fairview
Goleta, Calif. 93017

Image Processing System

The Model 8300 is capable of displaying flicker-free computer-generated images and of retrieving additional data from these images through enhancement and pseudocolor techniques. The system presents a true-color image with four to seven times the quality of a home TV. The triple image display includes full data feedback from all images, processing memories, and interactive systems supplied; and it includes moving window display mode.

Comtel Corp.
333 N. Santa Anita Ave.
Arcadia, Calif. 91006

Miniature Alphanumeric Data Printer

DMTP-3 is a plug-in, dot matrix, serial impact printer that prints 18 columns of ASCII alphanumerics on 2¼-in.-wide paper. The DM-101 miniature disc needle printhead features a circular geometry that permits high column capacity in a printer measuring 3 x 3½ in. on the panel. The printhead contains seven vertical needles that scan and print into a 7 by 5 dot matrix at a speed of 110 char/sec. Throughput is 138 lines/min for an 18-col line.

Practical Automation, Inc.
Trap Falls Rd.
Shelton, Connecticut 06484

Color Graphic Displays

The 8001A series precision color graphic CRT display monitor features four-color direct writing CRT display of alphanumeric and vector data from computer-originated data.

CPS Inc.
722 E. Evelyn Ave.
Sunnyvale, Calif. 94086

The FS2000 features alphanumeric and Cartesian graphics, seven colors plus two intensities of each, char position to any of 256- x 256-location, 128-char set (64 optional), blink some or all to one-half intensity, and any char set graphic entry.

Ramtek Corp.
292 Commercial St.
Sunnyvale, Calif. 94086

Programmable Time Delay Relays

The Model TDP-1 units are easily field selected for delay on make or break, for 24 V dc, 24 V ac, or 120 V ac; and for delay ranges of .3 to 10, 3 to 80, or 10 to 300 sec—adjustable to min/max of each range.

Hi-G, Inc.
Windsor Locks, Connecticut 06096

Miniature Printer

The Model DPP-7 digital panel printer is a miniature unit capable of printing up to seven columns of BCD input data. The unit (13.7 cm wide and 7.15 cm high) employs an electronic thermal printhead capable of inkless printing at 3 lines/sec. The thermal printer is compatible with DPMs in size as well as data exchange. The DPP-7 accepts six full parallel four-line BCD (8-4-2-1) digital inputs and sign TTL or DTL levels. Data need be valid only during the microsec minimum print command. Continuous 3 line/sec printing is achieved if the print command has a duration in excess of 330 msec. Numeric char are in a seven-segment format 4 mm high with optional sign on standard 44.5-mm-wide 3M thermal printing paper available in 150-ft rolls. Price: \$475.

Datel Systems, Inc.
Canton, Mass. 02021

Electronic Supplies

Relays, switches, transistors, diodes, motors, timers, fans, solenoids, and other supplies are listed at reasonable prices in the B & F catalog.

B & F Enterprises
119 Foster St.
Peabody, Mass. 01960

BRIEFS

Shutter

Electronic Mechanical Products Co. recently announced the EMPCO shutter. The type RS electromagnetic shutter will stand a wide variety of power densities. Shutter leaves are available in .022-in.-thick acrylic fiber or .0156-in.-thick black anodized aluminum. Shutter action is advertised as noiseless. The shutter opens and closes in approximately 1/25th of a second. Shutters are available in either normally closed or normally open versions and are normally supplied to operate in the vertical position.

Manuscript Transmission

A British system provides instant written communication between two or more people. The system transmits messages, diagrams, signatures, and

figures over a pair of wires with an accuracy said to equal that of a carbon copy of the original. The Cygnet Telewriter can be linked by direct line or through internal, private, or public telephone systems.

Relays

Solid state relays have a semiconductor switching element. The input terminals are isolated by optical or magnetic coupling. *Output:* for low-level switching, FET is often used; a bipolar device is often used for medium and power level switching; a triac generally serves for ac power switching.

When cost and circuit parameters rule out a solid state type relay, and speed or life and contact reliability negate the use of electromechanical types, the electromagnetic type relay with glass-sealed contacts should be considered. Mercury-contact relays are sophisticated and can switch over wide ranges of signal and power levels without the life or performance of the unit being adversely influenced by load effect. Mercury-contact types are generally more expensive than the reed types. Contact surfaces are renewed during each operation by a capillary system.

Mercury-wetted reed relays produce bounce-free switching and low contact resistance. The relays consist of a switch capsule containing an armature, fixed pole piece, and a mercury pool sealed in a pressurized glass envelope.

Reed relays consist of a reed switch assembly within a suitable operating coil. Reeds differ in type or configuration. Mounting and magnetic shielding are of some concern when using standard reed relays.

Minicomputer Market in 1982

Gnostics Concepts, Inc. recently completed a survey indicating that minicomputer system equipment shipments will exceed \$6 billion by 1982. The 1974 minicomputer hardware market represented 13% of the total U.S. \$8.8 billion computer hardware market. This will grow to over 30% of the total predicted for 1982.

Microcomputer

The DEC 16-bit LSI-11 microcomputer has at its heart a four-chip microprocessor set manufactured by Western Digital Corp. of Newport Beach, California. Achieving the speed and performance of a mini through the use of n-channel silicon-gate technology, the microcomputer chip set has instruction sets and floating point capability of the PDP-11/40 and execution speeds of the PDP-11/05.

Robotics

Accumulated robot field experience now covers more than 4,000,000 h. J. F. Engelberger of Unimation, Inc. of Danbury, Connecticut reports that robots are finding increasingly effective use in such places as assembly

plants for automobiles. There are approximately 1,000 of his company's industrial robots in service today. In auto-body plants, where robots perform spot welding, the work comes to them via an assembly line. Of course, some robots travel to their work; others are surrounded by it.

Modular Laboratory Instrument System

Coulbourn Instruments, Inc. will supply a booklet on request describing the firm's modular laboratory instrument system for programming, analog signal conditioning, and recording. Digital modules afford control over experimental counting and timing requirements at the level conceptualized in the experimental design. The addition of special purpose input modules, biological amplifiers and filters, analog to digital converters, signal generators, and digitally controlled analog signal manipulation extends system applications. The modules are configured for various types of behavioral research including operant and classical conditioning. Audio modules offer all aspects of signal manipulation and stimulus synthesis. The Coulbourn system is also designed for studies of biofeedback and electrophysiology. Specifications, photographs, and prices of system components are cited in the booklet which may be obtained by writing: Coulbourn Instruments, Inc., Box 2551, Lehigh Valley, Pa. 18100.

General Radio Announcement

William R. Thurston, President of General Radio Company, has announced the formation of a new division to be named the GR Environmental and Medical Instrumentation Division. It comprises Grason-Stadler, a wholly owned subsidiary of General Radio, and the GR Acoustics and Signal Analysis Business Area. In announcing the new division, Mr. Thurston pointed out that Grason-Stadler audiometers and General Radio's acoustic products are a natural product mix which under a common management will achieve market growth and penetration through coordinated market planning and new product development.

Rufus L. Grason, President of Grason-Stadler since its founding, becomes the President of the new E and M Division. Richard H. Vanderlippe, Grason-Stadler Vice President for Marketing, will direct the marketing program for the new division. Mr. Grason also announced that plans for the relocation of Grason-Stadler into GR's Bolton plant will be accelerated so that the engineering and marketing teams for the new division can be together as soon as possible. The new Environmental and Medical Instrumentation Division will continue to use the General Radio and Grason-Stadler trade names and will continue to use existing channels of distribution.

For more information, write or phone C. J. Lahanas, Vice President.

New Product Release—Automatic Card Changer

A new automatic card changer from Gerbrands that allows you to change stimulus material in your tachistoscope, reliably and automatically. It changes 4 x 6 in. stimulus cards with a momentary passive switch closure, or with a logic pulse from the outputs of the timing units in the Gerbrands tachistoscopes, or similar timers. The automatic card changer is a completely self-contained unit, operating from 110 V ac, 50-60 Hz, and comes with a push-button hand switch for remote manual operation. It can also be used as an independent unit without the tachistoscopes.

Ralph Gerbrands Co., Inc.
8 Beck Rd.
Arlington, Mass. 02174

On-Line Computer Conference

The Fifth Annual Meeting of the National Conference on the Use of On-Line Computers in Psychology will be held in Boulder, Colorado on November 5, 1975. (The meetings of the Psychonomic Society will be held in Denver on November 6, 7, and 8.)

Abstracts of papers and symposia must be received on or before August 1, 1975 by the Moderator of the Program Committee: Peter G. Polson, 2690 Heideberg Dr., Boulder, Colorado 80303. The following criteria will be used by the committee in selecting contributions to the program: (1) Is the paper or symposium of adequate quality and originality? (2) Is the abstract sufficiently clear, informative, and detailed? (3) Will this paper contribute to the total program balance and diversity? (4) Does a tutorial paper present a coherent introduction to a basic topic in the applications of on-line computers?

Individuals who want to organize alternative activities, e.g., workshops, special interest groups, etc., should submit their ideas to the program committee.

The meetings will run from 8:30 a.m. to 11:00 p.m.; equipment manufacturers will exhibit products throughout the meeting.

Individuals interested in becoming members should write to: Richard B. Millward, Department of Psychology, Brown University, Providence, Rhode Island 02912. Dues are \$3 per year. Make checks payable to "Computers in Psychology."