PRINTOUT

JOSEPH B. SIDOWSKI

Products

Cassette-Tape Terminal

The 4100 communications terminal is an on-line cassette-loaded magnetic-tape terminal plug-compatible with Teletype, keyboard printer, and CRT display terminals. The unit features incremental speeds ranging from 110 to 2,400 baud, a data-edit feature, unattended remote control, and high-speed search. The 4100 also has independent read/write speeds for recording at one speed and playback at another. An IBM 2741-compatible model is available also. Prices start at \$1,650.

Techtran Industries, Inc.
580 Jefferson Road
Rochester, New York 14623

Naked-Mini

The naked-minicomputer is an 8-bit 4k word machine, expandable to 32k, stripped of its power supply, console, and metal chassis. The mini is priced at slightly more than \$2,000. A 16-bit 4k model is available at a slightly higher price.

Computer Automation, Inc.
895 West 16th Street
Newport Beach, California 92660

DEC-Compatible 12-Bit Mini

The D-112 H is a general-purpose minicomputer incorporating MSI circuitry, and it is program-compatible with DEC's PDP-8 series, including PDP-8/e and PDP-8/i. The central processor has eight high-speed registers, and core size is 4k expandable to 28k. Four main levels of interrupt, 1.2-microsec core memory cycle time, and direct memory access are featured. Price: \$5,400, including console and Teletype interface.

Digital Computer Controls, Inc.
23 Just Road
Fairfield, New Jersey 07006

Dual Power Supply Kit

The Model D-200 Power Supply Kit is a bench-type regulated supply with two independent outputs. Components are solid state and guaranteed. The dc output voltage is 0-22 V; current is 0-750 mA; ac input is 105-125 V. Price: \$69.95.

Logiconcepts, Inc.

22513 South Normandie Avenue
Torrance, California 90501

Circuit-Stik

With Circuit-Stik, the technician can make his own prototype printed circuit boards very easily. Circuit-Stik printed subelements are preetched, pressure-sensitive adhesive substrates. They are predrilled, preplated, flux-coated, and ready for mounting and soldering of discretes, ICs, transistors, connectors, and other electronic components. No drilling, terminals, or staking is required. These circuit elements are designed to withstand soldering temperatures and offer good adhesion strength, yet they can be removed when design changes require instant modification.

A few sample prices are as follows: TO-5 dual-transistor 6-lead subelements (No. 1023-030) are priced at \$7.65, 30/pkg on 5 strips; 14-lead dual-in-line package subelements, \$7.65, 30/pkg on 5 strips. A prototype kit containing 180 parts, enough to mount over 400 electronic components and fabricate many instant circuit boards, is priced at \$89.50.

Circuit-Stik, Inc.
1518 West 132nd Street
Gardena, California 90249

Repeat Cycle Timer Kit

Pike Laboratories is marketing a repeat cycle timer kit (Model 60) with a 1-rpm pulser and a kit of 10 interchangeable cams. One cam is adjustable and may be easily set without tools to produce any pulse from 1 to 59 sec. Three more cams are blank, allowing the user to machine his own custom-designed programs onto them. The remaining 6 cams are provided with ready-made programs: 2 sec on 2 sec off; 3 and 3; 5 and 5; 10 and 10; 15 and 15; and 30 and 30. Cams are installed by backing off a thumbscrew. The Model 60 Timer Kit is priced at \$16.95; the timer alone is \$11. Extra cams cost from \$.75 (blank) to \$.95 (to your specification) each.

Pike Laboratories
217 Glenview Road
Glenview, Illinois 60025

Chromatic Afterimages

The slide projection medium is used

to demonstrate color afterimages to inexperienced Ss. Slides of fixation and inspection figures enable the instructor to control fixation time while Ss simply fixate the screen as long as necessary for effect. The complete set includes six red and six green fixation slides and two inspection figures for the McCulloch effect (Psychology Today, CRM books, 1970, p. 318), three slides designed to demonstrate color fatigue and color afterimages, and four alternate slides yielding vivid negative afterimages. The 24 slides are priced at \$19.80.

Life Science Associates
Box 163 F
Baldwin, New York 11510

Projection Tachistoscope

The Model 15-5C Projection T-Scope system contains two Kodak Carousel projectors with electrically operated and synchronized shutters to present material alternately. A recycling timer operates the shutters; one set of three decade switches varies operation time of one shutter in 100th-sec increments from .01 to 10 sec; another set of two decade switches varies operation of the other shutter in increments of 1 sec from 1 to 100 sec. Shutters may be set individually to be normally open or closed, and pushbuttons allow for manual operation. Price: \$895.

Marietta Apparatus Company
118 Maple Street
Marietta, Ohio 45750

Activity Monitors

Stoelting is marketing eight electronic activity monitors. The systems vary from a normal activity economy unit priced at \$550, to a two-level normal and single selective activity monitor at \$1,530, to a six-zone-array normal-level modular unit at \$2,730.

Stoelting Company
424 North Homan Avenue
Chicago, Illinois 60624

Dimensions of Sound

A synchronized tape-recording slide set is being marketed which covers some of the fundamentals of sound and their relation to hearing. Part 1 covers basic concepts. Sample tones from tuning forks and oscillators are

presented while their waveforms are illustrated in accompanying slides. The narration covers such topics as the physics of sound, noise, frequency, amplitude, pure tones, identification of sample frequencies and notes, transducers and microphones, oscilloscope displays, the decibel scale, and loudness-intensity and pitch-frequency relationships. *Dimension of Sound Part 2* explores complex waveforms as they occur in speech and music. Slides and auditory demonstrations illustrate such topics as timbre, beats, difference and summation tones, harmonics, musical scales, and chords. Demonstrations include five musical instruments playing the same note, with accompanying pictures of the respective waveforms. Musical sounds are compared with electronically generated sounds of the same fundamental frequency. Also included are demonstrations of speech filtering, pitch distortion, interrupted speech, time-compressed speech, and expanded speech. Factors determining speech intelligibility are discussed.

Part 1 is priced at \$26.50 and includes a 5-in. tape or cassette with slide synchronization signals. Running time is approximately 25 min with 15 demonstrations and 17 slides. Part 2 runs approximately 30 min with 16 demonstrations and 28 slides at \$32.50. The *Dimension of Sound Booklet* is priced at \$.60 each (Part 1 or Part 2), with a package of 20 at \$9. A Kodak Carousel Sound Synchronizer (controls Carousel or Ektographic projectors from any stereo recorder) is \$32.50.

Life Science Associates
P.O. Box 163
Baldwin, New York 11510

Hand-Held Oscilloscope Camera

The E-H Model G 730 Oscilloscope Camera is a light-weight hand-held oscilloscope camera. The unit allows the user to snap a photograph of the CRT display that need not be processed immediately or that can be processed by another person while a second exposure is made. A wide range of hood sizes is available. Price: \$350.

BCS Associates, Inc.
P.O. Box 6578
Orlando, Florida 32803

Conditioned Avoidance

The Model 200 Conditioned Avoidance Instrument is an automated version of standard equipment presently used in some behavior laboratories. The instrument consists of a cage dumper section and an electronic console.

The dumper section contains five

individual cages (4 in. sq x 8 in. high), the lower section of which is a removable grid on which a mouse stands. Above and to the rear is a semicylindrical dumper. During operation, the mouse has the choice of jumping into the dumper area before or during a shock period. The total run cycle comprises 12 sec. The following sequence occurs during each cycle: 5-sec delay (no shock), 5-sec shock varied over a range of 0-1,000 V (ac or dc may be used) with recommended amperage at 2 mA. At the end of the shock period, the dumper rotates forward 90 deg and then back to the starting position (2-min operation). A new cycle begins immediately. The instrument may be preset to complete any number of runs from 1 to 120 through the control console. To the left of the preset counter are five totalizing counters indicating the number of avoidances made by each S. Five counters on the right side of the panel indicate the number of escapes per animal. If the animal fails to jump from the cage into the dumper for 10 consecutive runs, all power is cut off from the respective grid during the remaining runs of the test. The only action required of the operator is to load the five cages with mice, manually clear the counters, and press the start button.

The instrument can be supplied with either two or three cage configurations, and larger cage units can be provided for larger animals such as rats or gerbils. Price: \$4,480; a power-supply scrambler costs \$500.

Bowers Instrument Company
2600 Monroe Street
Wilmington, Delaware 19802

Pulse Generator

A variable-period pulse output ranging from 10 microsec to 110 sec is the principal operating feature of the new Model 4653 Pulse Generator module announced by Ortec. Pulse output through BNC connectors on both front and rear panels is +5 V dc, 0.5 microsec wide, with impedance less than 5 ohms. A single-turn potentiometer and a 7-position multiplier permit selection of repetition rates from 10 microsec to 11 sec. The output can be externally gated to produce pulse trains for such applications as neurological stimulation.

The Model 4653 is furnished in a single-width Nuclear Instrument Module format, meeting interchangeability specifications of TID-20893. It is designed to drive any other NIM standard instrument, including any of the Ortec Series 4600 modules in an Ortec 401A/402A Bin and Power Supply. Any combination

of modules totaling up to 12 NIM-standard widths can be plugged in and operated interchangeably in each bin without overloading the power supply.

Ortec Incorporated
1445 Midland Road
Oak Ridge, Tennessee 37830

Light-Measuring Instruments

Gossen light-measuring instruments marketed by Kling Photo include a pulsed light meter (\$195), a foot-candle meter (\$95) and a CdS exposure meter (\$79.50). Descriptive literature may be obtained from Kling Photo Company, P.O. Box 1060, Woodside, New York 11377.

Rotowheel

The Rotowheel is a compact, lightweight, self-contained unit used to measure rodent activity. The unit is powered by an 18-rpm constant-speed motor and is priced at \$130 for a mouse wheel, motor, and housing. An interchangeable rat wheel is priced at \$30. Size is 11 x 6½ x 4-3/8 in.

Woodard Research Corporation
12310 Pinecrest Road
Herndon, Virginia 22070

Model 38 Teletype

Model 38 Teletype terminals are new but make use of concepts that made the familiar Model 33 popular. The 38 features the capability of upper- and lowercase printout and a wide platen that allows a standard 132-char line at 10 char/in. All units operate at 100 words/min (10 char/sec). The keyboard generates the full 128 ASCII characters with vertical parity. Deliveries begin in 1972. Prices are \$100-\$200 higher than for comparable Model 33 terminals.

Teletype Corporation
5555 Touhy Avenue
Skokie, Illinois 60076

Parallel Entry Printer

Addmaster's Model 55 Parallel Entry Printer provides 6-12 columns, 12 character locations per column, prints up to 36 alpha or numeric characters/second, uses standard adding machine paper and self-inking ribbon. With a 115-V 60-cycle ac motor, the unit weighs 5½ lbs and measures 5½ x 10 x 8 in. The price appears reasonable.

Addmaster Corporation
416 Junipero Serra Drive
San Gabriel, California 91776

Electronic Supplies and Equipment
United Radio Company is

advertising a number of useful items at reasonable prices.

Various types of relays are priced at \$.68 to \$2.10 each. Surplus fans and blowers are \$3.98 to \$6.98.

Single digital counter units are \$.99 each. These units are new with 1-in.-high numbers (0-9) built for continuous operation on a rotary drum. Numbers may be reset with a pushbutton. The counter operates on 12 V dc, easily obtained from any 12-V transformer and a silicon diode (\$.75). Units may be ganged or coupled (3½ x 1¾ x 1-3/8 in.).

Cadmium-sulphide photoconductive cells are priced at \$.50; new solenoids (115 V ac 60 Hz), at \$1.95.

A descriptive brochure is available from United Radio Company, 56 Ferry Street, Newark, New Jersey 07105.

Physiological Pressure Transducers

Konigsberg recently released an expanded line of 12 implantable pressure transducer models for experimental animals. Models P-12/p-13/p-15 are for implantation in smaller primates or smaller canine blood vessels. P-17/p-18/p-19/p-20 are standard models for typical canine cardiovascular experiments, and the P-21/p-22 are high-performance models for venous, arterial, and end-diastole applications. The P-14C/p-16/p-20G transducers are for pleural, Csf, or gage pressure applications. All transducers feature stainless steel wires, a miniature moisture-resistant connector integral with 3-ft transducer cable, a plug-in module containing the compensation resistor network, and a 1-year guarantee against intrusion of body fluids into the transducer. Prices range from \$415-\$540. More information may be obtained from Konigsberg Instruments, Inc., 2000 East Foothill Boulevard, Pasadena, California 91107.

Bio-Tec Instruments (1535 East Walnut, Pasadena, California 91106) markets pressure transducers also. The units are priced from \$275 to \$795 and are ultraminiature in design and diameter for some models.

Electronic Programmer

The Model 620 is a programmer than can be used for delay or interval timing from 00.0 to 99.9 sec. The operator can program two periods easily by means of two front-panel thumb wheel dials. The unit automatically resets at the end of the programmed period and can be wired to repeat cycle for continuous control. Several programmers may be cascaded together to extend control. Price: \$350 per single unit; \$299 for 2-6 units.

Hill Enterprises
131 Garnet Street
Ridgecrest, California 93555

Solid-State Relay

With the advent of linear and digital minicomputers for on-line operations, interfacing the computer's 3- to 5-V logic signals with power devices (e.g., solenoid valves) has occasionally been a problem. The Model SSB solid-state relay provides interfacing with full isolation between the output of the computer and the input to power devices, safeguarding against any interaction between power and logic circuitry. The relay draws less than 2 mA, independent of input voltage, and operates on as little as 3 mW. Single-unit prices of the SSB models range from \$32.90 to \$43.90.

Ohmite Manufacturing Company
3601 Howard Street
Skokie, Illinois 60076

Used Instruments

The Leasametric/Instrument Databook lists a number of used laboratory instruments. The manufacturers' names and models are cited along with new and used prices. A Tektronix 504 oscilloscope (new price, \$595) is listed at \$350-\$425; a Hewlett-Packard 122 A scope (new, \$850) at \$400-\$500. The company handles all sorts of electronic instruments, as well as minicomputers.

Leasametric
822 Airport Boulevard
Burlingame, California 94010

Large Plastic Cage

Carworth recently announced a large plastic cage for use with rats, hamsters, and guinea pigs. Size is 20 x 16 x 8½ in., and the unit sells for \$5.25. Catalog number: 18570.

Carworth
New City
Rockland County, New York 10956

Closed-Circuit TV Camera

Olson Electronics recently advertised a complete closed-circuit TV system at \$290 (AS-388). The system contains a TV camera, a 25-mm lens, an adjustable tripod, and a TV monitor.

Olson Electronics
260 South Forge Street
Akron, Ohio 44308

Oscilloscope Recording Cameras

Volume 37, No. 3 of *This Month* (Herbach & Rademan) features three oscilloscope recording cameras. The Electronic Tube Corporation Type GA-400 has a lens system with a

3-in. focal length, a F 1.9-1.16, 75-mm coated anastigmat lens, and an Alphax No. 3 shutter with speeds of 1, ½, 1/5, 1/10, 1/25, 1/50, and 1/100 sec. Face plate opening to CRT, 2¾ in wide x 2¼ in. Price, \$149.50.

The Electronic Tube Corporation Model GA 310 is for photographing 5-in. CRT traces. Original selling price was \$435; advertised price is \$199.50.

The Electronic Tube Corporation SM-100 is a strip-film oscilloscope camera utilizing 35-mm perforated or unperforated film or paper. The supply magazine will accept bulk film in short lengths, or up to 400 ft long, or in 100-ft daylight cassettes. The unit is advertised at \$649.50, half the original price.

Herbach & Rademan, Inc.
401 East Erie Avenue
Philadelphia, Pennsylvania 19134

Isolation Cages

Germfree Labs markets isolation cages for use as animal incubators and isolation and quarantine units. The same company manufactures glove boxes and animal operating boards.

Germfree Laboratories, Inc.
2600 S.W. 28th Lane
Miami, Florida, 33133

Signal Averaging System

Nuclear Data is marketing a signal averaging and display system complete with all interfacing and software. The interface provides a crystal-controlled time clock to allow the mainframe to advance the Biomation 802 beyond its normal range of 20 microsec. The signal-averaging system consists of the following: one Biomation Model 802 transient recorder and interface, bin and power supply, ND812 processor, 4k x 12 bit memory, processor, and application software package at \$12,980; a Teletype Model TC33ASR at \$1,100; and a Hewlett-Packard 1208B oscilloscope at \$575. Total cost is \$14,655. Options include a cassette tape single unit priced at \$2,900 and a 4k x 12 bit memory extension at \$2,700.

Nuclear Data Inc.
100 West Golf Road
P.O. Box 451
Palatine, Illinois 60067

Transistor Checker

A compact, self-contained, self-powered transistor checker is available for \$12. The TE-199 allows tests to be made in circuit or out of circuit and checks PNP and NPN types, plus power.

Olson Electronics
Department IS

260 South Forge Street
Akron, Ohio 44308

Allied-Radio Shack

When Allied merged with Radio Shack, the new combined catalog was priced at \$1, the price being credited to a buyer with a minimum purchase. The Allied-Radio Shack catalog is now free.

Infant Monitor

The KDC IM-300 senses and monitors infant ECG and respiration through two biopotential electrodes. Electrodes are applied, and the connections inserted into the S's cable. When power is turned on, a green light comes "on," confirming continuity and an acceptable impedance level (1,500 ohms). If the lamp goes off, the electrodes have come off or pulled out of the cable, or the gel has dried. ECG and respiration traces are shown on a scope display. The IM-300 is advertised as displaying breaths as shallow as .2 ohm up to 10 ohms. Heartbeats are detected and are displayed from .25 to 4 mV. Additional traces may be specified to permit full screen display of other parameters, such as pulse, EEG, and blood pressure. The same company markets a ECG/respiration simulator.

KDC

1210 North Batavia Street
Orange, California 92667

Behavioral Research Equipment

Biomedical and behavioral research laboratory equipment are marketed by Predco. Animal units include a rat chamber (\$50-\$55), grain feeder (\$40), pellet feeder (\$80), rat lever (\$25), pigeon chamber (\$47-\$55), and pigeon key (\$25).

Predco

202 Temple Road
Waltham, Massachusetts 02154

Animal Operating Table and Accessories

The Model AOT-100 is an animal operating table priced at \$219.50. The unit is constructed of hard rock laminated maple and aluminum structural supports. Casters (5 in.) with foot brakes are standard. The finish is resin-sealed and easy to clean. The size of the AOT-100 is 24 in. wide, 48 in. long, and 40 in. high.

An animal Hold-Down Assembly permits a number of tie-down points around the work surface perimeter. Price: \$75. An Electrode Holder Assembly is \$25.

United Technical Corporation

West Concord, Massachusetts 01781

Digital Tape Cassette Recorder

The Raymond Cassette Digital Recorder Model 6404-01 is available in these configurations: ac or dc capstan drive, bidirectional or unidirectional operation, read only or read/write, read-after-write, packing density to 800 BPI (1,600 FCI), tape speeds 3-18 ips in transfer mode, start/stop time as low as 20 msec, and two-track redundant or two-channel recording. The new package incorporates two printed circuit boards, integral to the assembly, which contain sufficient circuitry to provide a consistently repeatable interface, regardless of variation in electromechanical components such as heads, motors, etc.

The Model 6406-01 recorder is priced as follows: bidirectional read and write, \$1,200; read forward only, \$1,060; and write forward only, \$1,040. For read-after-write, add \$70 per unit.

Raymond Engineering, Inc.

217 Smith Street
Middletown, Connecticut 06457

Animal Restrainers

Small-animal restrainers can be used for injections and infusions, surgery, patch testing, shaving, and certain types of perfusions. The Baruch guinea pig and rat Fastainers keep the Ss' legs secured by means of soft cotton ties passed through holes in the base and held there by pegs. The Fastainer base consists of a 9 x 20 in. base of durable, phenolic plastic. The animal is placed in a prone or supine position and its head is held securely by a hook and ring clamp. Price: \$75.

A rabbit Fastainer consists of a 15 x 30 in. base constructed of anodized aluminum. A plastic insert reduces skin chilling and makes cleaning easier. The base holds a padded body support and four adjustable padded leg clamps. The rabbit is also held by a Velcro belly band. The animal is positioned on its back with legs extended. Price: \$150.

Baruch Instruments Corporation

P.O. Box 1244
White Plains, New York 10601

Briefs

Name Change

Fabri-Tek Instruments, Inc., has changed its name to Nikolet Instrument Corporation, 5225 Verona Road, Madison, Wisconsin 53711.

Multiplex Switch

A monolithic 8-channel multiplex

switch by Siliconix, Inc. (2201 Laurelwood Road, Santa Clara, California 95054) includes a 1 out of 8 decoder on an IC chip with TTL-compatible logic input lines. The unit is designed for A/D converters and multiplexing in analog or digital data transmission systems and features enable control, zero offset voltage, and a high on/off ratio.

Data General User's Society

Data General, manufacturer of the NOVA and SUPERNOVA minicomputers, now sponsors biannual meetings of the users group, which now lists a large number of programs. Inquiries should be made of the Executive Secretary of the Data General Users Group Library, Data General Corporation, Southboro, Massachusetts 01772.

Solid-State Control

Lehigh Valley Electronics is distributing a workbook containing information covering the nature and use of solid-state programming equipment manufactured by LVE. Sections 1 and 2 of the four-section publication, however, contain information of more general instructional interest for those lacking technical knowledge of control equipment. The same company is developing a volume covering aversive electric shock with a similar format. Information may be obtained from Lehigh Valley Electronics, Box 125, Fogelsville, Pennsylvania 18051.

Semiconductor Replacements

For 25 cents, interested readers can obtain a 40-page publication listing thousands of semiconductor devices with their semitron replacements. The booklet is entitled "Semiconductor Replacement and Interchangeability Guide" and may be ordered from Semitronics Corporation, 15 Canal Street, New York, New York 10013.

Measuring Heartbeat

The Cryogenics Division of the National Bureau of Standards has devised a device for measuring heartbeat without direct physical or electrical connections. Basically, electrical signals are generated which are proportional to the heart's magnetic pulses when the device is placed near the heart. A magnetocardiogram of the heartbeat is provided by these signals when the instrument is used to drive a scope or a chart recorder. The magnetocardiogram is similar to an EKG. Of course, the unit has drawbacks. For example, measurements must be made away from magnetic fields produced by motors or lab equipment, and the