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PRINTOUT

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PRODUCTS

Biofeedback

The Phipps and Bird Bio-Monitor Unit is a millivolt amplifier that provides both visual and audible response (flashing light and beep sound). It operates on transistor radio-type batteries, and the complete kit contains everything ready for student use (plate electrodes, cables, wrist straps, electrode gel, batteries, and lab manual). The unit detects and displays cardiac and striated muscle activity for the experimental teaching laboratory. Catalog No. 7092-910. Price: $59.95.

Phipps & Bird, Inc.
P.O. Box 27324
Richmond, VA 23261

The BW-300 Alpha Brainwave Monitor is priced at $34.95 in kit form and $59.95 wired. The unit is advertised as detecting "alpha" brain waves and produces a tone varying in frequency according to mental state. The unit is supplied with stethoscope earphone, electrode headband, contact cream, and instructions.

Eico Electronic Instrument Co.
283 Malta Street
Brooklyn, NY 11207

Small Animal Metabolism Apparatus

This apparatus determines oxygen consumption of small animals weighing up to 150 g. The apparatus consists of a Lucite respiration chamber mounted on a plastic base fitted with a calibrated volume tube into which a soap solution seal is introduced. The migration of the bubble seal indicates animal oxygen consumption. A galvanized steel cylindrical cage for holding the animal fits inside the Lucite chamber. A thermometer and mounts are provided for temperature measurements. Price: $24.95.

Phipps & Bird, Inc.
P.O. Box 27324
Richmond, VA 23261

Video Response Controller

The Video Response Controller (VRC) enables a subject-operator to respond to questions displayed on a video screen. Responses are entered through the VRC keyboard. For each set of questions, every response corresponds to a predetermined response address (position) on the tape. The VRC accepts the response, positions the tape to the required address, and resumes playing the tape.

The VRC can also be used to preposition a tape. A digit display on the face of the unit indicates the current tape address in "counts" from rewind address zero. A second display segment indicates the last "search" address entered for prepositioning the tape.

One optional feature will be available with the VRC unit. The *encoder option* will enable recording of response address data on the videocassette audio channel.

The VRC consists of control electronics enclosed in a plastic enclosure approximately 8 x 10 x 4 in. in depth. It attaches to a player via a cable with a 25-pin connector. The console (face) of the VRC enclosure supports keyboard and display sections. The keyboard section includes a 10-key unit and 11 function keys. The display section consists of two four-digit decimal display segments, each capable of displaying values of 0000 to 9999.

The unit performs the following functions: (1) Maintains a current videocassette position address and displays this at the console at all times. (2) Responds to "search" requests from the keyboard, enters and displays the search address, and positions the videocassette accordingly. (3) Responds to "play" requests from the keyboard and begins playing the videocassette. (4) Responds to "pause" requests from the keyboard, pauses the videocassette player, and waits for a subsequent request. (5) Responds to "repeat question" requests from the keyboard and repositions the videocassette tape to replay the last displayed question set. (6) Responds to "stop" request from the keyboard and clears the current search address and display. (7) Responds to "clear" requests from the keyboard and clears the current search address and display. (8) With the encoder option, the VRC unit responds to keyboard requests for entering digital data and writing that data onto a videocassette tape audio track. (9) Contains five response keys—A, B, C, D, and E. Depressing a response key during operation causes the VRC to position the tape to a corresponding tape address and resume playing the tape from that position. Price: $1,895, including a modification kit for a videocassette player. Encoder option is an additional $400.

Videonics, Inc.
2405 de al Cruz Blvd.
Santa Clara, CA 95050

Recorders

Elnik offers a number of chart paper recorders. The battery operated type is portable and programmable

for up to six independent variables. The cost of six channels with one range is $1,635. The BSC6-6 model has six channels and six ranges at $1,855.

Elnik Instruments, Inc.
410 Garibaldi Ave.
Lodi, NJ 07644

Tape Cartridge Drives and Systems

3-M tape cartridge drives and systems are well known. The companies listed below also supply cartridge drives.

American Videonetics, 795 Kifer Rd., Sunnyvale, CA 94086
Applied Data Communications, 1509 E. McFadden Ave., Santa Ana, CA 92705
Cogar, Cosby Manor Rd., Utica, NY 13502
Digimetrix, 20698 Corsair Blvd., Hayward, CA 94645
Emerson Electric, Industrial Controls Div., 3300 S. Standard St., Santa Ana, CA 92702
Genisco Technology, 18435 Susana Rd., Compton, CA 90221
Hewlett-Packard, 1501 Page Mill Rd., Palo Alto, CA 94304
Iomec, 3300 Scott Blvd., Santa Clara, CA 95050
Micro Communications, 680 Main St., Waltham, MA 02154
Raymond Engineering, 217 Smith St., Middletown, CT 06457
Tennecomp Systems, 795 Oak Ridge Tpk., Oak Ridge, TN 37830
Tri-Data, 800 Maude Ave., Mountain View, CA 94043

Video Camera Kit

The kit costs $225 and has the following features: low voltage supply, sensitive to infrared as well as visible light, lightweight and small size, may be wired by person with some technical experience in 4-6 h.

Solid State Sales
P.O. Box 74
Somerville, MA 02143

Video Delay Module

The unit offers 63.5-microsec nominal delay over a 3-dB signal bandwidth of 10 Hz to 6 MHz.

Walther M. A. Anderson & Associates, Inc.
4 Main Street
Extension, Tariffville, CT 06081

Image Rotator

The Model 6125 provides continuous 260-deg rotation of X-Y display graphics. Connected to the deflection amplifier inputs (vertical and horizontal), the unit's rotation angle is programmed by a ±10-V analog voltage. Cost: $323.

Optical Electronics, Inc.
Box 11140
Tuscon, AZ 85734

Vocal Interface

This voice system employs a concept in which digitally stored human speech is used to produce a solid state voice annunciator with custom vocabulary. Users specify their desired vocabulary by submitting a tape recording. The basic LV-50 is available with 1 to 16 words, with word durations of .66 sec each. Price: $975 for single 10-word system.

Vocal Interface Div. of F.S.W.
500 Stephenson Hwy.
Troy, MI 48084

Micro-minicomputer

The System 80 computer provides all of the features of the Intel 8080 microprocessor including general-purpose registers, vectored interrupts, and complete instruction set compatibility. It also offers up to four times the speed of the typical 8080-based microcomputer and an extended addressing capability up to 1-M byte of memory.

System 80 consists of a asynchronous bipolar MSI CPU having a 175-nsec microcycle, a minimum of 16 k x 8 bits, read/write memory, DMA, ROM bootstrap loader, RS232C interface, operator panel, and a five-slot 5¼-in. chassis with power supply.

Basic system prices start at $4,150 with 16 k-bytes core.

Electronic Memories and Magnetics Corp.
12521 Chadron Ave.
Hawthorne, CA 90250

Color Graphics Display

The S105 color-graphics controller provides video outputs for both black and white and color monitors. Graphics resolution is 80 points horizontal by 240 points vertical. Alphanumerics are displayed in a 24 by 80 character format. In addition to color, data can be displayed with a full range of visual accents, including blinks, dual intensity, and reverse video. Input is 16-bit parallel asynchronous. Price: $1,490.

Ann Arbor Terminals
6107 Jackson Rd.
Ann Arbor, MI 48103

Electrocardioscope

The Cardio Miniscope measures 4.5 x 11 x 18 cm and weighs 790 g. The unit is simply placed on the subject's chest to provide instant ECG. No electrodes are attached and no power lines plugged in. It displays ECG tracing on a 33 x 37 mm screen which is approximately equivalent to that resulting from precardial or Einthoven extremity thoracic lead. It allows the experimenter to differentiate between normal ECG, weak heart action, fibrillation, and asystolia in minimum amount of time.

Vitalograph Medical Instrumentation
Lenexa, KS 66015

Disposable Electrode

Model M-100 silver/silver chloride pregelled disposable electrode reportedly performs well even during twisting and turning, heavy perspiration, and constant movement of the subject. Its thin foam pad enables electrode to mold effectively to skin anywhere on body, even around collarbone or other bony areas. Gel pad center stands far enough away from electrode so skin contact is not lost with movement, providing stable column of electrolyte throughout entire test. Fully shielded cables and lead wires eliminate electrical interference. Quick disconnect feature at both electrode and patient cable block eliminate interrupting test for lead-wire failure.

Monitrode, Inc.
Westmont, IL 60559

Micromotors

Micromotors (ironless cup rotor) are available in the following sizes: 35 mm diam, 26 mm, and 17 mm. The motors feature low noise, zero cogging, rapid response, high efficiency (approximately 80%), and 3-V to 10-V dc.

Hitachi America Ltd.
100 California St.
San Francisco, CA 94111

Tape Reader

Using a stepping motor, the bidirectional Econo-read 150 can stop on character at 150 cps. The unit will also read any standard eight-level 1-in. tape without adjustments. Light source is a standard long-line filament lamp derated from 12 to 8 V. One circuit card provides DTL, TTL, or CMOS compatibility. A single 24- to 28-V dc supply drives the reader, since voltage regulators are mounted on the pc board. Price: $199.

Bower Associates, Inc.
Box 681
Cherry Hill, NJ 08003

Servomotors

These miniaturized dc servomotors are designed for serial printer head-driving and carriage-driving applications. The smallest motor in the series, the Model UGSMEM-A7 head driver, offers a power rating of 2.4 kW/sec and a torque of 9.75 oz-in. Model UGAMEM-02X carriage-drive unit offers 15.8 kW/sec and 33 oz-in. UGSMEM-A7, $30 up; UGAMEM-02X, $150 up. Delivery 60-90 days.

Yaskawa Electric America, Inc.
4001 Westerly Pl., Suite 101
Newport Beach, CA 92660

Rat and Mouse Scales

The Taconic Rat Scale will weigh up to 700 g, with accuracy to 1 g, and features a pan with 2-in.-high sides to help prevent animals from falling off during weighing. Price: $32.50.

The mouse scale weighs animals up to 40 g by 1-g gradients, accurate to ½ g. Price: $25.

Taconic Farms, Inc.
Germantown, NY 12526

Motors

Various motors are available from Elinco: ac and dc generators, ac and dc commutator motors, ac induction and torque motors, synchronous motors, ac self-synchronous motors, and stepping motors.

Elinco
272-A Main Ave.
Norwalk, CT 06851

Eight-Color Intelligent CRT Terminal

This terminal includes: 8080 CPU, 25 line by 80 character line, 4k x 8 RAM, PROM software, eight-color monitor, and Intercolor 8001 nine-sector convergence system for ease of set up (3-5 min) and stability.

Intelligent Systems Corp.
4376 Ridge Gate Dr.
Duluth, GA 30136

Electromyograph

Disa 1500 digital EMG system can be supplied with up to four channels and system includes EMG amplifier, monitor, stimulator, averager, and recorder. EMG amplifier has frequency range of .5 Hz to 50 kHz, monitor has individual storage of four EMG signals, stimulator has constant current output with digital display directly in milliamperes.

Disa Electronics
779 Susquehanna Ave.
Franklin Lakes, NJ 07417

Force Monitor

System consists of Multiscribe Recorder with Triple Exciter-Demodulator Module, Force Sensitive Platforms, mobile cabinet, and connecting cables. Athletic performance/motion studies, prosthetic limb evaluation, man/machine interface evaluation, and animal reaction research are possible uses for this X-Y-Z force resolving and recording system. The platform is sensitive enough to record heart beat of motionless subject and also capable of measuring all work forces of subject in motion.

Stoelting Co.
1350 S. Kostner Ave.
Chicago, IL 60623

Independent Minicomputer
Peripherals Manufacturers

Adac Corp., 118 Cummings Park, Woburn, MA 01801
Advanced Electronics Design Inc., 754 N. Pastoria, Sunnyvale, CA 94086
Alpha Data Inc., 8759 Remmet Ave., Canoga Park, CA 91304
Altek, 11700 Old Columbia Pike, Silver Springs, MD 20904
Ampex Corp., 401 Broadway, Redwood City, CA 94063
Analogic Corp., Audubon Rd., Wakefield, MA 01880
Applied Data Communications, 1509 E. McFadden Ave., Santa Ana, CA 92705
Avcon Inc., 1330 Summit Ave., Ft. Worth, TX 76102
Aztec Data Systems Inc., 2082 S.E. Bristol, Newport Beach, CA 92664
Ball Computer Products, 5601 College Ave., Oakland, CA 92806
Bedford Computer Systems Inc., 3 Preston Ct., Bedford, MA 01730
Bright Industries Inc., 686 W. Maude Ave., Sunnyvale, CA 94086
California Computer Products, 2411 W. La Palma Ave., Anaheim, CA 92801
CalComp Galaxies (see Signal Galaxies)
Cambridge Memories Inc., 12 Crosby Drive, Bedford, MA 01730
Canberra Industries Inc., 45 Gracey Ave., Meriden, CT 06450
Centronics Data Computer Corp., 1 Wall St., Hudson, NH 03051
Cipher Data Products, 7655 Convoy Ct., San Diego, CA 92111
Command Control & Communications Corp., 2075 Palo Verdes Dr. N., Lomita, CA 90717
Computer Extension Systems, 16902 El Camino Real, Houston, TX 77058
Computer Labs, 1109 S. Chapman St., Greensboro, NC 27403
Computer Operations Inc., 10774 Tucker St., Beltsville, MD 20705
Computer Products, 1400 N.W. 70th St., Ft. Lauderdale, FL 33307
Computerwise Inc., 13124 S. 71 Hwy., Grandview, MO 64030
Comsci Data Inc., 151 Westland Ave., Rochester, NY 14618
Custer Research, P.O. Box 305, Fleetwood, PA 19522
Custom Systems Inc., 4935 Boone Ave. N., Minneapolis, MN 55428
Cyberchron Corp., 5768 Mosholu Ave., Riverdale, NY 10471
Daconics, 350 Potrero Ave., Sunnyvale, CA 94086
Databus Corp., 26 Bond St., Westbury, NY 11590
Datacom, Inc., P.O. Box 278, Ft. Walton Beach, FL 32548
Data Communications Associates, 2801 Clearview Pl., Atlanta, GA 30340
Data Disc Inc., 686 W. Maude Ave., Sunnyvale, CA 94086
Data Interface Inc., 4 W. Kanosia Ave., Danbury, CT 06810
Datapac Inc., 3180 Redhill Ave., Costa Mesa, CA 92626
Dataproducts Corp., 6219 DeSoto Ave., Woodland Hills, CA 91364
Dataram Corp., Princeton-Hightstown Rd., Cranbury, NJ 08512
Data Systems Design, 1122 University Ave., Berkeley, CA 94702
Datel Systems Inc., 1020 Turnpike St., Canton, MA 02021
Datum Inc., 1363 S. State College Blvd., Anaheim, CA 92806
Decision Inc. (see Ball Computer)
Decitek, 250 Chandler St., Worcester, MA 01602
Dicom Industries, 715 N. Pastoria Ave., Sunnyvale, CA 94086
Digi-Data Corp., 8580 Dorsey Run Rd., Jessup, MD 20794
Digimetrix Inc., 20698 Corsair Blvd., Hayward, CA 94645
Digital Associates Corp., 1039 E. Main St., Stamford, CT 06902
Digital Computer Controls, 12 Industrial Rd., Fairfield, NJ 07006
Digital Development Corp., 5575 Kearney Villa Rd., San Diego, CA 92123
Dimensional Systems Inc., Memory Div., 6 Nevada Dr., Lake Success, NY 11040
Diva Inc., 607 Industrial Way W., Eatontown, NJ 07724
Dynastor Inc., 5867 N. Broadway, Denver, CO 80216
Eclectic Corp., 2830 Walnut Hill Ln., Dallas, TX 75229
Educational Data Systems, 17981 Sky Park Circle, Irvine, CA 92707
Electrographics, 1976 Oak Ridge Tpk., Oak Ridge, TN 37830
Electronic Engineering Co. of California, 1441 E. Chestnut Ave., Santa Ana, CA 92701
Electronic Memories & Magnetics, 12621 Chadron Ave., Hawthorne, CA 90250
Engineered Data Peripherals Corp., 1701 Colorado Ave., Santa Monica, CA 90404
Fabri-Tek Inc., 5901 S. County Rd. 18, Minneapolis, MN 55436
Floating Point Systems Inc., 3160 S.W. 87th Ave., Portland, OR 97225
Formation Inc., 1 Computer Dr., Cherry Hill, NJ 08003
Fort Communications Corp., 710 N. Central, Richardson, TX 75080
GEAC Computer Corp., Ltd., 855 Don Mills Rd., Don Mills, Ont., Canada M3C 1W2
General Instruments/Systematics Div., 13040 S. Cerise Ave., Hawthorne, CA 90250

Gould/Data Systems Div., 20 Ossipee Rd., Newton, MA 02164
G & S Systems, 20 B St., Burlington, MA 01803
Harris Corp./Computer Systems Div., 1200 Gateway Dr., Ft. Lauderdale, FL 33307
Houston Instruments Inc., 4950 Terminal Ave., Bellaire, TX 77401
Inforex, 21 North Ave., Burlington, MA 01803
Information Control Corp., 9610 Bellanca Ave., Los Angeles, CA 90045
Information Data Systems Inc., 23874 Kean Ave., Dearborn, MI 48124
Information Design Inc., Civil Air Terminal, Bedford, MA 01730
Information Displays, 150 Clearbrook Rd., Elmsford, NY 10523
Information Products Inc., 4140 Directors Row, Houston, TX 77018
Infotec Inc., 70 Newton Rd., Plainview, NY 11803
Innovex, 75 Wiggins Ave., Bedford, MA 01730
Integrated Memories Inc., 495 Andover Industrial Ctr., Andover, MA 01810
Intel Memory Systems, 1302 N. Mathilda Ave., Sunnyvale, CA 94086
Intelligent Memory Systems Inc., 2165 S. Grand Ave., Santa Ana, CA 92705
Interdyne, 14761 Califa St., Van Nuys, CA 91401
Intermedia Systems, 20430 Town Center Ln., Cupertino, CA 95014
International Memory Systems, 14609 Scottsdale Rd., Scottsdale, AZ 85260
Iomec/Datastor Div., 345 Mathew St., Santa Clara, CA 95050
Jacquard Systems, 2502 Broadway, Santa Monica, CA 90404
Kennedy Co., 540 W. Woodbury Rd., Altadena, CA 91001
Kennedy Data Systems Inc., 31829 W. La Tienda, Westlake Village, CA 91361
Keronix Inc., 1752 Cloverfield Blvd., Santa Monica, CA 90404
Kybe Corp., 132 Calvary St., Waltham, MA 02154
Lexidata Corp., 807 Massachusetts Ave., Lexington, MA 02173
Litton/Datalog, 1770 Walt Whitman Rd., Melville, NY 11746
L-S Computing Corp., 125 E. Sunnyoaks Ave., Campbell, CA 95008
Macro Products Corp., 14403 Cranshaw Blvd., Gardena, CA 90249
MDB Systems Inc., 981 N. Main St., Orange, CA 92667
Media III, 2259 Via Burton, Anaheim, CA 92806
Medilogic Corp., 12410 Washington Ave., Rockville, MD 20852
Megatek Corp., 1526 W. 240th St., Harbor City, CA 90710
Memodyne, 385 Elliot St., Newton Upper Falls, MA 02164
Memorex Corp., San Thomas at Central Expwy., Santa Clara, CA 95052
Memory Systems Inc., 3341 W. El Segundo Blvd., Hawthorne, CA 90250
Metro Data Corp., 1250 Mercer St., Seattle, WA 98109
Micom Systems, 20426 Corisco St., Chatsworth, CA 91311
Microcomputer Systems Corp., 3068 Kenneth St., Santa Clara, CA 95050
Minicomputer Resources, 3202 Henderson Blvd., Tampa, FL 33609
Monitor Laboratories Inc., 10451 Roselle St., San Diego, CA 92121
Monolithic Systems Corp., 14 Inverness Dr. E., Englewood, CO 80110
Oktronics Data Inc., 12000 E. Skelly Dr., Tulsa, OK 74128
Pacific Micronetics Inc., 5037 Ruffner St., San Diego, CA 92111
Per Data Inc., 102 South Rd., Hicksville, NY 11801
Peripheral Interface, 1363 S. State College Blvd., Anaheim, CA 92806
Plessey Memories Inc., 1674 McGaw Ave., Santa Ana, CA 92705
Potter Instrument Co., Inc., 532 Broad Hollow Rd., Melville, NY 11746
Precision Instruments, 3170 Porter Dr., Palo Alto, CA 94304
Preston Scientific Inc., 805 E. Cerritos Ave., Anaheim, CA 92805
Process Computer Systems, G-4025 Center Rd., Flint, MI 48507
Progress Electronics of Oregon, 5160 N. Lagoon Ave., Portland, OR 92717
Progressive Systems, 215 First St., Box 445, Hohokus, NJ 07523
Pushpa International Corp., 14142 Ipswich St., Westminster, CA 92683
Qantex, 200 Terminal Dr., Plainview, NY 11803
Raymond Automation Labs, 7 Bridge St., Glen Cove, NY 11542
Redactron Corp., 100 Parkway Dr. S., Hauppauge, NY 11787
Rela Designs, 1322 Arapahoe, Boulder, CO 80302
Remex, 1733 Alton St., Santa Ana, CA 92705
Research Inc., P.O. Box 24064, Minneapolis, MN 55424
Ross Controls Corp. (see Memodyne)
SCM Kleinschmidt, 299 Park Ave., New York, NY 10017
SDSi Peripherals AG, Box 77, Wyckoff, NJ 07481
Shugart Associates, 335 Soquel Way, Sunnyvale, CA 94086
Signal Galaxies Inc., 6955 Hayvenhurst Ave., Van Nuys, CA 91406
Singer/Librascope Div., 833 Sonora Ave., Glendale, CA 91201
Software Engineering, 1945 Pauline Ste. 16, Ann Arbor, MI 48103

Solid State Systems, 1990 Delk Industrial Blvd., Marietta, GA 30062
Spectra Data Co., 18758-6 Bryant St., Northridge, CA 91324
Spur Products Corp., 2928 Santa Monica, Santa Monica, CA 90404
Standard Logic Systems Inc., 3841 S. Main St., Santa Ana, CA 92707
Standard Memories Inc., 2801 E. Oakland Park, Ft. Lauderdale, FL 33306
Stritec Inc., 5352 Sterling Ctr. Dr., Westlake Village, CA 91361
Sykes Datatronics Inc., 375 Orchard St., Rochester, NY 14606
System Industries, 535 Del Rey Ave., Sunnyvale, CA 94086
Systems Data Inc., 1941 W. Market St., Akron, OH 44313
Tab Products, 2690 Hanover St., Palo Alto, CA 94304
Tally Corp., 8301 S. 180th St., Kent, WA 98031
Tano Corp., 4521 W. Napolean Ave., Metairie, LA 70001
Telefile Computer Products Inc., 17795 Sky Park, Irvine, CA 92664
Tennecomp Systems Inc., 795 Oak Ridge Tpk., Oak Ridge, TN 37830
Terminal Data Corp., P.O. Box 4382, Silver Springs, MD 20904
Three Phoenix Co., 10632 N. 21st Ave., Phoenix, AZ 85029
Three Rivers Computer Corp., Box 235 Schenley Park, Pittsburgh, PA 15213
Time Share Peripherals Corp., Route 6, Bethel, CT 06801
Totalert Systems Inc., 2001 K Karbach, Houston, TX 77018
TriData Corp., 800 Maude Ave., Mountain View, CA 94040
Unitech Inc., 1005 E. Saint Elmo Rd., Austin, TX 78745
Varian Data Machines, 2722 Michelson Dr., Irvine, CA 92664
Vermont Research Corp., Precision Park, North Springfield, VT 05150
Versatec, 10100 Bubb Rd., Cupertino, CA 95014
Vidar-Autodata, 265 N. Whisman Rd., Mountain View, CA 94040
Vista Information Products, P.O. Box 248, Azusa, CA 91702
Vogue Instrument Corp., 131st St. & Jamaica Ave., Richmond Hill, NY 11418
Wangco Inc., 5404 Jandy Pl., Los Angeles, CA 90066
Warner & Swasey Co., Solon, OH 44139
Xebec Systems Inc., 566 San Xavier Ave., Sunnyvale, CA 94806

Mini Terminal

Model B-R-B video terminal displays 1,280 ASCII dot matrix characters in 16 lines. Unit features selectable standard baud rates from 110 to 9,600, RS-232 serial data interface, half and full duplex operation, and composite video output. Price: $875.

Wintek Corp.
902 N. 9th St.
Lafayette, IN 47904

Programming Equipment

A new line of programming equipment is available in fully assembled or kit form. A complete line of functional front-access modules are offered to implement any operant schedule. TTL integrated circuitry is used with snap-lead connectors. The modules are advertised as directly compatible with systems LVB Corp., Med Associates, or 5-V computer. Interfaces are available for other systems.

All modules except power supplies measure 4½ in. high x 3 in. wide, and extend about 1 in. deep. A maximum of 20 studs may be located on a single module. The RMR-20 mount holds 20 modules and fits a standard 19-in.-wide relay rack. Most modules come in kit form, said to require less than ½ h with soldering pencil and pliers. Factory assembled modules are only $2 more than kit prices. A student lab is available for $449. The lab consists of a complete operant rat chamber with lever and liquid dipper reinforcer and programming equipment, all solid state, and includes 5-V and 24-V regulated power supplies. Listings of equipment and prices may be obtained from:

Rick Rayfield
5462 S. Cornell 3A
Chicago, IL 60615

Bio-Amplifier

The new Model 631 has applications for cardiac muscle potentials, nerve and striated muscle potentials, cortical and electroencephalographic signals. Bio-Amplifier operates off 115-125 V dc. Price: $250.

Phipps & Bird, Inc.
P.O. Box 27324
Richmond, VA 23261

Used Computers

American Used Computer Corp. advertises the following prices on computer systems: DEC PDP-8I with 4k, $2,100; DEC PDP-11/20 with 4k, $3,950; Data General NOVA computer with 16k is advertised at $4,400. A Tempo I with 12k memory is $10,000. All systems are guaranteed.

American Used Computer Corp.
P.O. Box 68, Kenmore Station
Boston, MA 02215

BRIEFS

Wristwatch to Monitor Heartbeat

Pulse Watch, Inc. of Tiburon, CA 94920 has announced plans to market an opto-electronic transducer capable of providing a digital watch read-out of human heartbeat rates. The transducer, designed to fit on the back panel of a standard digital watch, consists of a LED in the center of an annular thin-film photovoltaic detector which illuminates the blood-rich tissue. Light reflected back from the skin falls on the detector, its amplitude having been modulated by rhythmic changes in blood absorption within the tissue which result from the arterial pulse. The signal can then be electronically processed and the pulse rate displayed.

Developed by the International Research and Development Co., Ltd., of Newcastle in England in cooperation with the investor, Commander Thomas Orr, some 30 months of research time went into refining the Orr transducer's physical dimensions so that the disk could be mounted on the back of a standard watch.

CRT Displays Cyrillic and Roman Fonts

The HP-2640C is designed so that Cyrillic and Roman script may be generated from the same keyboard. By pressing a button, one script is converted to the other, permitting any desired mixture of characters from both sets. The full 128-character Cyrillic set in addition to the standard 64-Roman font can be displayed. The terminal can accommodate two optional 64-character sets. One, a math symbol set, adds integral signs and Greek letters; the other, a line drawing set, adds continuous horizontal and vertical line segments needed to display forms and histograms.

The 2640 C with 4k bytes of memory is priced at $4,250. The optional 128-character Roman font, the math symbol set, and the drawing set are $100 more.

Hewlett-Packard
Palo Alto, CA 94304

A Note on Interfacing the Tektronix 5103n Storage Oscilloscope with the PDP-8E/05 and the X, Y, and Z Outputs of the VC8E

(Submitted by Alexander Dale, David E. Anderson, and James R. Frick, Allegheny College, Meadville, PA 16335)

Users of the PDP-8E/05 lab computer may be interested to know of a relatively inexpensive means of interfacing the X, Y, and Z outputs of the point-plot display from the VC8E with the popular Tektronix 5103n oscilloscope. Our configuration uses two 5A22N differential amplifiers in the X and Y bins of the 5103n oscilloscope. With the BCO1-L-10 cables, this produces a quite acceptable X-Y display with the filters set a .3 MHz and the dc offset at .1 Hz. The oscilloscope intensity should be at a low enough setting such that small voltages into the Z axis properly illuminate the point-plot display.

The problem comes in interfacing the Z axis (see DEC technical note VC8E TT #1 VC8E-Lab 8E-Use and Modification 7/31/72) because the Z intensity input of the 5103n oscilloscope requires approximately +2.5 V to illuminate the display, whereas the Z output of the VC8E for the latter matrices in the Advanced Averager (AAP-1A-A-PB) programs is only approximately +.1 V. To amplify this without distorting the 1-sec pulse width and have a rise time of 200 nsec seems to be beyond the specifications of most available amplifiers. However, we fortuitously discovered that the Coulbourn Programmable Amplifier (S77-08) seems to be enough above specifications to yield a dim but acceptable point-plot display. Since this amplifier currently retails at less than $300 (excluding the power supply), this solution seems a very acceptable means of interfacing the two instruments.

Use of Transparent Overlays in Scoring Data

(Submitted by Robert F. Sarmiento, State University of New York, College at Brockport, NY 14420)

Scoring data is frequently a time consuming and error prone process. The use of transparent overlays increases efficiency and accuracy. For example, in one study, 100 pictures were presented to subjects using five different exposure durations. This was followed by a forced choice recognition memory test. For each test pair, the experimenter wrote the subject's response and marked a check if it was correct. To obtain a score for each exposure duration, five overlays were made, each one outlining the locations on the data sheet for stimuli at a particular exposure duration. Scoring was accomplished by laying each of the overlays on the data sheet and counting the number of correct responses in the outlined spaces. A similar use involved assessing the direction of first lateral eye gaze for verbal and spatial questions in a mixed list. Response spaces for verbal questions were outlined and scoring simply required counting the number of left and right eye movements, once for outlined spaces and again for spaces not outlined.

When scoring also requires correcting the data sheet, as in a group recognition memory task, the correct answers can be written on the overlay next to the subject's answers. This technique can also be used for hand-scoring examinations.

There are, of course, many other uses, including taping an overlay to a TV monitor to mark distances, etc. The methods are not new, but pointing out uses may help those using more laborious methods.

Transparent sheets of plastic of various sizes and thickness are readily available for use with overhead projectors. A grease pencil or felt-tipped marker can be used to write on transparencies. A grease pencil makes somewhat irregular and thick lines, but these

may be satisfactory for some purposes because they can be erased easily with tissue paper. Various copiers (e.g., 3M 209, 411, 578, and Secretary 45) can produce permanent transparencies with clean, dense lines from paper originals drawn with a felt-tipped pen or other dark marker. With a copier, fairly good stimuli can be made for use with a slide projector (D. Burrows, personal communication). The stimuli are typed on paper, centered on spaces 35 x 39 mm. Then the copier is used to produce transparencies that can be cut and mounted in slide holders.

Valient Instructional Material Corp.
195 Bohnomme St.
Hackensack, NJ 07602

Write-on transparency film sheets .005 thick
VCC-811, 8½ x 11 in., 1,000-sheet ctn, $48.50; 250-sheet pkg., $16.50
VCC-1010, 10 x 10 in., 1,000-sheet ctn, $52.50; 250-sheet pkg., $18.00
VCC-1012, 10 x 12 in., 1,000-sheet ctn, $57.50; 250-sheet pkg., $19.50

Heavy duty transparency film sheets
8½ x 11 in. x .010 thick, 100 sheets, $17.50

Grid sheets, 8½ x 11 in., heavy gauge acetate
VGS-811, ½ x ½ in. grid, 10 sheets, $7.50
VGS-814, ¼ x ¼ in. grid, 10 sheets, $7.50

"Monochromators" Made from Interference Filters
(Submitted by J. D. Mollon and P. G. Polden, Department of Experimental Psychology, University of Cambridge, Cambridge, England)

The continuous interference-filter "monochromator" described by Bornstein and Cox (1974) is perhaps unnecessarily expensive and bulky, and for most purposes a better and cheaper solution is to purchase a *disk-shaped* continuous interference filter (such as has been manufactured for some years by Barr and Stroud, Caxton St., Anniesland, Glasgow, United Kingdom; Type CS1 or CS2; price $160) and to mount it directly on the shaft of a small stepping motor, adding a plastic 360-deg protractor for calibration purposes.

REFERENCE

Bornstein, M. H., & Cox, N. A continuous interference-filter monochromator. *Behavior Research Methods & Instrumentation*, 1974, 6, 31-32.

Talk-Time

Talk-Time is a lightweight, portable instrument which operates on 110 V ac and is designed to feed back to a subject (client) or experimenter (clinician) precise information on the intensity and duration of speech. It presents an on-line visual display on any preselected intensity target. The display may be a color-coded meter, a multicolored light display, a digital numeric display, or any combination of the three. Four thumbwheel switches permit the setting of trials from 1 sec to 100 min. An electronic timer tracks the amount of time vocalization occurs and presents it on a readable display from minutes to tenths of a second. Talk-Time is advertised as usable for units of speech as large as ongoing free speech and as small as isolated phonemes. An optional remote controller enables the user to interrupt and direct the function of the instrument. Price is approximately $675 with controller priced at $60.

Voice Identification, Inc.
P.O. Box 714
Somerville, NJ 08876

Stoelting 1976 Catalog

The Stoelting 1976 instrument catalog includes a number of new products. The 28-page catalog, which includes prices, may be obtained by writing:

Stoelting Company
1350 S. Kostner Ave.
Chicago, IL 60623

Cardiovascular Analog Trainer

The Cardiovascular Analog Trainer is a completely preprogrammed analog computer which simulates cardiovascular dynamics. No knowledge of electronics or computer theory is required.

Harvard Apparatus Co., Inc.
150 Dover Rd.
Millis, MA 02054

Opto-Mechanical Hardware and Laser Systems

Optical and laser equipment and supplies are listed in the catalogs of the Newport Research Corp., 18235 Mt. Baldy Circle, Fountain Valley, CA 92708.

Coulbourn Instruments, Inc.

Coulbourn Instruments frequently issues new additions to their extensive line of psychological equipment. Price changes are also made occasionally. For the latest listings write:

Coulbourn Instruments, Inc.
Box 2551
Lehigh Valley, PA 18001