PRINTOUT

JOSEPH B. SIDOWSKI

Services

Psychochemistry

A manual of biochemicals is available free from Worthington Biochemicals, Freehold, N. J. 07728. Various biochemicals are described along with characteristics and methods for assaying. A list of references accompanies each listing. The manual consists of a binder and loose-leaf pages for convenience.

Instrument Replacement Plan

General Radio Co. offers an instrument replacement plan to educational institutions for obtaining new equipment. No discounts are offered but the buyer receives a trade-in allowance on old equipment and a contribution to the school. For example: A Type 1900-A Wave analyzer is advertised at $2650. Trade-in allowance offered for an obsolete Type 736 is $60.; General Radio Co. contributes $300. Thus, the new instrument costs $2290. General Radio Co., West Concord, Mass. 01781, (617) 369-4400.

PDP Computer Leasing

Digital Equipment Corp. is offering educational institutions a leasing agreement for a 4096-word general purpose computer (PDP-8/S) with Teletype and software at a cost as low as $450 per month. Extra memory, storage devices, paper tape readers and punches, A/D converters, and a data communications interface may also be leased. The $450 charge is based on a 39-month plan, including purchase options. The same configuration is available on a 12-month plan.

The new PDP 8/L computer is also being leased. Monthly charge will probably be about $385, although at this writing the price has not been released.

Digital Equipment Corp.
146 Main Street
Maynard, Mass. 01754
(617) 897-5111

Computer Interfacing

Interface systems for PDP systems are now being designed and packaged by Grason-Stadler, West Concord, Mass. 01781.

Products

Readouts

IEE offers a micro-miniature rear projection readout Series 345 that measures ½ in. wide x ¾ in. high, with a weight of ¾ oz per unit. Character size is 3/8 in. maximum. Viewing distance is up to 20 ft; viewing angle, both horizontal and vertical, is 160 deg. Each unit is capable of displaying up to 11 different messages, consisting of anything that is photographically reproducible. The unit contains 11 miniature incandescent lamps at its back, a piece of film with 11 message displays, a series of lenses, and a front viewing screen. When one or more of the lamps are lighted, the corresponding film message is illuminated, focused through the lens system, and then projected onto the front viewing screen. Each readout unit plugs into a common housing. White is standard color but amber, yellow, blue, green, and red are available also. Units are priced at $20 each in lots of 1-9. Mounting hardware is additional.

Industrial Electronics Engineers, Inc.
7720 Lemona Avenue
Van Nuys, Calif. 91405
(213) 787-0311

High brightness digital NIXIE tubes with in-line IC-compatible pin configuration from Burroughs Corp. Special character tubes available from stock or made to order. Decimal points positioned left and right are independently operable. Anode strobing permits all like numerals to be driven in parallel for time sharing without brightness sacrifice. This also permits reduction in driver costs for many multi-digit display applications. Type B-5750 tube size: 0.53 in. diam, 1.5 in. height. Type B-5855: 0.51 in. diam, 1.35 in. height. Character height is 0.5 in. for both. Cost per 1000: $3.95 and $4.35, respectively; small quantities a few dollars more per tube.

Burroughs Corporation
Electronic Components Division
P.O. Box 1226, Dept. N6 Plainfield, N. J. 07061
(201) 757-5000

Single plane ELFIN neon indicators. Numeric and other characters are formed by applying dc voltage to combinations of cathode segments. Size: 0.41 in. diam, 1-½ in. high. Cost: $3.75 per 100; smaller quantities $4.95.

ALCO Electronic Products, Inc.
P.O. Box 1348
Lawrence, Mass. 01843
(617) 686-3887

Neon filled cold cathode filled numerical readout tubes are offered in various sizes and shapes, side or end views, by National Electronics. Miniature tubes have a character size of .310 in. and range in price from $19 to $36 each in small quantities. Higher priced tubes are warranted for two years. The NL-950 has a seated height of 1.35 in., a .530 in. diam, and 0.5 in. numeral height. Characteristics of this tube allow it to be used for strobe applications. Price: $6.75 each.

National Electronics, Inc.
Box 269
Geneva, Ill. 60134
(312) 232-4300

Electronic Counter

Counter contains four decades and two presets, and accepts inputs from photocells, relay contacts, reed switches, and pulse generators. Counting speeds: 80,000 cpm for electronic inputs; 5,000 cpm for precon photoelectric sensor; 7,000 cpm for reed switch. Output circuit adjustable from 1-9,999 counts or 75 msec to 1 sec. Price: $345-$395.

Precision Products & Controls, Inc.
6116 E. 15th Street
Tulsa, Okla. 74115
(918) 836-4631

Pressure Sensitive Paint

Paint is applied between two conducting surfaces and may be deposited on any clean metal conducting surface, printed circuitry, coated mylar, or similar substances. A drop of paint applied to a metal disc is sufficient to operate relays, recorders, scopes, etc., without amplification. If amplified, force changes in the microgram area can be detected. Electrical resistance changes with force, and force applied to the top conducting surface will produce a wide resistance change depending upon type of paint used, amount it is compressed, its area and/or thickness, and the applied voltage. Regulated power supply (ac or dc) required; suggested voltage ½ to 18 V or higher. Sensitivity increases with increased voltage. Price: $35-$46.

The same company markets miniature solid state force and pressure sensors. Wafer type = .375 in. diam, $24 each; washer type = 3/8 in., $22. A subminiature experimental washer type is .05 in. diam x .025 in. thick (built on head of a pin with contactor), $35.

Clark Electronics
1365 E. Edinger Avenue
Santa Ana, California 92705
(714) 836-4269

Subminiature Pressure Transducers

Sensotec Model SA-SA transducer consists of a capsule 6.35 mm diam x 0.5 mm thick, one side of which is the active diaphragm. Coating is silastic rubber to prevent body tissue from contacting the beryllium copper metallic transducer. Designed to be compatible with all types of strain-gage instrumentation, the pressure ranges are from −100 mm Hg to +500 mm Hg. Input impedance is 200 ohms nominal; output impedance is 120 ohms. Output is 20 mV full scale, accuracy is ±0.5% f.s. linearity and hysteresis. Frequency response is 1000 cps; excitation 3 V dc or ac.

Model 3M-7BW is an ultrathin type 3.18 mm wide x 1.00 mm thick with an output of 4 mV per 100 mm Hg. Output impedance, frequency response, and most other characteristics are similar to Model SA-SA. Excitation is 5-6 V dc or ac rms.

Scientific Advances, Inc.
1400 Holly Avenue
Columbus, Ohio 43212
(614) 294-5436

Subminiature biomedical pressure transducers are also available from Bytrex, Inc. Request Bulletin PPR-205 for details.

Bytrex, Inc.
223 Crescent Street
Waltham, Mass. 02154
(617) 899-5600

Infrared Eye Movement Monitor

Space Sciences Inc. offers an eye movement monitor that uses modulated, infrared illumination to minimize S distraction and ambient light artifacts. Horizontal and/or vertical motion of the S's right, left, or both eyes is sensed by transducers mounted on spectacles worn by S. The electronics and operating cables are contained in a portable case and connected to the sensing assembly by a flexible cable. The device requires no direct eye or skin attachment and appears to offer little interference with vision or head movements. Direction of gaze is gauged by using the differential reflectivity of the iris and sclera. Horizontal eye position is measured over a range of approximately ±20 deg, with a resolution of ¼ deg that may be improved to 1 min of arc by using a bite board or a chin rest. Vertical eye movement range is +10 deg (up) and −20 deg (down) with a 1-deg resolution. Response times of both channels can be varied from 2 msec (filter out) to 16 msec (filter in). The two signals are available simultaneously at output terminals for use on an oscilloscope or recorder. Price: $2,025-$2,325.

Space Sciences, Inc.
301 Bear Hill Road
Waltham, Mass. 02154
(617) 899-5100

Briefs

Inexpensive Computer

A $4,900 digital computer is being manufactured in Israel. The ELBIT-100 has the following characteristics: 2 μsec core store; 6 μsec full word add time; DTL integrated circuit construction; up to 256 I/O devices.

ELBIT Computers, Ltd.
88 Hagiborim Street
P. O. B. 5390
Haifa, Israel

Surgical Glue

There have always been problems in developing adhesives to bond living tissue. Generally a surgical adhesive can be considered ideal when it is nontoxic and noninflammatory, rapid and effective in action, compatible with living tissue, insoluble in physiological fluids, and possesses adequate bond strength and flexibility. Few meet these criteria. For example, methyl cyanoacrylate is valuable in skin grafting and plastic surgery, but inherent brittleness precludes its use on muscle tissue. GRF, a combination of gelatin, resorcinol, and formaldehyde, functions

excellently on other parts of the body, e.g., the heart wall, lung, kidneys, and liver. But it is only marginally acceptable for certain elastic tissue. Now, a biochemistry group at Battelle Memorial Institute, Columbus, Ohio, has developed a diisocyanate-based surgical glue that reacts with body fluids to form a strong bond with living muscle tissue. The substance is claimed to have exceptionally high strength, and to bond rapidly in the presence of large amounts of blood.

Bloodless Scalpel

A plasma scalpel has been developed jointly by the University of Utah Medical Center and Hogle-Kerns International of Salt Lake City, Utah, that utilizes a torch hotter than 10,000 deg C, literally vaporizing tissue moisture. Incision walls are left unburned, blood vessels sealed off by coagulum, and the blood sterilized and cautorized as the scalpel cuts. Deep incisions have been made in vascular regions without drawing blood. Thus, the problem of blood obscuring vision is negated and time for clamping off bleeders is saved. Radio frequency energy and argon gas are used to create a tiny jet of gas 0.018 cm in diam. Temperature rise in tissue 3 mm from the plasma tip has been measured at only 4 deg.

Computer Tape and Disc Units

Digital Equipment Corp. is marketing two of its popular mass storage devices as separate units, DECtape at $2,300 and DECdisc at $3,000. Formerly these devices were available only to users of PDP computers.

Digital Equipment Corp.
Maynard, Mass. 01754
(617) 897-5111

Servicing Printed Circuits

Most printed circuits (PC) are covered with a protective coating that must be removed before soldering on the foil. The coating may be removed easily with any one of several commercial solvents and, after repairs are completed, exposed foil may be recoated with commercially available resins (e.g., Print-Kote Silicon Resin).

Use a low temperature solder (standard type 1/16 in. or thinner will also do) since excess soldering heat can break the bond between foil and board, lifting the foil off the board; merely bending the board can cause a hairline break (open foil). The simplest repair is to lay a jumper wire on the foil across the gap and then solder. If the gap is large, parallel wire jumpers may be used or a new foil section painted on. Copper and silver print paints are available in electronic supply stores.

To track trouble, use a test-probe lead filed to a needle-like point. Then place the printed circuit directly on the lighted tube of a fluorescent lamp (a 75-W bulb might be held behind it as a substitute); the foil wiring will show through the board. The sharpened test lead may be used to pierce the protective coating.

Soldering irons should be rated 25 to 50 W, and preferably take interchangeable tips, e.g., fine pencil tips, desoldering tiplets of various shapes, and slotted tips that allow you to get under bent wires for straightening and removal. Soldering irons with suction or desoldering bulbs are also helpful to slurp solder off connections.

Replacing defective components requires care, so do not pull or yank. A tug that would do no harm to a hand-wired chassis can strip the foil of a PC. Also, leave long leads when removing defective components; a short lead may not allow room to make an adequate reconnection. Finally, in remounting the board, tightening one screw all the way before proceeding to the next may bend the board and open the foil.

Computerized Voices

Sylvania's Applied Research Laboratory has announced an ultra-high-speed computer system that converts speech into digital information as fast as the words are spoken. The basic elements of sound waves are analyzed by fast Fourier transform for on-the-spot processing into digital data.

Laboratory Computers in Poland

The first interative computer built in Poland is being used for simulation and model testing at the Electrical Simulation Laboratory of the Department of Analogy, Polish Academy of Sciences Institute of Automation. The analog computer is the transistorized EMAT-30 (Electronic Universal Analogue Mathematical Machine).

The ANOPS computer for biomedical research, developed at the Department of Computer Design, Warsaw Polytechnic, may be marketed abroad. The machine appears similar in all respects to the CAT (Computer of Average Transients) produced in the United States. It has been used at the Niencki Institute of Experimental Biology in Warsaw and at Neurological and Psychiatric Institutes of the Polish Academy of Medicine.

Catalogs

Catalogs may be obtained by writing directly to the firms cited below.

Telemetry

Airpax Electronics, Inc.
Seminole Division
P. O. Box 8488
Fort Lauderdale, Florida 33310
(305) 587-1100

American Electronic Laboratories, Inc.
P. O. Box 552
Lansdale, Pa. 19446
(215) 822-2929

AO Instrument Company
Medical Division
American Optical Corp.
Crosby Drive
Bedford, Mass. 01730
(617) 275-0500

AST/Servo Systems Inc.
930 Broadway
Newark, N.J. 07104
(201) 484-4233

Avionics Research Products Corp.
6901 W. Imperial Highway
Los Angeles, CA 90045
(213) 674-1334

Beckman Instruments, Inc.
2500 Harbor Blvd.
Fullerton, CA 92634
(213) 691-0841

Biocom, Inc.
5883 Blackwelder St.
Culver City, CA 90231
(213) 839-2581

Biometrics Instrument Corp.
3505 Turtle Creek Blvd.
Dallas, Texas

Burdick Corp.
Milton, Wisc. 53563

Century Electronics & Instruments, Inc.
P. O. Box C
Admiral Station
650 East Apache Street
Tulsa, Okla. 74115
(918) 835-4915

Corporate Research Company
19313 Los Alimos Street
Northridge. Cal. 91324
(213) 360-5205
(formerly: InterScience Research, Inc.)

Dallons Laboratories Div., Inc.
International Rectifier Corp.
120 Kansas Street
El Segundo, CA 90246
(213) 678-8171

E & M Instrument Co., Inc.
6030 England Street
P. O. Box 14013
Houston, Texas 77021
(713) 747-7813

Electro-Mechanical Research, Inc.
Telemetry Division, Suite 400
1320 Fenwick Lane
Silver Spring. Md. 20910
or P.O. Box 3041
Sarasota, Florida 33578

Electro-Medical Engineering Co.
703 Main Street
Burbank, CA 91506
(213) 849-6851

Electro-Optical Systems, Inc.
Biomedical Instrumentation Dept.
300 N. Halstead
Pasadena, CA 91107
(213) 449-1230
(Now part of Whittaker Corp.)

Franklin Institute Research Laboratories
BioInstrumentation Lab
19th & Race Sts.
Philadelphia, Pa. 19103

Fukada Electro Company, Ltd.
35-8 Hongo 2-Chome
Bunkyo-Ku
Tokyo, Japan

Genisco Technology Corp.
Systems Division
18435 Susana Rd.
Compton, CA 90221
(213) 497-7600

Geotech Division
Teledyne Industries
3401 Shiloh Rd.
Garland, Texas 75040
Mail:
P. O. Box 28277
Dallas, Texas 75228
(214) 271-2561

Gulton Medical Instruments
104 Terwood Rd.
Willow Grove, Pa. 19090
(215) 659-9112

Hamilton Standard Division
United Aircraft Corp.
Windsor Locks, Conn. 06096

Hayakawa Electric Co., Ltd.
1-Nishitanabe
Abeno-Ku
Osaka, Japan

Industrial Electronetics Corp.
P. O. Box 862
Melbourne, Florida
(305) 723-5382

Leupold & Stevens Instruments, Inc.
4445 N.E. Glisan
Portland, Oregon 97213
(503) 234-7423

Lexington Instruments
16 Mechanic Street
(241 Crescent St.)
Waltham. Mass. 02154
(617) 899-0410

Litton Industries
10916 Washington Blvd.
Culver City, CA.
Attn: Biotechnical Research
(213) 478-0651

LRJ Industries, Inc.
1161 15th Street
Holly Hill, Florida 32017
(Same information available from:
Richard B. Upson
726 Willard Drive
Titusville, Florida 32780)

Matsushita Electric
Export Division
P. O. Box 288
Osaka Central, Japan

Medical Systems Corp.
43 Plymouth Rd.
Great Neck, N.Y. 11023
(516) 482-0808
represents:
San-Ei Instrument Co., Ltd.
Tokyo, Japan

Medintron Corp. of America
42 Broadway
New York, N.Y. 10004
944-3620

Medtronic, Inc.
3055 Old Highway Eight
Minneapolis, Minn. 55418
(612) 781-6855

Mennen-Greatbach Electronics, Inc.
10440 Main Street
Clarence, N.Y. 14301
(716) 759-8361

Microdot, Inc.
220 Pasadena Ave.
South Pasadena, CA 91030
(213) 681-3351

Minns Electronics
Box 4255
Morgantown, W.Va. 26505

Mitsubishi Electric Corp.
Mitsubishi Denki Bldg.
Marunouchi
Tokyo, Japan

Moore Associates, Inc.
893 American St.
San Carlos, CA 9 4070
(415) 591-5363
or:

Digital Controls
S. Cal. Field Office
11615 Francis Place
Los Angeles, CA 90068
(213) 397-7781

Neutronics
P. O. Box 1721
New Haven, Conn. 06507

Nippon Electric Co., Ltd.
7-15 Shiba Gochome
Minato-ku
Tokyo, Japan

Onyx Designs, Inc.
Sunset Ave. & Bowne Rd.
Asbury Park, N.J. 07712

Parks Electronics Laboratory
419 S.W. First
Beaverton, Oregon 97005
(503) 644-7463

Phipps & Bird, Inc.
P. O. Box 2V
6th at Byrd Sts.
Richmond, Va. 23205

Remler Co.
2101 Bryant St.
San Francisco, Calif. 94110
(415) 824-3435

Sanborn Division
Hewlett-Packard Co.
Medical Division
175 Wyman St.
Waltham, Mass. 02154
(617) 894-6300

Sanei Instrument Co., Ltd.
1-95 Kashiwagi
Shinjuku-ku
Tokyo, Japan

Scientific Advances, Inc.
Sensotec Div.
1400 Holly Ave.
Columbus. Ohio 43212
(614) 294-5436

Signatron, Inc.
17124 S. Western Ave.
Gardena, CA 90247
(213) 327-4124

Solid State Electronics Corp.
15321 Rayen St.
Sepulveda, CA 91343
(213) 894-2271

Sonex, Inc.
20 E. Herman St.
Philadelphia, Pa. 19144
(215) 843-6400

Sonomedic Corp.
245 Old Hook Rd.
Westwood, N.J.

Spacelabs, Inc.
15521 Lanark St.
Van Nuys, CA 91406
(213) 781-0881

C. H. Stoelting Co.
424 N. Homan Ave.
Chicago, Ill. 60624
(312) 722-3833

Techni-Rite Electronics, Inc.
65 Centerville Rd.
Techni-Rite Industrial Park
Warwick, R.I. 02887
(401) 737-2000

Telemedics
Southampton, Pa.
(215) EL 77600

Ward Associates
c/o Allan L. Wolf Co.
2485 Huntington Dr.
San Marino, CA 91108
(213) 798-9149

Whittaker Corp.
Biomedical Instrumentation Dept.
300 N. Halstead St.
Pasadena, CA 91107
(213) 449-1230
(See Electro-Optical Systems, Inc.)