

PRINTOUT

JOSEPH B. SIDOWSKI

SERVICES

Instrument Rentals

Electro-Rents now offers five instrument rental plans with purchase options.

Three-month plan: Option credit of 20% of rental applies to instrument purchase after 3 months; 30% of rental applies after 4 months; 40% applies after 5 months; 50% of rental applies after 6 months. Maintenance and calibration are included. *Six-month plan:* 75% of current catalog rental applies throughout this plan; after 6 months, credit of 50% of rental applies to purchase; maintenance and calibration included. *Six-month plan:* 60% of current catalog rental applies; all other terms same as above, except maintenance and calibration are not included. *One-year plan:* 70% of current catalog rental applies throughout the plan; after 1 year, a purchase credit of 50% of the rental applies to purchase; maintenance and calibration included. *One-, 2-, 3-year lease option:* Individually tailored plan to provide long-term user the lowest cost per month with the flexibility of purchase on return of the equipment at lease end.

Shipping points and warehouses are located at:

Electro Rents (corporate offices)
4131 Vanowen Place
Burbank, California 91504
(213) 843-3131

2351 De La Cruz Boulevard
Santa Clara, California 95050
(408) 244-3871

17 Park Place
Paramus, New Jersey 07652
(201) 265-7500

Representatives of Electro Rents are:

QPL, Inc.
2710 Grand Avenue, Suite 38
Pacific Beach, California 91504

Measurement Consultants
2535 West Camelback Road
Phoenix, Arizona 85017

Measurement Consultants
2785 North Speer Boulevard
Denver, Colorado 80211

Measurement Consultants
3707-B 4th N.W.
Albuquerque, New Mexico 87107

Scientific Devices, Inc.
312 North Central Expressway
Richardson, Texas 75080

Controls," by Morton H. Mehr, may be obtained by writing Measurement Systems, Inc., 523 West Avenue, Norwalk, Connecticut 06850.

PRODUCTS

Decitrak Data Monitor

The Data Monitor provides continuous digital readout as well as a printed record of remotely located analog variables. The parameter monitored may be an angular rotation, a synchro or resolver output, or the voltage output from a pot or load cell. In addition, the Data Monitor delivers digital outputs for computer interfacing and for driving parallel displays at several locations.

Decimal Output: For remotely located displays. Parallels front panel readout. "0" = 0 V, 0 mA; "1" = -14 V, 120 mA.

BCD Output: For computer interfacing. 1-2-4-8 BCD absolute parallel. "0" = 0 V, 0 mA; "1" = +12 V \pm 10%, 4 mA.

Standard options include multiplexing, various output devices, keyboard, set-point, peak-data sensor, adder/subtractor.

Theta Instrument Corporation
Fairfield, New Jersey 07006
(201) 227-1700

Lesion Generator

Radionics Lesion Generator, RFG-4, is a thermometrically controlled instrument that applies rf (radio frequency) power to the extreme tip of the electrode inserted into the brain. A miniature sensor in the tip actuates the thermometer on the instrument panel, so that both rf current flow and the subsequent heating of the tissue are measured accurately. It is possible to continuously produce lesions stereotaxically, and lesions as minute as .7 mm may be generated.

The rf generator allows for continuous, guarded control of the electrode current so that the tissue temperature may be gradually raised, then held at any desired temperature between 38 deg C and the prescribed lesioning temperature ranging from 45 deg C to 90 deg C.

The rf voltage capability of the generator is 30 V rms into 180 ohms (or higher); 22 V rms into 105 ohms. Rf capability is 100 mA rms into 340 ohms; 160 mA rms into 180 ohms; 190 mA rms into 105 ohms. The waveform is unmodulated sine wave at 500 KHz.

The calibrated electrode has a tip diameter of 0.7 mm, tip length of 1.5 mm, and shaft length of 100 mm.

Prices: Radionics Lesion Generator, RFG-4, \$535. Calibrated Electrode, \$150.

David Kopf Instruments
7324 Elmo Street
Tujunga, California 91042
(213) 352-3274

Semiconductor Mixers

Semiconductor Mixers are marketed by the companies listed below.

Tracking Bibliography

The April 1969 version of the "Bibliography on Tracking

Aertech Industries
815 Stewart Drive
Sunnyvale, California 94086

Airtron Division, Litton Industries
200 East Hanover Avenue
Morris Plains, New Jersey 07950

Alpha Industries
381 Elliot Street
Newton Upper Falls, Massachusetts 02164

American Electronic Labs
P.O. Box 552
Lansdale, Pennsylvania 19446

Anaren Microwave
478 East Brighton Avenue
Syracuse, New York 13210

Anzac Division, Adams-Russell
39 Green Street
Waltham, Massachusetts 02154

Automatic Metal Products
323 Berry Street
Brooklyn, New York 11211

G-L Microwave
875 Black Oak Ridge Road
Wayne, New Jersey 07470

Hewlett-Packard
1501 Page Mill Road
Palo Alto, California 94304

Hyletronics
100 Ainsworth Road
Wilmington, Massachusetts 01887

Kevlin Mfg.
26 Conn Street
Woburn, Massachusetts 01801

Lorch Electronics
105 Cedar Lane
Englewood, New Jersey 07631

Melabs
3300 Hillview Avenue
Palo Alto, California 94304

Merrimac R & D
41 Fairfield Place
West Caldwell, New Jersey 07006

Microlab/FXR
10 Microlab Road
Livingston, New Jersey 07039

Micro-Now
6124 North Pulaski Road
Chicago, Illinois 60646

Microphase
35 River Road
Cos Cob, Connecticut 06807

Micro State
152 Floral Avenue
Murray Hill, New Jersey 07971

Microwave Associates
Northwest Industrial Park
Burlington, Massachusetts 01803

Mini-Circuits Lab
152 West 42nd Street
New York, New York 10036

Omni-Spectra
24600 Hallwood Court
Farmingdale, New York 11735

PRD Electronics
1200 Prospect Avenue
Westbury, New York 11590

Philco-Ford
500 South Main Street
Spring City, Pennsylvania 19475

RF Amplifier
P.O. Box 141
Lake Grove, New York 11755

Relcom
2329 Charleston Road
Mountain View, California 94040

Sage Labs
3 Huron Drive
Natick, Massachusetts 01760

Sanders Associates
P.O. Box 907
Nashua, New Hampshire 03060

SpaceKom
P.O. Box 235
Goleta, California 93017

Sylvania Electric Products
100 Sylvan Road
Woburn, Massachusetts 01801

Varian
Salem Road
Beverly, Massachusetts 01915

Western Microwave
16845 Hicks Road
Los Gatos, California 95030

Transistor Testers

A number of instruments are available for checking transistors, in or out of circuit. The FET Transistor Analyst Model No. 162 is priced at \$99.95 and produced by B & K, Dynascan Corporation, 1801 West Belle Plaine, Chicago, Illinois 60613. Sencore, 426 South Westgate Drive, Addison, Illinois 60101, markets a transistor-FET tester at \$129.50.

Disposable Skin-Cleaner Swabs

IMI is now marketing a disposable skin-cleaner swab for preparation of electrode sites. Available in boxes of 100, the swab

is specially formulated to remove all insulating elements from the skin surface, and to deposit a conductive film to lower electrode to skin impedance. It combines ingredients including isopropyl alcohol and skin emulsifiers absorbed into a mildly abrasive swab.

IMI

Division of Becton, Dickinson & Co.
4321 Birch Street
Newport Beach, California 92660
(714) 546-0744

Signal Averagers

The Biomation/Datalab 101 and 102 are signal averagers priced at \$3,850 and \$4,350, respectively. Using an all-solid-state digital MOS shift register memory, both models can sample at intervals as fast as 2 μ sec, yet handle slower sweeps with samples taken up to 100 msec apart. Aperture time is 20 nsec, with conversion of the analog signal to a 7-bit binary on all sweep speeds. Either instrument can also be used as a single-shot memory unit. Specifications are as follows.

Number of storage points: 100 for Model 101; 200 for Model 102.

Word length: 16 bits.

Total sweep time: 200 μ sec to 10 sec (101); 500 μ sec to 20 sec (102).

Intersweep delays: Delay before, up to 1 sec; delay after, up to 50 sec; scaling (true average), auto or manual.

A/D converter: Accuracy, 7 bits; signal input, ± 1 V full-scale input impedance 100 K ohms.

Analog display outputs: X-axis, 0 to +5 V; Y-axis, ± 1 V; Z-mod, positive or negative +50-V pulse.

Digital output: 16 data lines; control signals, 2.

Biomation
1076 East Meadow Circle
Palo Alto, California 94303

In the East:

205-07 Hillside Avenue
Hollis, New York

Primate Chairs

XPL-512-SPC is a two-step small primate chair advertised as suitable with infant rhesus monkeys or adult squirrel primates. Neck and waist stocks are adjustable and tooled to minimize chaffing. The unit is a lightweight, acrylic type of plastic and can be sanitized chemically or cleaned in a cage washer. Price: \$125 complete.

XPL-515-SASR is a rhesus chair module with a swing-a-way seat. An enlarged foot-rest plate also includes knee-restraining bars. Module price: \$295. A floor stand is priced at \$95; a table-top stand costs \$50.

PLAS-LABS
917 East Chilson Street
Lansing, Michigan 48906
(517) 487-0122

Memory Cell

Eight-bit memory cell 92CU997 (80 transistors and 50 diodes) is priced at \$2.99; technical data included.

Poly Paks
P.O. Box 942
South Lynnfield, Massachusetts 01940

Pressure Switch

Air-pressure-actuated switch. Solder a fitting on the attached copper tubing and a rubber tube can be slipped over the device. Adjustable setting allows variation 0.2 in. of mercury to 150 lb. Unused, 10-A contacts. No. 69-18, 50¢ each; 3 for \$1.00.

John Meshna, Jr.
Surplus Electronic Material
21 Allerton Street
Lynn, Massachusetts 01901

Vibration Pickups

Vibration Pickups may be obtained from the following firms.

Advanced Tech & Sys
199 Sound Beach Avenue
Old Greenwich, Connecticut 06870

B & K Instruments, Inc.
5111 West 164th Street
Cleveland, Ohio 44135

Biocom, Inc.
5883 Blackwelder
Culver City, California 90230

C-E Electronics, Division of Ametek
363 West Glenside Avenue
Glenside, Pennsylvania 19038

Consolidated Electroynamics
360 Sierra Madre
Pasadena, California 91107

Dytronics Company, Inc.
4800 Evanswood Drive
Columbus, Ohio 43224

Electronics, A Textron Company
Box 1825
New Haven, Connecticut 06508

Endevco, Division of Beckman, Dickinson
801 South Arroyo Parkway
Pasadena, California 91105

General Radio Company
300 Baker Avenue
West Concord, Massachusetts 01781

Geotech, A Teledyne Company
3401 Shiloh Road
Garland, Texas 75040

Gilmore Industries, Inc.
3355 Richmond Road
Cleveland, Ohio 44122

Gulton Controls & Instruments
1644 Whittier Avenue
Costa Mesa, California 94014

Gulton Industries, Inc.
Metuchen, New Jersey 08840

Indikon Company, Inc.
76 Coolidge Hill Road
Watertown, Massachusetts 02172

Industrial Electronics Corporation
1363 South Patrick Drive
Satellite Beach, Florida 32935

International Microwave Corporation
33 River Road
Cos Cob, Connecticut 06807

International Research & Development Corporation
6150 Huntley Road
Worthington, Ohio 43085

Keinath Instrument Company
810 West 3rd Avenue
Columbus, Ohio 43212

Wayne Kerr Corporation
22 Frink Street
Montclair, New Jersey 07042

Kistler Instrument Corporation
8947 Sheridan Drive
Clarence, New York 14031

MB Electronics, A Textron Company
P.O. Box 1825
New Haven, Connecticut 06508

Massa Division
Dynamics Corporation of America
280 Lincoln Street
Hingham, Massachusetts 02043

Metrix Instrument Company
5760 Rice Avenue
Houston, Texas 77036

Miles Reproducer Company
598 Broadway
New York, New York 10012

Monrovia Instruments
Division of American Standard
1401 South Shamrock
Monrovia, California 91016

PCB Pieztronics, Inc.
Box 33
Cheektowaga, New York 14225

Pickering & Company, Inc.
101 Sunnyside Boulevard
Plainview, New York 11803

Reliance Electronics Company
Instruments Division
24701 Euclid
Cleveland, Ohio 44117

Robertshaw Controls Company
Santa Ana Freeway at Euclid
Anaheim, California 92801

Rohde & Schwarz Sales Company
111 Lexington Avenue
Passaic, New Jersey 07055

Sonotone Corporation
Division of Clevite
Old Saw Mill River Road
Elmsford, New York 10523

W.F. Sprengnether Instrument Company
4567 Swan Avenue
St. Louis, Missouri 63110

Statham Instruments, Inc.
2230 Statham Boulevard
Oxnard, California 93030

Systron-Donner Corporation
888 Galindo Street
Concord, California 94520

The Vibroscope Company, Inc.
Box A
Glenford, New York 12433

Solid-State Trainer Kit

The LVE self-contained Solid-State Trainer System consists of a module case, 10 solid-state modules, built-in power supply, programming leads, and programmed instruction workbooks.

Developed for training with logic programming techniques, the kit may be used for teaching logic, Boolean algebra, and basic control functions. Included with the kit are the following modules: Dual Schmitt Trigger, Dual Negative Key Input, Dual Nand/And Gate, 4 Tri-Input Nand Gate, Single Binary Scaler (2), Adjustable Time Base, One Shot, and a Dual Heavy-duty Power Driver.

Once a workable knowledge of solid state is obtained, the trainer may be returned (you keep the modules) and a refund of \$125 is applied toward purchase of a research system. Price: \$695.

Lehigh Valley Electronics, Inc.
Box 125
Fogelsville, Pennsylvania 18051
(215) 285-4211

Semi-Micro Neurological Electrodes

The multicontact probe Model MC-10 is designed to simultaneously record slow wave activity at different levels in the cortex. Materials consist of No. 304 stainless steel wires, insulated with epoxy, and a cable, 1 ft long, that exits from the holder. Number of electrodes and spacing can be varied to specifications; electrodes are flush to the shaft. The holder is 7 cm, with a 1.5-mm diam. The probe tip is 1 cm long.

In Vivo Metric Systems
10709 Venice Boulevard
Los Angeles, California 90034
(213) 837-9061

Instrumentation Tape Recorder

The Alpha 434 features the following: 4-channel record/reproduce system; voice annotation; ¼-in. tape; three speeds, electrically switchable; separate FM or Direct record and reproduce module; direct response from 100 Hz to 60 kHz at

15 ips; portable carrying case for rack mount; built-in calibration voltages: remote operation; and built-in loop adapter.

Midwestern Instruments
6422 East 41st Street
Tulsa, Oklahoma 74135
(918) 677-1111

Projector

Xenolite with Carousel Projector uses a 1,500- to 2,000-h ozone-free xenon lamp for projecting 35-mm and superslides. Characteristics are full remote control, random access, mirror colorcote, and front or rear screen projection.

Christie Electric Corporation
3414-F West 67th Street
Los Angeles, California 90043

Tape Readers and Reader/Spoolers

Remex Photocell Punched Tape Readers and Reader/Spoolers (3000 series) offer a range of reader speeds to 400 characters per second. The reader/spoolers are available in speeds to 300 characters per second, with 7½-in.-diam separable reels. The units are designed to read tapes that vary in color and light transmissivity up to 70% transparent. The photovoltaic cell elements, together with the associated integrated circuit components, automatically compensate, in real time, for these variations. A self-cleaning quartz lamp is the light source and is derated to a life expectancy of 15,000 h. The light is conducted to the reading station through a fiber optic distribution system.

Model RR-3000 Readers cost \$875 with left or right drive, and \$995 with bidirectional control. Unidirectional Model RRS-3000 Reader/Spoolers are \$1,595 each; bidirectional, \$1,715.

Remex Electronics
5250 West El Segundo Boulevard
Hawthorne, California 90250
(213) 772-5321

Acceleration Transducers

Acceleration transducers are marketed by the companies listed below.

Airpax Electronics, Inc.
P.O. Box 8488
Fort Lauderdale, Florida 33310

Avtron Manufacturing, Inc.
10409 Meech Avenue
Cleveland, Ohio 44105

B & K Instruments, Inc.
5111 West 164th Street
Cleveland, Ohio 44135

Bourns, Inc., Instrument Division
6135 Magnolia Avenue
Riverside, California 92506

Bytrex, Inc., Division of Tyco Labs
223 Crescent Street
Waltham, Massachusetts 02154

Conrac Corporation
330 Madison Avenue
New York, New York 10017

Consolidated Electrodynamics
360 Sierra Madre
Pasadena, California 91107

Dytronics Company, Inc.
4800 Evanswood Drive
Columbus, Ohio 43224

Electronics, A Textron Company
Box 1825
New Haven, Connecticut 06508

Endevco, Division of Beckman, Dickinson
801 South Arroyo Parkway
Pasadena, California 91105

The Foxboro Company
Neponset Avenue
Foxboro, Massachusetts 02035

Genisco Technology Corporation
18435 Susana Road
Compton, California 90221

Geotech, A Teledyne Company
3401 Shiloh Road
Garland, Texas 75040

Gilmore Industries, Inc.
3355 Richmond Road
Cleveland, Ohio 44122

Gulton Controls & Instruments
1644 Whittier Avenue
Costa Mesa, California 94014

Gulton Industries, Inc.
Metuchen, New Jersey 08840

Humphrey, Inc.
2805 Canon Street
San Diego, California 92106

The Impact-O-Graph Corporation
1762 East 18th Street
Cleveland, Ohio 44114

Instrument Division, Genisco Technology
1533 26th Street
Santa Monica, California 90404

International Microwave Corporation
33 River Road
Cos Cob, Connecticut 06807

Kaman Corporation, Nuclear
Garden of Gods Road
Colorado Springs, Colorado 80907

Kearfott Products, General Precision
1150 McBride Avenue
Little Falls, New Jersey 07424

Kistler Instrument Corporation
8947 Sheridan Drive
Clarence, New York 14031

Kollsman Instrument Corporation
80-08 45th Avenue
Elmhurst, New York 11373

MB Electronics, A Textron Company
P.O. Box 1825
New Haven, Connecticut 06508

Massa Division
Dynamics Corporation of America
280 Lincoln Street
Hingham, Massachusetts 02043

Maxson Electronics Division
Sunrise Highway
Great River, New York 11739

Metrix Instrument Company
5760 Rice Avenue
Houston, Texas 77036

Monrovia Instruments
Division of American Standard
1401 South Shamrock
Monrovia, California 91016

Newark Controls Company
15 Ward Street
Bloomfield, New Jersey 07003

PCB Piezotronics, Inc.
Box 33
Cheektowaga, New York 14225

Pickering & Company, Inc.
101 Sunnyside Boulevard
Plainview, New York 11803

Rohde & Schwarz Sales Company
111 Lexington Avenue
Passaic, New Jersey 07055

Schaevitz Engineering
U.S. Route 130 & Union Avenue
Pennsauken, New Jersey 08110

Setra, Inc.
12 Huron Drive
Natick, Massachusetts 01760

Sparton Southwest, Inc.
9621 Coors Road, NW
Albuquerque, New Mexico 87114

W.F. Sprengnether Instrument Company
4567 Swan Avenue
St. Louis, Missouri 63110

Statham Instruments, Inc.
2230 Statham Boulevard
Oxnard, California 93030

Systron-Donner Corporation
888 Galindo Street
Concord, California 94520

Tensitron, Inc.
Box 185
Harvard, Massachusetts 01451

Trans-Sonics, Inc.
P.O. Box 326
Lexington, Massachusetts 02173

Unholtz-Dickie Corporation
2994 Whitney Avenue
Hamden, Connecticut 06514

Vibrac Corporation
11 Alpha Road
Chelmsford, Massachusetts 01824

Whittaker Corporation
Instrument Systems Division
9601 Canoga Avenue
Chatsworth, California 91311

Winsco Data Sensors
1533 26th Street
Santa Monica, California 90404

BRIEFS

Tektronix Revised Price List

Tektronix, Inc., issued a revised price list effective June 22, 1969. The prices supersede all other published prices, including those appearing in advertisements, catalogs, booklets, and all other literature.

Change of Address

The entire family of Fairchild bench instruments—digital voltmeters, electronic counters, digital panel meters, and semiconductor curve tracers—has been acquired by Systron-Donner.

Fairtron Products Division
Systron-Donner Corporation
888 Galindo Street
Concord, California 94520

Codes

The following manufacturers' codes are often used to identify semiconductors or other components.

<u>CODE</u>	<u>MANUFACTURER</u>
AMP	Amperex
CDV	Continental Devices
ELM	Elmar Electronics
ERI	Electron Research, Inc.
FS	Fairchild Semiconductor
GE	General Electric
GI	General Instrument
HOF	Hoffman
HUG	Hughes Semiconductor
IDC	International Diode Corporation
IRC	International Rectifier Corporation
ITT	International Telephone & Telegraph
MIC	Microwave Associates

MOT	Motorola
OHM	Ohmite
PHI	Philco
PSI	Pacific Semiconductor
RAY	Raytheon
RCA	Radio Corporation of America
SEM	Semcor
SPR	Sprague
SYL	Sylvania
TEK	Tektronix
TI	Texas Instrument
TRA	Transitron
TRW	Thompson Ramo Woolridge
TUN	Tung-Sol
UTR	Unitrode
VAR	Varo
WES	Westinghouse

Magneto-Optic Displays

Unlike most other display techniques, a magneto-optic display does not emit light. The image is formed by diffracting an external light source shining upon the display. The brighter the light source, the brighter the display. There is no physical restriction on maximum size of the display, and the long-term, stable memory is unaffected by power failures. Edge-lighting may replace the need for an external source of light reflecting off the surface.

Basically, the display contains a thin magnetic film with a domain structure of long separated stripes—the distance of separation is about the wavelength of light. A colloidal suspension of ferromagnetic particles is on top of this magnetic film. The suspension conglomerates at the domain boundaries in the magnetic film to form a diffraction grating. A matrix of row and column electrical conductors is added behind the film, and the structure is sealed between two glass plates. When a current is put through a row and column conductor, the grating reorients 90% near the intersection of the two conductors.

Elements are turned “on” or left “off” to form an image by correctly addressing the conductors. A magnetic pen, or a similar device, may also be used to write on the display.

If a computer tape is brought in contact with the display surface, the particles in the display are actuated and a visual record is produced instantaneously, with no chemical or other processing required.

Magnetic-optical displays researched and developed by the Electronics Laboratory of the General Electric Company have the following characteristics: internal nonvolatile memory; multi-color capability; switching speeds of 0.01-10 μ sec; capability of extremely high brightness with adequate external illumination; basically low impedance; a high-current driver requirement; and a measured life of structures of over 1½ years.

Addressable Memories

IBM Systems Development Laboratory, in San Jose, California, is developing light-beam addressable memories that could be many times faster than present magnetic storage methods. The basic device, a digital light deflector, changes the location of a beam rapidly by moving a glass plate in and out of contact with a prism. The glass plate is driven by a piezoelectric disk.

Instrument System for Behavioral Research

Lafayette Instrument Company is now marketing the 5800 Data Cube instrument system for use in human and animal behavioral laboratories. At present, the system consists of 20 units, e.g., drinkometer, data recorder, multiple stimulus display, etc., all identical in size (6 x 6 x 4 in.) and compatible electrically. The solid-state Data Cubes may also be purchased as independent units and are reasonably priced. Specific information covering the 5800 Data Cube series may be obtained from the Lafayette Instrument Company, P.O. Box 1279, Lafayette, Indiana 47902. Request Catalog No. 569.