PRINTOUT

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PRODUCTS

Eye Movement Monitor

The Henry L. Michael Company is marketing an eye movement monitor which is advertised as being particularly suited for cases where abrupt head movement occurs. The monitor is mounted in a football helmet fitted with inflatable air cushions and the head is left free to move. Several variations for the opto-electronic system are supplied depending on the type of recordings required. Since the system is modular, additional opto-electronic units may be purchased for a wide range of measurements, as well as accessories and alternate head structures to build up a complete system.

Henry L. Michael and Co., Inc.
Oftalmograf Division
663 5th Ave.
New York, NY 10022

Sphygmomanometer

This electronic sphygmomanometer weighs approximately 30 lbs and is a table-type unit that operates simply by inserting the subjects arm through a hoop cuff. An internal computer produces systolic and diagnostic pressure measurements and displays results on an easily viewed screen in front of the machine.

Medical Monitors Inc.
2112 Cotner Ave.
Los Angeles, CA 90025

Assembly Tools

Jensen recently published a 128-page catalog titled "Tools for Electronic Assembly and Precision Mechanics" which describes over 2,800 tools. The catalog may be obtained by writing to Jensen Tools and Alloys, 4117 North 44th St., Phoenix, Arizona 85018.

TV-Microprocessor Interfaces

The MTX video RAM family allows any microprocessor and any standard TV monitor to be combined into an instant full-range alphanumeric N/4 graphics terminal. To a microprocessor, the input side of these devices looks like an ordinary RAM with connections to the 7-, 8-, or 12-bit address and 8-bit data busses. The

output of each module can drive up to 25 monitors at distances up to 3,000 ft. Prices range from \$194 to \$480.

Matrox Electronics Systems
Box 56 Ahuntsic Station
Montreal, Quebec, Canada

Motor Controller

The C-200 digital control converts computer or programmable controller output pulses into precise zero motor position end/velocity. It can handle stepping motors with continuous torque of 90 lb/ft. The two primary circuit boards contain send coder directional logic, clock generator, a comparison circuit, an up/down counter, and a D/A converter.

Inland Motor
501 First St.
Radford, VA 24141

Digital Thermometers

Precision Digital Corporation (1329 Island Ave., Needham, Massachusetts 02192) is marketing a battery powered digital thermometer with a switchable response of Fahrenheit or Centigrade, and accuracy of .25%, and a .4-in. LED display. The unit sells for \$345.

United Systems Corporation (918 Woodley Rd., Dayton, Ohio 45403) advertises the 5800 R series of digital thermometers which features an added analog output for chart recording and operates from battery or line. The units sell for \$485.

Mini Tape Punch

The Model 6110 tape punch measures only 4 x 4 x 6 in. and uses a brushless dc motor to free trigger magnets for punch operation only. Punch speed is 50 cps with bidirectional feed.

Epson America, Inc.
2009 West Lomita Blvd.
Torrance, CA 90505

Printer Kit

The Model CI-21AP prints 126 cps using a nonimpact 5 by 7 metrics technique. It includes a power supply and separate face card with 64-character buffer, packaged in a 5 x 7 x 3 in. cabinet. The printer costs \$399.

Hycom, Inc.
16841 Armstrong Ave.
Irvine, CA 92714

Stimulator

This multipurpose stimulator has five operating modes, two isolated outputs, and a range of voltage or current outputs. One synchronous and two asynchronous pulses are available on each output for signal pulse outputs, pairs, triplets, or a train of up to 99 pulses.

Advance Instrumentation Corp.
Middleton, WI 53562

Neonatal Monitor

The Model 512 neonatal monitor measures instantaneous heart rate, long- and short-term variability, respiration, temperature, and blood pressure.

The monitor provides a CRT for display of ECG, a split-screen LED for display of heart and respiration rate, and a two-speed hot-stylus two-channel recorder for permanent records of data.

Corometrics Medical Systems, Inc.
Wallingford, CT 06492

Digitizer

The Model 1224 graphics calculator front and processor system accepts inputs from either an alphanumeric keyboard or an electronic digitizer. Data is sent to the microprocessor, which outputs to a 15-digit display. Data can also be sent to an external device. The system is said to use no new language, so that inexperienced operators can deal with problems. New programs can be filled in 1-k increments, so equipment does not become outdated.

Numonics Corp.
Rt. 202 and Hancock St.
North Wales, PA 19454

Biofeedback Monitor

GSR-1 biofeedback device utilizes a galvanic skin response meter. The subject merely places two fingers on gold-type plates and this automatically activates a tone. A side dial on this very small portable unit permits the user to choose the tone level. This compact GSR monitor rests in the palm of a hand and is turned on only when the fingers touch the goldplated electrodes that are recessed in a sculptured walnut case. Cost of the unit is \$60, plus \$2 for postage and handling.

Thought Technology Ltd.
2193 Clifton Ave.
Montreal, Quebec, Canada H4A 2N5

Disk System for NOVA Series Minicomputers

The 3903 plug-in-disk system is suitable for all NOVA

series computers. Software is compatible with Data General DOS and RDOS. Capacity range: 128k words expandable to 4,096k words. Transfer rate is 8 microsec per word. Average access time is 8.4 msec.

SDSI Peripherals AG
P.O. Box 77
Wyckoff, NJ 07481

Blood Pressure Monitor

The Model ML-100 blood pressure monitor is non-invasive, nonocclusive, and atraumatic. The unit provides continuous monitoring of systolic, diastolic, and mean pressures, and heart rate readout on 3-digit light-emitting diode displays. It provides a choice of charting complete pulse pressure waveform, systolic, diastolic, or mean pressure, or heart rate on built-in chart recorder. A small force transducer is held in place on the wrist with a Velcro strip.

Advanced Instrumentation Corp.
P.O. Box 103
7433 Hubbard Ave.
Middleton, WI 53562

Freezing Microtome

Priced at \$940, the Bailey freezing microtome is a complete system for producing frozen tissue sections. It comprises a radial microtome, a thermoelectric freezing stage, and a low-voltage power supply. The advertised operating cost is approximately 2 cents/h. Sections down to 5 microns can be made. The unit is thermoelectric, so there are no moving parts, no vibration, and no CO₂ cylinder. It is warranted for 2 years.

Bailey Instruments
515 Victor St.
Saddle Brook, NJ 07662

Counter/Timer

An electronically predetermining counter/timer, suitable for timing intervals measured in milliseconds, seconds, minutes and tenths of hours is being offered by Kessler-Ellis. As a counter, the instrument accepts pulses from input devices such as transistor switches, reed switches, photoelectrics, and others to operate a built-in relay after a preset number of counts. A number is first manually set on thumb wheel switches. The unit then times or counts up to the preset number to operate a SPDT built-in relay. Reset is manual, remote, or automatic. The display uses LED digits.

Kessler-Ellis Products Co.
Atlantic Highlands, NJ 07716

Learning Calculators for Kids

For children aged 5-9 years, Texas Instruments offers its "Little Professor," a calculator-based learning aid with more than 16,000 preprogrammed basic math

problems, priced at \$19.95. Once the type of problem and degree of difficulty are selected, the machine presents a problem (with function and equal sign) in the large LED display. The child keys in an answer; if correct, the complete equation appears for 1 sec and the next problem in sequence is displayed. If incorrect, the problem reappears. If a wrong answer is entered three times, the "Little Professor" automatically displays the correct answer. The answer remains in the display until the child presses the "GO" key. If the next problem is also answered incorrectly three times, the correct answer would again be displayed. The unit will, after 10 problems, display a score (number out of 10 correct) before going on to the next set of problems in sequence. Addition, subtraction, multiplication, and division sequences are provided in varying degrees of difficulty.

Texas Instruments
Dallas, TX 75222

Oscilloscope Multitrace Adapter

The Model 40-B can add four-channel capability to a single-channel oscilloscope. The 40-B is small and can fit in the palm of a hand or be carried in a shirt pocket. The unit enables the user to display both analog and digital signals at the same time on the scope. Any scope with an external trigger input can be used. Probes are included and are wired directly to the 40-B. The unit is powered by a conventional 9-V battery and will operate 6-10 h continuously. Price: \$120.

Leeco Inc.
817 Wheeler Ave.
Huntsville, AL 35801

Electronic Minicounter

The Model 7428 minicounter has an eight-digit LED display, remote reset with optional front panel reset, a count rate to 12,000 counts/min, and is small in size (24 x 48 mm). List price is \$49.

Leeco Inc.
817 Wheeler Ave.
Huntsville, AL 35801

Stimulator

The ML-200 stimulator is a digital unit which provides single pulses or trains of pulses for nerve/muscle stimulation and/or refractory measurements. The unit provides settings for arrhythmic pulses within a cycle of pulses. Five operating modes are available and included is an onboard heart rate monitor. Cost: \$3,450.

Advanced Instrumentation Corp.
P.O. Box 103
7433 Hubbard Ave.
Middleton, WI 53562

Kit Computer

The PCM-12 kit computer is designed around the

Intersil IM6100 microprocessor, a 12-bit static CMOS device that is software-compatible with the DEC PDP-8/E mini. The complete kit contains CPU, control panel, 4k-word static memory card, cabinet, and power supply. The machine is equipped with a 4,096-word by 12-bit memory card, and is expandable to 32k words. The completed kit can execute nearly all PDP-8 software, including assemblers, editors, debug routines, advance languages like BASIC and FORTRAN, and DEC's OS-8 operating system. The basic kit is priced at \$779.

PCM
180 Thorup Lane
San Roman, CA 94583

Cartridge Tape Interface

The Series 220 controller for the 3M tape cartridge drive will handle up to four 3M drives and provide back-up capability for disk-based mini systems. The controller is sold as a complete package including controller board, all required cabling, installation instructions, and diagnostic and operational software. Price: \$1250.

Customs Systems, Inc.
2415 Annapolis Lane
Minneapolis, MN 55441

Color Imaging Systems

Grinnell Systems is marketing imaging systems with eight colors plus blink or six colors plus two intensities plus blink, plus full graphics, alphanumerics, vectors, and complex video images. Using the conventional three display refresh memory planes and a standard color television monitor, pictures may be displayed in eight colors. The eight colors are: black, the three primary colors; red, green, and blue, and their four combinations; yellow, cyan, magenta, and white. Adding a fourth display refresh memory plane allows any color image entity to selectively blink either on and off or between full and half intensity. If the total number of required colors is reduced from eight to six, four memory planes may be used to display color image entities which are selectively full intensity, half intensity, or blinking. All of this is accomplished by routing the data from the four memory planes through a PROM, prior to the generation of video output signals.

Grinnell Systems Corp.
2986 Scot Blvd.
Santa Clara, CA 95059

Stress Test System

The stress test system (STS) is an integrated treadmill/monitor/recorder system specially designed for exercise electrocardiography. It is easy to use because the entire test is controlled, monitored, and recorded from a single location.

Cambridge Instrument Co., Inc.
73 Spring St.
Ossining, NY 10562

Disposable Electrodes

The MI systems disposable electrodes are designed for bioelectric skin potential measurement, ECG monitoring, infant electrode systems, and other uses. Free samples may be obtained by writing MI Systems Inc., 782 Burr Oak Drive, Westmont, Illinois 60559.

Paper Tape Reader

The OP-80A has a maximum rating of 500 cps, which translates to a tape speed of approximately 500 ips. Each reader comes complete with an optical sensor array, high-speed data buffer, all required handshake logic, four status LEDs, box and ribbon interface cables. Also included are assembly and interface instructions, schematics, and software. Kit costs \$74.50; assembled and tested version is \$95.

Oliver Audio Engineering
7330 Laurel Canyon Blvd.
North Hollywood, CA 91605

Schmitt Triggers

The ULN-3300M series of Schmitt triggers are rated for operation with supply voltages of 2.226 V. The 3303 features complimentary output, while the 3304 has a Zener clamped output for use with inductive loads. The 3305 is a dual Schmitt trigger with complimentary outputs. The 3306 features two Schmitt triggers, one with a Zener-protected output.

Sprague Electric Co.
North Adams, MA 01247

Software for Microcomputers

SCELBAL is a scientific elementary basic language for 8008/8080 systems. It includes 5 commands, 14 statements, and 7 functions. It runs on 8k and more. The cost is \$49. Machine language programming for the 8008 microcomputer is explained in a detailed basic manual for \$19.95.

Scelbi Computer Consulting Inc.
1322 Rear Boston Post Rd.
Milford, CT 06460

BRIEFS

Microperipherals

Tiny floppy disk drives will soon be announced by General Systems International of Anaheim, California and Shugart Associates of Sunnyvale, California. The drives use disks roughly 5 in. in diam, as opposed to the present 8 in. General Systems device is said to provide

the same amount of storage as the 8-in. platter by using denser packing on the same number of tracks.

Color CRT

Intelligent Systems Corporation of Duluth, Georgia is marketing color alphanumeric CRT terminals with some graphics capabilities. The units are priced at a high of \$2,494, which includes an Intel 8080 microprocessor and keyboard. The terminals are available in kit form for \$1,395.

Microcomputer Kit

An 8-bit microcomputer kit that can be assembled in less than 1 h is being sold for approximately \$99 by the National Semi-Conductor Corporation of Santa Clara, California. The kit comes in the form of a notebook with instructions on how to get the job done. Each notebook includes an SC/MP microprocessor, a single-chip CPU housed in a 40-pin dual-in-line ceramic package, and featuring static operation, 46 instructions, a single-byte and double-byte operation, software-controlled interrupt structure, built-in serial I/O ports, bidirectional 8-bit parallel data port, and a latched 12-bit address port. Also included are a 4k-bit ROM organized into 520 bytes and preprogrammed to contain "KIT BUG," which is a monitor and debugging program that assists in the development of the users' application programs. "KIT BUG" even provides teletypewriter I/O routines and allows examination, modification, and controlled execution of the users' programs. Also included are two 256 4-bit words, a voltage regulator, an 8-bit data buffer, a timing crystal, TTY interface, a 72-pin edge connector, a 24-pin IC socket, a 40-pin IC socket, a printed circuit board, eight capacitors, and seven resistors.

Tape for Micros

Measuring 3 x 3 x 1.8 in. and weighing 16 oz, the Mini-Raycorder has a data capacity of 64k bytes/side, a packing density of 800 bytes/in., and a data transfer rate of 2,400 bytes/sec. Designed specifically for use with microprocessors, the unit is priced at \$225 by Raymond Engineering Inc. of Middletown, Connecticut.

Lens Positioner

The compact five-axis lens positioner from Newport Research Corporation (18235 Mt. Baldy Circle, Fountain Valley, California 92708) features ¼-in. linear adjustment in X-Y-Z directions and 10-deg rotations about the X-Y axes perpendicular to the optical axis. It has a 1.5-in. clear aperture and is supplied with a 1-in. element holder. Its small size is useful for positioning not only lenses but also electro-optical components in general. Price is \$180.

Used Computers

Newman Computer exchange (3960 Varsity Drive,

Ann Arbor, Michigan 48104) is advertising the following used computers: PDP-8E, 4k, at \$3,350; PDP-8F, 4k with TTY interface, \$2,300; PDP-11/15, 4k, \$3,000, and with 8k it sells at \$4,000; PDP-11/05-SC, 16k, \$8,195.

Printer

The Model MP-40 printer has a 5 by 7 impact dot matrix, 75 lines/min, 30 columns at 12 characters/in., parallel interface for Altair, Sphere, and other microcomputers. Completely assembled and ready to run, the unit costs \$425.

mpi
P.O. Box 22101
Salt Lake City, UT 84122

Computer Terminal

The ACT-1 is a computer terminal that sells for \$525 complete with high-resolution 9-in. monitor. The unit features 64 characters by 16 lines, auto scrolling, underline cursor, data rates of 110 to 9,600 baud, and is Teletype compatible to most microprocessors.

Micro-Term Inc.
P.O. Box 9387
St. Louis, MO 63117

Inexpensive Paper Tape Reader

The OAE Model OP-80A high-speed paper tape reader is priced at \$74.50 in kit form and \$95 factory assembled and tested. The reader has no moving parts. The circuit design employs several 555 timer ICs, a precision optical sensor "head," and some handshake logic. All parts, including the heavy solid wire that serves as the tape guides, mount on the top surface of a single printed circuit board. The board itself becomes the top

of a compact box. A flat ribbon cable interconnects the tape reader to a computer. A user report is described on page 91 of the September 1976 issue of *Popular Electronics*.

Bioelectric Signals and Biofeedback

MED Associates recently issued a new product release. All modules are compatible with MED Associates EEG frequency analysis system (sharp cut-off band-pass filters, integrators, and integrator multiplexer). Updated approach to system design presents choice and combination of the following new modules: Threshold comparator (ANL-310) sets an absolute level and identifies when a signal is above or below this level. Finds application in signal amplitude sorting and biofeedback. Voltage-controlled oscillator and audio amplifier (ANL-910) is an audio feedback device that changes frequency (tone) as a function of input voltage. Dual following integrator (ANL-610) consists of a precision full-wave rectifier and an adjustable integrator with identical rise-and-fall time constants. It can provide a measure of electrical activity or be used as an input to the voltage-controlled oscillator and audio amplifier. Five four-digit LED counter and display (DIG-800) applications in data logging. The combination of a counter and holding register allows the user to record the stationary data in the display while accumulating additional data in the counter. ECG filter (ANL-141) sharp cut-off high-pass filter used to reduce ECG interference in EMG recording. Digital modules available: inverter module (DIG-100), AND gate module (DIG-110), OR gate module (DIG-120), "D" flip-flop (DIG-120), decade counter (DIG-140), one shot (DIG-150), input shaper (DIG-160), level converter (DIG-170), and switch/pushbutton module (DIG-190). MED Associates, Inc., Box 47, East Fairfield, Vermont 05448. Send inquiries Attn: Karl R. Zurn.