new products

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. PHYSICS TODAY can assume no responsibility for their accuracy. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Digital frequency meter

Low frequencies can be measured at very low signal inputs away from power supplies with a portable, digital frequency meter that is claimed to be the first to operate from internal batteries. Produced by Compact Instruments Ltd, a British firm, the FM6000 frequency meter provides two standard measuring ranges, 2–99.99 Hz and 20–999.9 Hz. A third range covering 50 Hz to 10 kHz can be added. Standard voltage input is 24 to 260 V ac, but nonstandard versions can operate from signal inputs of 50 mV.

When the instrument is connected to a generator by a two-core cable, frequency is indicated to an accuracy of ± 1 digit over the whole range of measurement; resolution at low frequencies is 0.01 Hz. A low-signal-frequency model is also available for use with optical sensing to measure rev/sec on rotating machinery. Results are given on a four-digit LED display. The time base is generated from the meter's internal quartz crystal. The unit is powered by four 1.5-V alkaline batteries.

Measuring $6'' \times 3.5'' \times 1.2''$ and weighing 15 oz, the meter is small and light enough to hold in one hand. It comes with a 6.6-foot input cable, carrying case, wrist strap and batteries. The standard instruments are said to be particularly suitable for small portable generating sets not fitted with frequency meters; the nonstandard versions are useful for checking electronic frequency generators, particularly low-cost oscillators. In the US, inquiries should be sent to *Compact Instruments, c/o Georgia Engine Sales & Service Co, Suite 116, 3440 Oakcliff Road, Atlanta, Georgia 30340*

Circle number 140 on Reader Service Card

Mobile leak detector

Alcatel is offering a new cart-mounted leak-test station, designed for use as an evacuation and leak-detection service unit. The model MASM is an extremely compact, self-contained system, providing a larger roughing capacity plus a number of operating features that, we are told, are not found on any other system of this type.

The system consists of an Alcatel ASM-10 leak detector (sensitivity 2×10^{-11} atm cc/sec He), a supplementary roughing pump (11 or 27 cfm displacement), a mist eliminator, a roughing manifold and a 20 ft^3 medical-size helium bottle with gauge and regulator. For mobility and convenience, the complete system is mounted in a rugged cart with 5-inch casters, rear wheel locks and four storage drawers.

Model MASM is said to be designed for easy, fail-safe operation. There are no special start-up or shut-down procedures, and incorrect operating procedures or power failures do not affect the system. *Alcatel Vacuum Products, 40 Pond Park Road, South Shore Park, Hingham, Massachusetts 02043*

Circle number 141 on Reader Service Card

Audio spectrum analyzer

The Digital Sona-Graph, model 7800, from Kay, is a general-purpose dc–16-kHz spectrum analyzer suitable for

new products

many applications. These include the testing and measurement of nonstationary acoustic phenomena such as speech telecommunication channels, Doppler shifts, engine start-up, explosions, sonar, reverberations, animal sounds, pass-by analysis, synthetic speech, voice, musical instruments and heart sounds.

The Digital Sona-Graph stores the input signal at real time rates up to 16 kHz. The input signal is stored in a large 64 K-word (10-bit words) RAM memory; optional memory extends storage to 128 K words. The stored signal is batch analyzed and presented in a variety of display formats. The stored signals are resolved into their frequency, amplitude and duration components, which are displayed on high resolution Sonagrams. The stored signal can be analyzed in six different modes. The three-dimensional display mode reveals the signal in its entirety, so that frequency shifts over time can be seen directly. A Sonagram is produced in 20 to 80 seconds. A choice of five different filter bandwidths is available in this mode. The desired location of the time-domain (amplitude vs. time) display mode or frequency-domain (amplitude vs. frequency) display mode may be chosen with precision. Fundamental frequency vs. time, the amplitude envelope of the signal, and a contour-type display are also available.

The large 64-K memory eliminates the problem of triggering when analyzing transients, and it will store 2.56 seconds in the range from dc to 8000 Hz. *Kay Elemetrics, 12 Maple Avenue, Pine Brooks, New Jersey 07038*

Circle number 142 on Reader Service Card

Fiber-optic tester

Fotec has introduced a new benchtop tester for fiber-optic components. The Model I 1000 is designed to test the electro-optical characteristics of LEDs, lasers, photodetectors, transmitters, receivers, fiber, cables, connectors, splices and couplers. The instrument's versatility is attributed to the separation of its electronic and optical functions. The I 1000 console contains the electronics needed to drive sources and measure the outputs of detectors, while devices being tested are fixed on a removable performance board similar to those used on IC testers. By choosing the proper combination of components and performance-board interface circuitry, one can test any component of the fiber-optic system.

The I 1000 includes two current drivers for fiber-optic sources, which can be programmed for dc or pulsed-peak current, with or without an adjustable pedestal or bias current, up to 250 mA. These drivers can be used with an internal square-wave generator, with a frequency range from 2 kHz to 20 MHz, or with an external pulse generator to vary frequency and duty cycle. Two complete measurement channels are also provided, to measure detector current directly or optical power with calibrated detectors. The dual channels of source and measurement electronics allow, for example, simultaneous testing of duplex-fiber optic cables.

A unique feature of the I 1000 is a sweep generator that can display characteristic curves of optical power versus current for LEDs and lasers directly on an oscilloscope. Thus one can easily see where LEDs saturate and lasers begin lasing. This tells one how

high a current should be used to drive LEDs or where to bias lasers. Two $4\frac{1}{2}$-digit displays are provided for readout of all test and measurement parameters. Two voltage inputs are also available for readout of specialized functions implemented at the performance board. The Fotec I 1000 is priced at approximately $4000. *Fotec, 560 Harrison Ave., Boston, Massachusetts 02118*

Circle number 143 on Reader Service Card

New Fortran

DEC has announced a new version of FORTRAN for its DEC system-10 and DEC system-20 mainframes. Called FORTRAN-10-20 Version 7, the new version supports most of the features of Full Language FORTRAN-77 standard and meets the Subset Language FORTRAN-77 standard. FORTRAN-10/20 runs under the TOPS-10 and TOPS-20 operating systems and is compliant with the Subset Level ANSI standard FORTRAN-77.

The new software, we are told, offers many improvements over Version 6. These include full FORTRAN-77 character data, structured programming, enhanced single- and double-precision arithmetic, native TOPS-20 command interface and enhanced I/O perfor-

mance. The new version will enhance FORTRAN-10/20's unique interactive debugging aids, the reentrant (sharable) compiler and run-time system, and its globally optimizing compiler. Version 7 is priced at $11 500. A descriptive publication, "FORTRAN-10/20, Version 7," may be obtained from *Digital Equipment Corporation, One Iron Way, MR02-2/8D2, Marlboro, Massachusetts 01752*

Circle number 144 on Reader Service Card

Vacuum ovens

The new Squaroid vacuum ovens from Lab-Line are said to be useful in industrial and research labs for drying under carefully controlled conditions at either normal atmosphere or down to 30 inches of vacuum. Desiccating, vacuum embedding, plating and electronic process control are all made easy, we are told. Under carefully controlled conditions with temperatures from slightly above ambient to 220 °C, these ovens may also be used with non-corrosive, nonflammable gases such as nitrogen.

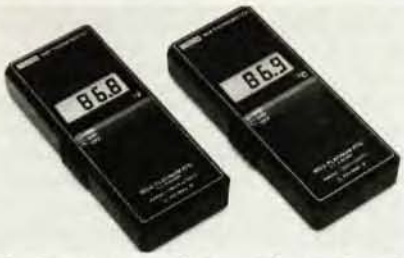
The radiant warm-wall heat, with no internal exposed heaters, provides uniform heating while conserving chamber space. Temperatures are controlled by a hydraulic thermostat. The built-in safety thermostat automatically prevents the oven from exceeding the maximum set temperature. *Lab-Line Instruments, Lab-Line Plaza, Melrose Park, Illinois 60160*

Circle number 145 on Reader Service Card

Thermometers

Keithley has introduced four new digital thermometers. With their thermistor and RTD sensors, these new units offer increased accuracy over thermocouple meters, we are told, and they have 0.1° sensitivity (C or F). This sensitivity, we are told, belies their ruggedness. The large liquid-crystal displays make these instruments particularly easy to read. The probes (thermistor and RTD) are stainless steel, with tips designed for specific applications. Large handles and strain relief serve to eliminate problems with frayed cords.

Models 868 and 869, intended primarily for research and petrochemical applications, are handheld digital thermometers designed to use 100-ohm platinum RTD temperature sensors for high accuracy and long-term stability. Model 869 has two switch-selectable ranges: from −199.9 °C to +199.9 °C with 0.1 °C resolution, and from −220 °C to +630 °C with 1 °C resolution. Model 868 measures similar ranges in Fahrenheit. Both instruments are designed for use with probes conforming to the DIN 43 760 standard. Although these units are designed for



4-wire accuracy, they may be used with either 3-wire or 4-wire temperature probes. The 9V alkaline battery will last for about 500 hours of continuous operation, we are told. *Keithley Instruments, 28775 Aurora Road, Cleveland, Ohio*

Circle number 146 on Reader Service Card

Light pulse generator

The model 6010 from Berkeley Nucleonics is described as "a new type of light generator that offers the versatility and functions previously found only in pulse generators." With this instrument one can control and vary pulse repetition rate, pulse width, pulse delay and peak power level. The instrument is intended for fiber-optic and electro-optic applications.

The model 6010 is both a light-pulse generator and a stabilized (steady-state) light source. It can operate in both pulse and cw modes for applications in digital, analog, time or amplitude domain testing. It offers continuously variable control of pulse rate, width, delay and power level. A double-pulse mode, which provides two light pulses with variable spacing, is useful for pulse-pair resolution, system response, and general-purpose timing tests. In the external trigger mode, the output light pulse follows the rate of an incoming data train. In the external-drive mode, the light pulse follows both the rate and width of an incoming waveform. Operating at either 660 nm (model 6010A) or 820 nm (6020B), the model 6010 has the capability of producing linear, stabilized light power levels in both pulse and cw modes. *Berkeley Nucleonics, 1198 Tenth Street, Berkeley, California 94710*

Circle number 147 on Reader Service Card

New literature

Leak detectors—Alcatel's new 34-page catalog of helium leak detectors describes, we are told, "the widest range . . . on the market today." The firm also offers a new 16-page catalog of its line of mechanical vacuum pumps. *Alcatel Vacuum Products, 40 Pond Park Road, South Shore Park, Hingham, Mass. 02043* □