Code your own keyboard

'Kit' gives user choice among 128 schemes, saving prototype costs;
pressure buildup and release in each key lets operator feel when data enters

"Wire it yourself, or give us your specs and we'll wire it for you." It's user's choice with the keyboard kit marketed by Cherry Electrical Products Corp.

The kit includes a printed circuit board with the electronics already laid out, plus up to 64 keys and a space bar. The customer develops his own encoding scheme and wires the keys with Wire-Wrap or Termi-Point contacts. This approach avoids the large initial costs of producing a breadboard model to check out prototype equipment.

Guy MacArthur, project engineer at Cherry, points out the advantages to the once-only user: "It generally costs the keyboard manufacturer about six weeks and $2,000 in p-c board layout and engineering time to make an evaluation prototype. With our Wire-Wrap version it takes only about half a day of our time to lay out the board and about two hours of a technician's time to wire it up." The price, depending on the options, will run between $250 and $375.

The following features can be incorporated with the keyboard: single, dual, or tri-mode (unshifted, shifted, and control) outputs, shift
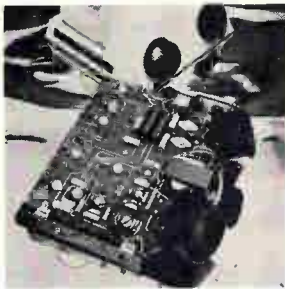
Compact acoustic coupler, called Coupler II, will accommodate data transmission rates up to 300 baud. It incorporates an acoustic cup fitting which mounts the telephone hand set on an angle, thus retarding the carbon build-up which occurs in vertically mounted hand sets and destroys their operation after a time. Communications Logic, 6400 Westpark, Houston [381]

Data set type 7103 provides full-duplex asynchronous digital transmission at rates to 300 baud on standard voice-grade telephone lines. It is interchangeable with the Bell System 103 data set. It is available in three modes: originate-only, answer-only, and automatic selection for originate or answer operation. Tele-Dynamics Div. of AMBAC Industries Inc., Ft. Washington, Pa. [382]
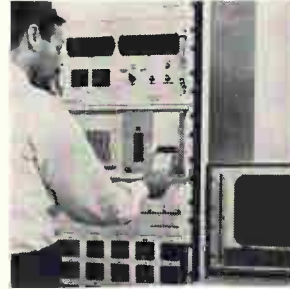
Video display unit presents up to 50 inputs in the form of individual vertical bar charts on one cathode-ray tube. It is available as optional equipment for the company's digital data acquisition systems. The crt displays information in a much more readable form than a 24-point strip chart recorder. Electronic Modules Corp., P.O. Box 141, Timonium, Md. 21093 [383]

The Datapoint 2200, referred to as an "intelligent terminal", offers keyboard entry, video display, dual magnetic tape cassette unit for both program and data storage, automatic Bell System compatible communication capability, and general purpose computing. The desk-top unit features a crt display. Computer Terminal Corp., 9725 Data Point Dr., San Antonio, Texas [384]
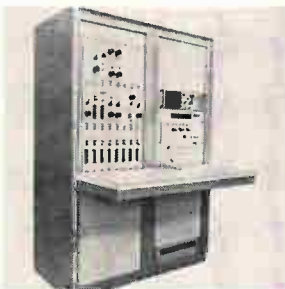
Automatic computer memory plane and stack tester model 101 is a universal system that will test any 2D, 2½D, or 3D memory core array, or larger stacks by sections. Model 101 has five strobe discriminators for precise definition of the output wave shape. Price is $35,000. Delivery can be made in 90 days. Dataram Corp., Route 206, Princetop, N.J. 08540 [385]

Single-capstan, vacuum column digital tape transport is designed for low cost computer and data acquisition applications. Designated SC1035, the unit provides bidirectional tape speeds to 45 inches per second and data reliability features. Pinch rollers and mechanical adjustments have been eliminated. Potter Instrument Co., East Bethpage Rd., Plainview, L.I., N.Y. [386]
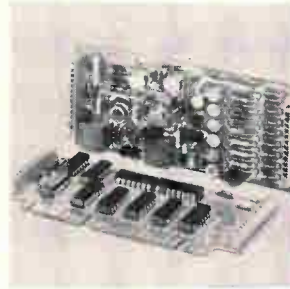
Nine-bit A/D converter model 6409 features high speed (greater than 250,000 conversions/sec), small size (4.5 x 2.16 x 0.75 in.), and low cost ($335). It uses a capacitance decoupler circuit that greatly reduces accumulated diode capacitance and simplifies the coupling to the TTL logic section of the converter. Data Technology Corp., 1050 E. Meadow Cr., Palo Alto, Calif. [387]

Disk drive 441 Twin-Pac offers benefits of two separate disk drives, at near single-drive cost, to users of small- to medium-size computers. Each disk pack stores 23.2 million bits on four surfaces for a total of 46.4 million bits. Transfer rate from one pack to the other is 15,000 eight-bit bytes per sec. Century Data Systems Inc., S. State College Blvd., Anaheim, Calif. [388]

Circle 115 on reader service card →
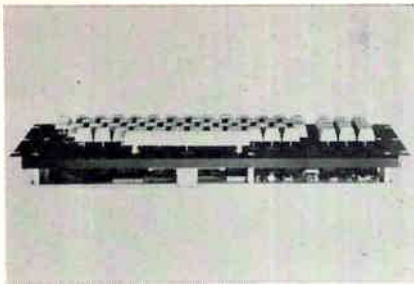
On key. Typing data is easier with built-in "feel" mechanism.

lock, positive or negative logic, seven-bit output or eight-bit with parity, and steady state or pulsing strobe. In addition, N-key rollover can be added on a small second-level board. A typist can then press several keys and produce the proper outputs from each key regardless of the sequence with which the keys are released.

The kit includes all the features of Cherry's new keyboards shown last week at Wescon.

The hardwired electronics consists of a 1-megahertz free-running multivibrator, an eight-stage binary counter, a 1-of-16 decoder, a one-shot multivibrator, and three multiplexers.

The free-running multivibrator generates a 1-Mhz clock frequency, which is used to operate the counter. The four least significant bits of the counter are continuously scanned by the 1-of-16 decoder, the three most significant bits by the three multiplexers. The fact that only one of the multiplexers can be active for any one mode provides flexibility in changing codes for shift, unshift, and control modes. The operator can go from lower case to upper case (shift) to control case and sometimes to a numeric case from one key. This four-way freedom results from depressing the basic key, which will normally produce the lower case code, and simultaneously depressing the shift or control, or numeric mode key.

Matrix. Encoding is accomplished by a matrix, which represents 128 possible codes. To wire a key for a desired code, the proper connection is made between the decoder output and multiplexer input with the Wire-Wrap or Termi-Point contacts. When the key is depressed, an electrical path is provided between the decoder and the multiplexer, which in turn

gates a pulse to the one-shot multivibrator, generating a timing pulse that stops the counter at the selected code.

One unusual feature of the unit that aids the operator in typing in data is "keys that feel." Each key comprises a spring and magnet assembly which exerts an upward force against the operator's fingers. When the key is being depressed and travels a certain distance, the magnet's threshold is overcome prying it loose. The force against the finger is released and a click sounds indicating the transfer of data.

Cherry Electrical Products Corp., 3600 Sunset Ave., Waukegan, Ill. 60085 [389]

Data handling

Versatile terminal is simple to use

Interactive machine
uses MOS buffer as
recirculating register

Too many data terminals on the market are "built by pro's for pro's," according to Arthur J. Murphy senior vice president of Western Data Products Inc. "We're aiming at applications in which untrained people need to enter data into a computer."

Charles McGehee, director of program management for the Los Angeles firm, says the WDP-1070 will fill the gap between simple units that read bar-coded cards and use a 10-key set to communicate with a computer, and the highly sophisticated systems that include cathode-ray tube displays with 1,024 characters of information. An interactive terminal, the WDP-1070 uses a 256-character MOS buffer as a recirculating shift register. Consisting of 6 chips, the register provides 16 lines, each containing 16 characters. Any line may be addressed at any time, and its contents displayed on a 5- by 7-dot matrix display—a convenient capability when correcting errors.

The WDP-1070 transmits in ASCII code using frequency-shift key-

ing at 10 characters per second. As an alternative, it can be provided with a Touch-Tone voice answerback communications system. The 16-character dot-matrix display is standard; a 32-character and a two-line 64-character display panel will be offered as options.

In a typical operation, a medical secretary enters information from an insurance form and avoids processing a claim through the mail. The 16 lines of 16 characters provide enough space for the information needed in this type application. She enters the patient's name, birthdate and other pertinent data with a standard teletypewriter keyboard. After being displayed for verification, the data is stored in the buffer. By pressing a memory transmit button, the secretary dispatches the data to the insurance company's central computer.

The terminal could be used in real-time keyboard-to-computer communications, such as inventory control and cost collection. In the latter case, an operator enters an employee's card number and his time on a given job into a computer, obviating the need for keypunching or key-to-tape operations.

The terminal with ASCII and 16 characters of alphanumeric display sells for about $1,000 in quantities of 100. Delivery takes 90 days after receipt of order. Other options include a magnetic card reader for entering repetitive data, a cassette recorder with 10,000 characters for applications in which batch processing rather than real-time interaction with the computer is desired, and either a strip printer or page printer. Addition of these options boosts the price to about $3,000 in quantities of 100.

Western Data Products Inc., 2531 Pontius Ave., Los Angeles 90064 [390]

On line. Keyboard, card reader, or cassette recorder are used to transmit data to computer.