Data handling

Keyboard sells in $50 range

Simplified key switch, calculator market growth help to reduce price

An elegantly simple key switch already being used in most American-made calculators appears to be a major factor in what Controls Research Corp. calls the lowest-cost standard alphanumeric keyboard on the market. The fully decoded 53-key board is priced at $49 each in quantities of 5,000, or $53 in quantities of 1,000. The company also makes conventional reed-relay keyboards.

The Santa Ana, Calif., company developed the basic switching mechanism, Bi-pac, in an effort to make a minimum-cost, reliable product for high-volume calculator applications. The contacts consist of two concentric gold-plated springs, one larger and taller than the other, and ending in a straight section across the diameter of the top. The larger spring is depressed by a plastic keytop, making dual contacts with the inside spring, and the spring action provides both operator feel and return action. The ends of the springs are continued through the mounting plate, where they form the terminals. Only five parts are used, and only three move; typical key switches are made with from six to 12 parts.

Controls Research is supplying the switch in quantity (about 750,000 closures per month) to such calculator companies as Eldorado, Commodore, Master Calculator, and Garrett Comtronics, and to makers of point-of-sale and other nonstandard terminals. The keys are manufactured in modules of four, five, or six switches, and the different modules are staggered in the alphanumeric keyboard for maximum stiffness, compared to keyboards using individual keys. The mechanism has been tested to over 10 million cycles per switch, says Keith A. Sharp, president. The model 7100 keyboard provides four-mode ASCII coding, two-key rollover, low-profile design, dynamically scanned TTL MSI encoding, and standard typewriter keyboard configuration.

James P. Antrim, marketing vice president, attributes the low price of the keyboard to a combination of more than merely a simplified switch. He cites manufacturing economy, including an assembly plant in Tijuana, Mexico, and heavy market penetration by the basic switch.

"The rapid growth of the calculator market is chiefly responsible for the lower-price keyboards," says Antrim. The price of low-cost calculators virtually eliminates reed, solid-state, or other high-price-per-contact key switches. He says that more than 200,000 Bi-pac switch modules and calculator keyboards have already been installed. It's this extensive use that made the low-cost alphanumeric keyboard a profitable venture.

Antrim points out that keyboard prices have dropped significantly in the last few years—from about $195 in 1969 to $95 early this year. "Of course, the possibility of an 8-million-piece keyboard market by 1975 does give an added incentive," comments Antrim. It is estimated that calculators alone will account for about 50 million key switches by 1975. Switches for terminals should reach some 30 million in the same period.

Although there is some confusion regarding market projection, Antrim predicts that, besides calculators, a large portion of market growth will be in traditional data processing equipment—key-to-storage devices, terminals, and data recorders.

Sample delivery of the keyboard is from stock. Special configurations are also available.

Controls Research Corp., 2100 S. Fairview, Santa Ana, Calif. 92704. [361]

Key-to-disk system handles up to 64 stations

Real-time data editing capability is a feature of the model CMC 18 Keyprocessing System that can support up to 64 stations. The unit provides 29 million characters of intermediate disk storage and includes a user language for entry of special data validation problems. Also featured are automatic insertions of

frequently used constants, and conditional data-checking branches. The unit can be configured in a panel display, with a video display, or intermixed. Price is $2,800 a month, plus $70 for each keystation.

Computer Machinery Corp., 2231 Barrington Ave., Los Angeles, Calif. 90064 [365]

Disk/formatter provides random access in 75 ms

A large-capacity data storage/retrieval system for use in small-to-medium-scale data applications is called the Mega-Stor. The combination disk/formatter allows a choice of 12, 16, 24, or 32 sector sizes, and sector data formats are from 32 to 256 words. Disk spindle speeds are 1,500 or 2,400 rpm, and average random data access time is