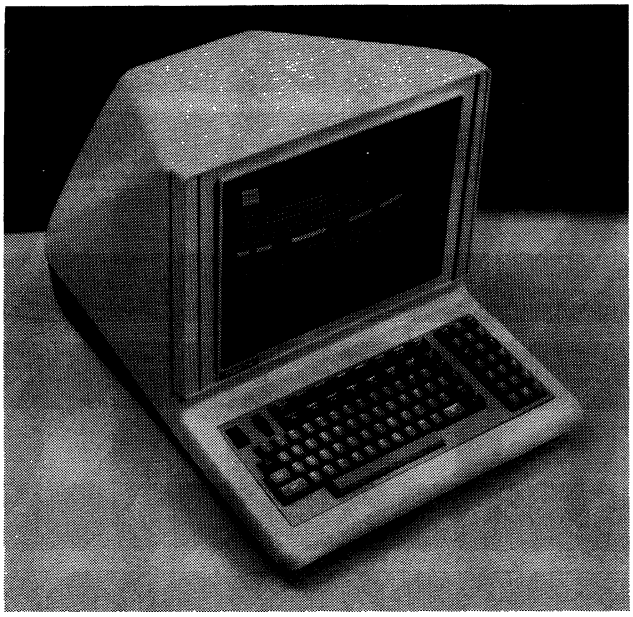
Omron 8030 Display Terminal



Intelligent, stand-alone, general purpose display terminal for point-to-point communications.

Standard features include microprogram control, selectable transmission rates from 110 to 9600 bps, block or character transmission, full editing, scrolling, paging, format protection, keyboard selectable transmission parameters, etc. Options include two to ten display pages, up to 65K bytes of memory, a printer interface, and a current loop interface.

The 8030 is priced below $3,000; both OEM and end-user quantity discounts are available.

MANAGEMENT SUMMARY

Omron addressed the intelligent display terminal market in June 1973 when it introduced its initial product, the Omron 8025, a microprocessor-based, firmware-controlled display terminal loaded with features. The 8025 contains an Intel 8008 microprocessor, features a large display screen (15 inch diagonal) with a 1920-character display capacity, and is available with up to 16K bytes of combined RAM and PROM memory. Deliveries of the 8025 began in June 1974, and over 1600 terminals had been delivered as of October 1976. Omron introduced the 8030 in May 1976. It supersedes the 8025 and is essentially an enhanced version of the 8025, which is now in limited production.

The Omron 8030 has the same attractive physical appearance, screen size, and display capacity as the 8025, but it boasts the more powerful Intel 8080 microprocessor and a significantly larger memory capacity of up to 65K bytes in user-specified combinations of PROM and RAM storage. However, it is not user-programmable. Omron's ETOS firmware, used to execute 8025 functions, was retained for the 8030. The 8030, like its predecessor, the 8025, is loaded with features, and its low price tag of just under $3,000 (in unit quantities) makes it a most attractive offer.

Salient features of the Omron 8030 include:

- 1920 character screen.
- One to four display memory pages.
- 128- or 224- (optional) displayable symbols.

CHARACTERISTICS

VENDOR: Omron Corporation of America, Information Product Division, 432 Toyama Drive, Sunnyvale, California 94086. Telephone (408) 734-8400.

DATE OF ANNOUNCEMENT: May 1976.

DATE OF FIRST DELIVERY: August 1976.

NUMBER DELIVERED TO DATE: Over 300.

SERVICED BY: Omron and third party.

CONFIGURATION

The Omron 8030 is a stand-alone display terminal that includes a display monitor and a separate detachable keyboard. The 8030 contains an Intel 8080 microprocessor and can accommodate up to 65K bytes of ROM and/or RAM semiconductor storage. At least 2K bytes of RAM memory are required for display memory; 4K bytes of ROM are required for ETOS. Up to 10 1920-character pages of memory can be specified as display memory. The 8030 provides 16 slots for plug-in memory; each slot accommodates 4K bytes of memory.

An optional RS-232 printer interface accommodates most of the more prominent serial printers.

TRANSMISSION SPECIFICATIONS

Transmission is asynchronous or synchronous in the half- or full-duplex mode at strappable and command-selectable transmission rates of 110, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, or 9600 bits/second, or a user-keyed rate. The ASCII transmission code is used. Parameters including data rate; character length; odd, even, or no parity checking; and number of stop bits are specified by strap selection or by keyed command (an Escape sequence). Character length can be specified as 5, 6, 7, or 8, bits; stop bits can be set for 1, 1.5, or 2 stop bits. Transmission parameters selected by keyed commands revert to strap selections when

© 1976 DATAPRO RESEARCH CORPORATION, DELRAN, N.J. 08075
REPRODUCTION PROHIBITED

Omron 8030 Display Terminal

- Foreign character sets.
- Addressable/readable cursor.
- Format generation and protection.
- Full cursor controls.
- Full edit functions.
- Scrolling and paging through memory.
- Tabulation between tab settings and unprotected fields.
- Highlighting of displayed fields.
- Numeric/function keypad.
- Block and character transmission modes.
- Synchronous/asynchronous operation.
- Keyboard selectable transmission parameters.
- A wide range of transmission rates from 110 to 9600 bps.
- An optional serial printer interface.

The 8030 can accommodate a number of prominent serial printers including the GE TermiNet series, DECwriter II, Diablo HyType I or II, NCR 260, Texas Instruments Silent 700 Series, Centronics, Tally, and Teletype RO.

Omron plans to introduce a family of user-programmable versions of the 8030 in the first quarter of 1977 that will load user programs from diskette storage (also planned for the first quarter of 1977) or down line from the host computer. These versions will give the user the flexibility of developing special application programs based on Omron high-level language packages, which can then be converted to firmware or retained as diskette-resident or host-resident programs.

The Omron Data Entry Program (ODEP), originally introduced for the 8030, will be made available for the user-programmable versions only.

Omron is also evaluating printers and plans to make two printers (low and medium speed) available with the new terminals.

Omron's market is that of large end-users, OEM customers, and distributors.□

power is removed from the terminal or when the terminal is reset. The 8030 provides compatibility with the Bell System 202C modem. The 202C feature, when specified by command, sustains the Request-to-Send siginal for 4 milliseconds after the block termination character is transmitted; in character mode, the RTS is sustained when the transmit buffer becomes empty. The 8030 is equipped with an RS-232C interface; a 20 or 60 ma dc current loop interface is optional.

DEVICE CONTROL

The Omron 8030 features microprocessor control via the Executive Terminal Operating System (ETOS), a firmware operating system that resides in 4K bytes of ROM. Via ETOS, the 8030 responds to keyed commands or received control codes (in the form of Escape Sequences) by initiating the defined function. Terminals with two or more pages of memory can display any 1920-character segment of the total memory via scroll and paging functions.

Transmission is performed in the *Block or Character modes.* The entire contents of RAM memory can be transmitted in the Block mode. The Character mode transmits a character for each key depression.

The 8030 also features the *Protected Format mode,* which supports a displayed format for structured data entry applications. Protected fields are delimited by attribute codes, which restrict operator entry to unprotected or variable fields. Tab and backtab functions move the cursor between unprotected fields. Protected fields can specify automatic tabbing. An unprotected field can be delimited as non-alphabetic; all special symbols but five can be entered. The size of the protected format is not limited by screen capacity, but by memory capacity. The Protected Format mode when initiated, displays the first page in memory with the cursor located at the beginning of the first unprotected field.

A tab function initiated when the cursor occupies the last unprotected field displayed (but not the last in memory) will cause scrolling until the next unprotected field is encountered. If the cursor occupies the last unprotected field in memory when the tab function is initiated, an audible alarm is sounded, the cursor moves to home position, and the first page of memory is displayed.

The backtab function is performed similarly to the tab function in protected mode, and will cause the displayed data to scroll down as the cursor moves through unprotected fields toward the beginning of memory, until the cursor is positioned at the first unprotected field in memory. An audible alarm sounds if tabbing is initiated when the cursor occupies the first character position of the first unprotected field in memory.

The new line function when used in the Protected Format mode moves the cursor to the beginning of the next line where the cursor is then automatically tabbed to the beginning of the next unprotected field. If the cursor occupies the last unprotected field in memory when the new line function is initiated, the result is the same as that of the tab function.

In the Protected Format mode, the clear line function clears all unprotected data from the cursor to the end of the unprotected field or line occupied by the cursor. There are three memory clear functions: (1) clear all unprotected fields from the cursor to the end of memory or the first STX or ETX characters, (2) clear all unprotected fields from the beginning of memory to the first STX or EXT character, and (3) clear all unprotected fields from the beginning of memory or first STX or ETX character to the end of memory or next STX or ETX character. The first memory clear function results in a blank form with the cursor located as in the first memory clear function. The third memory clear function results in a partially or completely blank form with the cursor located at the beginning of the first unprotected field following the beginning of memory or the first STX or ETX character.

© 1976 DATAPRO RESEARCH CORPORATION, DELRAN, N.J. 08075
REPRODUCTION PROHIBITED

Omron 8030 Display Terminal

Forms Load and Quotation modes are also featured. Forms load mode permits a format including attribute codes that define the fields to be entered into memory. Quotation mode provides "transparency" for entering control characters in memory without interpretation and resulting action.

Cursor control functions are initiated via keyed commands or received control codes that move the cursor up, down, left, right, home, to the beginning of the same line (carriage return) or to the beginning of the next line (new line). Cursor addressing and sensing are also provided. The cursor can be positioned to any location in memory and is not restricted by the screen capacity. Cursor left and right functions feature wraparound; as the cursor is moved to the right (or left) when the last (or first) display position is occupied, the displayed data automatically scrolls up or down by one line until the beginning or end of memory is reached. Cursor up and down functions move the cursor up or down in the same column, line-by-line until the cursor occupies the first or last line; the displayed data will then automatically scroll up or down by one line until the cursor occupies the first or last line in memory. When the first or last line is encountered, a cursor up or down command sounds the audible alarm (beep). Protected fields preclude cursor left or right movement in the Protected Format mode, and the audible alarm is sounded. Tab functions include set or clear; tab stops are set or cleared on an individual basis at the cursor location. Up to 16 tab stops can be assigned to any one line via a tab stop table. In Protected Format mode, the Tab key positions the cursor to the first character position of the next unprotected field.

Scroll and Page functions are initiated via keyed commands or received control codes. Scroll functions scroll the contents of memory up or down by one line before the display screen. Page functions display the previous or next 24-line segment (page) of memory. These functions terminate when the beginning or end of memory is reached, at which point the audible alarm sounds if the function is repeated.

Edit functions initiated via keyed commands or received control codes include character and line insert and delete; these functions are disabled in the Protected Format mode. The character insert or delete function is restricted by the line occupied by the cursor; data entered into a full line causes data to be shifted off the end of the line and lost. Line insert and delete functions affect the entire memory; a line insert function causes all lines to be shifted down by one line and the last line in memory is lost if all memory locations contain data.

Clear functions include line, screen, memory, and block clear. The line, screen, and memory erasure functions erase all data beginning at the cursor location to the end of the same line, screen, or memory, respectively. Block erasure erases all data between an STX or ETX and the next STX or ETX or from the beginning of memory to the end of memory. (Clear functions are performed differently in the Protected Format mode; see above.) Clear functions can be initiated via keyed commands or received control codes.

Display highlighting is implemented via attribute codes (an escape Sequence) that specify normal or half intensity, blanking, reverse video, blinking, underscore, reverse video with blinking, and reverse video at half intensity. These attributes can be used in the Protected Format mode to define specific fields.

COMPONENTS

CRT DISPLAY UNIT: A 15-inch (diagonal measurement) CRT with a viewing area 8 inches high by 10 inches wide. The display arrangement is 24 lines of 80 characters each for a total of 1920 character positions. The standard character set includes 128 displayable ASCII symbols including upper and lower case alphabetics, numerics, specials, and graphic symbols that represent each of the ASCII control codes. The standard character set is expandable to 96 additional symbols for a total of 224 displayable symbols. Several foreign character sets are available including French, Swedish, Katakana, etc. Symbols are formed within a 7-by-7 (upper case) or 7-by-9 (lower case) dot matrix; the increased matrix size for lower case characters accommodate the line descenders of characters such as g, j, p, q, and y. The standard half-dot shift feature effectively increases the matrix density from 7-by-9 to 14-by-9 dot positions, providing increased character resolution. Data is displayed in white. Standard display attribute functions include half and full intensity, zero intensity (blank), reverse video, and underscore. The display attributes can be combined to provide special effects. The cursor is displayed as a blinking underscore or as a blinking block when protected fields are displayed.

KEYBOARD: A 57-key, typewriter-style integral keyboard that also includes two additional rows of 8 function keys each, located over the main keygroup, and a numeric/function keypad to the right. Key functions within the main keygroup include Escape, Carriage Return, New Line, Tab, Shift, Lock, and Control Shift. The numeric/function keypad includes 12 numeric keys (lower portion) including decimal point and comma and independent cursor controls (upper half) for Up, Down, Left, Right, and Home cursor functions; Scroll Up and Down functions; and Previous and Next Page functions. The two additional rows of 8 function keys include Transmit, Carrier, Remote/Local, Half-/Full duplex, Clear, Character Delete, Character Insert, and Wait (top row, left to right), Print, Batch/Character mode, Protect Off/On, Null Suppress, Clear Line, Control Character Off, Upper Case, and Break (bottom row, left to right). Nine of these function keys are also switch indicators. The keyboard can be locked in upper-case mode.

PRICING

The Omron 8030 is available to end-users, OEM'ers, or distributors on a purchase basis only. Quantity discounts are provided. Installation is priced at $120 per terminal on a single-terminal basis, and the investment tax credit is passed on to the customer. On-site or factory training is available for large customers. Documentation includes an operators manual (provided with each terminal) and a maintenance manual, available for $75.

© 1976 DATAPRO RESEARCH CORPORATION, DELRAN, N.J. 08075
REPRODUCTION PROHIBITED

Omron 8030 Display Terminal

	Purchase Prices	
	End-user	OEM/ Distributor
Omron 8030 Terminal with 4K PROM, ETOS, one page of display memory (1920 characters), 202C compatibility, and RS-232C Interface—		
Quantity:		
1-9 units	$2,750	—
10-19 units	2,650	—
20-49 units	—	$2,100
50-99 units	—	2,000
100-149 units	—	1,875
150-199 units	—	1,825
200-249 units	—	1,800
Over 249 units	—	Contact vendor
Options		
RS-232 Printer Interface	275	225
Additional Display Memory:		
2nd page	200	150
3rd page	400	250
4th page	200	100
5th page	250	200
Curent loop Interface (20 or 60 ma dc)	125	100
Composite Video Interface	75	50
RS-232C Modem Cable	50	25

Contact vendor for pricing on ROM/RAM memory combinations up to 65K bytes.■

© 1976 DATAPRO RESEARCH CORPORATION, DELRAN, N.J. 08075
REPRODUCTION PROHIBITED