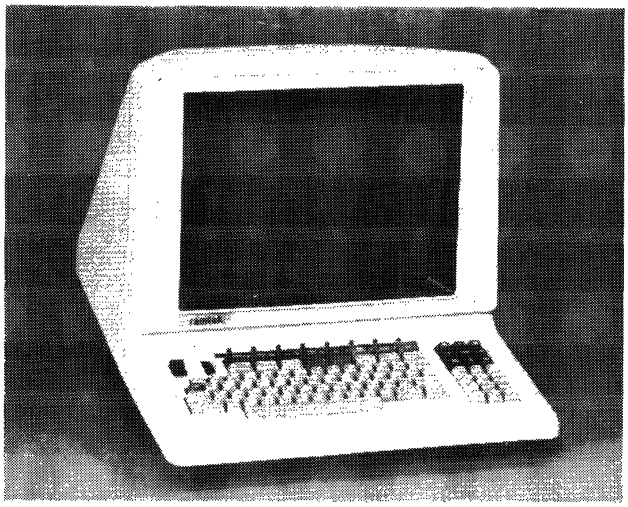
Ramtek 8120 Display Terminal



A firmware-controlled editing/formatting terminal designed for general purpose applications.

Standard features include block, line, or character transmission; forms generation and transmission; protected format; character and line insertion/deletion; and an RS-232C communications interface. Options include up to ten pages of memory, a 20/60 mA current loop interface, a composite video interface, and a serial printer interface.

The Ramtek 8120 is the former Omron 8030.

The end-user quantity-one price is $2,750; quantity and OEM discounts are available.

MANAGEMENT SUMMARY

The Ramtek 8120, formerly the Omron 8030, is a microprocessor-based, firmware-controlled display terminal with broad range of features. The 8120 is one of several products now being manufactured by Ramtek as a result of Ramtek's purchase of certain assets of the Information Products Division of Omron Electronics, Inc. in February 1979. Ramtek's market is primarily that of large end-users, OEM customers, and distributors.

Salient features of the Ramtek 8120 include:

- 1920-character screen.
- One to ten display memory pages.
- 128- or 224- (optional) displayable symbols.
- 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, line, and character transmission modes.

CHARACTERISTICS

VENDOR: Ramtek Corporation, 2211 Lawson Lane, Santa Clara, California 95050. Telephone (408) 988-2211.

DATE OF ANNOUNCEMENT: May 1976.

DATE OF FIRST DELIVERY: August 1976.

NUMBER DELIVERED TO DATE: Over 500.

SERVICED BY: Ramtek and third party.

CONFIGURATION

The Ramtek 8120 is a stand-alone display terminal that includes a display monitor and integral keyboard. The 8030 contains an Intel 8080A microprocessor and can accommodate up to 65K bytes of PROM and/or RAM semiconductor storage. At least 2K bytes of RAM memory are required for display memory; 8K bytes of PROM are required for ETOS. Up to 10 1920-character pages of memory can be specified as display memory. An optional RS-232 printer interface accommodates most of the more prominent serial printers.

Ramtek also provides a Model 8210, which emulates Univac's Uniscope 100 and 200 terminals. Although similar to the 8120 in most respects, the keytops have been modified, and both asynchronous and synchronous transmission supported, in accordance with Univac compatibility.

TRANSMISSION SPECIFICATIONS

Transmission is asynchronous in half- or full-duplex mode at transmission rates of 110, 300, 600, 1200, 1800, 2400, 4800, or 9600 bits/second. The ASCII transmission code is used. Parameters including data rate; character length; odd, even, or no parity generation and 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 com-

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Ramtek 8120 Display Terminal

- Keyboard selectable transmission parameters.
- A wide range of transmission rates from 110 to 9600 bps.
- An optional serial printer interface.

The 8120 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.

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

Ramtek also offers a Univac-compatible version of the 8120, Model 8210, which emulates the Uniscope 100 and 200 terminals.

USER REACTION

During October 1979, Datapro interviewed 5 users, whose names were supplied by Ramtek, and who reported their experience with a total of 291 Omron Model 8030 terminals. The terminals had been in use for periods ranging from one to three years. The ratings assigned by these users are listed in the following table:

	Excellent	Good	Fair	Poor	WA*
Overall performance	4	1	0	0	3.8
Ease of operation	4	1	0	0	3.8
Display clarity	5	0	0	0	4.0
Keyboard feel & usability	2	2	0	0	3.5
Hardware reliability	3	2	0	0	3.6
Maintenance service	0	2	1	0	2.7
Technical support	2	1	1	1	2.8

*Weighted Average on a scale of 4.0 for Excellent.

Overall, these users were extremely happy with their terminals. Some of the advantages cited included the lightweight, easy-to-move cabinet; attractive appearance; data highlighting functions; large screen with clearly-defined characters; and flexibility in communications and printer interfacing. Several customers expressed their appreciation of the company's willingness to customize the terminal for the user, including implementing special PROM's, adding memory, and enhancing the power supply, and to listen to, troubleshoot, and respond to their customers' problems.

Disadvantages mentioned by these users were centered on regular maintenance and technical service. Although most of them felt that serice was improving steadily, four of the five users found the company's resources limited in terms of the number and expertise of trained field service personnel. Among the problems experienced were lack of local support, slow response to calls for service, limited availability of service personnel, and lack of documentation for field representatives on customized units.□

mands revert to strap selections when power is removed from the terminal or when the terminal is reset. The 8120 provides compatibility with the Bell System 202C modem. The 202C feature, when specified by command, sustains the Request-to-Send signal for 4 milliseconds after the block termination character is transmitted; in character mode, the RTS is sustained when the transmit buffer becomes empty. The 8120 is equipped with an RS-232C interface; a 20 or 60 mA dc current loop interface is optional.

DEVICE CONTROL

The Ramtek 8120 features microprocessor control via the Executive Terminal Operating System (ETOS), a firmware operating system that resides in 8K bytes of PROM. Via ETOS, the 8120 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, Line, or Character modes.* The entire contents of RAM memory can be transmitted in the Block mode. The contents of a line can be transmitted in Line mode. The Character mode transmits a character for each key depression.

The 8120 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, and the cursor is positioned at the start of the last field in memory.

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 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. In addition, memory clear functions permit clearing of a page or the entire memory, clearing from the cursor to specified limits, and clearing all memory between delimiters.

Forms Load, Forms Transmit and Quotation modes are also featured. Forms load mode permits a format including attribute codes that define the fields to be entered into memory. Forms Transmit translates video and protected

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Ramtek 8120 Display Terminal

field attributes to appropriate escape sequences for transmission to the host, subsequent read-back-to, and recreation of the form onto the screen. 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 to the current screen display. 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 80 tab stops can be assigned to any one line. 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. 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. In Protected Format mode, line insertion/deletion are disabled and character insertion/deletion are restricted to the field currently being keyed.

Clear functions include line, page, memory, and block clear. The line, page, and memory erasure functions erase all data beginning at the cursor location to the end of the same line, page, 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, Line Feed, Tab/Backtab, Shift, Lock, and Control. The numeric/function keypad includes 12 numeric keys, including decimal point and comma; independent cursor controls 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 (top row, left to right) Transmit, Full Page/Partial Page Mode, Line Mode, Character Mode, Upper Case Lock, Character Delete, Character Insert, Carrier Detect/Break; (bottom row, left to right) Print, Half-/Full-Duplex, Function Mode, Clear Memory/Clear Line, Clear Partial Page/Clear Full Page, Line Delete, Line Insert, Receive/Reset. Eleven of those function keys are also switch-indicators and contain an LED indicator embedded in the keytop. Power On/Off and Brightness (thumbwheel) controls are also located on the keyboard at the left.

PRICING

The Ramtek 8120 is available to end-users, OEM'ers, or distributors on a purchase basis only. OEM discounts on purchases of 100 or more terminals are generally provided at a rate of 20 to 25 percent off the list price; contact Ramtek for details. 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 $50.

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	End-User Purchase Price					
	1-2 Units	3-5 Units	6-9 Units	10-24 Units	25-99 Units	100+ Units
Ramtek 8120	$2,750	$2,500	$2,300	$2,250	$2,150	Factory Quote
Ramtek 8210	3,200	3,100	3,050	2,850	2,695	Factory Quote

Options	Purchase Price
RS-232 Printer Interface	275
Additional Display Memory; per page; up to 9 additional pages maximum	200
Current loop Interface (20 or 60 mA dc)	125
Composite Video Interface	75
RS-232C Modem Cable	50
RS-232C Printer Cable	50

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

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