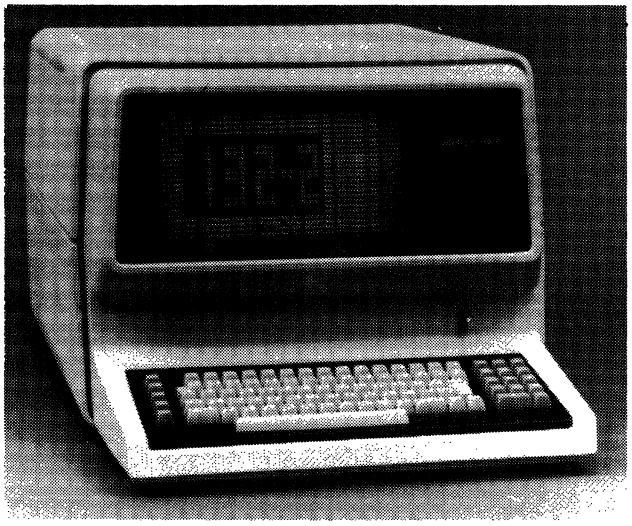
DatagraphiX 132 Series Display Terminals

MANAGEMENT SUMMARY

The DatagraphiX 132 Series display terminals are significant in the industry for two major reasons—the 132-column format, which is standard on all models in the series, and the high resolution, fully formed characters that are generated and displayed. The Model 132A was the first display terminal on the commercial market to offer 132 displayable character positions per line. The advantage of this feature is that it allows the terminal to accommodate data formatted for a line printer without the reformatting required for a conventional 80-column display. The subsequent models introduced by DatagraphiX, Models 132B, 132-1, 132-1D, 132-2, and the System 132-70 (an IBM 3270-compatible clustered system not covered in this report), offer different functions and capabilities along with the 132-column format.

The DatagraphiX patented Charactron display tube makes it possible for the terminals to display 132 clearly-formed characters per line. Its high resolution (equivalent to over 4000 TV scan lines per page) is the result of the Charactron's special character formation technique. The electron beam is shaped to form a character as it is extruded through one of 96 symbol patterns etched in a disk mounted within the tube. Characters are displayed in green on a dark background.

Models 132A and 132B are the senior members of the DatagraphiX terminal family; they also offer more capabilities than the other members. Both models feature two pages (60 lines) of display memory as standard, with a four-page memory optionally available. The operator ➢



The DatagraphiX 132-2 is the newest terminal in the 132 Series. Like the other members of the family, the 132-2 offers a 132-column format. Fully formed, high resolution characters are displayed using the company's patented Charactron cathode ray tube.

A family of microprocessor-based display terminals that offer 132-column display formats.

High resolution, fully formed characters are generated utilizing the company's patented Charactron shaped beam CRT. Five models are available, ranging from a basic terminal with no editing functions to units featuring two pages of memory and full editing capabilities. All models feature a typewriter-style keyboard.

Purchase prices range from $1,525 to $4,950. Quantity discounts are available. Models 132-1, 132-1D, and 132-2 are available for purchase only, while Models 132A and 132B are available for lease, as well as for purchase.

CHARACTERISTICS

VENDOR: DatagraphiX, Inc. (a subsidiary of General Dynamics), P.O. Box 82449, San Diego, California 92138. Telephone (714) 291-9960.

DATE OF ANNOUNCEMENT: Model 132A—March 1977; Model 132B—December 1978; Model 132-1 and -1D—June 1979; Model 132-2—September 1980.

DATE OF FIRST DELIVERY: Model 132A—August 1977; Model 132B—November 1978; Model 132-1 and -1D—January 1980; Model 132-2—November 1980.

NUMBER DELIVERED TO DATE: Information not available.

SERVICED BY: DatagraphiX.

MODELS

Five models are covered in this report: the 132A, 132B, 132-1, 132-1D, and 132-2. All five are microprocessor-based, stand-alone display terminals.

Models 132A and 132B feature display formats of 30 lines by 132 columns, for a total display capacity of 3960 characters. The standard models contain 8K bytes of display memory for storage of two pages; 16K bytes of display memory for storage of four pages is optional. Model 132A features cursor control, tabbing, and editing functions. Model 132B adds 12 function keys, expanded editing, and formatting.

Model 132-1 is a basic conversational terminal with no editing capabilities. The unit features 24 lines of 132 characters each, plus a 25th line for status information, for a display capacity of 3168 characters plus 132 status characters. Model 132-1D possesses all of the features of the 132-1, plus DEC VT-100 compatibility.

Model 132-2 expands on the features offered in the 132-1 by adding eight function keys, line and character editing, protected fields, and block mode communication. ➢

DatagraphiX 132 Series Display Terminals

can scroll through memory in either direction without losing data. A 15″ diagonal display screen with a 30-line by 132-column capacity is standard, as is a typewriter-style keyboard with numeric pad. A 96-character upper and lower case ASCII set is displayable. The 132A features full cursor control, cursor sensing and addressing, tabbing on 132 columns, digital display of cursor column, highlighting, and editing functions (character/line insert/delete, character overwrite, and backspace). The 132B expands on the capabilities of the 132A by adding formatting (protected fields), page and line editing, multiple page formats, and 12 function keys. Transmission rates for both models are switch-selectable at speeds from 110 to 9600 bps. Character, line, or block transmission modes can be selected via keyboard controls. The terminals are equipped with either an RS-232-C or 20mA current loop interface.

The Model 132-1, announced a little more than two years after the introduction of the 132A, is a basic conversational terminal with no editing capabilities. As with the 132A and 132B, the 132-1 offers high resolution characters and a 132-column format, but with a screen capacity of 24 lines instead of 30. A 25th line for displaying status information is included. The unit features a 12″ diagonal display screen and a typewriter-style keyboard with an 11-key numeric pad. Standard features include cursor controls with host sensing and addressing, 132 tabbing positions, dual intensity, blinking, underlining, clear to end of line, and clear to end of screen. Transmission rates are switch-selectable at speeds from 300 to 19,200 bps; an RS-232-C or 20mA current loop interface is included. The Model 132-1D offers all of the features of the 132-1 plus DEC VT-100 compatibility.

The newest addition to the DatagraphiX line is the Model 132-2. The 132-2 expands the capabilities of the 132-1 by adding eight function keys, line and character editing, protected fields, line highlighting, and block mode communication.

Optional printer interfaces are available with Models 132A, 132B, and 132-2.

USER REACTION

In Datapro's 1980 survey of alphanumeric display terminal users, responses were received from three users of the DatagraphiX 132 Series display terminals. (Datapro received no responses for DatagraphiX in the 1981 survey.) These users reported on their experience with a total of five DatagraphiX terminals. Their ratings are as follows:

	Excellent	Good	Fair	Poor	WA*
Overall performance	2	1	0	0	3.7
Ease of operation	1	1	1	0	3.0
Display clarity	3	0	0	0	4.0
Keyboard feel & usability	2	0	0	1	3.0
Hardware reliability	2	1	0	0	3.7
Maintenance service	2	1	0	0	3.7
Technical support	2	0	1	0	3.3

*Weighted Average based on a scale of 4.0 for Excellent.

DatagraphiX also markets the System 132-70, which offers IBM 3270 compatibility. This system will be covered in a later report.

TRANSMISSION SPECIFICATIONS

On the 132A and 132B, transmission is performed asynchronously in the half- or full-duplex mode at switch-selectable rates of 110, 150, 300, 600, 1200, 2400, 4800, and 9600 bits/second. The 8-level, 10- or 11-unit ASCII code is used. Odd or even parity can be switch-selected or parity can be disabled. The terminal is equipped with either an RS-232-C interface or a 20mA dc current loop interface. A serial printer interface is optional.

On the 132-1, 132-1D, and 132-2, transmission is asynchronous in half- or full-duplex mode at switch-selectable rates of 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps. ASCII code is used. Odd, even, or no parity can be selected. The terminal is equipped with either an RS-232-C or 20mA current loop interface. A serial printer interface is optional.

DEVICE CONTROL

Terminal control is performed via a microprocessor under the direction of PROM-resident firmware. Three transmit modes are provided for the 132A and 132B: Character, Line and Message. Model 132-2 transmits in Character or Message mode. In the Character mode, each character is transmitted as it is keyed. The Line mode transmits a full line of displayed data. Message mode transmits the contents of display memory from the start-of-text (STX) character to the cursor location. Line feed causes all displayed lines to roll up by one line into memory, losing the first line of memory, whenever the cursor is located on the last line. However, in Message mode, the roll function is disabled when the Start-of-Text (STX) character is on the first line of display memory, to prevent loss of data. The 132B in the Message mode can transmit data either as one large block or as a series of single lines without operator intervention to provide compatibility with currently available time-sharing software. The 132-1 transmits in Character mode only.

The 132B provides a Page mode and a Forms mode for formatted data entry. The 132-2 provides a Forms mode. The Page mode is used to establish pages of equal length, which can range from 2 lines to 60 lines. The terminal must be in the Page mode before it can enter the Forms mode. The number of lines per page should equal the number of lines required for the form. In the Forms mode, areas in the display can be designated as either protected or unprotected fields. Protected fields for fixed data are identified on the display by characters of lower brightness, and unprotected fields for variable data are identified by characters of normal brightness. The 132B can transmit modified unprotected data only, all unprotected data, or the entire form. The 132-2 can transmit all unprotected data, or the entire form.

Editing capabilities are not available on the 132-1. Editing functions on the 132A, 132B, and 132-2 include character and line insertion or deletion. The 132B, when operating in the Page mode, permits editing to be performed on either a page or line-by-line basis. A line of displayed data can be interchanged with the line above or below. In the Forms mode, all editing is performed relative to the current position of the cursor. A Line Erase function erases all characters from the cursor position to the end of the line. Full cursor control is provided on all models. Individual keys position the cursor up, down, left, right, or to home position (the initial location in display memory). Except on the 132B, cursor control does not feature wraparound; i.e., cursor movement is terminated at the display boundaries. Cursor movement is repetitive when a key is held depressed.

DatagraphiX 132 Series Display Terminals

During the summer of 1979, Datapro conducted telephone interviews with 10 users of the DatagraphiX 132 Series terminals. All 10 of those users also gave the terminals an Excellent rating in the display clarity category. Other characteristics of the terminal also received very good ratings. The DatagraphiX terminal is physically larger and somewhat more expensive than most CRT terminals, but where a high quality display is required users consider the DatagraphiX unit worth it. (DatagraphiX has recently reduced prices on the 132-1, 132-1D, and 132-2.)□

Cursor sensing or positioning is initiated by an Escape code sequence.

The Clear function clears all display memory, clears from the cursor to the end of memory, or clears from the cursor to the end of a line. When the 132B and 132-2 are operating in Forms mode, the Clear function clears only unprotected data. operating in Forms mode, the Clear function clears only unprotected data.

Tab stops can be set for each of the 132 columns and cleared individually or collectively. The 132-1, 132-2, and 132B can execute a forward or reverse tab. In Forms mode, however, the 132B and 132-2 ignore all tab stops. A forward or reverse tab moves the cursor to the next unprotected area.

On the 132A, Roll Up and Roll Down functions operate within the confines of memory, so that no data is lost. The 132B features automatic wraparound, with the top line moving to the bottom of the screen or the bottom line moving to the top of the screen. The 132B also provides a Previous Page function that moves the cursor to the Home position of a previous page and a Next Page function that moves the cursor to the Home position of the next page. These functions are disabled in the Forms mode.

The Highlight feature, when enabled, displays all lines except the one occupied by the cursor at low intensity. The Dim feature, when enabled, displays all keyed characters at low intensity. Transmitted data bracketted by US and RS codes define data to be displayed at low intensity.

When the terminal is equipped with the optional printer interface, the print function prints the contents of display memory beginning with the initial line, or line occupied by an STX, and ending at the line occupied by the cursor. It can also print the entire page or only the unprotected fields on the 132B. The print command can be keyed or received via an Escape sequence.

Recognized control codes include Bell, Delete, Escape (precedes a two- or five-character escape sequence), Backspace, Horizontal Tab, Line Feed, Carriage Return, Form Feed, Clear, ACK, NAK, ENQ, EXT, RS, and US.

Other selectable functions include Auto Line Feed, Upper Case Lock, and Local/Remote. The Auto Line Feed function transmits a line feed character following a keyed carriage return, but does not affect received data. Upper Case Lock, when enabled, restricts keyed alphabetic characters to upper case characters only; all other keys are unaffected.

The 132A and 132B also provide terminal status display and memory test features. The terminal status display feature permits the display of the current terminal configuration, including firmware, buffer size, rear panel switch settings, and printer option and set-up. The memory test feature tests all PROM's and displays the code for any that are bad.

COMPONENTS

CRT DISPLAY UNIT: The 132A and 132B have a 15-inch (diagonal measurement) Charactron CRT with a viewing area of 8 inches high by 11 inches wide. The display arrangement is 30 lines of 132 characters each, for a total display capacity of 3960 characters.

The screens on the 132-1, 132-1D, and 132-2 display 24 lines of 132 characters each, for a total display capacity of 3168 characters. A 25th line is available for displaying status information. The viewing area measures 5.5 inches high by 10 inches wide, and the screen measures 12 inches diagonally.

The character set for all models consists of 96 upper and lower case ASCII symbols displayed in the OCR-B character font. Data is displayed in green (P31 phosphor); each character is formed by the Charactron shaped beam technique. Resolution is equivalent to more than 4000 TV raster lines.

KEYBOARDS: The 132A features a 75-key typewriter-style, detachable keyboard. A 15-key function control cluster located to the right of the main key group includes cursor control, Roll, Tab Set/Clear, Edit, Highlight, Dim, Break, Set STX, and Send Message keys. Other key functions include Clear, Escape, Repeat, Print (optional), Return, Line Feed, Shift, Control, Shift, Shift Locks, Space, and Backspace. Rocker switches are provided for Transmit mode, Auto Line Feed, Upper Case Lock, and Local/Remote. The keyboard generates any of the 128 ASCII character codes.

The keyboard on the 132B is similar to the one on the 132A, but it also includes an 11-key numeric pad and 12 special function keys. The special function keys transmit an Escape sequence and are used to indicate a special program to be executed on the host computer.

The 132-1 includes a 77-key typewriter-style keyboard with an 11-key numeric key group. Control keys include cursor control, Clear, Tab, and Highlight. Automatic repeat of all key functions is included, and the keyboard incorporates solid state switching. Unlike the 132A and 132B, the keyboard is not detachable.

The 132-1D features an 87-key typewriter-style keyboard. The keyboard is similar to the 132-1 keyboard, but adds eight user-defined function keys.

Model 132-2 features a 93-key typewriter-style keyboard. Eight function keys provide 16 function codes by keyboard shift.

A detachable keyboard is available as an option on the 132-1, 132-1D, and 132-2.

PRICING

The DatagraphiX terminals are available for purchase or on a one-year lease (18- and 24-month leases are available for the 132-1, 132-1D, and 132-2) including maintenance. A separate maintenance contract and quantity discounts are available for purchased equipment. The charge for installation within a 50-mile radius of a DatagraphiX service location is $100 per terminal for the 132A and 132B; the installation charge for the 132-1, 132-1D, and 132-2 is $75. A one-year purchase warranty applies to the Charactron tube and a 90-day warranty applies to all other components.

DatagraphiX 132 Series Display Terminals

	Monthly Charge*				
	12-Month Lease	18-Month Lease	24-Month Lease	Purchase	Annual Maint.
Model 132-1	$145	$107	$89	$1,525	$240
Model 132-1D	149	110	91	1,565	240
Model 132-2	156	114	94	1,650	240
Serial printer interface	—	—	—	155	—
Model 132A:					
With 2-page display memory	272	—	—	3,950	504
With 4-page display memory	307	—	—	4,450	576
Model 132B:					
With 2-page display memory	306	—	—	4,450	600
With 4-page display memory	341	—	—	4,950	672
Serial printer interface	10	—	—	150	15

*Includes maintenance.■

DatagraphiX 132 Series Display Terminals

During the summer of 1979, Datapro conducted telephone interviews with 10 users of the DatagraphiX 132 Series terminals. All 10 of those users also gave the terminals an Excellent rating in the display clarity category. Other characteristics of the terminal also received very good ratings. The DatagraphiX terminal is physically larger and somewhat more expensive than most CRT terminals, but where a high quality display is required users consider the DatagraphiX unit worth it. (DatagraphiX has recently reduced prices on the 132-1, 132-1D, and 132-2.)□

Cursor sensing or positioning is initiated by an Escape code sequence.

The Clear function clears all display memory, clears from the cursor to the end of memory, or clears from the cursor to the end of a line. The latter function is performed by Line Erase on the 132B. When the 132B and 132-2 are operating in Forms mode, the Clear function clears only unprotected data.

Tab stops can be set for each of the 132 columns and cleared individually or collectively. The 132-1, 132-2, and 132B can execute a forward or reverse tab. In Forms mode, however, the 132B and 132-2 ignore all tab stops.

On the 132A, Roll Up and Roll Down functions operate within the confines of memory, so that no data is lost. The 132B features automatic wraparound, with the top line moving to the bottom of the screen or the bottom line moving to the top of the screen. The 132B also provides a Previous Page function that moves the cursor to the Home position of a previous page and a Next Page function that moves the cursor to the Home position of the next page. These functions are disabled in the Forms mode.

The Highlight feature, when enabled, displays all lines except the one occupied by the cursor at low intensity. The Dim feature, when enabled, displays all keyed characters at low intensity. Transmitted data bracketted by US and RS codes define data to be displayed at low intensity.

When the terminal is equipped with the optional printer interface, the print function prints the contents of display memory beginning with the initial line, or line occupied by an STX, and ending at the line occupied by the cursor. The print command can be keyed or received via an Escape sequence.

Recognized control codes include Bell, Delete, Escape (precedes a two- or five-character escape sequence), Backspace, Horizontal Tab, Line Feed, Carriage Return, Form Feed, Clear, ACK, NAK, ENQ, EXT, RS, and US.

Other selectable functions include Auto Line Feed, Upper Case Lock, and Local/Remote. The Auto Line Feed function transmits a line feed character following a keyed carriage return, but does not affect received data. Upper Case Lock, when enabled, restricts keyed alphabetic characters to upper case characters only; all other keys are unaffected.

The 132A and 132B also provide terminal status display and memory test features. The terminal status display feature permits the display of the current terminal configuration, including firmware, buffer size, rear panel switch settings, and printer option and set-up. The memory test feature tests all PROM's and displays the code for any that are bad.

COMPONENTS

CRT DISPLAY UNIT: The 132A and 132B have a 15-inch (diagonal measurement) Charactron CRT with a viewing area of 8 inches high by 11 inches wide. The display arrangement is 30 lines of 132 characters each, for a total display capacity of 3960 characters.

The screens on the 132-1, 132-1D, and 132-2 display 24 lines of 132 characters each, for a total display capacity of 3168 characters. A 25th line is available for displaying status information. The viewing area measures 5.5 inches high by 10 inches wide, and the screen measures 12 inches diagonally.

The character set for all models consists of 96 upper and lower case ASCII symbols displayed in the OCR-B character font. Data is displayed in green (P31 phosphor); each character is formed by the Charactron shaped beam technique. Resolution is equivalent to more than 4000 TV raster lines.

KEYBOARDS: The 132A features a 75-key typewriter-style, detachable keyboard. A 15-key function control cluster located to the right of the main key group includes cursor control, Roll, Tab Set/Clear, Edit, Highlight, Dim, Break, Set STX, and Send Message keys. Other key functions include Clear, Escape, Repeat, Print (optional), Return, Line Feed, Shift, Control, Shift, Shift Locks, Space, and Backspace. Rocker switches are provided for Transmit mode, Auto Line Feed, Upper Case Lock, and Local/Remote. The keyboard generates any of the 128 ASCII character codes.

The keyboard on the 132B is similar to the one on the 132A, but it also includes an 11-key numeric pad and 12 special function keys. The special function keys transmit an Escape sequence and are used to indicate a special program to be executed on the host computer.

The 132-1 includes a 77-key typewriter-style keyboard with an 11-key numeric key group. Control keys include cursor control, Clear, Tab, and Highlight. Automatic repeat of all key functions is included, and the keyboard incorporates solid state switching. Unlike the 132A and 132B, the keyboard is not detachable.

The 132-1D features an 87-key typewriter-style keyboard. The keyboard is similar to the 132-1 keyboard, but adds eight user-defined function keys.

Model 132-2 features a 93-key typewriter-style keyboard. Eight function keys provide 16 function codes by keyboard shift.

PRICING

The DatagraphiX terminals are available for purchase or on a one-year lease (18- and 24-month leases are available for the 132-1, 132-1D, and 132-2) including maintenance. A separate maintenance contract and quantity discounts are available for purchased equipment. The charge for installation within a 50-mile radius of a DatagraphiX service location is $100 per terminal for the 132A and 132B; the installation charge for the 132-1, 132-1D, and 132-2 is $75. A one-year purchase warranty applies to the Charactron tube and a 90-day warranty applies to all other components.

DatagraphiX 132 Series Display Terminals

	Monthly Charge*				
	12-Month Lease	18-Month Lease	24-Month Lease	Purchase	Annual Maint.
Model 132-1	$156	$114	$ 95	$1,650	$240
Model 132-1D	159	118	96	1,695	240
Model 132-2	168	123	100	1,795	240
Serial printer interface	—	—	—	175	—
Model 132A:					
With 2-page display memory	272	—	—	3,950	504
With 4-page display memory	307	—	—	4,450	576
Model 132B:					
With 2-page display memory	306	—	—	4,450	600
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Serial printer interface	10	—	—	150	15

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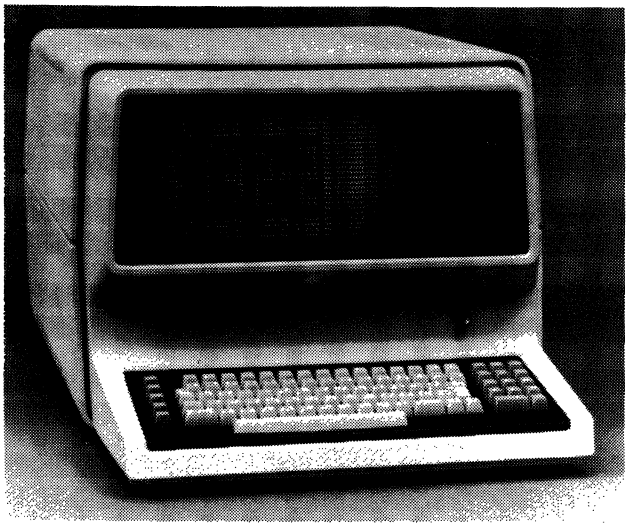

The DatagraphiX 132-2 is the newest terminal in the 132 Series. Like the other members of the family, the 132-2 offers a 132-column format. Fully formed, high resolution characters are displayed using the company's patented Charactron cathode ray tube.

A family of microprocessor-based display terminals that offer 132-column display formats.

High resolution, fully formed characters are generated utilizing the company's patented Charactron shaped beam CRT. Five models are available, ranging from a basic terminal with no editing functions to units featuring two pages of memory and full editing capabilities. All models feature a typewriter-style keyboard.

Purchase prices range from $2,150 to $4,950. Quantity discounts are available. Models 132-1, 132-1D, and 132-2 are available for purchase only, while Models 132A and 132B are available on a 1-year lease, as well as for purchase.

MANAGEMENT SUMMARY

The DatagraphiX 132 Series display terminals are significant in the industry for two major reasons—the 132-column format, which is standard on all models in the series, and the high resolution, fully formed characters that are generated and displayed. The Model 132A was the first display terminal on the commercial market to offer 132 displayable character positions per line. The advantage of this feature is that it allows the terminal to accommodate data formatted for a line printer without the reformatting required for a conventional 80-column display. The subsequent models introduced by DatagraphiX, Models 132B, 132-1, 132-1D, 132-2, and the System 132-70 (an IBM 3270-compatible clustered system not covered in this report), offer different functions and capabilities along with the 132-column format.

The DatagraphiX patented Charactron display tube makes it possible for the terminals to display 132 clearly-formed characters per line. Its high resolution (equivalent to over 4000 TV scan lines per page) is the result of the Charactron's special character formation technique. The electron beam is shaped to form a character as it is extruded through one of 96 symbol patterns etched in a disk mounted within the tube. Characters are displayed in green on a dark background.

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MODELS

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Models 132A and 132B feature display formats of 30 lines by 132 columns, for a total display capacity of 3960 characters. The standard models contain 8K bytes of display memory for storage of two pages; 16K bytes of display memory for storage of four pages is optional. Model 132A features cursor control, tabbing, and editing functions. Model 132B adds 12 function keys, expanded editing, and formatting.

Model 132-1 is a basic conversational terminal with no editing capabilities. The unit features 24 lines of 132 characters each, plus a 25th line for status information, for a display capacity of 3168 characters plus 132 status characters. Model 132-1D possesses all of the features of the 132-1, plus DEC VT-100 compatibility.

Model 132-2 expands on the features offered in the 132-1 by adding eight function keys, line and character editing, protected fields, and block mode communication. ➢

DatagraphiX 132 Series Display Terminals

can scroll through memory in either direction without losing data. A 15″ diagonal display screen with a 30-line by 132-column capacity is standard, as is a typewriter-style keyboard with numeric pad. A 96-character upper and lower case ASCII set is displayable. The 132A features full cursor control, cursor sensing and addressing, tabbing on 132 columns, digital display of cursor column, highlighting, and editing functions (character/line insert/delete, character overwrite, and backspace). The 132B expands on the capabilities of the 132A by adding formatting (protected fields), page and line editing, multiple page formats, and 12 function keys. Transmission rates for both models are switch-selectable at speeds from 110 to 9600 bps. Character, line, or block transmission modes can be selected via keyboard controls. The terminals are equipped with either an RS-232-C or 20mA current loop interface.

The Model 132-1, announced a little more than two years after the introduction of the 132A, is a basic conversational terminal with no editing capabilities. As with the 132A and 132B, the 132-1 offers high resolution characters and a 132-column format, but with a screen capacity of 24 lines instead of 30. A 25th line for displaying status information is included. The unit features a 12″ diagonal display screen and a typewriter-style keyboard with an 11-key numeric pad. Standard features include cursor controls with host sensing and addressing, 132 tabbing positions, dual intensity, blinking, underlining, clear to end of line, and clear to end of screen. Transmission rates are switch-selectable at speeds from 300 to 19,200 bps; an RS-232-C or 20mA current loop interface is included. The Model 132-1D offers all of the features of the 132-1 plus DEC VT-100 compatibility.

The newest addition to the DatagraphiX line is the Model 132-2. The 132-2 expands the capabilities of the 132-1 by adding eight function keys, line and character editing, protected fields, line highlighting, and block mode communication.

Optional printer interfaces are available with Models 132A, 132B, and 132-2.

USER REACTION

In Datapro's 1980 survey of alphanumeric display terminal users, responses were received from three users of the DatagraphiX 132 Series display terminals. These users reported on their experience with a total of five DatagraphiX terminals. Their ratings are as follows:

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Ease of operation	1	1	1	0	3.0
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Keyboard feel & usability	2	0	0	1	3.0
Hardware reliability	2	1	0	0	3.7
Maintenance service	2	1	0	0	3.7
Technical support	2	0	1	0	3.3

*Weighted Average based on a scale of 4.0 for Excellent.

DatagraphiX also markets the System 132-70, which offers IBM 3270 compatibility. This system will be covered in a later report.

TRANSMISSION SPECIFICATIONS

On the 132A and 132B, transmission is performed asynchronously in the half- or full-duplex mode at switch-selectable rates of 110, 150, 300, 600, 1200, 2400, 4800, and 9600 bits/second. The 8-level, 10- or 11-unit ASCII code is used. Odd or even parity can be switch-selected or parity can be disabled. The terminal is equipped with either an RS-232-C interface or a 20mA dc current loop interface. A serial printer interface is optional.

On the 132-1, 132-1D, and 132-2, transmission is asynchronous in half- or full-duplex mode at switch-selectable rates of 300, 600, 1200, 2400, 4800, 9600, and 19,200 bps. ASCII code is used. Odd, even, or no parity can be selected. The terminal is equipped with either an RS-232-C or 20mA current loop interface. A serial printer interface is optional.

DEVICE CONTROL

Terminal control is performed via a microprocessor under the direction of PROM-resident firmware. Three transmit modes are provided for the 132A and 132B: Character, Line and Message. Model 132-2 transmits in Character or Message mode. In the Character mode, each character is transmitted as it is keyed. The Line mode transmits a full line of displayed data. Message mode transmits the contents of display memory from the start-of-text (STX) character to the cursor location. Line feed causes all displayed lines to roll up by one line into memory, losing the first line of memory, whenever the cursor is located on the last line. However, in Message mode, the roll function is disabled when the Start-of-Text (STX) character is on the first line of display memory, to prevent loss of data. The 132B in the Message mode can transmit data either as one large block or as a series of single lines without operator intervention to provide compatibility with currently available time-sharing software. The 132-1 transmits in Character mode only.

The 132B provides a Page mode and a Forms mode for formatted data entry. The 132-2 provides a Forms mode. The Page mode is used to establish pages of equal length, which can range from 2 lines to 60 lines. The terminal must be in the Page mode before it can enter the Forms mode. The number of lines per page should equal the number of lines required for the form. In the Forms mode, areas in the display can be designated as either protected or unprotected fields. Protected fields for fixed data are identified on the display by characters of lower brightness, and unprotected fields for variable data are identified by characters of normal brightness. The 132B can transmit modified unprotected data only, all unprotected data, or the entire form. The 132-2 can transmit all unprotected data, or the entire form.

Editing capabilities are not available on the 132-1. Editing functions on the 132A, 132B, and 132-2 include character and line insertion or deletion. The 132B, when operating in the Page mode, permits editing to be performed on either a page or line-by-line basis. A line of displayed data can be interchanged with the line above or below. In the Forms mode, all editing is performed relative to the current position of the cursor. A Line Erase function erases all characters from the cursor position to the end of the line. Full cursor control is provided on all models. Individual keys position the cursor up, down, left, right, or to home position (the initial location in display memory). Except on the 132B, cursor control does not feature wraparound; i.e., cursor movement is terminated at the display boundaries. Cursor movement is repetitive when a key is held depressed.

DatagraphiX 132 Series Display Terminals

During the summer of 1979, Datapro conducted telephone interviews with 10 users of the DatagraphiX 132 Series terminals. All 10 of those users also gave the terminals an Excellent rating in the display clarity category. Other characteristics of the terminal also received very good ratings. The DatagraphiX terminal is physically larger and somewhat more expensive than most CRT terminals, but where a high quality display is required users consider the DatagraphiX unit worth it.□

Cursor sensing or positioning is initiated by an Escape code sequence.

The Clear function clears all display memory, clears from the cursor to the end of memory, or clears from the cursor to the end of a line. The latter function is performed by Line Erase on the 132B. When the 132B and 132-2 are operating in Forms mode, the Clear function clears only unprotected data.

Tab stops can be set for each of the 132 columns and cleared individually or collectively. The 132-1, 132-2, and 132B can execute a forward or reverse tab. In Forms mode, however, the 132B and 132-2 ignore all tab stops.

On the 132A, Roll Up and Roll Down functions operate within the confines of memory, so that no data is lost. The 132B features automatic wraparound, with the top line moving to the bottom of the screen or the bottom line moving to the top of the screen. The 132B also provides a Previous Page function that moves the cursor to the Home position of a previous page and a Next Page function that moves the cursor to the Home position of the next page. These functions are disabled in the Forms mode.

The Highlight feature, when enabled, displays all lines except the one occupied by the cursor at low intensity. The Dim feature, when enabled, displays all keyed characters at low intensity. Transmitted data bracketted by US and RS codes define data to be displayed at low intensity.

When the terminal is equipped with the optional printer interface, the print function prints the contents of display memory beginning with the initial line, or line occupied by an STX, and ending at the line occupied by the cursor. The print command can be keyed or received via an Escape sequence.

Recognized control codes include Bell, Delete, Escape (precedes a two- or five-character escape sequence), Backspace, Horizontal Tab, Line Feed, Carriage Return, Form Feed, Clear, ACK, NAK, ENQ, EXT, RS, and US.

Other selectable functions include Auto Line Feed, Upper Case Lock, and Local/Remote. The Auto Line Feed function transmits a line feed character following a keyed carriage return, but does not affect received data. Upper Case Lock, when enabled, restricts keyed alphabetic characters to upper case characters only; all other keys are unaffected.

The 132A and 132B also provide terminal status display and memory test features. The terminal status display feature permits the display of the current terminal configuration, including firmware, buffer size, rear panel switch settings, and printer option and set-up. The memory test feature tests all PROM's and displays the code for any that are bad.

COMPONENTS

CRT DISPLAY UNIT: The 132A and 132B have a 15-inch (diagonal measurement) Charactron CRT with a viewing area of 8 inches high by 11 inches wide. The display arrangement is 30 lines of 132 characters each, for a total display capacity of 3960 characters.

The screens on the 132-1, 132-1D, and 132-2 display 24 lines of 132 characters each, for a total display capacity of 3168 characters. A 25th line is available for displaying status information. The viewing area measures 5.5 inches high by 10 inches wide, and the screen measures 12 inches diagonally.

The character set for all models consists of 96 upper and lower case ASCII symbols displayed in the OCR-B character font. Data is displayed in green (P31 phosphor); each character is formed by the Charactron shaped beam technique. Resolution is equivalent to more than 4000 TV raster lines.

KEYBOARDS: The 132A features a 75-key typewriter-style, detachable keyboard. A 15-key function control cluster located to the right of the main key group includes cursor control, Roll, Tab Set/Clear, Edit, Highlight, Dim, Break, Set STX, and Send Message keys. Other key functions include Clear, Escape, Repeat, Print (optional), Return, Line Feed, Shift, Control, Shift, Shift Locks, Space, and Backspace. Rocker switches are provided for Transmit mode, Auto Line Feed, Upper Case Lock, and Local/Remote. The keyboard generates any of the 128 ASCII character codes.

The keyboard on the 132B is similar to the one on the 132A, but it also includes an 11-key numeric pad and 12 special function keys. The special function keys transmit an Escape sequence and are used to indicate a special program to be executed on the host computer.

The 132-1 includes a 77-key typewriter-style keyboard with an 11-key numeric key group. Control keys include cursor control, Clear, Tab, and Highlight. Automatic repeat of all key functions is included, and the keyboard incorporates solid state switching. Unlike the 132A and 132B, the keyboard is not detachable.

The 132-1D features an 87-key typewriter-style keyboard. The keyboard is similar to the 132-1 keyboard, but adds eight user-defined function keys.

Model 132-2 features a 93-key typewriter-style keyboard. Eight function keys provide 16 function codes by keyboard shift.

PRICING

The DatagraphiX terminals are available for purchase or on a one-year lease including maintenance. A separate maintenance contract and quantity discounts are available for purchased equipment. The charge for installation within a 50-mile radius of a DatagraphiX service location is $100 per terminal for the 132A and 132B; the installation charge for the 132-1, 132-1D, and 132-2 is $75. A one-year purchase warranty applies to the Charactron tube and a 90-day warranty applies to all other components.

DatagraphiX 132 Series Display Terminals

	Monthly Charge*		
	1-Year Lease*	Purchase	Annual Maint.
Model 132-1	—	$2,150	$300
Model 132-1D	—	2,250	300
Model 132-2	—	2,395	300
Serial printer interface	—	175	—
Model 132A:			
With 2-page display memory	$272	3,950	504
With 4-page display memory	307	4,450	576
Model 132B:			
With 2-page display memory	306	4,450	600
With 4-page display memory	341	4,950	672
Serial printer interface	10	150	15

*Includes maintenance.■

DatagraphiX 132 Series Display Terminals

The DatagraphiX 132B shown above provides full editing capabilities, multiple-page formatting, and protected and unprotected fields. The detachable, typewriter-style keyboard contains an 11-key numeric pad, 27 control keys, and 12 special function keys.

A family of microprocessor-based, stand-alone display terminals with large-capacity display screens.

Models 132A and 132B feature two-page display memories, full editing capabilities, cursor control, and switch-selectable transmission rates. A four-page display memory and a serial printer interface are available as options. The 132-1 is a basic terminal without editing functions. All models display 132 characters per line.

The standard 132A, 132B, and 132-1 terminal can be purchased for $3,950, $4,450, and $2,150, respectively. Monthly charges on a one-year lease range from $226 to $255 for the 132A and 132B. The 132-1 is available for purchase only. Quantity discounts are available.

MANAGEMENT SUMMARY

The DatagraphiX Model 132A display terminal was the first display terminal on the commercial market to offer 132 displayable character positions per line. The advantage of this feature is that it can accommodate data formatted for a line printer without the reformatting required for a conventional 80-column display. The Model 132B, introduced in December 1978, offers additional editing functions and a Forms mode for formatted data entry. The Model 132-1, a basic terminal with no editing functions, was announced in June 1979.

The DatagraphiX patented Charactron display tube makes it possible for the terminals to display 132 clearly-formed characters per line. Its high resolution (equivalent to over 4000 TV scan lines per page) is the result of the Charactron's special character formation technique. The electron beam is shaped to form a character as it is extruded through one of 96 symbol patterns etched in a disk mounted within the tube.

The large screen on the 123A and 132B displays up to 30 lines, but another 30 lines can be held in reserve via the standard unit's two-page display memory. And the operator can scroll through memory in either direction without losing data. Received data is scrolled into memory as the screen is filled, but data is lost once it is scrolled beyond the first line. For those users who need more memory, a four-page memory (120 lines) is optional. The 132-1 displays up to 24 lines plus a 25th status line. One page of data can be stored in memory.

Key features of the 132A and 132B include: complete editing functions; cursor sensing and addressing; digital ➢

CHARACTERISTICS

VENDOR: DatagraphiX, Inc. (a subsidiary of General Dynamics), P.O. Box 82449, San Diego, California 92138. Telephone (714) 291-9960.

DATE OF ANNOUNCEMENT: Model 132A—March 1977; Model 132B—December 1978; Model 132-1—June 1979.

DATE OF FIRST DELIVERY: Model 132A—August 1977.

NUMBER DELIVERED TO DATE: Information not available.

SERVICED BY: DatagraphiX.

MODELS

Three models are available: the 132A, the 132B, and the 132-1. The DatagraphiX 132A and 132B are microprocessor-based, stand-alone display terminals with optional RS-232C printer interface. The basic terminal contains an 8K-byte display memory for storage of two pages; a 16K-byte display memory for storage of four pages is optional.

The 132-1 is a microprocessor-based, Teletype-compatible terminal that contains a 3300-character display memory (3168 characters of data plus 132 status line characters) for storage of one page. Digital Equipment VT-100 compatibility is available as an option.

TRANSMISSION SPECIFICATIONS

On the 132A and 132B, transmission is performed asynchronously in the half- or full-duplex mode at switch-selectable rates of 110, 150, 300, 600, 1200, 2400, 4800, and 9600 bits/second. The 8-level, 10- or 11-unit ASCII code is used. Odd or even parity can be switch-selected or parity can be disabled. The terminal is equipped with either an RS-232C interface or a 20 mA dc current loop interface. ➢

DatagraphiX 132 Series Display Terminals

display of cursor column; upper and lower case alphabetics; character, line, or block transmission modes; highlighting; selectable data rates of 110 to 9600 bits/second; RS-232C or 20 mA current loop interface; terminal status displays; and memory testing.

The 132-1 features cursor control and sensing; selectable data rates of 300 to 19,200 bits/second, optional DEC VT-100 compatibility, and basic Clear, Tab, and Roll functions. No editing functions are provided.

USER REACTION

In June 1979, Datapro interviewed 10 DatagraphiX terminal users, who had a total of 67 Model 132A units and 11 Model 132B units. The ratings assigned by the users are summarized in the following table.

	Excellent	Good	Fair	Poor	WA*
Overall performance	9	1	0	0	3.9
Ease of operation	7	3	0	0	3.7
Display clarity	10	0	0	0	4.0
Keyboard feel & usability	6	4	0	0	3.6
Hardware reliability	9	1	0	0	3.9
Maintenance service	3	3	2	0	3.1
Technical support	3	3	1	1	3.0

*Weighted Average on a scale of 4.0 for Excellent.

We asked the users to name the key advantages and disadvantages of the DatagraphiX terminals. All 10 users cited the 132-character-per-line display as the main advantage, and 8 users also mentioned the clarity of the display. Other advantages mentioned included the display storage capability, the printer interface option, and the cursor column indicator.

Few disadvantages were mentioned, but one user thought the terminals were too expensive. Another stated that tabbing was somewhat difficult and that, following an interrupt from the host computer, the operator often failed to notice that the Break light was on and tried to key data after the keyboard was rendered inactive. These were considered minor inconveniences, however.

In addition, three users suggested ways in which they thought the terminals could be improved. These suggestions included sculptured key tops and an automatic Repeat function for the space bar to eliminate the need to use the separate Repeat key.□

Transmission rates on the 132-1 range from 300 to 19,200 bits/second. The terminal features menu selection of transmission rates and displays the speed selected.

DEVICE CONTROL

Terminal control is performed via a microprocessor under the direction of PROM-resident firmware. Three transmit modes are provided for the 132A and 132B: Character, Line and Message. In the Character mode, each character is transmitted as it is keyed. The Line mode transmits a full line of displayed data. Message mode transmits the contents of display memory from the start-of-text (STX) character to the cursor location. Line feed causes all displayed lines to roll up by one line into memory, losing the first line of memory, whenever the cursor is located on the last line. However, in Message mode, the roll function is disabled when the Start-of-Text (STX) character is on the first line of display memory, to prevent loss of data. The 132B in the Message Mode can transmit data either as one large block or as a series of single lines without operator intervention to provide compatibility with currently available time-sharing software. The 132-1 transmits in Character mode only.

The 132B provides a Page mode and a Forms mode for formatted data entry. The Page mode is used to establish pages of equal length, which can range from 2 lines to 60 lines. The terminal must be in the Page mode before it can enter the Forms mode. The number of lines per page should equal the number of lines required for the form. In the Forms mode, areas in the display can be designated as either protected or unprotected fields. Protected fields for fixed data are identified on the display by characters of lower brightness, and unprotected fields for variable data are identified by characters of normal brightness. The 132B can transmit modified unprotected data only, all unprotected data, or the entire form.

Editing capabilities are not available on the 132-1. Editing functions on the 132A and 132B include character and line insertion or deletion. The 132B, when operating in the Page mode, permits editing to be performed on either a page or line-by-line basis. A line of displayed data can be interchanged with the line above or below. In the Forms mode, all editing is performed relative to the current position of the cursor. A Line Erase function erases all characters from the cursor position to the end of the line. Full cursor control is provided on all models. Individual keys position the cursor up, down, left, right, or to home position (the initial location in display memory). Except on the 132B, cursor control does not feature wraparound; i.e., cursor movement is terminated at the display boundaries. Cursor movement is repetitive when a key is held depressed. Cursor sensing or positioning is initiated by an Escape code sequence.

The Clear function clears all display memory, clears from the cursor to the end of memory, or clears from the cursor to the end of a line. The latter function is performed by Line Erase on the 132B. When the 132B is operating in Forms mode, the Clear function clears only unprotected data.

Tab stops can be set for each of the 132 columns and cleared individually or collectively. The 132-1 and the 132B can execute a forward or reverse tab. In Forms mode, however, the 132B ignores all tab stops.

On the 132A, Roll Up and Roll Down functions operate within the confines of memory, so that no data is lost. The 132B features automatic wraparound, with the top line moving to the bottom of the screen or the bottom line moving to the top of the screen. The 132B also provides a Previous Page function that moves the cursor to the Home position of a previous page and a Next Page function that moves the cursor to the Home position of the next page. These functions are disabled in the Forms mode.

The Highlight feature, when enabled, displays all lines except the one occupied by the cursor at low intensity. The Dim feature, when enabled, displays all keyed characters at low intensity. Transmitted data bracketted by US and RS codes define data to be displayed at low intensity.

DatagraphiX 132 Series Display Terminals

When the 132A or 132B terminal is equipped with the optional printer interface, the print function prints the contents of display memory beginning with the initial line, or line occupied by an STX, and ending at the line occupied by the cursor. The print command can be keyed or received via an Escape sequence.

Recognized control codes include Bell, Delete, Escape (precedes a two- or five-character escape sequence), Backspace, Horizontal Tab, Line Feed, Carriage Return, Form Feed, Clear, ACK, NAK, ENQ, EXT, RS, and US.

Other selectable functions include Auto Line Feed, Upper Case Lock, and Local/Remote. The Auto Line Feed function transmits a line feed character following a keyed carriage return, but does not affect received data. Upper Case Lock, when enabled, restricts keyed alphabetic characters to upper case characters only; all other keys are unaffected.

The 132A and 132B also provide terminal status display and memory test features. The terminal status display feature permits the display of the current terminal configuration, including firmware, buffer size, rear panel switch settings, and printer option and set-up. The memory test feature tests all PROM's and displays the code for any that are bad.

COMPONENTS

CRT DISPLAY UNIT: The 132A and 132B have a 15-inch (diagonal measurement) Charactron CRT with a viewing area of 8 inches high by 11 inches wide. The display arrangement is 30 lines of 132 characters each, for a total display capacity of 3960 characters. The character set consists of 96 upper and lower case ASCII symbols displayed in the OCR-B character font. Data is displayed in green (P31 phosphor); each character is formed by the Charactron shaped beam technique. Resolution is equivalent to more than 4000 TV raster lines.

The screen on the 132-1 displays 24 lines of 132 characters each, for a total display capacity of 3168 characters. A 25th line is available for displaying status information. The viewing area measures 5.5 inches high by 10 inches wide.

KEYBOARD: The 132A features a 75-key typewriter-style, detachable keyboard. A 15-key function control cluster located to the right of the main key group includes cursor control, Roll, Tab Set/Clear, edit, Highlight, Dim, Break, Set STX, and Send Message keys. Other key functions include Clear, Escape, Repeat, Print (optional), Return, Line Feed, Shift, Control, Shift, Shift Locks, Space, and Backspace. Rocker switches are provided for Transmit mode, Auto Line Feed, Upper Case Lock, and Local/Remote. The keyboard generates any of the 128 ASCII character codes.

The keyboard on the 132B is similar to the one on the 132A, but it also includes an 11-key numeric pad and 12 special function keys. The special function keys transmit an Escape sequence and are used to indicate a special program to be executed on the host computer.

The 132-1 includes a typewriter-style keyboard with an 11-key numeric key group. Control keys include cursor control, Clear, Tab, and Highlight.

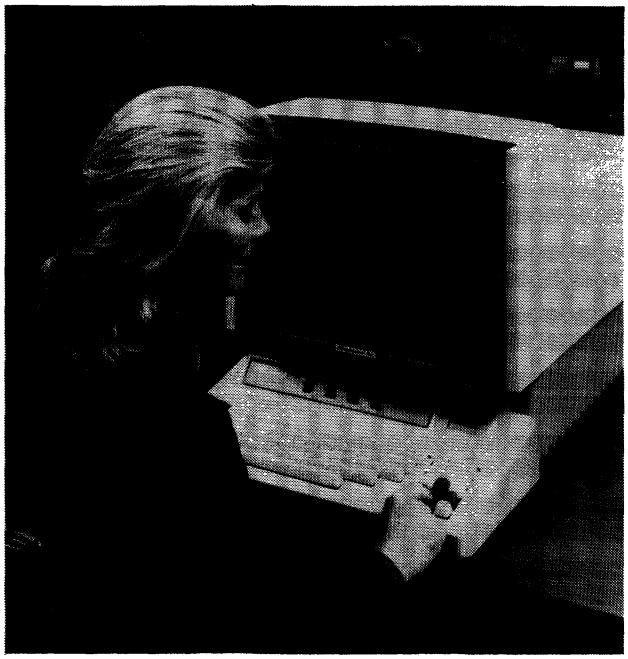
PRICING

The DatagraphiX terminals are available for purchase or on a one- or three-year lease including maintenance. A separate maintenance contract and quantity discounts are available for purchased equipment. The installation charge for installation within a 50-mile radius of a DatagraphiX service location is $100 per terminal. A one-year purchase warranty applies to the Charactron tube and a 90-day warranty applies to all other components.

		Monthly Charge*			
	Quantity** (End Users)	1-Year Lease	3-Year Lease	Purchase	Annual Maint.
Model 132A:					
With 8K-byte display memory	1-4	$226	NA	$3,950	$420
	5-9	194	$175	3,950	420
	10-24	194	175	3,800	420
With 16K-byte display memory	1-4	255	NA	4,450	480
	5-9	219	197	4,450	480
	10-24	219	197	4,270	480
Serial Printer Interface (RS-232C)	1-4	8	NA	150	10
	5-	7	6	150	10
Model 132B:					
With 8K-byte display memory	1-9	255	NA	4,450	500
	10-24	219	NA	4,300	500
With 16K-byte display memory	1-9	284	NA	4,950	560
	10-24	244	NA	4,750	560
Serial Printer Interface (RS-232C)	1-9	8	NA	150	10
	10-24	7	NA	140	10
Model 132-1	1-9	NA	NA	2,150	300
	10-24	NA	NA	2,042	300

*Includes maintenance.
**Contact vendor for discount on quantities of 25 units or more.■

DatagraphiX Model 132A Display Terminal



A stand-alone, Teletype-compatible display terminal with a large-capacity display screen.

Standard feature include microprocessor control, 132-display positions per line, 30 display lines, a two-page display memory, upper and lower case alphabetics, full editing and cursor control, tabbing, scrolling, etc. Options include a four-page display memory serial printer interface.

The standard terminal is priced at $3,950 and leases for $194 per month under a one-year lease, including maintenance. Quantity discounts are provided.

MANAGEMENT SUMMARY

The DatagraphiX Model 132A Display Terminal "brings an end to the 80-column squeeze." DatagraphiX's pertinent slogan spotlights the 132A's key feature—132 displayable character positions per line. The significance of this feature, other than that it is the first and only display terminal on the commercial market to offer such a feature, is that it can accommodate data formatted for a line printer without the data having to be reformatted as would be required for a conventional 80-column display. The terminal is in effect a soft-copy substitute for a line printer when hard copy is *not* required.

The DatagraphiX patented Charactron display tube makes it possible for the 132A to display 132 clearly-formed characters per line. Its high resolution (equivalent to over 4000 TV scan lines per page) is the result of the Charactron's special character formation technique. The electron beam is extruded through one of several symbol patterns cut in a disc suspended within the tube; the end result is much like that of using a cookie cutter to produce a cookie.

The 132A's large screen displays up to 30 lines, but another 30 lines can be held in reserve via the standard unit's two-page display memory. And the operator can scroll through memory in either direction without losing data. Received data is scrolled into memory as the screen is filled, but data is lost once it is scrolled beyond the first line. For those users who need more memory, a four-page memory (120 lines) is optional.

Salient features of the microprocessor based terminal are: ▷

CHARACTERISTICS

VENDOR: DatagraphiX, Inc. (a subsidiary of General Dynamics), P.O. Box 82449, San Diego, CA 92138. Telephone (714) 291-9960.

DATE OF ANNOUNCEMENT: March 1977.

DATE OF FIRST DELIVERY: August 1977.

NUMBER DELIVERED TO DATE: —.

SERVICED BY: DatagraphiX.

CONFIGURATION

The DatagraphiX 132A is a microprocessor-based, stand-alone display terminal with optional RS-232C printer interface. The basic terminal contains an 8K-byte display memory for storage of two pages; a 16K-byte display memory for storage of four pages is optional.

TRANSMISSION SPECIFICATIONS

Transmission is performed asynchronously in the half- or full-duplex mode at switch-selectable rates of 110, 300, 600, 1200, 2400, 4800, and 9600 bits/second. The 8-level, 10- or 11-unit ASCII code is used. Odd or even parity can be switch-selected or parity can be disabled. The terminal is equipped with either an RS-232C interface or a 20 ma dc current loop interface.

DEVICE CONTROL

Terminal control is performed via a microprocessor under the direction of PROM-resident firmware. Three transmit modes are provided: Character, Line and Message. In the Character mode, each character is transmitted as it is keyed. The Line mode transmits a full line of displayed data. Message mode transmits the contents of display memory from the start-of-text (STX) character to the cursor location. Line feed causes all displayed lines to roll up by one line into memory, losing the first line of memory, whenever the cursor is located on the last line. However, in Message mode, the roll function is disabled when the Start-of-Text (STX) character is on the first line of display memory, to prevent loss of data.

Full cursor control is provided. Individual keys position the cursor up, down, left, right, or to home position (the initial ►

DatagraphiX Model 132A Display Terminal

- Full cursor control.
- Cursor sensing and addressing.
- Complete editing functions.
- Digital display of cursor column.
- Character, line, or block transmission modes.
- Upper and lower case alphabetics.
- Tabbing.
- Scrolling up or down.
- Highlighting.
- Selectable data rates from 110 to 9600 bps.
- RS-232C or 20 ma current loop interface.
- Optional RS-232C printer interface.□

location in display memory). Cursor control does not feature wraparound; i.e., cursor movement is terminated at the display boundaries. Cursor movement is repetitive when a key is held depressed. Cursor sensing or positioning is initiated by an Escape code sequence.

Edit functions include character and line insertion or deletion. The character insert and delete functions are repetitive at 25 characters/second when the key is held depressed; the line insert and delete functions are also repetitive at 25 lines/second when the key is held depressed.

The Clear function erases the entire contents of display memory (60 or 120 lines).

Tab stops can be set for each of the 132 columns and cleared individually or collectively.

Roll functions include Roll Up and Roll Down. The Roll function operates within the confines of display memory, so that no data is lost. These functions are repetitive at 15 lines/second when the key is held depressed.

When the terminal is equipped with the optional printer interface, the print function prints the contents of display memory beginning with the initial line, or line occupied by an STX and ending at the line occupied by the cursor. The print command can be keyed or received via an Escape sequence.

The Highlight feature, when enabled, displays all lines except the one occupied by the cursor at low intensity. The Dim feature, when enabled, displays all keyed characters at low intensity. Transmitted data bracketted by US and RS codes define data to be displayed at low intensity.

Recognized control codes include Bell, Delete, Escape (precedes a two- or five-character escape sequence), Backspace, Horizontal Tab, Line Feed, Carriage Return, Form Feed, Clear, ACK, NAK, ENQ, EXT, RS, and US.

Other selectable functions include Auto Line Feed, Upper Case Lock, and Local/Remote. The Auto Line Feed function transmits a line feed character following a keyed carriage return, but does not affect received data. Upper Case Lock, when enabled, restricts keyed alphabetic characters to upper case characters only; all other keys are unaffected.

COMPONENTS

CRT DISPLAY UNIT: A 15-inch (diagonal measurement) Charactron CRT with a viewing area 8 inches high by 11 inches wide. The display arrangement is 30 lines of 132 characters each, for a total display capacity of 3960 characters. The character set consists of 96 upper and lower case ASCII symbols displayed in the OCR-B character font. Data is displayed in green (P31 phosphor); each character is formed by the Charactron shaped beam technique. Resolution is equivalent to more than 4000 TV raster lines.

KEYBOARD: A 75-key typewriter-style, detachable keyboard. A 15-key function control cluster located to the right of the main key group includes cursor control, Roll, Tab Set/Clear, edit, Highlight, Dim, Break, Set STX, and Send Message keys. Other key functions include Clear, Escape, Repeat, Print (optional), Return, Line Feed, Shift, Control Shift Shift Locks, Space, and Backspace. Rocker switches are provided for Transmit mode, Auto Line Feed, Upper Case Lock, and Local/Remote. The keyboard generates any of the 128 ASCII character codes.

PRICING

The DatagraphiX Model 132A Display Terminal is available for purchase or on a one- or three-year lease including maintenance. A separate maintenance contract and quantity discounts are available for purchased equipment. The installation charge for installation within a 50-mile radius of a DatagraphiX service location is $100 per terminal. A one-year purchase warranty applies to the Charactron tube and a 90-day warranty applies to all other components.

	Monthly Charge*			
	1-Year Lease	3-Year Lease	Purchase***	Monthly Maint.**
Model 132A Display Terminal:				
With 8K-byte display memory	$194	$175	$3,950	$35
With 16K-byte display memory	219	197	4,450	40
Serial Printer Interface (RS-232C); for Diablo HyTerm Model 1620 or equivalent	7	6	150	0.83

* Includes maintenance.
** For installations within a 50-mile radius of a DatagraphiX service location.
***For quantities of 1 to 9 units; a 4 percent discount is provided for quantities of 10 to 24 units. Contact vendor for discount on quantities of 25 units or more.■