

Alphanumeric Display Terminals

The video display terminal (VDT, or CRT, as it is commonly referred to) is the principal interface between people and computers. As the computer becomes pervasive in today's business world, more and more people are being exposed to this popular business tool. Originally invented as a "glass teletype," an alternative to using a teleprinter terminal as a computer operator console, the display terminal has evolved to the point where it is a primary component in the vast majority of modern computer applications, including data entry, inquiry/response, program development, business and scientific graphics, word processing/text editing, CAD/CAM, and many others. For the purpose of this report, we will focus on alphanumeric display terminals designed for general purpose business applications.

The steady introduction of improvements in CRT design and functional capability, such as editing, highlighting, protected fields, split-screen functions, color screens, and ergonomic housing, has contributed to the growth of the market. However, the single most important factor in today's display terminal market, in terms of how it affects both the vendor and the end-user, is the continuing downward trend in pricing. Historically, price has been set in proportion to capability; dumb terminals have carried the lowest price tags, with fully featured smart editing terminals on the high-end of the price scale. While this is still true, advances in technology have caused the lines of distinction between what is dumb and what is smart to be blurred; meanwhile, prices have fallen, drastically in some cases.

As with all segments of the hardware industry, technological improvements have led to lower prices for the user. Nowhere is this more obvious than in the terminal market. Consider that about five years ago only the most basic dumb ASCII terminals carried a price tag below \$1,000. Today, the low-end price seems to have settled in the \$450-to-\$500 area, with a wide variety of smart terminals available in the \$600-to-\$800 range. Prices in the IBM 3270 segment of the market, traditionally much higher than in the asynchronous segment, have also fallen, although not quite so drastically.

These lower prices have reduced profit margins for vendors and have made competition in the terminal market tougher and riskier than ever. Still, the market remains vigorous, and new vendors continue to enter. The real winner in all of this, obviously, is the user, who continues to gain more functionality per terminal dollar.

Today, there are somewhere in the neighborhood of 10 million display terminals installed throughout the United States. However, the healthy growth of this market has been jeopardized by the popular acceptance of the microcomputer by corporations. As microcomputer prices also tumble, many firms are using them as multipurpose workstations that usurp some of the functions traditionally performed by display terminals. As microcomputer-to-

This report focuses on non-user-programmable alphanumeric display terminals designed for general-purpose business applications. It includes a brief historical summary of the market; current market trends; developments in ergonomics; and a look at the industry's major segments. Also included are comparison columns detailing the specifications of 361 display terminal models offered by 91 vendors.

mainframe links improve, more and more microcomputers will be able to perform terminal tasks in addition to micro-computing tasks. Datapro has seen a drop in the number of companies entering the terminal market in the past year, as well as a small shakeout. These factors can be attributed to the growth of the microcomputer industry.

GENERAL CATEGORIES

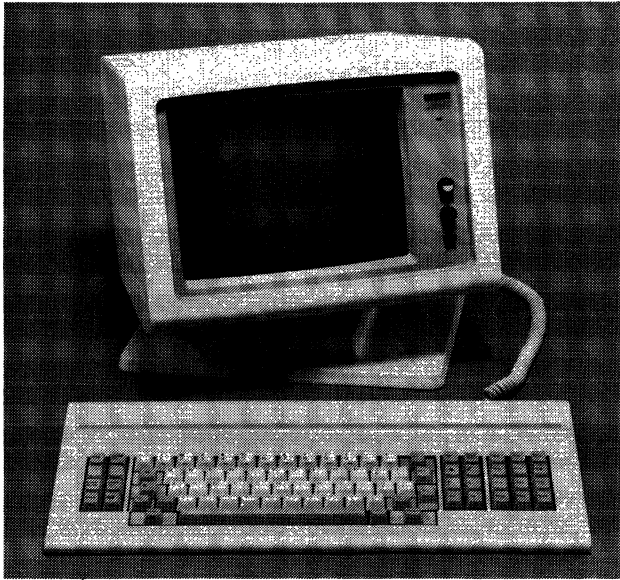
All of the terminals covered in this report have three features in common: 1) each has a keyboard that can generate and a monitor that can display a full alphanumeric character/code set; 2) each has the capability to send and receive data via communications lines to a remote host computer; and 3) each is marketed for general-purpose usage in the United States and Canada, and is identified as a distinct product to end users.

Display terminals fall into one of three general categories: dumb, smart, and user-programmable. This report concerns itself with dumb and smart terminals, according to Datapro's definitions. User-programmable terminals have been placed into a distinct and separate section (C21) because of their sophistication, features, and price. ▸



The VT220 from Digital Equipment Corporation (DEC) is the successor to the company's VT100, which created an industry standard. The VT220 provides all of the functionality of its predecessor in a more compact, ergonomically improved package. Standard features include 132-column display capability and ANSI X3.64 compatibility.

Alphanumeric Display Terminals



The Miracle 178 from Term-Tronics is a plug-compatible replacement for the IBM 3178. The terminal carries a single-quantity purchase price of \$995, making it the lowest priced 3178 replacement on the market. A separately addressable printer port is available as an option.

- ▷ Naturally, there is some overlap among dumb, smart, and user-programmable terminals. The definitions of these categories are given as follows:

Dumb terminals offer a limited number of functions; most feature teletype compatibility.

Smart terminals offer extended functions, such as editing and formatted data entry. In some cases, the user can tailor the terminal to fit his/her own application via a limited degree of programming, such as format creation and parameter definition.

User-programmable (or *intelligent*) terminals feature software support. The vendor typically provides an operating system, an assembler- or compiler-driven programming language, subroutines, I/O utilities, one or more protocol emulators, and one or two application programs, such as data entry and text editing.

For more information on user-programmable terminals, see Report C21-010-01, "Distributed Data Processing Systems."

MICROPROCESSOR CONTROL

Virtually all display terminals currently manufactured are microprocessor-controlled. Microprocessor-based programs (firmware) reside in ROM or PROM memory. ROM-resident programs, which are inexpensive when reproduced in large quantities, control those features which are permanent and unchangeable; while PROM-resident programs are typically produced in smaller quantities and

implement customized or modifiable features. Either type can be replaced by simply removing the old chip and putting in a new one. This flexibility is highly beneficial to the manufacturer, since older equipment can be updated and nonstandard customer specifications can be fulfilled without costly hardware changes. Theoretically, program interchangeability might also benefit the user, but in practice it is doubtful that the requirements of a particular user will change often enough to make it a great advantage. The fact that PROM replacement generally must be done at the factory or by a field service technician precludes frequent PROM replacement.

In addition to controlling basic terminal functions, the microprocessor firmware can provide protocol emulation, define the character/code sets to be generated by the keyboard and displayed on the screen, implement special features, set control parameters, etc. Firmware specifications are generally determined at the time of order, and once the firmware is in place, execution is transparent to the user. Some vendors have predetermined programs from which to choose; a few permit users to submit their own firmware specifications.

DISPLAY MEDIA

The vast majority of display terminals manufactured today use a cathode ray tube (CRT) as the display medium. The popularity of this device stems from its flexibility, high-character capacity, and relatively low cost.

In addition to being able to display alphabetic and numeric characters in virtually any format, the CRT can highlight characters by means of underscoring, reverse video, blinking, or varying levels of brightness. Some CRT terminals can display double-size characters. Today, more and more CRT terminals have a graphics character set for creating forms and report formats on the screen. Some CRTs also permit the creation of business graphics—for example, bar, column, and pie charts reflecting sales, income and expense, inventory levels, etc. Interactive graphics or engineering graphics on the other hand, is a completely different discipline which requires a high-resolution graphics terminal. Graphics terminals can also display alphanumeric characters, but they are considerably more expensive.

Other types of alphanumeric displays have existed for years, and at one time were thought to be a serious challenge to the CRT. Examples of these are LEDs (light-emitting diodes), which are very popular in calculators and point-of-sale (POS) terminals, and gas-discharge displays such as IBM's new 3290. These alternate types of displays provide extremely sharp images. However, as of this time, they are still quite expensive, and have found only a small niche in certain specialty applications.

ERGONOMICS

According to the American National Standard ANSI 294.1-1972, *ergonomics* is defined as "A multidisciplinary activity dealing with the interactions between man and his

Alphanumeric Display Terminals

▷ total working environment, plus such traditional and environmental aspects as atmosphere, heat, light, and sound, as well as of tools and equipment of the workplace.”

Display terminal manufacturers have become increasingly aware of the need to consider human factors, or ergonomics, in the design of their equipment. The trend toward making CRTs more “operator-friendly” began in Europe, particularly in the Scandinavian countries, where powerful unions representing clerical workers have implemented rigid guidelines as to what types of display terminals their members will use.

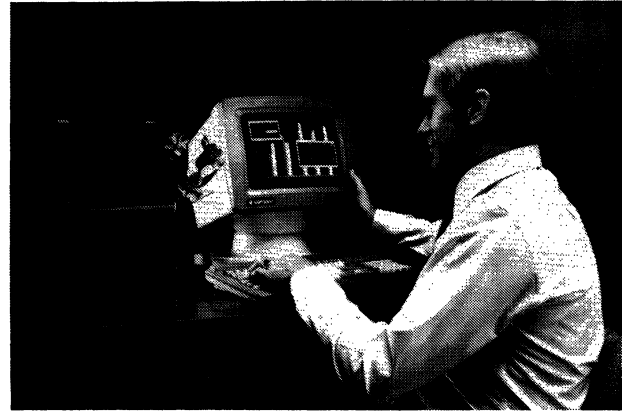
While no such guidelines are currently in effect in the United States, virtually all CRT manufacturers have recognized market opportunities in ergonomic designs, and are attempting to attract customers through marketing campaigns emphasizing the human factors which influenced the design of their terminals.

The average operator of a display terminal is concerned primarily with two components with which he or she has the most interaction; the keyboard, for input of data, and the display screen, for verifying what was keyed and for reading the output data. Ergonomic design improvements are therefore concentrated on these two components.

The vast majority of display terminal vendors now offer keyboards that are detached or detachable. Connected to the display console via a cable or coiled wire, these keyboards may be placed at some distance (usually 3 to 6 feet) from the console, allowing the operator to place the keyboard in the most comfortable position(s) while working at the terminal.

The layout of the keyboard is also a concern. Most keyboards feature a typewriter-style layout, for ease of training personnel already familiar with a typewriter's key arrangement. Dedicated (separate) numeric keypads are also generally available for applications requiring fast numeric entry; these duplicate the key arrangement of a pocket calculator or adding machine. In addition, some vendors have added a palm rest for the numeric pad, for operator comfort. Many vendors also offer sculptured key caps in place of flat key caps, to facilitate speed of data entry and improve operator comfort. For keyboard feedback, vendors may offer either audible or tactile (touch-sensitive) key click, which tells the operator that the key has been depressed far enough to register.

Another important design factor to be considered is the slope and thickness of the keyboard assembly itself. Most keyboards manufactured today are either sloped or stepped, and the optimum profile angle generally is believed to be between 5 and 15 degrees. It has also been determined in studies that the thickness of the keyboard, or the distance from the base of the keyboard to the home row of keys, generally should not exceed 30 mm. The vast majority of keyboards manufactured today have a low-profile design that conforms to the German DIN (Deutsches Institute fur Normen) standard for ergonomics.



TeleVideo's 925E display terminal mirrors the trend in the terminal market toward compact, ergonomically improved display designs. The 925E features a tilt/swivel display, low-profile keyboard, and small footprint size. The older TeleVideo 925, featuring the company's previous display design, is shown in the background.

Operator eye strain or fatigue is a consideration which must be dealt with when designing a CRT display screen. Most display screens produced today are etched or contain a bonded faceplate to reduce glare. Another method of glare reduction being utilized by more and more manufacturers is the addition of tilt and/or swivel adjustments. These adjustments not only allow the operator to place the viewing area in a position to avoid glare, but also to place the screen at the most comfortable viewing angle.

The phosphor color and size of characters also contributes to their legibility. Green phosphor has replaced white as the standard for the majority of display terminal models. Amber phosphors are now very popular in Europe, and many domestic vendors are beginning to offer amber phosphor characters in this country. However, there is currently no scientific proof that one phosphor color is easier on the eyes than another. Character phosphor remains a matter of personal preference. The vast majority of display terminals on the market today utilize the dot matrix technique to form characters. The more dots that are contained in the character cell, the sharper the character will appear. For years, 5-by-7 characters were the standard of the industry; today, 7-by-7 and 7-by-9 characters are more common, and they provide a clearer character. Some vendors have incorporated higher refresh rates to reduce image instability, or flicker, in the characters, further improving their legibility.

The size of the characters generated depends on the size of the screen and the display format used. Characters will be larger on 15-inch (diagonally measured) screens than on 12-inch screens; likewise, characters will be larger in an 80 character-per-line format than in a 132 character-per-line format. For applications requiring a 132-column format, a 14- or 15-inch display screen is preferable.

To facilitate specialized data entry, some vendors offer a light-pen option, which allows the user to enter data via a light-pen for applications involving menu selection. A vari-



Alphanumeric Display Terminals

ation of this is the touch-sensitive screen, offered by a small number of vendors, which allows the user to input data by touching the screen with a finger or a pen. Finally, LSI circuitry has contributed to the use of smaller power supplies. Some CRT terminals have smaller cooling fans than before, which result in reduced noise level. Individually, these improvements may be slight, but when considered cumulatively, they represent a marked improvement over the terminals of five years ago.

All of the above features should merit serious consideration from potential terminal buyers. Although many ergonomic features may be ordered from the terminal manufacturer, the increased emphasis of ergonomics has led to the springing up of a number of specialty companies that offer devices which can be *added* to terminals to make them more user-friendly. Several companies market optical display filters, glare shields, noise shields, etc., which are designed to fit most major displays. Modular office furniture manufacturers also offer work stations that provide tilt/swivel bases for terminals not equipped with these features.

As user awareness of human factors grows, we see ergonomic considerations in the U.S. becoming not simply a market opportunity, but a mandate. Controversy continues to grow regarding the effects that constant use of a CRT has on the health of the operator. Workers whose jobs require them to sit at the display all day have complained of headaches, dizziness, back pains, and nausea. The National Institute for Occupational Safety and Health (NIOSH) has conducted research studies on this subject (copies of these reports can be obtained from NIOSH). While no definite conclusions have as yet resulted from these studies, it is clear that these concerns are a significant matter that must be addressed by both vendors and buyers. As of this time, they are being addressed out of concern for market share in a highly competitive market. It is expected, however, that

domestic unions will follow the lead of European unions and place standards for VDT use in future contracts. Ergonomic features will then be mandatory.

MAJOR DISPLAY MARKETS

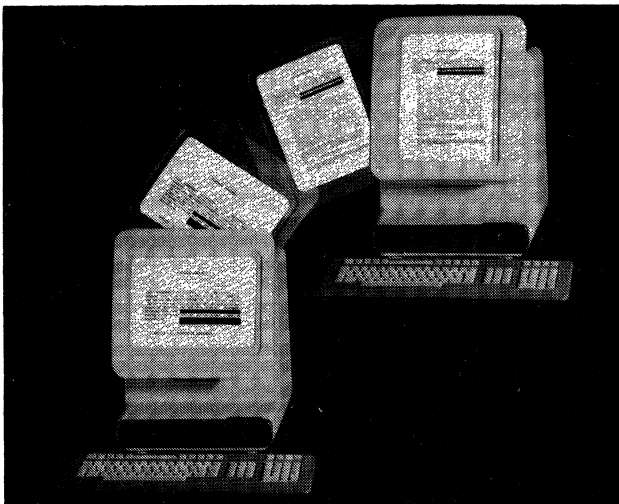
The alphanumeric display terminal market generally is acknowledged to contain two major segments: the ASCII (asynchronous) terminal market, and the IBM 3270 (synchronous) terminal replacement market. Both segments continue to enjoy healthy growth, particularly the ASCII market. And, as mentioned previously, low prices and increased price/performance have made display terminals more attractive than ever to potential users, and continue to play a major role in the direction of each of these segments.

IBM's Best-Seller, the 3270

The IBM 3270 has strongly impacted the alphanumeric display terminal market since deliveries began late in 1971. The first generation of devices, which were discontinued as IBM products in late 1982, included the 3271/3272 control units, 3275 display station, 3277 display, and 3284/3286/3288 printers. In 1977, the product line was radically overhauled, resulting in the announcement of a second generation of components (the 3274 control unit, 3276 control/display, 3278 display, and 3287/3289 printers) that offered increased capabilities at prices much lower than comparable older models. Along with that announcement came major price reductions on the older equipment. In late 1979, color displays and printers were added to the family.

In March 1983, IBM made some long-awaited changes and enhancements to the 3270 product line. Unveiled were: the 3178 Display Station, a smaller and less expensive version of the popular 3278 Model 2 display; new versions of the 3274 Control Unit, offering improved price/performance; the 3290 Information Panel, a gas plasma display; the 3299 Terminal Multiplexer, a coaxial cable eliminator; price reductions of approximately 10 percent on older existing 3270 models; purchase discounts of 40 percent on the 3178 for quantities of 3,000 or more, with the conversion of leased 3278s applying to that quantity; and an option permitting the attachment of the IBM Personal Computer to the 3278 Display Station. These announcements were followed in October with the introduction of the 3270 Personal Computer, a version of the firm's PC for use as part of a 3270 cluster. The 3179 color display and 3180 display, both compact terminals along the same line as the 3178, were unveiled in March 1984.

These changes were made by IBM to protect their large (and lucrative) 3270 installed base. This installed base numbers well over 1 million units. The independent 3270-compatible terminal vendors, through lower prices or improved price/performance, were seriously eroding IBM's share of the market. These independents include vendors such as ITT Courier, Telex, AT&T Teletype, Lee Data, Memorex, and several others. In order to remain competi-



Micro-Term's Twist is a dual-format display terminal, featuring a 24-line by 80-column landscape format, and a 72-line by 80-column full-page format. The display screen is rotated 90 degrees to achieve a new format.

Alphanumeric Display Terminals

TABLE 1. IBM 3270 COMPATIBILITY

Vendor	System/Model	IBM Controllers Emulated	IBM Displays Emulated	Personal Computing Capability
AT&T Teletype	4540	3271/3272/3274	3275/3276/3277/3278	No
AT&T Teletype	5540	3274/3276	3278/3178	No
Beehive	ATL-3270/ATL-3270MS	3276	3275/3276	No
Braegen	8500 (ELAN)	3274	3278/3180	Yes
Carterfone	7276	3276	3276	No
Computer Communications	Group 8000	3274	3276/3278	No
Comterm	5270	3274	3278/3279	No
Control Concepts	EM-3275/3276/ CC-3275/3278	—	3275/3276/3278	No
Datamedia	3270-S/3270-6/3270-8	—	3275/3276/3278	No
Datastream	178/878-15	3274/3276	3178/3278	No
Harris	8000	3271/3272	3277	No
Harris	9200	3274	3278/3279/3178	Yes
Hewlett-Packard	2625A	—	3276/3278	No
Icot	700/701	—	3278	No
Informer	370	3271/3274	3275/3277/3278	No
CIE Systems (ACM)	CIE-7800	—	3178/3278	No
ITT Courier	C-270	3274/3276	3178/3278/3179/3279	Yes
ITT Courier	9000	3274/3276	3178/3278/3179/3279	Yes
Lee Data	Series 300/400	3274	3178/3278/3279	Yes
Memorex	207X	3274/3276	3178/3278/3279	Yes
NCR	7950	3274	3278	No
Nixdorf	8270	3274	3278	No
Northern Telecom	290	3272/3274	3276/3277	No
Paradyne	PDS 270	—	3276/3278	Yes
Phaze Information Machines	P3278/P9010	—	3278/3178	Yes
Racal-Milgo	4270 Series	3274	3276/3278	No
Term-Tronics	3270-A/B	3274/3276	3275/3276/3278/3279	No
Term-Tronics	Miracle 178/Mega II	—	3178/3278	No
Telex	270	3274/3276	3276/3178//3278/3179/3279	Yes

► tive, these vendors have been forced to reply to the IBM announcements with new products and/or price reductions of their own. By now, most 3270-compatible vendors have announced new product generations of their own. A small shakeout also has occurred, with Raytheon Data Systems (once IBM's number-one competitor in this market) and MDS Trivex exiting the market.

By adding the 3270-PC, as well as Personal Computer attachability, to the 3270 system, IBM has addressed a threat which is as much internal as it is competitive. The overwhelming acceptance and popularity of the IBM Personal Computer poses a real threat to the entire display terminal industry. As personal computing becomes the rule, and not the exception, in most major corporations, IBM is moving to protect its huge 3270 installed base by incorporating personal computing into the 3270 system. Most of the independents now offer some type of personal computing with their product lines, either via their own equipment or through IBM Personal Computer attachability. In the near future, some type of personal computing capability is likely to become requisite for competing in this market.

With the increased pressure from IBM, it is now more important than ever for the independent vendors to offer a complete line of 3270-compatible products. Today's successful independents must couple a full range of products with lower prices, improved price/performance, and added value, in order to create an opportunity to penetrate an IBM shop. International Data Corporation, a market research firm located in Framingham, Massachusetts, esti-

mates the installed base of IBM 3270 and plug-compatible terminals at 31 percent of the total U.S. installed terminal base of over 6.6 million. Clearly, even a small percentage of this market can be extremely profitable for an independent vendor.

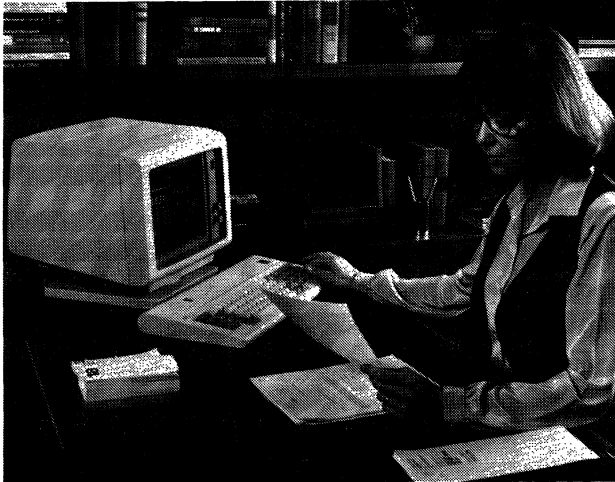
In addition to the 3270-compatible vendors, some ASCII terminal vendors have invaded the 3270 market through protocol conversion. On a 3270 network, synchronous terminals can be replaced with asynchronous terminals coupled with protocol converters. These devices allow the ASCII terminal to support the functional characteristics of the 3270 terminal. The advantages of this strategy are twofold—ASCII terminals remain less expensive than their 3270 counterparts, and users with both IBM and non-IBM hosts may utilize the same terminals to access each.

Table 1 provides a summary of the major 3270-compatible vendors and their products. This table does not include those products that require a protocol converter for 3270 emulation.

The ASCII Terminal Market

The ASCII display terminal market is the largest segment of the two major display markets, with regard to number of vendors, number of units marketed, and quantity sold. This market originated as the Teletype replacement market, with units intended to replace the highly popular Teletype ASR 33/35 terminals. Although today not many of the ASCII terminals purchased are actually replacing the older Teletype units, the ASCII terminal market is still often referred to as the teletype-compatible market. ►

Alphanumeric Display Terminals



The 3178 was the first member of a new generation of 3270 displays from IBM. The modular design of the 3178 can be found on two newer IBM displays, the 3179 and 3180. The 3178 also heralded a trend toward lower prices for the 3270 family components.

- ▷ Manufacturers of ASCII terminals generally aim their products at educational and commercial users requiring large numbers of low-priced terminals for applications such as order entry and time-sharing.

As was mentioned earlier in this report, price is a key factor for success in this market. The continuing price war involving the low-end entries in the ASCII terminal market has made the recent activity in this segment even greater than in the past. Initially, only the truly "dumb" terminals (like the original dumb unit, the Lear Siegler ADM 3) were available for less than \$1,000. Now, features such as block mode transmission and editing capabilities are available at below traditional dumb terminal prices. In addition to price cutting, vendors are attempting to make their offerings more attractive to potential buyers by adding enhanced features such as business graphics, split-screen or windowing capabilities, and a variety of visual attributes. ASCII terminal vendors are also paying a lot of attention to ergonomics, incorporating features such as tilt/swivel screens and low-profile keyboards into their products.

Leaders in the ASCII field generally provide a full range of terminal models ranging from low-end units to editing models. The current leaders include TeleVideo Systems, Applied Digital Data Systems (ADDS), Lear Siegler, and Esprit Systems. An active, but somewhat separate subsection of the ASCII terminal market consists of the Digital Equipment Corporation (DEC) VT100, its successor, the VT220, and those terminals that offer DEC emulation. A large number of vendors are involved in the DEC emulation market, including those general-purpose terminal vendors mentioned above; in fact, most major ASCII terminal manufacturers provide at least one DEC emulator in their product line.

As a by-product of DEC emulation, vendors are now providing ANSI X3.64 code compatibility on their termi-

nals. The American National Standards Institute (ANSI) first published the X3.64 standard for two-dimensional data devices in 1977. The goal of the standard was to standardize control codes for all terminals. The DEC VT100 was the first display terminal to conform to the ANSI standard, and the VT220 also conforms. In order to provide true DEC emulation, the makers of DEC emulators also are required to provide ANSI X3.64 code compatibility on their products. Table 2 provides a look at those vendors who have introduced new terminal models offering DEC VT220 emulation.

In addition to DEC, most of the major mainframe and minicomputer vendors offer terminal product lines for use with their computer systems. Hewlett-Packard claims a large installed base of display terminals, as do Burroughs, Data General, and Sperry.

DISPLAY TERMINAL CHARACTERISTICS

The accompanying comparison charts summarize the characteristics of 361 commercially available alphanumeric display terminals from 91 vendors. Nearly all of the information was supplied by the manufacturers during October and November 1984. Their cooperation is acknowledged and greatly appreciated.

Datapro sent repeated requests for information to nearly 100 companies known or believed to be in the display terminal business. The usable responses summarized in our charts provide a comprehensive picture of the commercial display terminals that are currently available in the United States and Canada. *The absence of any specific company from our charts means that the company either failed to respond to our repeated information requests or was unknown to us.*

The chart entries and their significance are explained in the following paragraphs.

TERMINAL DESCRIPTION

Display terminals are available in one of two basic terminal configurations: *stand-alone* and *cluster*. Stand-alone units are typically those that contain all components that support the operation of the terminal including display, keyboard, interface, and power supply within a single cabinet. Auxiliary units such as printers, cassette tape drives, etc., are usually external devices. Sometimes a stand-alone unit includes separate cabinets for terminal control and keyboard/display sections, and it may even include one or two separate displays. A cluster configuration typically includes a terminal control unit and a number of individual cable-connected keyboard/display units that can be located several thousand feet from the controller. In some cases, the vendor provides a multiplexer that accommodates a cluster of stand-alone terminals. The size of a cluster arrangement is defined by the *maximum number of displays per controller*.

Alphanumeric Display Terminals

TABLE 2. DEC VT220 EMULATORS

Vendor	Model	Screen Size	80/132-Column Display	Price* (\$)
DEC	VT220	12	Yes	1,395
CIE Terminals	CIT-220+	12	Yes	1,195
Cybernex	RG-220	14	Yes	—
Lanpar Technologies	Vision	12	Yes	1,195
	2200+			
Lear Siegler	ADM 220	12	Yes	1,165
Liberty	Freedom	12/14	Opt.	795-845
	220			
Micro-Term	Ergo 320	12	Yes	—
Plessey	PT-220	12	Yes	—
TeleVideo	922	12	Yes	995
Visual	Visual 220	14	Yes	995
Zentec	DD220	14	Yes	850

*Based on single-quantity

- Terminals that are designed to be hand-held or to be hand-carried, are noted in the entry *transportability*.

Some terminals are designed as direct replacements for other terminals. In the alphanumeric display terminal market, replacement terminals fall into two principal categories: those designed to replace an IBM family terminal are indicated as having *IBM compatibility*; and those designed to replace a terminal in the ASCII/Teletype market are indicated as having *teletype compatibility*.

Some vendors provide *other compatibility*, and can replace terminals such as those produced by Burroughs, Digital Equipment, Honeywell, and Sperry. For example, a wide variety of vendors market terminals which are compatible with the DEC VT100 or newer VT220.

Either of two types of compatibility may be offered: transmission compatibility or “plug-to-plug” compatibility. Transmission compatibility requirements include identical protocol, code and unit code structure, timing, asynchronous or synchronous operation, and transmission speed. Some vendors even provide identical cables, which is a cost-effective consideration in a local cluster environment. Most vendors with transmission-compatible units offer additional features and functions that the original vendor’s equipment does not have, implemented via minor changes in host software. Units with true plug-to-plug compatibility not only have identical transmission parameters, but also identical features and functions; no alteration to host software is necessary, but no enhancements beyond the original vendor’s equipment are available.

DISPLAY PARAMETERS

Information displayed on the screen of a CRT is generally arranged according to an orderly format consisting of a maximum number of printed lines per screen and characters per line. The electronic circuitry that produces the display image is designed to a specified set of parameters that define the *display capacity* (i.e., the maximum number

of display positions) and the *screen arrangement* (i.e., the maximum number of displayable lines and displayable characters per line). The most common display capacity is 1920 characters arranged in 24 lines of 80 characters. Many vendors offer 132-character display lines, which can eliminate the need to revise or patch software designed for standard 132-column printers or to maintain dual sets of programs for 80-column and 132-column output.

In most terminals, the number of characters that can be stored by the terminal’s display memory equals the maximum screen capacity. In some terminals, however, storage is provided for more characters than can be displayed on the screen at one time. This additional data may be stored character-by-character, by the line, or by the “page” (a full screen of data). *Memory capacity* defines the total number of characters, lines, and pages that can be stored in the terminal’s display memory.

Information is displayed in a rectangular area, slightly smaller than the total surface of the display screen. The factors that determine the required size of the *screen area* are the display arrangement and the size of the displayable characters. For example, the typical 1920-character display utilizes a 12- or 15-inch (diagonal) screen area.

Ergonomic factors are becoming increasingly important as terminal features. One such feature gaining in popularity is a *tilt and/or swivel screen*. This feature provides for the mounting of the display monitor onto a separate desktop base or pedestal, and allows the operator to twist the screen vertically (“tilt”) and/or horizontally (“swivel”) to the most advantageous position for viewing.

The set of *total displayable symbols* and the method of *symbol formation* are functions of the character generator, which accepts coded characters (typically ASCII or EBCDIC) from the computer and keyboard and converts them to a number of dots or strokes so that the form of the symbol or image can be displayed. In CRTs, characters are formed almost exclusively by the dot matrix technique. Each character is formed within a matrix of dots, and only those dots required to form the specific character are intensified. For example, a dot matrix that contains 35 dots is typically arranged 7 dots high by 5 dots wide.

Characters can be made clearer by increasing the number of dots within the matrix. The stroke technique forms characters by drawing short straight lines between specified points. *Character phosphor* refers to the physical coating of phosphorus on the back side of the screen which, when illuminated, creates the displayed characters. The type of phosphor used defines the color of the displayed character, as well as the persistence of the phosphor (a long-persistence phosphor is less likely to cause image flicker problems than a short-persistence phosphor; however, the image of a long-persistence phosphor is more likely to smear when lines are scrolled). Among the more common phosphors available are P4 (white), and P31 or P39 (green). Amber and yellow-green phosphors are also available on some terminals.

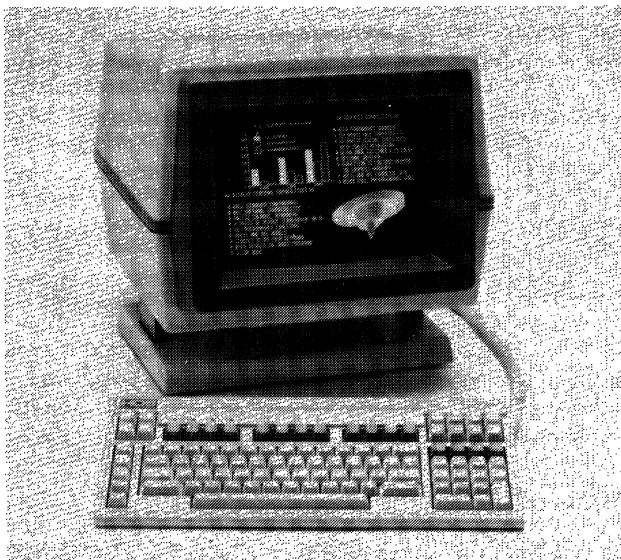


Alphanumeric Display Terminals

▷ Display arrangement, display medium, character phosphor, and symbol formation all have a great impact on display clarity. Several units should be tested to decide which is easiest on the operator's eyes.

Attention can be drawn to vital information and different types of significant data can be visually separated by the use of the following display features:

- **Color**—characters or fields can be separated by color, which also can be used to identify conditions or types of data. IBM's color display, the 3279, is currently emulated by many of the independent 3270-compatible vendors.
- **Graphics**—bar charts, pie charts, and graphs may be used to present certain types of information. In most cases, an affirmative answer in this category indicates the presence of line drawing or special graphics character sets. It generally does *not* indicate the presence of highly sophisticated graphics capabilities found on graphics-dedicated terminals.
- **Underline**—highlights significant information by underlining.
- **Blink**—highlights significant information by causing it to blink off and on.
- **Blank (security)**—sensitive information is transmitted, but not shown on the screen.
- **Bold**—highlights significant information by displaying it at a different brightness level.
- **Reverse**—highlights significant information by displaying a negative image of it, e.g., when normal data is



Human Designed Systems provides APL terminal capability with the Concept AVT-APL+. The Concept AVT-APL+ contains a 132-column display format and conforms to the ANSI X3.64 standard. Full/true overstrike APL is standard.

displayed in white on a dark background, the highlighted character or field is displayed in dark on a white background.

- **Double size**—highlights significant information by displaying it in characters which are of larger size than normal. Double height, double width, and/or double height/width characters may be supported.

Some terminals offer several of these display features, which can be combined to produce even more effective results. The features are programmable (usually via the keyboard), and can be used on a character-by-character basis, or in a designated field.

Some applications require viewing more data than can be displayed at one time. The following features satisfy this need:

- **Scroll**—this feature moves all displayed lines of data up or down by one line as a new line is added and an existing one removed. In some cases, the first line is linked with the last so that the data is rolled but not lost. In others, data is lost as it rolls off the screen. This feature permits the user to scan through a volume of data to locate key information.

Many vendors now feature smooth scrolling, in which data is rolled or scrolled smoothly up or down (much the same as the credits at the end of a movie).

- **Paging**—this feature defines and stores two or more discrete frames or pages of data and displays any selected page.

Although scroll and paging features can be software implemented in the host computer, the comparison chart entry applies only to those terminals that implement the feature via hardware or firmware. Many terminals provide the scroll feature, but relatively few provide paging. Some provide both features.

The cursor marks the position on the screen where the next character will be read or written from memory. Cursor controls enable the operator to maneuver the cursor on the screen and facilitate the input and output of data. Different manufacturers use a variety of symbols to indicate the cursor position on the screen, for example, an underline, a reverse video block, or a blinking character. Some terminals allow the operator to choose among several types of cursor symbols; the most typical feature being *selectable blinking cursor*. Some terminals also have *addressable/readable cursors* that enable the position of the cursor to be written or read by the host computer under program control.

Most businesses use printed forms for daily activities such as billing, ordering, payroll, etc. Some CRT terminals can duplicate the printed form on the face of the screen, and data can be keyed into the blank spaces just as the typist enters data into a printed form. This "fill-in-the-blanks" }

Alphanumeric Display Terminals

▷ approach to data entry requires a *protected format* capability. Display terminals that incorporate this feature treat the fixed format differently than they treat keyed data. Field identifiers such as “name” or “salesperson number” are protected from inadvertent key entry, and data entry is confined to the variable fields (blank spaces) following the field identifiers.

After having completed entry into the fixed format, the operator transmits the data to the central computer. A feature called *partial screen transmit* promotes line economies by transmitting only the keyed data; the fixed format remains displayed and the “blanks” are erased for the next entry. This feature is also useful for transmitting only a portion of the displayed data such as a field, line, or block.

A few vendors now offer a *split-screen* and/or “*windows*” feature on their terminals, in which the display screen can be divided or partitioned into a number of separate workspaces. Data in these workspaces can be manipulated (e.g., scrolled, stored, or transmitted) independently of the rest of the screen. *Tabulation* capabilities allow some terminals to automatically move the cursor to the beginning of the next line, or to the beginning of the next variable field within a line of formatted data immediately following the entry of the character that completes the end of the current line or field. The tab key needs to be used only when the current line/field is to remain partially filled.

Editing features in a display terminal can consist of any combination of the functions listed below, although the best terminal for editing purposes would include all of them. Each function is performed with respect to the current position of the cursor. The desirable editing functions are:

- *Character insert*—the capability to insert a character into an existing line of displayed text; the remaining characters shift to the right or “spread” to accommodate the added character. The spreading capability may terminate at the last character position of the line or at the last displayable position on the screen. Data is lost when it is spread beyond the termination point.
- *Character delete*—the capability to delete a character from an existing line of displayed text; the remaining text closes up when the character is deleted.
- *Line insert*—the capability to insert a line of text into existing text; the text spreads to accommodate the added line.
- *Line delete*—the capability to delete a line of text from existing text; the remaining text closes up when the line is deleted.
- *Erase*—the capability to erase a character, line of text, message, field, or the complete screen. Most terminals include character erase and some form of display erase, which may erase the entire contents of the display, just

that portion following the cursor location, or a combination of both functions. Line erase is optional in many terminals.

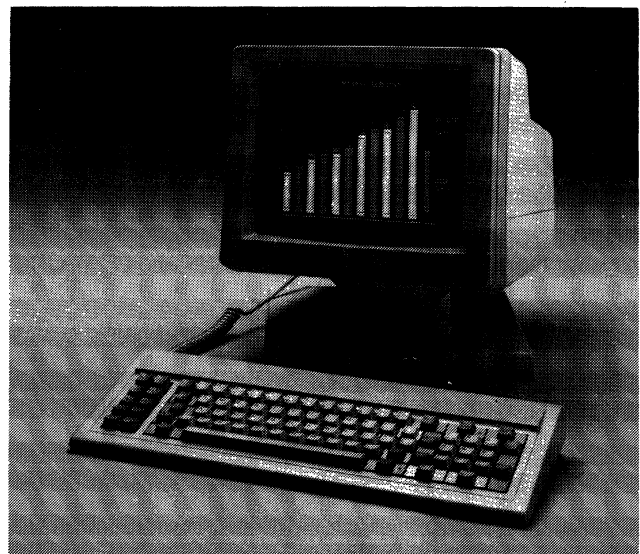
KEYBOARD PARAMETERS

Keyboard *style* defines the general arrangement of keys; e.g., typewriter- or data entry (keypunch)-style. Data entry keyboards have a numeric keypad embedded in the alphabetic part of the keyboard which is accessed via numeric shift. The *character/code set* refers to the set of symbols that appear on the keytops and, in many cases, to the actual character codes generated for each key depression, such as ASCII, EBCDIC, APL, etc. Some terminals are available with more than one keyboard style to satisfy particular user needs.

Keyboards that can either fit flush against the display or be located some distance away via cable connection are referred to as *detachable* keyboards. This feature provides increased configuration flexibility and operator convenience.

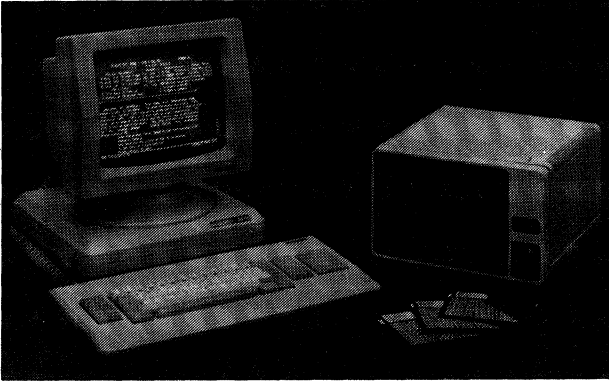
Some terminals are available with *program function keys*. These are special keys whose character codes are interpreted by the user’s program. A function key is used to reduce the number of required input keystrokes to save time and reduce the number of input errors. Depressing one key could instruct the system to “sell one seat” or “call Chart A,” for example.

A *numeric keypad* is a special keyboard feature that includes a set or block of 10 numeric keys, usually located to the right of the main keygroup. These numeric keys are arranged in an adding-machine format and are particularly useful for applications that require a high volume of numeric entries or arithmetic calculations.



▷ The KT-7 from Kimtron is a low-priced (\$595) display terminal that offers a variety of terminal emulations. The display can be tilted, swiveled, or adjusted for height.

Alphanumeric Display Terminals



Virtually all IBM 3270-compatible terminal systems now provide for the addition of some form of personal computing. Memorex offers the PC Attach feature for adding personal computing capabilities to its 207X Display System. This photo shows the new 2178 display station configured with PC Attach.

▷ ANCILLARY DEVICES

External I/O devices can add considerable flexibility to the applications possibilities for display terminals. Many vendors provide *serial printers* or *line printers* for use with their terminal families. In the case of IBM 3270-type terminals, these devices usually connect to the control unit, not to the display terminal itself.

Composite video output allows the terminal to drive an auxiliary monitor. This capability is useful in applications such as computer-aided instruction, where there is a need to display the screen image to a group of people.

Other devices supplied and supported by the terminal vendor, such as diskette drives, cassette tape drives, light pens, magnetic stripe (ID card) readers, bar code readers, etc., are also listed. Even if they supply no auxiliary devices themselves, most vendors supply a *port* through which another vendor's printer or other device may be attached to the display.

TRANSMISSION PARAMETERS

Nearly every display terminal contains a communications interface that enables communications between the terminal and the central computer site. *Mode* and *technique* define the operating mode and the method in which data is transmitted. There are two operating modes: half duplex (transmission in both directions, but not simultaneously), and full duplex (simultaneous transmission in both directions).

Data is transmitted synchronously or asynchronously. Asynchronous transmission is characterized by the transmission of data in irregular spurts, where the duration of time can vary between successive transmitted characters; the transmission from an unbuffered teletypewriter is a good example. Synchronous transmission implies the transmission of data in a steady stream. The time interval between

successive characters is always precisely the same. The communications interface either provides clocking or accepts external clocking signals from the data set.

Communications protocol refers to the type of line discipline (control code sequence and control characters) that the terminal employs. The three most commonly used protocols are ASCII, IBM's Binary Synchronous Communications (BSC) technique, and IBM's Synchronous Data Link Control (SDLC) line discipline. Other large mainframe vendors such as Burroughs, Honeywell, and Digital Equipment Corporation (DEC) have produced their own communications protocols. Many display terminals now also conform to the ANSI X3.64 standard for control codes; if ANSI standard conformity exists, it will be indicated here.

The *transmission code* refers to the bit pattern of the transmitted characters. Two codes are prominent: EBCDIC and ASCII. The latter has been accepted as an industry and government standard, and is now the most commonly used code by display terminals. EBCDIC is most commonly used with IBM equipment and its replacements.

The CRT terminal is a high-speed device that is usually capable of transmitting and receiving several thousand characters per second; however, it must run at a speed that is compatible with the communications system in which it is used. Most terminals are used on voice-grade facilities, which limit the transmission *speed* to a practical maximum of 4800 bits per second over the dial network and 9600 bits per second over leased or private lines.

Message format refers to the way data is transmitted (e.g., by block, by line, or by character). Terminals that are designed to be transmission-compatible with a teletype unit transmit a character for each key depression. Buffered terminals transmit data in multicharacter blocks. The line or block mode permits data to be composed and edited prior to each transmission and generally permits more efficient utilization of the communications facility. Some terminals offer manual selection between the modes.

Multipoint operation characterizes terminals that are capable of operating in a multiple-terminals-per-line environment such as that employed by the IBM 3270 display terminals. Basic to implementing this capability is the ability of a terminal to distinguish a control message intended for it alone. Polling invites the terminals to send data. Addressing informs the terminal that a message from the central computer is coming, so that it will be conditioned to receive. Central control of the message traffic is maintained by the central computer.

Display terminals usually have a *terminal interface* that meets the standards of the EIA RS-232-C specification or the 20mA current loop, and connects to an external modem or acoustic telephone coupler. Other interface types include RS-422, RS-423, and MIL-188 (military).

Some terminals contain an *integral modem* that can be connected directly to a communications line. In some

Alphanumeric Display Terminals

cases, the vendor provides an integral *acoustic telephone coupler*, so that the terminal can be connected to a conventional telephone handset.

PRICING AND AVAILABILITY

Terminal pricing is provided for unit quantities (one terminal) unless otherwise specified. *Purchase prices* are shown for the complete terminal (including keyboard, display, and controller) for stand-alone units, and for the keyboard/display station and terminal controller for cluster units. The *monthly and annual prime-shift maintenance charges* show the cost of service during regular business hours (usually 9 a.m. to 5 p.m., Monday through Friday).

Single entries generally indicate the price of the basic unit without options; price ranges show the price of the basic unit and the price of an expanded unit with all options, or the price of the low-end and high-end of a multiple-unit family. In general, all prices exclude ancillary devices.

Date of announcement indicates the date that the terminal was unveiled to the public.

Date of first production delivery indicates when the first production model of each terminal was delivered (or is scheduled to be delivered) to a customer.

Display units installed to date shows how many display units of each type had been delivered to customers as of approximately October 25, 1984. All figures were supplied by the vendors themselves, and a number of companies chose not to release this information.

Serviced by specifies the party responsible for maintaining the terminal. In some cases, the vendor provides total service; in others, a national service organization is responsible. Service is sometimes rendered under the combined efforts of both the vendor and an independent service organization; usually in this situation, the vendor handles those areas close to its headquarters or where it has a multiplicity of installations, and the service company handles other geographical areas.

COMMENTS

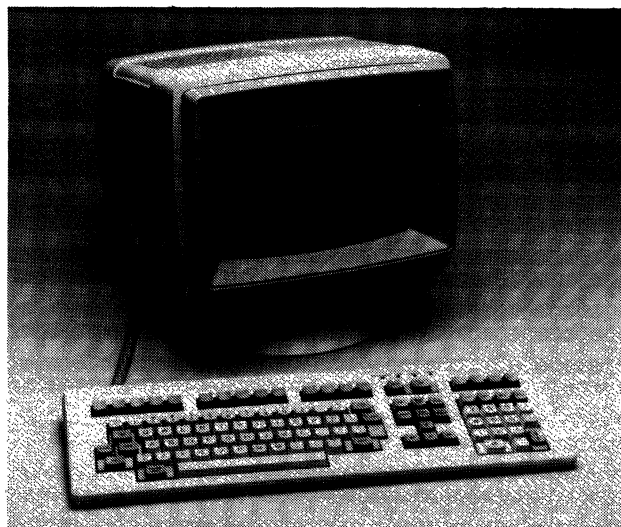
Comments at the bottom of the charts describe significant or unusual features, capabilities, or applications which are not reflected in the standard entries.

VENDORS

Listed below, for your convenience in obtaining additional information, are the full names and addresses of the 91 vendors whose products are summarized in the comparison charts.

Altos Computer Systems, 2641 Orchard Parkway, San Jose, CA 95134. Telephone (408) 946-6700.

Ampex Corporation, Computer Products Division, 10435 N. Tantau Avenue, Cupertino, CA 95014. Telephone (408) 255-4800.



The introduction of the DEC VT220 has spurred a flurry of emulation products. Lear Siegler has recently introduced the ADM 220, a VT220 emulator that features 80/132-column display capability, ANSI X3.64 code compatibility, and the company's High Touch enclosure styling.

Anderson Jacobson, Inc., 521 Charcot Avenue, San Jose, CA 95131. Telephone (408) 263-8520.

Ann Arbor Terminals, Inc., 6175 Jackson Road, Ann Arbor, MI 48103. Telephone (313) 663-8000.

Applied Digital Data Systems, Inc. (ADDS), 100 Marcus Boulevard, Hauppauge, NY 11787. Telephone (516) 231-5400.

AT&T Teletype Corporation, 5555 Touhy Avenue, Skokie, IL 60077. Telephone (312) 982-2000.

Beehive International, 4910 Amelia Earhart Drive, Salt Lake City, UT 84125. Telephone (801) 355-6000.

The Braegen Corporation, 525 Los Coches Street, Milpitas, CA 95035. Telephone (408) 945-1900.

Burroughs Corporation, Burroughs Place, Detroit, MI 48232. Telephone (313) 972-7000.

C & W Distribution Products, 1111 W. Mockingbird Lane, Suite 1400, Dallas, TX 75247. Telephone (214) 630-9700.

Carterfone Communications Corporation, 1111 W. Mockingbird Lane, Suite 1400, Dallas, TX 75247. Telephone (214) 630-9700.

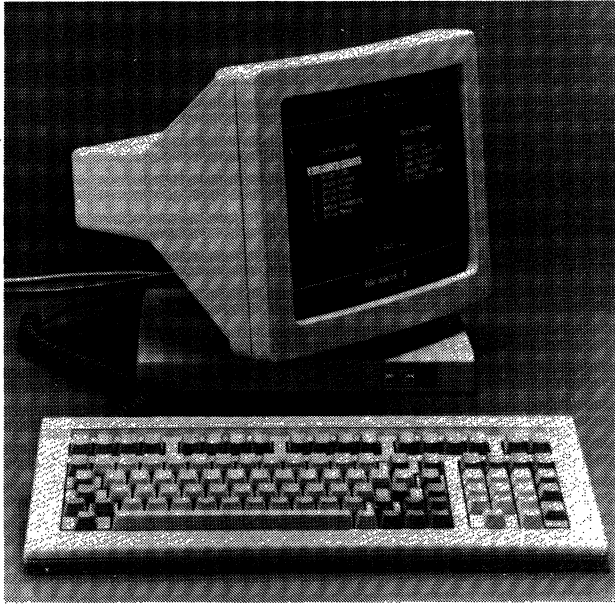
CIE Systems (ACM: Exclusive Marketer), 3857 Birch Street, Suite 540, Newport Beach, CA 92660. Telephone (800) 854-5959.

CIE Terminals, Inc., 2505 McCabe Way, Irvine, CA 92714-6297. Telephone (714) 660-1421.

Cobar, Inc., 2570 E. Cerritos Avenue, Anaheim, CA 92806. Telephone (714) 937-1954.

Computer Communications, Inc. (CCI), 2610 Columbia Street, Torrance, CA 90503. Telephone (213) 320-9101.

Alphanumeric Display Terminals



Radio Shack's new DT-100 is an ANSI X3.64-compliant terminal with a 14-inch display and DEC VT220-compatible editing keys. The DT-100 is equipped with a TRS-XENIX-compatible diskette that allows it to be used with a Radio Shack Model 16 microcomputer operating under TRS-XENIX, the company's UNIX-based multiuser operating system.

▷ **Comterm Inc.**, 545 Avenue, Delmar, Pointe Claire, Quebec, Canada H9R 4A7. Telephone (514) 694-3030.

Control Concepts, (Division of Presearch, Inc.), P.O. Box 2367, 12004B Ballsford Road, Manassas, VA 22110. Telephone (703) 361-5545.

Control Data Corporation, 8100 34th Avenue South, P.O. Box 0, Minneapolis, MN 55440. Telephone (612) 853-8100.

CTi Data Corporation, 5249 North Boulevard, Raleigh, NC 27604. Telephone (919) 876-8731.

Cybernex Limited, 1257 Algoma Road, Ottawa, Ontario, Canada K1B 3W7. Telephone (613) 741-1540.

Data General Corporation, 4400 Computer Drive, Westboro, MA 01580. Telephone (617) 366-8911.

Datamaxx USA Corporation, P.O. Box 6477, Tallahassee, FL 32314. Telephone (904) 224-8213.

Datamedia Corporation, 7401 Central Highway, Pennsauken, NJ 08109. Telephone (609) 665-5400.

Datapoint Corporation, 9725 Datapoint Drive, San Antonio, TX 78284. Telephone (512) 699-7000.

Datastream Communications, Inc., 2520 Mission College Boulevard, Santa Clara, CA 95050-1272. Telephone (408) 986-8022.

Decision Data Computer Corporation, 100 Witmer Road, Horsham, PA 19044. Telephone (215) 674-3300.

Delta Data Systems Corporation, 2595 Metropolitan Drive, Trevose, PA 19047. Telephone (215) 322-5400.

Digital Equipment Corporation (DEC), 146 Main Street, Maynard, MA 01754. Telephone (617) 897-5111.

Direct, Inc., 4201 Burton Drive, Santa Clara, CA 95054. Telephone (408) 980-1414.

Esprit Systems, Inc., 100 Marcus Drive, Melville, NY 11747. Telephone (516) 293-5600.

Falco Data Products, Inc., 1286 Lawrence Station Road, Sunnysvale, CA 94086. Telephone (408) 745-7123.

General Digital Corporation, 700 Burnside Avenue, East Hartford, CT 06108. Telephone (203) 528-9041.

Harris Corporation, Information Terminals Group, 16001 Dallas Parkway, P.O. Box 400010, Dallas, TX 75240. Telephone (214) 386-2000.

Hewlett-Packard, 1820 Embarcadero Road, Palo Alto, CA 94303. Contact your local Hewlett-Packard sales office.

Honeywell Information Systems, 200 Smith Street, Waltham, MA 02154. Telephone (617) 895-6000.

Human Designed Systems, Inc., 3440 Market Street, Philadelphia, PA 19104. Telephone (215) 382-5000.

Icot Corporation, 830 Maude Avenue, Mountain View, CA 94543. Telephone (415) 964-4635.

Informer Computer Terminals, Inc., 22936 Mill Creek Road, Laguna Hills, CA 92653. Telephone (714) 855-3112.

Intecolor, an Intelligent Systems Company, 225 Technology Park, Norcross, GA 30092. Telephone (404) 449-5961.

Interaction Systems, Inc., 24 Munroe Street, Newtonville, MA 02160. Telephone (617) 964-5300.

International Business Machines Corporation (IBM), Old Orchard Road, Armonk, NY 10504. Contact your local IBM representative.

ITT Courier Terminal Systems, Inc., a division of ITT Systems, Inc., 1515 West 14th Street, Tempe, AZ 85281. Telephone (602) 894-7000.

Kimtron Corporation, 2255-I Martin Avenue, Santa Clara, CA 95050. Telephone (408) 727-1510.

Lanpar Technologies, Inc., 85 Torbay Road, Markham, Ontario, Canada L3R 1G7. Telephone (416) 475-9123.

Lear Siegler, Inc., Data Products Division, 901 East Ball Road, Anaheim, CA 92805. Telephone (714) 778-3500.

Lee Data Corporation, 7075 Flying Cloud Drive, Minneapolis, MN 55344. Telephone (612) 828-0300.

Liberty Electronics, 625 Third Street, San Francisco, CA 94107. Telephone (415) 543-7000.

Link Technologies, Inc., 2260 Paragon Drive, San Jose, CA 95131. Telephone (408) 943-0142.

Matra Communication, Inc., (formerly Tymshare), 20705 Valley Green Drive, Cupertino, CA 95014. Telephone (408) 446-6701. ▷

Alphanumeric Display Terminals

- **Megadata Corporation**, 35 Orville Drive, Bohemia, NY 11716. Telephone (516) 589-6800.
- Memorex Corporation**, Communications Group, 18922 Forge Drive, Cupertino, CA 95014. Telephone (408) 996-9000.
- Micro-Term, Inc.**, 512 Rudder Road, Fenton, MO 63026. Telephone (314) 343-6515.
- Microdata Corporation**, 17481 Red Hill Avenue, Irvine, CA 92713. Telephone (714) 540-6730.
- NCR Corporation**, 1700 South Patterson Boulevard, Dayton, OH 45479. Telephone (513) 445-5000.
- Nixdorf Computer Corporation**, 300 Third Avenue, Waltham, MA 02154. Telephone (617) 890-3600.
- Northern Telecom, Inc.**, 9705 Data Park, P.O. Box 1222, Minneapolis, MN 55440. Telephone (612) 932-8000.
- Paradyne Corporation**, 8550 Ulmerton Road, Largo, FL 33540. Telephone (813) 530-2000.
- Perkin-Elmer**, Data Systems Group, 2 Crescent Place, Oceanport, NJ 07757. Telephone (201) 870-4500.
- Phaze Information Machines Corporation**, 7650 East Redfield Road, Scottsdale, AZ 85260. Telephone (602) 991-6855.
- Plantronics, Inc.**, 345 Encinal Street, Santa Cruz, CA 95060. Telephone (408) 426-5858.
- Plessey Peripheral Systems, Inc.**, Distributor Products Division, 15542 Mosher Avenue, Tustin, CA 91680. Telephone (714) 731-2440.
- Prime Computer, Inc.**, Prime Park, Natick, MA 01760. Telephone (617) 655-8000.
- Protocol Computers, Inc.**, 6150 Canoga Avenue, Woodland Hills, CA 91367-3773. Telephone (213) 716-5500.
- Qume Corporation**, 2350 Qume Drive, San Jose, CA 95131. Telephone (408) 942-4000.
- Racal-Milgo, Inc.**, Computer Products Division, 6250 N.W. 27th Way, Ft. Lauderdale, FL 33309. Telephone (305) 979-4000.
- Radio Shack/Tandy Corporation**, 1800 One Tandy Center, Fort Worth, TX 76102. Telephone (817) 390-3300.
- RCA MicroComputer Products**, New Holland Avenue, Lancaster, PA 17604. Telephone (717) 397-7661.
- Soroc Technology, Inc.**, 161 Freedom Avenue, Anaheim, CA 92801. Telephone (714) 992-2860.
- Sperry Corporation**, P.O. Box 500, Blue Bell, PA 19422. Telephone (215) 542-4011.
- Tab Products Co.**, 1400 Page Mill Road, Palo Alto, CA 94304. Telephone (415) 852-2400.
- Tandberg Data, Inc.**, 1590 South Sinclair, Anaheim, CA 92806. Telephone (714) 978-6771.
- Tandem Computers, Inc.**, 19191 Vallco Parkway, Cupertino, CA 95014-2599. Telephone (408) 725-6000.
- TEC, Inc.**, 2727 North Fairview Avenue, Tucson, AZ 85703. Telephone (602) 792-2230.
- Tektronix, Inc.**, Information Display Division, P.O. Box 500, Beaverton, OR 97077. Telephone (503) 644-0161.
- Telegenix, Inc.**, 26 Olney Avenue, P.O. Box 5550, Cherry Hill, NJ 08034. Telephone (609) 424-5220.*
- Teleray, Division of Research Inc.**, P.O. Box 24064, Minneapolis, MN 55424. Telephone (612) 941-3300.
- TeleVideo Systems, Inc.**, 550 East Brokaw Road, P.O. Box 6602, San Jose, CA 95150-6602. Telephone (408) 971-0255.
- Telex Computer Products, Inc.**, 6422 E. 41st Street, Tulsa, OK 74135. Telephone (918) 627-1111.
- Term-Tronics Inc.**, 7408 Trade Street, San Diego, CA 92121. Telephone (916) 271-1770.
- Texas Instruments, Inc.**, P.O. Box 2909, Austin, TX 78769. Telephone (512) 250-7111 or (800) 527-3500.
- Thomas Engineering Company**, 2440 Stanwell Drive, Concord, CA 94520. Telephone (415) 680-8640.
- 3M/Trendcom**, 311 Turquoise Street, Milpitas, CA 95035. Telephone (408) 943-1970.
- Visual Technology, Inc.**, 540 Main Street, Tewksbury, MA 01876. Telephone (617) 851-5000.
- Volker-Craig Limited**, 330 Weber Street North, Waterloo, Ontario, Canada N2J 3H6. Telephone (519) 884-9300.
- Wang Laboratories, Inc.**, One Industrial Avenue, Lowell, MA 01851. Telephone (617) 459-5000.*
- Western Union Data Services Company**, 1 Lake Street, Upper Saddle River, NJ 07458. Telephone (201) 825-5000.
- Westinghouse Canada Inc.**, P.O. Box 5009, 777 Walker's Line, Burlington, Ontario, Canada L7R 4B3. Telephone (416) 528-8811.
- Wyse Technology, Inc.**, 3040 North First Street, San Jose, CA 95143. Telephone (408) 946-3075.
- Xerox Computer Services**, 5310 Beethoven Street, Los Angeles, CA 90066. Telephone (213) 306-4000.
- Zenith Data Systems**, 1000 Milwaukee Avenue, Glenview, IL 60025. Telephone (312) 391-8860.
- Zentec Corporation**, 2400 Walsh Avenue, Santa Clara, CA 95050. Telephone (408) 246-7662.
- Zilog, Inc.**, 1315 Dell Avenue, Campbell, CA 95008. Telephone (408) 370-8000. □

*See Page C25-010-187 for updated information.

Alphanumeric Display Terminals

VENDOR AND MODEL	Altos 2	Ampex 210	Ampex 230	Anderson Jacobson AJ 510	Anderson Jacobson AJ 520
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. Altos, ANSI X3.41 ANSI X3.64	Stand-alone — No No Std. ADD5, LSI, Qume, Hazeltine, Televid.	Stand-alone — No No Std. See comments	Stand-alone 1 No 2741 (opt.) Std. —	Stand-alone 1 No No Std. DEC VT100/VT52
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	2000, 5280 — 25x80, 40x132	2000 80/25/1 25 x 80	3432 80/26/2 or 132/26/1 26 x 80 or 26 x 132	1920 — 24x80	1920, 3168 16K 24x80/132 plus status line
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	14 Std. 512 7x12/5x7 dot matrix P31 green	14 Std. 169 ASCII, graphics 7x9 in 9x12 field PC134 amber or P31 green	14 Std. 238 ASCII, graphics 7x10 in 10x12 field PC134 amber or P31 green	15 No 128 ASCII 7x10 dot matrix P31 green std.	15 Tilt std. 128 ASCII 10x12 dot matrix P31 green std.; amber opt.
Color capability Graphics Programmable field/char. highlighting via:	No — Std.	No Line std. Std.	No Line/block std. Std.	No — Std.	No — Std.
Underline Blink Blank Bold Reverse Double size	Std. Std. Std. Std. Std. Std.	Std. Std. Std. Half intensity Std.	Std. Std. Std. Half intensity Std.	Std. Std. No Std. Std. Std.	Std. Std. No Std. Std. Std.
Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	Up, down, smooth 3 std. (25 x 80) Std. Std. Std. Std. Std. Fwd./back. std. Std. Std. Std.	Up and smooth No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	Up and smooth 2 std., 4 opt. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.	Up/down std. No Std. Std. Std. Std. No Fwd. std. Std. Std. Char./line/screen std.	Up/down std. 8 std. Std. Std. Std. No 2 Fwd. std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set Detachability Program function keys	128 ASCII Std. 16 plus shifted std. Std.	128 ASCII Std. 14 std. Std.	128 ASCII Std. 16 std. (32 shift- able) Std.	128 ASCII; APL opt. No No Std.	128 ASCII; APL opt. Std. 24 std. Std.
Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No RS-232-C —	No No No Bidirectional std. —	No No No Bidirectional std. —	Various, 30-200 cps No No Std. Diskette recorder, acoustic coupler/ modems	Various, 30-200 cps No Std. Std. Diskette recorder, acoustic coupler/ modems
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half/full-duplex Asynchronous — ASCII 50-19,200 Character No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 50-38,400 Char./line/block No RS-232-C std., RS- 422, 20 mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII 110-9600 Char./line/page No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No
Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	No No 995 — — — 11/82 3/83 2,500 Altos/TRW	No No 549 — — — 5/84 7/84 — —	No No 649 — — — 11/84 12/84 — —	No No See comments — — 27 — 9/78 — Anderson Jacobson	No No See comments — — 31-34 — 9/81 — Anderson Jacobson
COMMENTS	Available in production quantities	16 resident emu- lations total; DIN keyboard w/adjust- able slope; 7 nat- ional char. sets; CRT saver; fast screen refresh; dynamic focus; host writable line; true lc descenders	Ampex emulation mode replaces Ampex D30, D80, D81, D125 D150, D150E, & D175 also emulates Tele- Video 914, 924, 950 & Wyse WY-50; DIN keyboard w/adjust- able slope; 9 nat- ional char. sets	APL keyboard opt.; widely used in X-L applications; ter- minals priced below \$2,000—contact vendor for detailed pricing	APL unit includes line mode, user- defined overstrike memory, plus all video attributes except bold; con- tact vendor for detailed pricing

Alphanumeric Display Terminals

- **Megadata Corporation**, 35 Orville Drive, Bohemia, NY 11716. Telephone (516) 589-6800.
- Memorex Corporation**, Communications Group, 18922 Forge Drive, Cupertino, CA 95014. Telephone (408) 996-9000.
- Micro-Term, Inc.**, 512 Rudder Road, Fenton, MO 63026. Telephone (314) 343-6515.
- Microdata Corporation**, 17481 Red Hill Avenue, Irvine, CA 92713. Telephone (714) 540-6730.
- NCR Corporation**, 1700 South Patterson Boulevard, Dayton, OH 45479. Telephone (513) 445-5000.
- Nixdorf Computer Corporation**, 300 Third Avenue, Waltham, MA 02154. Telephone (617) 890-3600.
- Northern Telecom, Inc.**, 9705 Data Park, P.O. Box 1222, Minneapolis, MN 55440. Telephone (612) 932-8000.
- Paradyne Corporation**, 8550 Ulmerton Road, Largo, FL 33540. Telephone (813) 530-2000.
- Perkin-Elmer**, Data Systems Group, 2 Crescent Place, Oceanport, NJ 07757. Telephone (201) 870-4500.
- Phaze Information Machines Corporation**, 7650 East Redfield Road, Scottsdale, AZ 85260. Telephone (602) 991-6855.
- Plantronics, Inc.**, 345 Encinal Street, Santa Cruz, CA 95060. Telephone (408) 426-5858.
- Plessey Peripheral Systems, Inc.**, Distributor Products Division, 15542 Mosher Avenue, Tustin, CA 91680. Telephone (714) 731-2440.
- Prime Computer, Inc.**, Prime Park, Natick, MA 01760. Telephone (617) 655-8000.
- Protocol Computers, Inc.**, 6150 Canoga Avenue, Woodland Hills, CA 91367-3773. Telephone (213) 716-5500.
- Qume Corporation**, 2350 Qume Drive, San Jose, CA 95131. Telephone (408) 942-4000.
- Racal-Milgo, Inc.**, Computer Products Division, 6250 N.W. 27th Way, Ft. Lauderdale, FL 33309. Telephone (305) 979-4000.
- Radio Shack/Tandy Corporation**, 1800 One Tandy Center, Fort Worth, TX 76102. Telephone (817) 390-3300.
- RCA MicroComputer Products**, New Holland Avenue, Lancaster, PA 17604. Telephone (717) 397-7661.
- Soroc Technology, Inc.**, 161 Freedom Avenue, Anaheim, CA 92801. Telephone (714) 992-2860.
- Sperry Corporation**, P.O. Box 500, Blue Bell, PA 19422. Telephone (215) 542-4011.
- Tab Products Co.**, 1400 Page Mill Road, Palo Alto, CA 94304. Telephone (415) 852-2400.
- Tandberg Data, Inc.**, 1590 South Sinclair, Anaheim, CA 92806. Telephone (714) 978-6771.
- Tandem Computers, Inc.**, 19191 Vallco Parkway, Cupertino, CA 95014-2599. Telephone (408) 725-6000.
- TEC, Inc.**, 2727 North Fairview Avenue, Tucson, AZ 85703. Telephone (602) 792-2230.
- Tektronix, Inc.**, Information Display Division, P.O. Box 500, Beaverton, OR 97077. Telephone (503) 644-0161.
- Telegenix, Inc.**, 26 Olney Avenue, P.O. Box 5550, Cherry Hill, NJ 08034. Telephone (609) 424-5220.
- Teleray, Division of Research Inc.**, P.O. Box 24064, Minneapolis, MN 55424. Telephone (612) 941-3300.
- TeleVideo Systems, Inc.**, 1170 Morse Avenue, Sunnyvale, CA 94086. Telephone (408) 745-7760.
- Telex Computer Products, Inc.**, 6422 E. 41st Street, Tulsa, OK 74135. Telephone (918) 627-1111.
- Term-Tronics Inc.**, 7408 Trade Street, San Diego, CA 92121. Telephone (916) 271-1770.
- Texas Instruments, Inc.**, P.O. Box 2909, Austin, TX 78769. Telephone (512) 250-7111 or (800) 527-3500.
- Thomas Engineering Company**, 2440 Stanwell Drive, Concord, CA 94520. Telephone (415) 680-8640.
- 3M/Trendcom**, 311 Turquoise Street, Milpitas, CA 95035. Telephone (408) 943-1970.
- Visual Technology, Inc.**, 540 Main Street, Tewksbury, MA 01876. Telephone (617) 851-5000.
- Volker-Craig Limited**, 330 Weber Street North, Waterloo, Ontario, Canada N2J 3H6. Telephone (519) 884-9300.
- Western Union Data Services Company**, 1 Lake Street, Upper Saddle River, NJ 07458. Telephone (201) 825-5000.
- Westinghouse Canada Inc.**, P.O. Box 5009, 777 Walker's Line, Burlington, Ontario, Canada L7R 4B3. Telephone (416) 528-8811.
- Wyse Technology, Inc.**, 3040 North First Street, San Jose, CA 95143. Telephone (408) 946-3075.
- Xerox Computer Services**, 5310 Beethoven Street, Los Angeles, CA 90066. Telephone (213) 306-4000.
- Zenith Data Systems**, 1000 Milwaukee Avenue, Glenview, IL 60025. Telephone (312) 391-8860.
- Zentec Corporation**, 2400 Walsh Avenue, Santa Clara, CA 95050. Telephone (408) 246-7662.
- Zilog, Inc.**, 1315 Dell Avenue, Campbell, CA 95008. Telephone (408) 370-8000. □

Alphanumeric Display Terminals

VENDOR AND MODEL	Altos 2	Ampex 210	Ampex 230	Anderson Jacobson AJ 510	Anderson Jacobson AJ 520
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. Altos, ANSI X3.41 ANSI X3.64	Stand-alone — No No Std. ADDS, LSI, Qume, Hazeltine, Televid.	Stand-alone — No No Std. See comments	Stand-alone 1 No 2741 (opt.) Std. —	Stand-alone 1 No No Std. DEC VT100/VT52
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	2000, 5280 — 25x80, 40x132	2000 80/25/1 25 x 80	3432 80/26/2 or 132/26/1 26 x 80 or 26 x 132	1920 — 24x80	1920, 3168 16K 24x80/132 plus status line
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	14 Std. 512 7x12/5x7 dot matrix P31 green	14 Std. 169 ASCII, graphics 7x9 in 9x12 field PC134 amber or P31 green	14 Std. 238 ASCII, graphics 7x10 in 10x12 field PC134 amber or P31 green	15 No 128 ASCII 7x10 dot matrix P31 green std.	15 Tilt std. 128 ASCII 10x12 dot matrix P31 green std.; amber opt.
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size	No — Std. Std. Std. Std. Std. Std.	No Line std. Std. Std. Std. Half intensity Std. No	No Line/block std. Std. Std. Std. Half intensity Std. Std.	No — Std. Std. No Std. Std. Std.	No — Std. Std. No Std. Std. Std.
Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	Up, down, smooth 3 std. (25 x 80) Std. Std. Std. Std. Std. Fwd./back. std. Std. Std. Std.	Up and smooth No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	Up and smooth 2 std., 4 opt. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.	Up/down std. No Std. Std. Std. Std. No Fwd. std. Std. Std. Char./line/screen std.	Up/down std. 8 std. Std. Std. No No 2 Fwd. std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys	Typewriter 128 ASCII Std. 16 plus shifted std. Std.	Typewriter 128 ASCII Std. 14 std. Std.	Typewriter 128 ASCII Std. 16 std. (32 shift- able) Std.	Typewriter 128 ASCII; APL opt. No No Std.	Typewriter 128 ASCII; APL opt. Std. 24 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No RS-232-C —	No No No Bidirectional std. —	No No No Bidirectional std. —	Various, 30-200 cps No No Std. Diskette recorder, acoustic coupler/ modems	Various, 30-200 cps No Std. Std. Diskette recorder, acoustic coupler/ modems
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half/full-duplex Asynchronous — ASCII 50-19,200 Character No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 50-38,400 Char./line/block No RS-232-C std., RS- 422, 20 mA opt. No	Half/full-duplex Asynchronous ASCII ASCII 110-9600 Char./line/page No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No
Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	No No 995 — — — 11/82 3/83 2,500 Altos/TRW	No No 549 — — — 5/84 7/84 —	No No 649 — — — 11/84 12/84 —	See comments — 27 — — 9/78 — Anderson Jacobson	See comments — 31-34 — — 9/81 — Anderson Jacobson
COMMENTS	Available in production quantities	16 resident emula- tions total; DIN keyboard w/adjust- able slope; 7 nat- ional char. sets; CRT saver; fast screen refresh; dynamic focus; host writable line; true lc descenders	Ampex emulation mode replaces Ampex D30, D80, D81, D125 D150, D150E, & D175 also emulates Tele- Video 914, 924, 950 & Wyse WY-50; DIN keyboard w/adjust- able slope; 9 nat- ional char. sets	APL keyboard opt.; widely used in X-L applications; ter- minals priced below \$2,000—contact vendor for detailed pricing	APL unit includes line mode, user- defined overstrike memory, plus all video attributes except bold; con- tact vendor for detailed pricing

Alphanumeric Display Terminals

VENDOR AND MODEL	Ann Arbor Ambassador XL	Ann Arbor Genie+ XL	Ann Arbor Guru XL	Ann Arbor Ambassador GXL	Ann Arbor Ambassador GXL+
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. DEC VT100/VT52, ANSI X3.64	Stand-alone — No No Std. DEC VT100/VT52, ANSI X3.64	Stand-alone — No No Yes DEC VT100, ANSI X3.64	Stand-alone — No No Std. DEC VT100, Tek- tronix 4010/4014	Stand-alone — No No Std. DEC VT100, Tek- tronix 4010/4014
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	4800 4800/60/1 18x80 up to 60x80	2400 4800, 30/80/2 30x80	11,200 Up to 25K Up to 66x170	4800 4800/60/1 18x80 to 60x80	4800 4800/60/1 18x80 to 60x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	15 Std. 128 ASCII 7x9 dot matrix P39 green	15 Std. 128 ASCII 7x9 dot matrix Amber	15 Std. 128 ASCII 7x9 dot matrix P4 white	15 Std. 128 ASCII 7x9 dot matrix P39 green	15 Std. 128 ASCII 7x9 dot matrix P39 green
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — Std. Std. Std. Std. Std. No Up/down slow std. Std. Std. Both std. Std. Std. N prog. std. Fwd./back std. Std. Std. Char./line/screen std.	No — Std. Std. Std. Std. Std. No Up/down std.; slow 2 std. Std. Both std. Std. Std. N prog. std. Fwd./back std. Std. Std. Char./line/screen std.	No — Std. Std. Std. Std. Std. Up/down, smooth std. 2+ Std. Both std. Std. Std. N prog. std. Fwd./back tab std. Std. Std. Char./line/screen std.	No Std. Std. Std. Std. Std. No Up/down, slow std. 2 std. Std. Both std. Std. Std. N prog. std. Fwd./back std. Std. Std. Char./line/screen std.	No Std. Std. Std. Std. Std. No Up/down, slow std. 2 std. Std. Both std. Std. Std. N prog. std. Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 111 std. Std.	Typewriter 128 ASCII Std. 111 std. Std.	Typewriter 128 ASCII Std. 111 std. No	Typewriter 128 ASCII Std. 111 Std.	Typewriter 128 ASCII Std. 111 Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	No No No Std. —	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII, ANSI X3.64 ASCII 110-19,200 Char./line/block No RS-232-C std.; 20mA, RS-422 opt. No No	Half/full-duplex Asynchronous ASCII, ANSI X3.64 ASCII 110-19,200 Char./line/block No RS-232-C No No	Half/full-duplex Asynchronous ANSI X3.64 ASCII 110-19,200 Char./line/block No RS-232-C No No	Half/full-duplex Asynchronous ASCII, ANSI X3.64 ASCII 110-19,200 Char./line/block No RS-232-C No No	Half/full-duplex Asynchronous ASCII, ANSI X3.64 ASCII 110-19,200 Char./line/block No RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,595 — — — 7/84 10/84 — Ann Arbor/unit exchange	1,395 — — — 7/84 10/84 — Ann Arbor/unit exchange	2,395 — — — 7/84 10/84 — Ann Arbor	3,090 — — — 7/84 10/84 — Ann Arbor/Unit Exchange	3,590 — — — 10/84 11/84 — Ann Arbor/Unit Exchange
COMMENTS	Implements the ANSI X3.64-1979 standard; user-definable operation; user- selectable display format	Implements the ANSI X3.64 com- patible		Alphanumeric/graph- ics terminal with Tektronix 4010/4014 compatibility	Alphanumeric/graph- ics terminal with user-definable characters

Alphanumeric Display Terminals

VENDOR AND MODEL	ADDS Viewpoint+	ADDS Viewpoint/ Color	ADDS Viewpoint/3A Plus	ADDS Viewpoint/60+	ADDS Viewpoint/78
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. —	Stand-alone — No No Std. —	Stand-alone — No No Std. Lear Siegler ADM 3A	Stand-alone — No No Std. ADDS Regent 40, Regent 60	Stand-alone — No 3278 Std. —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 1 page 24x80 12 Tilt std. 128 5x7 dot matrix P4 white or P31 green No Std. Std. Std. No Std. No Up std. No Std. Addressable only No No No No No No No Line/page std.	1920 1 page 24x80 plus status line 13 Std. 128 ASCII & 11 grph. 5x7 dot matrix P22 color 8 colors std. 11 graphics symbols No Std. Std. Std. No Std. 1 std. Std. Both std. Std. Std. No Fwd./back std. Std. Std. Line/screen std.	1920 1 page 24x80 12 Tilt std. 128 5x7 dot matrix P4 white or P31 green — Std. Std. Std. No Std. No Std. Addressable only No No No No No No No Line/screen std.	1920 — 24x80 plus status line 12 Tilt std. 128 ASCII 7x8 dot matrix P4 white or P31 green No Std. Std. Std. No Std. Both std. No No Std. Std. Std. Std.	1920 1 page 24x80 plus status line 12 Tilt std. 128 ASCII & 11 grph. 7x8 dot matrix P4 white or P31 green No 11 graphics symbols Std. Std. Std. Std. Std. No Up std. No Std. Both std. No No No No No No Line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 3 std. Std.	Typewriter ASCII Std. 8 std. Std.	Typewriter 128 ASCII Std. No Std.	Typewriter 128 ASCII Std. 8 std. Std.	IBM 3278-2 ASCII Std. 24 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Opt. Std. —	No No No — —	No No No Std. —	No No No Std. —	No No No — —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Character No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 110-19,200 Char./line/block No RS-232-C std.; RS-422, 20 mA opt.	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Character No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 110-19,200 Char./block No RS-232-C, 20mA, or RS-422	Full-duplex Asynchronous — ASCII 110-19,200 Character No RS-232-C std.; RS-422, 20 mA opt. No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	595 — — — 7/84 8/84 — ADDS, NCR, TRW, GE	1,295 — — — 11/82 5/83 — ADDS, NCR, TRW, GE	650 — — — 12/81 1st Q/82 — ADDS, NCR, TRW, GE	749 — — — 7/84 8/84 — ADDS, NCR, TRW, GE	1,095 — — — 11/82 1/83 — ADDS, NCR, TRW, GE
COMMENTS					Emulates IBM 3278 Model 2 when used with protocol converter

Alphanumeric Display Terminals

VENDOR AND MODEL	ADDS Viewpoint/78 Color	ADDS Viewpoint/90	AT&T Teletype 4420	AT&T Teletype 4424	AT&T Teletype 4430
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Either No 3279 Std. —	Stand-alone No No Std. —	Stand-alone No No Std. Teletype 40/1, 40/2	Stand-alone — No No Std. DEC VT100	Stand-alone — No No Std. Teletype 33, 35, 40/3 (multi-pt.)
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920 1 page 24x80	1920, 3840 1-2 pages 12/24x40/80	1920 5,760 char. 24x80	1920 3,840 char. 24x80	1920 5,760 char. 24x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	13 Tilt. std. 128 ASCII 7x8 dot matrix P22 color	12 Tilt std. 128; 256 prog 7x9 dot matrix P4 white or P31 green	12 Tilt std. 128 ASCII 7x9 dot matrix P4 white std.	13 Tilt std. 96 ASCII + 32 graph. 8 x 14 dot matrix P4 white std.	13 Tilt std. 128 ASCII 7x9 dot matrix P4 white std.
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	4 colors std. — Std. Std. Std. Std. Std. No Up std. No Std. Both std. No No No No No No No Line/screen std.	— — Std. Std. Std. No Std. Std. Std. Both std. Std. Std. Std. Std. Std. Std. Char./line/screen std.	No — Std. Std. No No Std. No Up/down std. 3 std. No Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	No 32 graphics char. — Std. Std. No No Std. Std. No Up/down std. 2 std. Both std. No No 1 std. Fwd./back std. Std. Std. Char./line/screen std.	No — Std. Std. No No Std. No No Up/down std. 3 std. Std. Addressable only Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	IBM 3278-2 ASCII Std. 24 std. Std.	Typewriter 128 ASCII Std. 15 std. Std.	Typewriter 128 ASCII Std. 10 std. Std.	Typewriter 128 ASCII Std. 16 std. Std.	Typewriter 128 ASCII Std. 1 std. Opt.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No — —	N No No Std. —	30/340 cps impact 300 lpm belt No Std. —	30 cps impact 300 lpm belt No Std. —	30/340 cps impact 300 lpm belt No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Full-duplex Asynchronous — ASCII 110-19,200 Character No RS-232-C std.; RS-422, 20 mA opt.	Half/full-duplex Asynchronous ASCII ASCII Up to 9600 Char./line/block No RS-232-C std.; 20mA opt.	Half/full-duplex Asynchronous — ASCII Up to 9600 Char./line/blk/page No RS-232-C std.; 20/60 mA opt.	Full-duplex Asynchronous ASCII ASCII Up to 9600 Character No RS-232-C std.; 20/60 mA opt.	Half-duplex Async./sync. 8A1, 85A1 opt. ASCII Up to 4800 Char./line/blk/page Std. RS-232-C std.; 20/60 mA opt.
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,595 — — — 5/83 5/83 — ADDS, NCR, TRW, GE	1,195 — — — 12/81 1st Q/82 — ADDS, NCR, TRW, GE	4,105 Incl. 19 — 11/80 10/80 — AT&T Teletype	4,207 Incl. 19 — 10/81 1/82 — AT&T Teletype	3,977 Incl. 19 — 6/81 12/81 — AT&T Teletype
COMMENTS	Color terminal designed to access 3270 applications on an IBM mainframe when used with a protocol converter		10 user-programmable function keys	ANSI X3.64 std. escape sequences; compatible w/UNIX; line drawing set std., buffered printer port; 16 oper.-programmable function keys	2 send and 3 receive buffers share buffer pool of 16K, 32K opt.; aux. port accommodates model 43R0, Model 43RT set, and Model 40 printer

Alphanumeric Display Terminals

VENDOR AND MODEL	AT&T Teletype 4540	AT&T Teletype 4543	AT&T Teletype 5410	AT&T Teletype 5420/2	AT&T Teletype 5425
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 32 No 3270 No —	Stand-alone — No 3270 No —	Stand-alone — No No Std. ANSI X3.64 (where applicable)	Stand-alone — No No Std. ANSI X3.64 (where applicable)	Stand-alone — No No Std. DEC VT102, UNIX, ANSI X3.64
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920 1920 char. 24x80	1920 1920 char. 24x80	1920, 3168 1 page 24x80/132 plus 3 status lines	1920, 3168 9600 char. 24x80/132 plus 3 status lines	1920, 3168 78 or 54 lines 24x80/132 plus 3 status lines
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	13 Tilt std. 97 ASCII/EBCDIC 7x9 dot matrix P4 white std.	13 Tilt std. 64 EBCDIC 7x9 dot matrix P4 white std.	12 Tilt std. 128 ASCII, 96 graph. 5x7/7x9 dot matrix White	12 Tilt std. 128 ASCII, 96 graph. 5x7/7x9 dot matrix White	12 Tilt std. 128 ASCII, 96 grph. 5x7/7x9 dot matrix White, green, or amber
Color capability Graphics Programmable field/char. highlighting via:	No —	No —	No Std.	No Std.	No Std.
Underline Blink Blank Bold Reverse Double size	No Std. Std. No No No	No Std. Std. No No No	Std. Std. Std. Half-intensity Std.	Std. Std. Std. Half-intensity Std.	Std. Std. Std. Half-intensity Std.
Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No No No Both std. Std. Std. No Std. Std. Std. Std. Char./line/screen std.	No No No Both std. Std. Std. No Std. Std. Std. Std. Char./line/screen std.	Std. 1 std. Addressable std. No No 2 std. Std. Std. Std. Line/screen std.	Std. Std. Std. Std. Std. Std. Std. Std. Std.	Std. Std. Std. Std. Std. Std. Std. Std. Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry 96 ASCII/EBCDIC Std. 12 std. Opt. (typewr. keyb.)	Typewriter, data entry 64 EBCDIC Std. 12/24 std. Opt. (typewr. keyb.)	Typewriter 128 ASCII Std. 8 std. Std.	Typewriter 128 ASCII Std. 16 std. Std.	Typewriter 128 ASCII Std. 11 std. (22 func- tions) Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	30/340 cps impact 300 lpm belt No No Mag. card reader	30/340 cps impact 300 lpm belt No No Mag. card reader	No No No Std. —	No No No Std. —	No No No Std. 300/1200 bps modem/ dialer opt.
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half-duplex Synchronous BSC, SNA/SDLC ASCII/EBCDIC Up to 9600 Block Std. RS-232-C	Half/full-duplex Synchronous SNA/SDLC EBCDIC Up to 9600 Block Std. RS-232-C	Half/full-duplex Asynchronous ANSI/ASCII ASCII Up to 19,200 Character No RS-232-C	Half/full-duplex Asynchronous ANSI/ASCII ASCII Up to 19,200 Char./block Std. RS-232-C	Half/full-duplex Asynchronous ASCII/ANSI X3.64 ASCII Up to 19,200 Char./block Std. RS-232-C
Integral modem Integral acoustic coupler	No No	No No	No No	No No	Opt. No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,952 6,682 (cluster-32) 30(cluster)19(disp.) — 3/79 9/79 — AT&T Teletype	4,745 Incl. 19 — 5/81 — — AT&T Teletype	902 — — — 4/83 3rd quarter 1983 — AT&T Teletype	1,492 — — — 4/83 3rd quarter 1983 — AT&T Teletype	1,265-1,720 — — — 9/84 10/84 — AT&T Teletype
COMMENTS	Controllers for local connect or remote operation; local & remote self- diagnostics		Available from AT&T as Dataspeed 4410	Available from AT&T as Dataspeed 4415	

Alphanumeric Display Terminals

VENDOR AND MODEL	AT&T Teletype 5418	AT&T Teletype 5548	AT&T Teletype 5549	Beehive DM310	Beehive ATL-3270
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No 3278 Std. —	Cluster 32 — 3278 No —	Cluster 32 No 3279 No —	Stand-alone — No 3101 Std. —	Stand-alone — No 3276/3275 No —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920, 3168 1 page 24x80/132 plus 3 status lines 12 Tilt std. 128 ASCII, graphics 5x7/7x9 dot matrix Amber or green No Std. Std. Std. Std. Half-intensity Std. No Std. No Std. 1 std. Std. Addressable only No No 2 std. Std. Std. Std. Std. Line/screen std.	1920, 3564 — 24x80, 27x132 (13-inch only) 12 or 13 Tilt std. 96 EBCDIC 9x14/7x10 dot mat. White No — No Std. Std. Std. No Std. Both std. Std. Std. No Std. Std. Std. Std. Char./line/screen std.	1920, 2560 — 24/32x80 13 Tilt std. 96 EBCDIC 7x10/9x14 dot mat. Color 4 colors std. — No Std. Std. No No No No Std. Both std. Std. Std. No Std. Std. Std. Char./line/screen std.	1920 1 page 24x80 plus status line 12; 15 opt. No 128 ASCII 7x9 cell P42 green No — No Std. Std. Std. Std. No 1 std. Std. Both std. Std. Std. No Std. Std. Std. EOP/EOL/EOF std.	1920 1 page 24x80 plus status line 14 Std. 128 EBCDIC 9x13 cell P31 green No — Std. Std. Std. Std. No No 1 std. Std. Both std. Std. Std. No Fwd./back std. Std. No Char./screen/field std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	IBM 3278-style 128 ASCII Std. 24 std. No	Typewriter, data entry 96 EBCDIC Std. 24 std. Std.	Typewriter, data entry, ext. numeric 96 EBCDIC Std. 24 std. Std.	Typewriter ASCII Std. 8 std. Std.	Typewriter (3278- style) EBCDIC Std. 24 + 3 PA keys Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. 300/1200 bps modem/ dialer opt.	30-340 cps dot mat. 220-300 lpm No Std. Light pen	30-340 cps dot mat. 300 lpm No Std. Light pen	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII/ANSI ASCII Up to 19,200 Character No RS-232-C Opt. No	Half/full-duplex Synchronous BSC, SNA/SDLC ASCII/EBCDIC Up to 9600 Block Std. RS-232-C No No	Half/full-duplex Synchronous BSC, SNA/SDLC ASCII/EBCDIC Up to 9600 Block Std. RS-232-C No No	Half/full-duplex Asynchronous TTY ASCII Up to 19,200 Char./line/block No RS-232-C, 20mA, or RS-422 No No	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC 110-9600 Block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,080 — — — 5/84 5/84 — AT&T Teletype	1,411-2,573 3,518-8,038 — — 4/83 3rd quarter 1983 — AT&T Teletype	2,573 3,518-8,038 — — 5/84 5/84 — AT&T Teletype	1,295 — 19 — 11/81 12/81 — Beehive & Western Union	Contact vendor — 27 — 4/84 5/84 — Beehive & Western Union
COMMENTS	Features IBM 3270 emulation when used with a protocol converter	Available in three models: 12 (12-in. screen, 1920-char.), 22 (13-in. screen, 1920-char.), & 25 (13-in. screen, 1920 & 3564-char.; attaches to 5544 or 5546 controller	Attaches to 5544 or 5546 controller	Emulates IBM 3101 Models 11, 12, 13, 21, 22, & 23	Supports serial ASCII printer

Alphanumeric Display Terminals

VENDOR AND MODEL	Beehive ATL-3270MS	Beehive ATL-078	Beehive ATL-178	Beehive ATL-004	Beehive ATL-008
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 5 No 3276 No —	Stand-alone 8 No 3278 Std. Beehive DM5A	Cluster 32 No 3178 No —	Stand-alone — No No Std. DEC VT52/VT100, ANSI X3.64	Stand-alone — No No Std. DEC VT100, ANSI X3.64
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 1920/24/1 24x80 plus status line 14 Std. 128 EBCDIC 9x13 cell P31 green No — Std. Std. Std. Std. Std. No No 1 std. Std. Both std. Std. Std. No Std. Std. No Screen/char./field std.	1920 1 page 24x80 plus status line 14 Std. 128 EBCDIC 9x13 cell P31 green No — Std. Std. Std. Std. Std. No No 1 std. Std. Both std. No Std. Std. No Std. Std. No Char./screen/field std.	1920 1920/24/1 24x80 plus status line 14 Std. 224 EBCDIC 9x13 cell P31 green No — Std. Std. Std. Std. Std. No No 1 std. Std. Both std. Std. Std. No Std. Std. No Screen/char./field std.	2160 or 3564 10K 27x80 or 27x132 14 Std. 128 ASCII 9x13 cell P31 green No — Std. No Std. Std. Std. Std. Std. Horiz./vert. std. 4 std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Page/line/field std.	2160, 3564 32K std., 128K opt. 27x80/132 14 Std. 128 ASCII 9x13 cell P31 green No — Std. Std. Std. Std. Std. Std. Std. Horizontal/vertical 12 std. Std. Both std. Std. Std. 12 std. Fwd./back std. Std. Std. Page/line/field/ std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	3278 Typewriter EBCDIC Std. 24 std. Std.	Typewriter (3278- style) ASCII/EBCDIC Std. 24 std. Std.	3178 Typewriter EBCDIC Std. 24 std. Std.	Typewriter ASCII Std. 16 std. Std.	Typewriter ASCII Std. 255 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	No No No Opt. —	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Synchronous BSC/SNA EBCDIC 110-19,200 Block Std. RS-232-C No No	Half/full-duplex Asynchronous TTY ASCII 110-19,200 Char./line/block No RS-232-C, RS-422, or 20mA No No	Half-duplex Synchronous BSC/SNA EBCDIC Up to 19,200 Character No RS-232-C No No	Half/full-duplex Asynchronous ASCII, ANSI X3.64 ASCII 50-19,200 Char./line/fid./blk No RS-232-C, RS-422, or 20 mA No No	Half/full-duplex Asynchronous ANSI X3.64 ASCII 50-19,200 Char./line/field/blk No RS-232-C, 20mA, or RS-422 No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Contact vendor — — — 9/84 10/84 — Beehive & Western Union	Contact vendor — 19 — 1/82 4/82 — Beehive & Western Union	Contact vendor — — — 9/84 10/84 — Beehive & Western Union	1,195 — 18 — 11/82 12/83 — Beehive & Western Union	1,495 — 20 — 11/82 12/83 — Beehive & Western Union
COMMENTS	Designed to emulate IBM 3276	Designed to emulate IBM 3278 when used with CC74 controller on reduced function w/ protocol converter	Designed to emulate IBM 3178	Vertical scrolling capability for 132- character display mode	Vertical scrolling ability for 132-character display mode

Alphanumeric Display Terminals

VENDOR AND MODEL	Beehive ATL-083	Braegen 8521	Braegen 8522	Braegen 8523	Braegen 8524
TERMINAL DESCRIPTION	Stand-alone	Cluster	Cluster	Cluster	Cluster
Standalone or cluster	—	120	120	120	120
Maximum displays/controller	No	No	No	No	No
Transportability	No	3278	3278	3278	3180
IBM compatibility	No	No	No	No	No
Teletype compatibility	Burroughs TD 830/ MT 983	—	—	—	—
Other compatibility	—	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920, 3564	1920	1920 to 3564
Memory capacity, no. char./lines/pages	16K std., 32K opt.	1 page	1 page	1 page	1 page
Screen arrangement, lines x chars./line	24x80	24x80	24x80, 27x132	24x80	24/32/43x80, 27x132
Screen area, diagonal, inches	14	15	15	15	15
Tilt/swivel screen	Std.	Std.	Std.	Std.	Std.
Total displayable symbols	128 ASCII	136 EBCDIC	136 EBCDIC	136 EBCDIC	—
Symbol formation	9x13 cell	7x10 dot matrix	7x10 dot matrix	7x10/7x8 dot matrix	7x10 dot matrix
Character phosphor	P31 green	P109 std.	P109 std.	P109 std.	P109 green
Color capability	No	No	No	No	No
Graphics	—	—	—	—	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	No
Double size	No	No	No	No	No
Scroll	No	No	No	No	Opt.
Paging	4 std., 9 opt.	Opt.	Opt.	Opt.	1 std.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Std.	Std.	Std.	Std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	Std.	Opt.	Opt.	Opt.	No
Tabulation	Std.	Std.	Std.	Std.	Std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Page/line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Burroughs TD 830	Typewriter, data entry, APL	Typewriter, data entry, APL	Typewriter, data entry, APL	Typewriter, data entry, APL
Character/code set	ASCII	EBCDIC	EBCDIC	EBCDIC	96 EBCDIC
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	16 std.	24 std.	24 std.	24 std.	24 std.
Numeric keypad	Std.	Opt.	Opt.	Opt.	Opt.
ANCILLARY DEVICES					
Serial printer, type and speed	No	200/50 cps	200/50 cps	200/50 cps	200/50 cps
Line printer, type and speed	No	400, 1200 lpm	400, 1200 lpm	400, 1200 lpm	600, 1200 lpm
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	No	No	No	No
Other vendor-supplied devices	—	Light pen opt.	Light pen opt.	Light pen opt.	Light pen opt.
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Full-duplex	Full-duplex	Full-duplex	Full-duplex
Technique	Async./sync.	Synchronous	Synchronous	Synchronous	Synchronous
Communications protocol	Burroughs TDI	BSC, SNA/SDLC	BSC, SNA/SDLC	BSC, SNA/SDLC	BSC, SNA/SDLC
Code	ASCII	EBCDIC	EBCDIC	EBCDIC	EBCDIC
Speed, bits/second	50-19,200	Up to 1.5M	Up to 1.5M	Up to 1.5M	Up to 1.5M
Format	Block/line/page	—	—	—	—
Multipoint operation	Std.	Std.	Std.	Std.	Std.
Terminal interface	RS-232-C, TDI	RS-232-C	RS-232-C	RS-232-C	RS-232-C
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, purchase	Contact vendor	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Controller, purchase	—	—	—	—	—
Monthly prime-shift maintenance	22	—	—	—	—
Annual prime-shift maintenance	—	—	—	—	—
Date of announcement	4/82	8/83	8/83	8/83	6/84
Date of first production delivery	5/82	11/83	11/83	11/83	—
Display units installed to date	—	—	—	—	—
Serviced by	Beehive & Western Union	Braegen	Braegen	Braegen	Braegen
COMMENTS	Designed to emulate Burroughs TD 830 & MT 983	852X displays replace channel connected IBM 3274; allows up to 60 3278 replacement terminals to communicate on one physical coax cable; may be connect- ed to up to 4 local hosts	Same as 8521	Same as 8521	Part of ELAN sys.; switchable between screen formats; up to 60 8524 displays can communicate via one physical coax cable of up to 10,000 feet

Alphanumeric Display Terminals

VENDOR AND MODEL	Braegen 3081	Braegen 3161	Burroughs ET 1100	Burroughs TD 830	Burroughs MT 985
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 32 No 3270, 1403, 2501 No —	Cluster 32 No 3270 No —	Stand-alone — No No Std. Burroughs	Stand-alone — No 3275 opt. No Burroughs	Stand-alone — No No No Burroughs
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	2000 1 page 25x80 12 No 196 7x9 dot matrix P31 green No — Std. Std. Std. Std. Opt. No Opt. Opt. Std. Std. Std. Std. Std. No Std. Std. Opt. Char./field/screen std.	2000 1 page 25x80 15 No 196 7x9 dot matrix P31 green No — Std. Std. Std. Std. Opt. No Opt. Opt. Std. Std. Std. Std. Std. No Std. Std. Opt. Char./field/screen std.	2080 10 pages 12/24x40/80 plus 2 status lines 14 Std. 256 7x9 dot matrix P39 green No — Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Line/page std.	2000 2000 char. (4080) 25x80 11 No 128 5x7 dot matrix White No — Std. Std. Std. Std. Std. Up/down std. Std. Std. Std. Std. Std. No Fixed/var./reverse Std. Std. Line/page std.	2000 2000 char. (8000) 26x80 12 No 128 7x11 dot matrix Green No — Std. Std. Std. Std. Std. Std. Up/down std. Std. Std. Std. Std. Std. No Std. Std. Std. Line/page std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter, data entry, console 256 EBCDIC Std. 12 std.; 24 opt. Opt. Various Various No No Alarm, card reader	Typewriter, data entry, APL 256 EBCDIC Std. 12 std.; 24 opt. Std. Various Various No No Alarm, card reader	Typewriter 128 ASCII Std. 10 physical/20 logical Std.; 25-key opt. Std. No No Std. Audible alarm	Typewriter, data entry 128 ASCII Std. — Opt. Std. Std. No Std. Audible alarm, ID card reader	Typewriter, data entry 128 ASCII Std. — Opt. Std. Std. No Std. Magnetic card reader, microdisk subsystem
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half-duplex Synchronous BSC EBCDIC 1200-19,200 Char./block Std. RS-232-C No No Contact vendor — — — — — — Braegen	Half-duplex Synchronous BSC EBCDIC 1200-19,200 Char./block Std. RS-232-C No No Contact vendor — — — — 3/80 Braegen	Half-duplex Async./sync. Burroughs ASCII Up to 38,400 Char./block Std. RS-232-C, TDI No No 1,895 — — 122-244 4/83 5/83 Burroughs	Half-duplex Async./sync. Burroughs/BSC ASCII Up to 38,400 Char./block Std. RS-232-C No No 3,289-3,997 — — — 8/76 Burroughs	Half-duplex Async./sync. Burroughs ASCII Up to 38,400 Char./block Std. RS-232-C No No 2,395 — — — 3/82 4/82 Burroughs
COMMENTS	May be connected to up to 8 IBM hosts, local & re- mote, and switched to operate with 14 different applica- tions	May be connected to up to 8 IBM hosts, local & re- mote, and switched to operate with 14 different applica- tions; APL support		Models include TD 831, TD 832, TD 833, & TD 834	

Alphanumeric Display Terminals

VENDOR AND MODEL	Burroughs SR 110	Burroughs PT 1500	C&W Distribution Products TP-1	C&W Distribution Products TP-100	C&W Distribution Products TP-900
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No No —	Stand-alone — No No Std. DEC	Stand-alone — No No Std. ADDS Viewpoint, Lear Siegler ADM 3A	Stand-alone — No No Std. DEC VT100/VT131/ VT52	Stand-alone — No No Std. TeleVideo 912/920/ 925
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	2000 2000 char. (10,000) 25x80	2320 4 pages 29x80	1920 80/24/1 24x80	1920, 3168 80 or 132/24/1 24x80/132	2000 80/24/2 25x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12 Std. 128 7x9 dot matrix P4 white	12 Std. — 9x12 cell P31 green	12 Std. 128 ASCII 7x9 dot matrix P31 green std.	12 Std. 128 ASCII 7x9 dot matrix P31 green std.	12 Std. 128 ASCII 7x9 dot matrix P31 green std.
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — Std. Std. Std. Std. Std. No Std. 5 std. Std. Std. Std. Std. No Fwd./back std. Std. Std. Std.	No No Std. Std. Std. No Std. Up/down std. Application dep. Application dep. No Application dep. Std. Std. Std. Std. Std. Std.	No Line drawing std. Std. Std. Std. Std. No Up std. No Std. Addressable only Std. No No Fwd. std. No No Char./line/screen std.	No Line drawing std. Std. Std. Std. Std. Std. Up/down, jump/smith. No Std. Both std. Std. Std. 3 std. Fwd./back std. Delete std. Std. Char./line/screen/ window std.	No No Std. Std. Std. Std. Std. Up/down, jump/smith. 2 std. Std. Both std. Std. Std. 3 std. — Std. Std. Char./line/screen/ window std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry 128 ASCII Std. 16 std. Std.	Typewriter — Std. 10 std.	Typewriter — ASCII Std. 4 programmable Std.	Typewriter — ASCII Std. 4 fixed, 10 pro- grammable Std.	Typewriter — ASCII Std. 22 programmable Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	30 cps, 90 lps 375 lpm Std. Std. —	Various From host No Std. —	110-19.2K bps 110-19.2K bps No Serial std. —	75-19.2K bps 75-19.2K bps Std. Serial/parallel —	50-19.2K bps 50-19.2K bps No Serial std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half-duplex Async./sync. Burroughs ASCII Up to 9600 Char./block Std. RS-232-C	Half/full-duplex Asynchronous — ASCII Up to 19,200 Char./line/block — RS-232-C or RS-422	Half/full-duplex Asynchronous ASCII ASCII 110-19,200 Character No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 75-19,200 Char./line/block No RS-232-C or 20 mA	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C, 20 mA, or RS-422
Integral modem Integral acoustic coupler	No No	No No	No No	No No	No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,695 — — 300/150 (depot) 6/82 8/82 — Burroughs	1,695 — — — 10/84 10/84 — Burroughs	595 — — 30/15 2/84 5/84 — Carterfone	795 — — 50/15 2/84 6/84 — Carterfone	695 — — 40/15 2/84 6/84 — Carterfone
COMMENTS		Requires use of UNIX system	Monitor mode std.; U.S./U.K./French/ German character sets std.	Monitor mode std.; English language set-up menu	Monitor mode std.; English language set-up menu

Alphanumeric Display Terminals

VENDOR AND MODEL	Carterfone 7276	Carterfone 9830	CIE Systems CIE-7800	CIE Terminals CIT-80	CIE Terminals CIT-101
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No 3276 No —	Stand-alone — No No Std. Burroughs TD 830/ MT 983	Either — No 3178/3278 Opt. DEC VT100, Burroughs	Stand-alone — No No Std. DEC VT52/VT101	Stand-alone — No No Std. DEC VT52/VT100/ VT101/VT102
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 — 24x80 plus status line 12 No 94 EBCDIC 7x9 dot matrix P4 white No — No No Std. No No No No No No No Std. Both std. Std. Std. No Fwd./back std. Std. No Field/screen std.	480, 960, 1920 4000 std., 4000 opt. 12/24x40/80 12 No 128 ASCII 9x12 dot matrix P31 green No — Std. Std. Std. Std. Std. No 3 std. Std. Both std. Std. Std. No Fwd./back std. Std. Std. Line/page std.	1920-3564 1 pg. 24/32/43x80, 27x132 14 Tilt std. 96 ASCII, EBCDIC 7x9 dot matrix P31 green, amber No — Std. Std. Std. Std. Std. Up/down, smooth std. No Std. Addressable std. Std. Std. No Std. Std. Char./line/screen std.	1920 80/24/1 25x80 12 No 128 ASCII 7x9 dot matrix P4 white std.; P31 green, amber opt. No — Std. Std. Std. Std. Std. No Std. Both std. No No 3 std. Fwd./back std. No No Line/screen/char./ window std.	1920, 3168 80 or 132/24/1 24x80/132 12 No 128 ASCII 7x9 dot matrix P4 white std.; P31 green/amber opt. No Opt. Std. Std. Std. Std. Std. Up/down, jump/smith. No Std. Both std. No No 3 std. Fwd./back std. No No Line/screen/char./ window std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry 94 EBCDIC Std. 24 std. Std.	Typewriter 128 ASCII Std. Prog. Std.	Typewriter 96 ASCII, 128 EBCDIC Std. 24 std. Std.	Typewriter 128 ASCII Std. 16 std. Std.	Typewriter 128 ASCII Std. 16 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	32/120 cps impact No No Std. —	No No No Std. —	No No No Std. No	50-19.2K bps 50-19.2K bps No Std. —	50-19.2K bps 50-19.2K bps No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC 2400-9600 Block Std. RS-232-C No No	Half/full-duplex Asynch./sync. Burr. TDI, TTY ASCII Up to 9600 Char./block Std. RS-232-C No No	Half/full-duplex Asynch./sync. Bisynch SDLC ASCII, EBCDIC 110-19,200 Character Std. RS-232-C, coax No No	Half/full-duplex Asynchronous ANSI/ASCII ASCII Up to 19,200 Char./line/block No RS-232-C or 20mA No No	Half/full-duplex Asynchronous ANSI/ASCII ASCII Up to 19,200 Character No RS-232-C or 20mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	2,495 — 30 — 1/82 — Carterfone	1,195 — — — 1/82 8/82 Carterfone	1,295-2,345 — — — 5/83 11/83 Selling party	1,195 — — — 6/81 9/81 Western Union/CIE Terminals	1,495 — — — 6/80 12/80 Western Union/CIE Terminals
COMMENTS			May be ordered with alternate person- ality, dual net- working available; sold thru ACM (Alternate Channel Marketing)	Lease plans avail- able from authorized distributors	Lease plans avail- able from authorized distributors. Gra- phics, power supply and other expansion options available

Alphanumeric Display Terminals

VENDOR AND MODEL	CIE Terminals CIT-101e	CIE Terminals CIT-161	CIE Terminals CIT-220+	CIE Terminals CIT-500	Cobar 3100
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. DEC VT52/VT100/ VT101/VT102	Stand-alone — No No Std. DEC VT100/VT52	Stand-alone — No No No DEC VT220/VT100/ VT52	Stand-alone — No No Std. DEC VT100, ANSI X3.64	Stand-alone — No No No DEC VT100/ VT101/VT102
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920, 3168 80 or 132/24/1 24/132x80	1920, 3168 — 24x80/132	1920, 3168 1 page 24x80/132	5120 — 66x80	3168 4K 24x80/132
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	14 Std. 96 ASCII 7x9 dot matrix P4 white std.; green/amber opt.	12 No 128 ASCII 7x9 dot matrix Color	12 Tilt std. 94 ASCII 7x10 dot matrix P4 white std.; P31 grn., P22 amber opt	15 (vertical) Std. 256 7x9 dot matrix P39 green	12 No 127 ASCII 7x10 dot matrix P4 white std.; P31 grn./P134 amber opt. No
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — Std. Std. No Std. Std. No Std. No Std. No Std. Both std. No No 3 std. Fwd./back std. No No Line/screen/char./ window	8 colors std. — Std. Std. Std. No Std. Both std. No No 3 std. Std. No No Std. Std.	No No Std. Std. Std. Up/down/jump/smith. No Std. Both std. No No 2 std. Forward Std. No Char./line/screen/ window std.	No — Std. Std. No Std. Both std. No No No Std. Std. Std.	No — Std. Std. No Std. Both std. No No 3 std. Fwd. std. Std. Std. Line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 96 ASCII Std. 4 std. Std.	Typewriter 128 ASCII Std. 4 std. Std.	Typewriter 94 ASCII Std. 15 std. NVR Std.; hex alternate	Typewriter ASCII Std. 4 std.; up to 41 programmable Std.	Typewriter 128 ASCII Std. 18 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	50-19.2K bps 50-19.2K bps No Std. —	50-19.2K bps 50-19.2K bps No Std. —	75-19.2K bps 75-19.2K bps Opt. Std. —	50-19.2K bps 50-19.2K bps No Std. —	No No Opt. Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ANSI/ASCII ASCII 50-19,200 Character No RS-232-C or 20mA No No	Half/full-duplex Asynchronous ASCII/ANSI ASCII 50-19,200 Character No RS-232-C or 20 mA No No	Half/full-duplex Asynchronous ASCII/ANSI X3.64 ASCII 75-19,200 Character No RS-232-C or 20 mA No No	Half/full-duplex Asynchronous ASCII/ANSI X3.64 ASCII 50-19,200 Character No RS-232-C or 20 mA No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character No RS-232-C std., 20mA opt. No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,495 — — — 5/83 3Q/83 CIE Terminals	2,595 — — — 6/83 3Q/82 Western Union/CIE Terminals	1,195 — — — 6/84 7/84 CIE Terminals	2,150 — — — — — CIE Terminals	1,395 — — — 4/81 5/81 Over 650 Cobar
COMMENTS				Full-page word processing terminal compatible with Word 11, Lex 11, & WordStar software	

Alphanumeric Display Terminals

VENDOR AND MODEL	Cobar 3132	Cobar 3830	Computer Communications (CCI) Group 8000	Comterm 5278	Comterm 5279
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No No DEC VT131/VT132	Stand-alone — No No Burroughs TD 830/ MT 983	Cluster Up to 40 No 3270 No —	Cluster 32 No 3278 No —	Cluster 32 No 3279 No —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	3168 4K 24x80/132 15 No 127 ASCII 7x10 dot matrix P4 white std.; P31 grn./P134 amber opt. No — Std. Std. No Std. Std. Std. Std. Up/down/smooth 1 std.; 3 opt. Std. Both std. Std. Std. 3 std. Fwd./back std. Std. Std. Line/screen std.	2000, 3300 80 or 132/25/2 or 8 25x80/132 15 No 128 ASCII 7x9 dot matrix Green std., white or amber opt. No — Std. Std. Std. Std. Std. Up/down std. 2 std., 8 opt. Std. Both std. Std. Std. No Fwd./back tab std. Std. Std. Line & screen std.	1920 — 24x80 plus status line 12 Std. 128 ASCII 7x12 dot matrix P31 green No No Std. Std. Std. No No No Std. Std. Std. Std. No Std. Std. No Char./line/screen std.	960-3564 — 12/24/32/43x80, 27x132 15 Std. 94 Various dot matrix P39 green No — Std. Std. Std. Std. No No No Std. Addressable only Std. Std. No Std. Std. No Char./line/screen std.	1920, 2560 — 24/32x80 14 Std. 94 Dot matrix Color (B22) 4 or 7 colors — Std. Std. Std. Std. Std. No No No Std. Addressable only Std. Std. No Std. Std. No Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 18 std. Std.	Typewriter, data entry 128 ASCII Std. 14 std. Std.	IBM 3278-style 128 ASCII Std. 24 std. Std.	Typewriter, typewr./ APL, data entry EBCDIC, APL Std. 12 std. Std.	Typewriter, typewr./ APL, data entry EBCDIC, APL Std. 12 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Opt. Std. —	No No No Std. —	120 cps impact No No Std. —	200 cps dot matrix No No Std. Audible alarm, key- board numeric lock, light pen	200 cps dot matrix No No Std. Audible alarm, key- board numeric lock, light pen
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C std., 20mA opt. No No	Half duplex Async./sync. Burroughs ASCII 50-19,200 Char./block Std. RS-232-C/BDI/ TDI No No	Half/full-duplex Synchronous SNA/SDLC EBCDIC Up to 1.544M Block Std. Coax No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-19,200 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-19,200 Block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,595 — — — 10/80 1/81 Over 400 Cobar	1,995 — — — 11/82 11/82 — Cobar	1,500 4,990-5,775 12-25 144-300 12/83 1/84 50 CCI	Contact vendor — — — 1982 1982 — Comterm	Contact vendor — — — 1982 1982 — Comterm
COMMENTS			Consists of 8178 display & 8274 con- troller.	Attaches to 5270 Controller; French function keys	Attaches to 5270 Controller; French function keys

Alphanumeric Display Terminals

VENDOR AND MODEL	Control Concepts EM-3275	Control Concepts EM-3276	Control Concepts CC-3276	Control Concepts CC-3278	Control Concepts CC-5251
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — Yes 3275 No —	Stand-alone/cluster 1 Yes 3276 No —	Stand-alone/cluster 1 Yes 3276 No —	Stand-alone — Yes 3278 Std. —	Stand-alone — Yes 5251-11 Std. —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 8K 24x80 plus status line 12; 15 opt. Swivel opt. 96 EBCDIC 5x7 dot matrix P42 green No — No No Std. Std. No No No No No Std. Std. Std. Std. No Std. Std. Std. Std. Std. Std. Char./field/screen std.	1920 12K 24x80 plus status line 12; 15 opt. Swivel opt. 96 EBCDIC 5x7 dot matrix P42 green No — No No Std. Std. No No No No No Std. Std. Std. Std. No Std. Std. Std. Std. Std. Char./field/screen std.	1920 12K 24x80 plus status line 12; 15 opt. Swivel opt. 96 EBCDIC 5x7 dot matrix P42 green No — No No Std. Std. No No No No No Std. Std. Std. Std. No Std. Std. Std. Std. Std. Char./field/screen std.	1920 2K 24x80 plus status line 12 Std. 96 ASCII/IBM symb. 7x8 dot matrix P31 green No No Std. Std. Std. Std. No No No Std. Both std. Std. Std. No Std. Std. Std. line/screen std.	1920 2K 24x80 plus status line 12 Std. 96 ASCII/IBM symb. 7x8 dot matrix P31 green No No Std. Std. Std. Std. No No No Std. Both std. Std. Std. No Std. Std. Std. line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	IBM 3278-style 96 EBCDIC/ASCII Std. 24 std. Std. 180 cps No Opt. Opt. Audible alarm	IBM 3278-style 96 EBCDIC/ASCII Std. 24 std. Std. 180 cps 100 lpm Opt. Opt. Audible alarm	IBM 3278-style 96 EBCDIC Std. 24 std. Std. 180 cps 180 lpm Opt. Opt. Audible alarm	IBM 3278 96 EBCDIC/ASCII Std. 24 std. Std. No No No Std. —	IBM 5251 style 96 EBCDIC/ASCII Std. 24 std. Std. No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half-duplex Synchronous BSC EBCDIC/ASCII Up to 9600 Block Std.;contention opt. RS-232-C Opt. (2400/4800 bps) No 1,995-3,490 Included 32 — 6/80 9/80 Over 500 Control Concepts, third party	Half-duplex Synchronous BSC EBCDIC/ASCII Up to 9600 Block Std. RS-232-C Opt. (2400/4800 bps) No 2,195-3,590 Included 35 — 6/80 9/80 Over 1000 Control Concepts, third party	Half-duplex Synchronous SDLC EBCDIC Up to 9600 Block Std. RS-232-C Opt. (2400/4800 bps) No 2,395-4,340 Included 42 — 3/82 6/82 Over 1000 Control Concepts, third party	Half/full-duplex Asynchronous BSC, SNA/SDLC ASCII 50-19,200 Char./block No RS-232-C or 20 mA Opt. (1200/2400) No 990-1,495 — 23 230 3/84 4/84 — Control Concepts	Half/full-duplex Asynchronous SDLC ASCII 50-19,200 Char./block No RS-232-C or 20 mA Opt. (1200/2400) No 990-1,495 — 23 230 3/84 4/84 — Control Concepts
COMMENTS				Interfaces to IBM 3270 IDS via prot- ocol converter	Interfaces to IBM System/34, S/36, or S/38 via protocol converter

Alphanumeric Display Terminals

VENDOR AND MODEL	Control Data Model 714	Control Data Model 721	Control Data Model 722-10	Control Data Model 722-30	CTi Data CTi 1000A
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Either 15 No No No —	Stand-alone — No 3276 opt. Std. CDC 722	Stand-alone — No No Std. Control Data	Stand-alone — No No Std. CDC Advanced Mode, ADDS Viewpt., ANSI	Stand-alone — No IBM 2740/1, /2 No None
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1280, 1920 2560, 3940 char. 16/24x80	1920-3960 — 24/30x80, 24/30x132	1920 — 24x80	1920 — 24x80	1920 20K 24x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	8x10 No 96 5x9 dot matrix P4 white	15 Std. 96 ASCII 8x16/5x16 dot matrix P39 green	12 No 96 ASCII 8x10 dot matrix P4 white	12 Std. 128 ASCII 7x9 in 10x12 cell P31 green	12 Tilt std. 64 5x7 dot matrix Green
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — Std. No No No Std. No No No No Std. Both std. Std. Std. No Std. Std. Std. Std. Char./screen std.	No Std. (721-31) Std. Std. Std. No Std. Up std. 1 std. Std. Both std. Std. Std. No Std. Std. Std. Std. Char./screen std.	No — Std. Std. No Std. No Up/down std. 1 std. Std. Both std. No Std. No Std. Std. Std. Std.	No 31 special char. Std. Std. Std. Std. No Step std. 1 std. Std. Addressable only Std. Std. No Std. Std. Std. Std.	No — No No No No No Std. No Std. Std. Std. Fwd./back std. Std. No Char. std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter ASCII No 8 std. Std.	Typewriter ASCII Std. 15 std. Std.	Typewriter ASCII No 12 std. Std.	Typewriter 128 ASCII Std. 12 std. Std.	Typewriter 64 Std. 15 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	180 cps No No Std. Audible alarm	40/55/150/200 cps No No Std. Audible alarm, touch panel, graphics (Tektronix 401X emulation)	150 cps No No Std. Audible alarm	40/55/150/200 cps No No Std. Audible alarm std.	80 & 180 cps No No Std. 55 cps docu. printer
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Synchronous ASCII, CDC ASCII 2000-9600 Block Std. RS-232-C No No	Half/full-duplex Async./sync. opt. ASCII, BSC opt. ASCII 110-19,200 Char./block Opt. RS-232-C Opt. No	Half/full-duplex Asynchronous ASCII, TTY ASCII 110-9600 Character No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 75-19,200 Char./block No RS-232-C, CCITT V.24, or 20 mA No No	Half/full-duplex Asynchronous IBM 2740 EBDCIC To 1800 bps Block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	4,490-10,108 — 53-82 — 5/78 5/78 Over 500 Control Data	2,295/2,895 — 31/43 — 4/82 6/82 Over 15,000 CDC	850 — 25 — 2/81 2/81 Over 9000 Control Data	850 — 16 192 4/84 9/84 Over 1000 Control Data	2,350 — 25 — 6/82 7/82 Over 500 TRW
COMMENTS		721-21—Basic TTY; 732-31—Basic TTY & PLATO/Graphics; three maintenance options: On-Site; Mail-in to service center; Customer self-maintenance 1-year lease—\$125/ 159 per month	1-year lease—\$50/ month	1-year lease—\$50/ month; quantity pricing: 20-49 units—\$700 each; 50-99 units—\$650 each	

Alphanumeric Display Terminals

VENDOR AND MODEL	CTi Data CTi 3078	Cybernex XL-D200	Cybernex XL-87H	Cybernex XL-84	Cybernex MDL-120
TERMINAL DESCRIPTION					
Standalone or cluster	Cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	16	—	—	—	—
Transportability	No	No	No	No	No
IBM compatibility	IBM 3278/2	No	No	No	No
Teletype compatibility	No	Std.	Std.	Std.	Std.
Other compatibility	None	Data General D200	Hazeltine 1510/1520	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	1 page	1920/24/1	1920/24/1	1920/24/1	1920/24/2
Screen arrangement, lines x chars./line	24x80	24x80	24x80	24x80	24x80
Screen area, diagonal, inches	12	14	14	12	12
Tilt/swivel screen	Tilt std.	Std.	Std.	Std.	Std.
Total displayable symbols	64	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	7x9 dot matrix	7x9 dot matrix	7x9 dot matrix	7x9 dot matrix	7x9 dot matrix
Character phosphor	Green	P31 green	P31 green	P31 green	P31 green
Color capability	No	No	No	No	No
Graphics	—	—	—	—	—
Programmable field/char. highlighting via:					
Underline	No	Std.	No	No	Std.
Blink	No	Std.	Std.	No	Std.
Blank	Std.	No	No	No	Opt.
Bold	Std.	Std.	Std.	No	Std.
Reverse	No	Std.	Std.	No	Std.
Double size	No	No	No	No	No
Scroll	No	Up std.	Up std.	Up, smooth std.	Up/down std.
Paging	No	No	1 std.	No	2 std.
Selectable cursor blinking	No	No	No	No	No
Addressable/readable cursor	Addressable std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	No	Std.	No	Std.
Partial screen transmit	Std.	No	Std.	No	Std.
Split screen/windows	No	No	No	No	No
Tabulation	Fwd./back std.	No	Field	Fwd. std.	Fwd./back std.
Character insert/delete	Std.	No	Std.	No	Std.
Line insert/delete	Std.	No	Std.	No	Std.
Erase	Std.	Screen, end of line	Std.	Char./line/screen	Char./line/screen
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	64	96 ASCII	96 ASCII	96 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	24 std.	80 std.	Fixed sequences	No	10 std.; 16 opt.
Numeric keypad	No	Std.	Std.	No	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	180 cps	No	No	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	Opt.
Port for cust.-supplied devices	No	RS-232-C printer std	RS-232-C std.	RS-232-C printer	RS-232-C printer
Other vendor-supplied devices	55 cps docu. printer	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Synchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	BSC, SNA/SDLC	—	Xon/Xoff	Xon/Xoff	—
Code	EBCDIC	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	Up to 9600	110-19,200	110-19,200	110-19,200	75-19,200
Format	Character	Character	Char./block	Character	Char./block
Multipoint operation	Std.	No	No	No	No
Terminal interface	RS-422	RS-232-C or 20 mA	RS-232-C or 20 mA	RS-232-C or 20 mA	RS-232-C or 20 mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, purchase	1,250	1,195	985	895	1,345
Controller, purchase	6,400	—	—	—	—
Monthly prime-shift maintenance	14	—	—	—	—
Annual prime-shift maintenance	—	—	—	—	—
Date of announcement	3/83	2/82	3/82	10/79	10/80
Date of first production delivery	4/83	5/82	6/82	1/80	1/81
Display units installed to date	—	—	—	10,000+	500+
Serviced by	TRW	Cybernex	Cybernex	Cybernex	Cybernex
COMMENTS		Print page; print form; screen blink on/off	Hazeltine 1510 emulation with non-buffered printer port functions of 1520; value-added features include: character-by-character blink & reverse; alternate keypad mode		Opt. bilingual keyboard set (English, French); selectable text compression mode; opt. answer-back code; form transmit function for forms creation

Alphanumeric Display Terminals

VENDOR AND MODEL	Cybernex MDL-150	Cybernex MDL-B4E	Cybernex MDL-110	Cybernex APL-100	Cybernex MDL-125
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. —	Stand-alone — No No Std. MAI Basic Four 7230/ 7240/7250/7260	Stand-alone — No No Std. —	Stand-alone — No No Std. —	Stand-alone — No No Std. —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920 1920/24/1 24x80	1920 1920/24/1 24x80	1920 1920/24/1 24x80	1920 1920/24/1 24x80	1920 1920/24/6 24x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12 Std. 220 ASCII/special 7x9 dot matrix P31 green	12 Std. 128 ASCII 7x9 dot matrix P31 green	12 Std. 128 ASCII 7x9 dot matrix P31 green	12 Std. 64 ASCII/full APL 7x9 dot matrix P31 green	12 Std. 128 ASCII 7x9 dot matrix P31 green
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — Std. Std. Opt. Std. Std. Std. Up/down std. No No Both std. Std. Std. 32 std. Fwd./back std. Std. Std. End/beginning line/ page, full page	No — No No Std. No No Addressable only Std. Std. No Fwd. No Std. Line/page/form std.	No — Std. Std. Opt. Std. Std. No Up std. No No Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	No — Std. Std. Opt. Std. Std. No Up std. No No Std. No 2-column Std. Std. Std. End of line/page, full page	No — Std. Std. Opt. Std. Std. No Up/down std. 6 std. No Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 96 ASCII Std. 10 std. Std.	Typewriter 128 ASCII Std. 9 std. Std.	Typewriter 128 ASCII Std. 10 std.; 16 opt. Std.	Typewriter, APL 96 ASCII Std. No Std.	Typewriter 128 ASCII Std. 10 std.; 16 opt. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Opt. RS-232-C/Centronics Touch screen	No No No RS-232-C, parallel —	No No Opt. RS-232-C printer —	No No Opt. RS-232-C prtr., par. —	No No Opt. RS-232-C prtr., par. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half/full-duplex Asynchronous — ASCII 75-19,200 Char./line/block No RS-232-C or 20 mA	Half/full-duplex Asynchronous — ASCII 75-19,200 Char./block No RS-232-C or 20 mA	Half/full-duplex Asynchronous — ASCII 75-19,200 Char./block No RS-232-C or 20 mA	Half/full-duplex Asynchronous — ASCII 75-19,200 Char./block No RS-232-C or 20 mA	Half/full-duplex Asynchronous — ASCII 75-19,200 Char./block No RS-232-C or 20 mA
Integral modem Integral acoustic coupler	No No	No No	No No	No No	No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,475 — — — 1/81 4/81 550+ Cybernex	1,295 — — — 5/82 7/82 — Cybernex	1,345 — — — 10/80 1/81 1300+ Cybernex	1,345 — — — 10/80 1/81 — Cybernex	1,475 — — — 1/81 3/81 — Cybernex
COMMENTS	Separate data & attribute plane addressability; multiple redefinable logical terminals; extended instruction set; touch screen version available with up to 256 user-definable rectangles (\$2,495)	Print through main to auxiliary port; internal switch-selectable comm. parameters; auto line feed	Opt. bilingual keyboard/character set (English/French); selectable text compression mode; opt. answerback mode; form transmit function for forms creation	True overstrike; ASCII/APL mode select; selectable text compression mode; scroll column to column	Opt. bilingual keyboard/character set (French/English); selectable text compression mode; opt. answerback mode; form transmit function for forms creation

Alphanumeric Display Terminals

VENDOR AND MODEL	Cybernex XL-87m/XL-87d	Cybernex XM3270	Cybernex 1014	Cybernex SA 830	Cybernex SA 7800
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. —	Stand-alone — No 3178 Std. ANSI X3.64	Stand-alone — No No No Tektronix 4010/4012/ 4014, ANSI X3.64	Concatenation 15 No No Opt. Burroughs TD 830	Stand-alone — No No No Honeywell VIP 7801/ 7804/7814
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920 1920/24/1 24x80	1920 1920/24/1 24x80	2555-10,220 (zoom) 3358-13,578 (zoom) 35x73, 70x146	1920 30,720 (16 pages) Program selectable 4-96x40/80	2080 5760 + 160 72x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	14 Std. 128 ASCII 7x9 dot matrix P31 green	14 Std. 96 ASCII 7x9 dot matrix P31 green	14 Std. 96 ASCII 5x7 dot matrix P39 std.	14 Std. 96 ASCII 7x12 dot matrix P31 green	14 Std. 96 ASCII/11 graphics 8x13 dot matrix P31 green
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — No Std. No Std. Std. Std. Std. Up/down std. No No Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	No — Std. Std. Std. Std. No Up/down std. 1 std. Std. Both std. Std. Read modified Message area Fwd./back std. Std. No Line/screen/EOL/ 3270 error	No Std. No No No No Up/down std. No No Both std. No No Fwd. std. No No Line/screen std.	No — Std. Std. Std. Std. No Up/down std. Std. Std. Addressable only Std. Std. No Std. Std. Std. End of line/page, full page	No 11 graphics symbols — Std. Std. Std. Std. Std. Up/down std. 3 pages Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 96 ASCII Std. 3 std. Std.	Typewriter (IBM) 96 ASCII Std. 24 (3270 PF) std.	Typewriter 96 ASCII Std. 4 + alternate keypad Std.	Typewriter 96 ASCII Std. 10 std. Std.	Typewriter 96 ASCII Std. 10 std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No RS-232-C printer —	No No No RS-232-C Touch screen	No No Opt. RS-232-C, parallel —	No No Opt. 2 printer ports —	No No Opt. RS-232-C —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous Xon/Xoff ASCII 110-19,200 Char./block No RS-232-C or 20 mA	Half/full-duplex Asynchronous Xon/Xoff ASCII, ANSI X3.64 110-19,200 Char./block No RS-232-C or 20 mA	Half/full-duplex Asynchronous — ASCII, ANSI X3.64 75-19,200 Character No RS-232-C	Half-duplex Async./sync. Burroughs ASCII 150-19,200 Line/block Std. RS-232-C, TDI	Full-duplex Async./sync. Honeywell sync. ASCII Up to 19,200 Char./line/block Std. (sync.) RS-232-C; 20 mA (async.) No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,095 — — — 1/82(m); 3/82(d) 3/82(m); 5/82(d) 2500(m); 300(d) Cybernex	1,295 — — — 9/83 11/83 350 Cybernex	2,795; APL—2,995 — — — 8/82 10/82 — Cybernex	1,895 — — — 3/82 6/82 — Cybernex	1,895 — — — 8/82 10/82 — Cybernex
COMMENTS	Opt. bilingual key- board/character set (French/English) & opt. graphics char- acter set (XL-87m); Datapac-compatible terminal (XL-87d)	ASCII 3278 Type 2, 3178 emulator for use with protocol converter; ANSI X3.64 (DEC compat.); 87-key 3278 keyboard extended highlight- ing; local print page/form; remote buffered print	High resolution graphics (1024x780); supports dot matrix printers for hard copy; draw, undraw, replace, circle, line, rectangle, block clear, grid commands	Centronics parallel port + RS-232-C serial printer port; cable limit 50 feet; all attributes are line attributes	16K print buffer; selectable non- Honeywell print driver; Line Monitor mode

Alphanumeric Display Terminals

VENDOR AND MODEL	Data General Dasher D210/D211	Data General Dasher D280C	Data General Dasher D410	Data General Dasher D460	Datamaxx EXT-4300
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone 16 No No Std. DG D100/D200, ANSI X3.64	Stand-alone — No No Std. —	Stand-alone 16 No No Std. DG D400, ANSI X3.64	Stand-alone 16 No No Std. DG D400, ANSI X3.64	Stand-alone — No 3278 Std. See comments
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920 — 24x80	1920 — 24x80	1944, 3240 — 24x81/135	1944, 3240 — 24x81/135	2000 10 pages 25x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12 Tilt std. 128; 256 7x11 in 10x12 cell P31 green	13 Std. 96 ASCII 7x10 dot matrix Color	12 Tilt std. 256 7x11 in 10x12 cell P31 green	12 Tilt std. 256 7x11 in 10x12 cell P31 green	14; 12 opt. Std. 128 7x11 dot matrix P39 green
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — Std. Std. No Dim std. Std. No Up std. No No Both std. No No No Std. No No Line/screen std.	8 colors std. — Std. Std. No Std. Std. No Up std. No No Both std. No No No Std. No No Line/screen std.	No — Std. Std. No Dim std. Std. No Up std. No Std. Both std. Std. No 24 std. Std. Std. Std. Line/screen/window std.	No Std. Std. Dim std. Std. No Up std. No Std. Both std. Std. No 24 std. Std. Std. Std. Line/screen/window std.	No No Std. Std. Std. Std. No Up/down std. 10 std. Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 15 std. Std.	Typewriter 128 ASCII Std. 15 Std.	Typewriter 128 ASCII Std. 15 std. Std.	Typewriter 128 ASCII Std. 15 std. Std.	Typewriter 128 ASCII Std. 40 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. (D211 only) —	No No No Opt. —	No No No Std. —	No No No Std. —	340 cps matrix 1000 lpm band No Std. IBM PC-compatible
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Full-duplex Asynchronous ASCII ASCII 50-19,200 Character No RS-232-C; RS-422 20mA (D211) No No	Full-duplex Asynchronous ASCII ASCII Up to 19,200 Character No RS-232-C or 20mA No No	Full-duplex Asynchronous ASCII ASCII 110-19,200 Character No RS-232-C, RS-422, or 20mA No No	Full-duplex Asynchronous ASCII ASCII 110-19,200 Character No RS-232-C, RS-422, or 20mA No No	Half-duplex Async./sync. Polled ASCII 300-38,400 Char./line/block Std. RS-232-C, TDI std. No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	995/1,195 — 13/15 — 5/83 7/83 — Data General	3,750 — — — 8/81 — — Data General	1,635 — 17 — 5/83 7/83 — Data General	1,835 — 19 — 5/83 7/83 — Data General	1,895-2,190 — 25 240 — 5/84 1200 Datamaxx, TRW, Western Union Compatible with Burroughs MT983 & ET1100, NCR 796- 301 & 7900 Model 3; can be upgraded to workstation with Exxpert II—no extra software needed; quantity discounts available
COMMENTS		Lease and rental available via third parties and terminal resellers		Alphanumeric and character-mapped graphics terminal; additional 3572 user-defined characters/symbols available	

Alphanumeric Display Terminals

VENDOR AND MODEL	Datamaxx DMX-2200	Datamaxx DMX 7900/1	Datamedia Excel 10/20	Datamedia Excel 30	Datamedia Excel 40
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. Burroughs MT983	Stand-alone — No No Std. NCR 7901 & 7900 Model 1	Stand-alone — No No Std. DEC VT100	Stand-alone — No No Std. See comments	Stand-alone — No No Std. TeleVideo 950
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	2000 4 pages 25x80 12 Std. 128 7x11 dot matrix P31 green std.; amber opt. No No Std. Std. Std. Std. No Up/down std. 4 std. Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	2000 1 page 25x80 12 Std. 128 7x9 dot matrix P31 green std.; amber opt. No No Std. Std. Std. No Up/down std. No Std. Addressable only No Std. No Fwd./back std. No No Screen std.	1920, 1848, 3168 132/24/1 24x80/132, 14x132 12; 14 opt. Tilt std. 128 ASCII 7x9 dot matrix P4 white std. P31 green opt. No — Std. Std./opt. (20) No Std./opt. (20) Std. Std. Up/down std. No Std. Both std. No No 1 std. Fwd. std. No No Char./line/screen std.	1920,1848(3168 opt.) 132/24/1 24x80, 14x132 (24x132 opt.) 12; 14 opt. Tilt std. 128 ASCII 7x9 dot matrix P4 white std. P31 green opt. — Std. Std. No Std. Up/down std. Both std. No No 1 std. Fwd. std. Std. Char./line/screen std.	1920, 960, 480 1920/24/2 24x40/80, 12x40 12; 14 opt. Tilt std. 96 ASCII + 32 ctls. 5x7 dot matrix P4 white std.; P31 green opt. No — Std. Std. Std. Std. Std. Up/down std. 2 std. Std. Both std. Std. Std. 1 std. Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 15 std. Std.	Typewriter 128 ASCII Std. 17 std. Std.	Typewriter 64 ASCII Std. 4 std. Std.	Typewriter 64 ASCII Std. 8 opt. Std.	Typewriter 64 ASCII Std. 32 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	340 cps matrix 1000 lpm band No Std. —	340 cps matrix No No Std. —	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half-duplex Async./sync. Polled ASCII 300-19,200 Char./line/block Std. RS-232-C, TDI std. No No	Full-duplex Asynchronous ASCII 110-19,200 Character No RS-232-C, 2/4 wire No No	Half/full-duplex Asynchronous X on/X off ASCII/ANSI 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous — ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous X on/X off ASCII 110-19,200 Char./line/block No RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,495 — 25 240 — 11/84 300 Datamaxx, TRW, Western Union Quantity discounts available	695 — 34 360 — 6/84 100 Falco Data Products	1,215-1,495 — — — — — — RCA Service Co.	1,215-1,300 — — — — — — RCA Service Co.	995-1,080 — — — — 11/81 — — RCA Service Co.
COMMENTS		Compatible with ESC x,y cursor posit- ioning terminals, i.e. ADDS Viewpoint quantity discounts available		Emulations include: Datamedia 1521, ADDs Regent 25, Hazeltine 1420, Lear Siegler ADM 3A	

Alphanumeric Display Terminals

VENDOR AND MODEL	Datamedia Excel 50/60	Datamedia Excel 70	Datamedia ColorScan 10	Datamedia ColorScan 30	Datamedia ColorScan 60
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. DEC VT100 APL/ VT132	Stand-alone — No No Std. DG Dasher D200	Stand-alone — No No Std. DEC VT100	Stand-alone — No No Std. See comments	Stand-alone — No No Std. DEC VT132
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920, 3168 132/24/1 24x80/132	1920, 3168 132/24/1 24x80/132	1920, 3168 132/24/1 24x80/132	1920, 3168 132/24/1 24x80/132	1920, 3168 132/24/1 24x80/132
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12; 14 opt. Tilt std. APL/128 ASCII 7x9 dot matrix P4 white std.; P31 green opt.	12; 14 opt. Tilt std. 128 ASCII 7x9 dot matrix P4 white std.; P31 green opt.	12 Tilt std. 128 ASCII 7x9 dot matrix Color	12 Tilt std. 128 ASCII 7x9 dot matrix Color	12 Tilt std. 128 ASCII 7x9 dot matrix Color
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	— — Std. Std. No Std. Std. Std. Std. Up/down std. No Std. Both std. No/std. (60) No/std. (60) 1 std. Fwd. std. No/std. (60) No/std. (60) Char./line/screen std.	— — Std. Std. No Std. Std. Std. Std. Up/down std. No Std. Both std. No No 1 std. Fwd. std. No Std. Char./line/screen std.	8 colors std. — Std. Std. No Std. Std. Std. Up/down std. No Std. Both std. No No 1 std. Fwd. std. No No Char./line/screen std.	8 colors std. — Std. Std. No Std. Std. Std. Up/down std. No Std. Both std. No No 1 std. Fwd. std. No Std. Char./line/screen std.	8 colors std. — Std. Std. No Std. Std. Std. Up/down std. No Std. Both std. No No 1 std. Fwd. std. No Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 64 ASCII Std. 12 std. Std.	Typewriter 64 ASCII Std. 12 std. Std.	Typewriter 64 ASCII Std. 12 std. Std.	Typewriter 64 ASCII Std. 8 std. Std.	Typewriter 64 ASCII Std. 12 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous X on/X off ASCII/ANSI 50-19,200 Char./line/block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous X on/X off ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous X on/X off ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous — ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous X on/X off ASCII 50-19,200 Char./line/block No RS-232-C std.; 20mA opt. No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Contact vendor — — — — — — — RCA Service Co.	1,395-1,480 — — 10/81 — — — RCA Service Co.	2,795 — — — — — — RCA Service Co.	2,795 — — 11/81 — — — RCA Service Co.	2,999 — — 11/81 — — — RCA Service Co.
COMMENTS	Excel 50 is APL model			Emulations include: Datamedia 1521, ADDS Regent 25, Hazeltine 1420, Lear Siegler ADM 3A	

Alphanumeric Display Terminals

VENDOR AND MODEL	Datamedia ColorScan 70	Datamedia 3270-S	Datamedia Excel 3270-6/3270-8	Datapoint 8220	Datastream 178
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. DG Dasher D200	Stand-alone — 3275/3276 Opt. —	Cluster 3 No 3276/3278 No —	Stand-alone Variable No W/Datapoint proc. Std. —	Either 32 No 3178/3278 Std. DEC VT 100
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920, 3168 132/24/1 24x80/132	1920 80/24/1 24x80	1920 — 24x80	1920 80/24/1 24x80	1920 — 24x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12 Tilt std. 128 ASCII 7x9 dot matrix Color	14 Tilt std. 96 EBCDIC 7x9 dot matrix P31 green std.	14 std.; 12 opt. Tilt std. 96 EBCDIC 7x9 dot matrix P31 green std. P4 white opt.	12 Opt. 96 ASCII 7x9 dot matrix Amber/white	12 Std. 96 7x9 dot matrix P31 green std.; amber opt. No
Color capability Graphics Programmable field/char. highlighting via:	8 colors std. — Std.	No — No	No — No	No — No	No — Std.
Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	Std. Std. No Std. Std. Std. Up/down std. No Std. Both std. No No 1 std. Fwd. std. No Std. Char./line/screen std.	No No No Std. No Std. No Std. Both std. Std. No No Std. Std. Std. Screen std.	No No No Std. No Std. Both std. Std. No No Std. Std. Std. Screen std.	No No No Std. Std. Both std. Opt. No Std. Std. Via program control Via program control Via program control	Std. Std. Std. Std. Std. No No Std. Std. Std. Addressable only Std. Std. No Std. Std. Via program control No Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys	Typewriter 64 ASCII Std. 12 std.	Typewriter 96 EBCDIC Std. 24 std.	Typewriter 96 EBCDIC Std. 24 std.	Typewriter 96 ASCII Std. 5 std.	Typewriter (IBM 3278/3290-style) ASCII/EBCDIC Std. 24 std.
Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Std. — No No Opt. Std. —	Std. — No No Opt. Std. —	Std. — No No No Std. —	Std. — No No No Std. —	Std. — No No No RS-232-C —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half/full-duplex Asynchronous X on/X off ASCII 50-19,200 Character No RS-232-C std.; 20mA opt.	Half-duplex Synchronous BSC EBCDIC 110-19,200 Block Std. RS-232-C	Half-duplex Synchronous BSC EBCDIC 1200-9600 Block Std. RS-232-C	Half/full-duplex Asynchronous — ASCII 50-9600 Character No RS-232-C	Half/full-duplex Sync./asynch. SDLC/ASCII ASCII/EBCDIC 110-19,200 Char./block Std. RS-232-C
Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	No No 2,795 — — — 11/81 — — RCA Service Co.	Opt. No 1,995 — 24 — 3/82 4/82 — RCA Service Co.	Opt. No 1,695-2,895 — — — 6/82 — — RCA Service Co.	No No Contact vendor — — — 11/81 — — Datapoint	No No 975 — — — 8/83 10/83 — Datastream
COMMENTS				Tilt/rotate base available; any key can be programmed as a special func- tion control	Attaches to Data- stream 774, 776, 874, or MPC cluster controllers; also attaches to any DEC host or timesharing service

Alphanumeric Display Terminals

VENDOR AND MODEL	Datastream 878-15	Decision Data 3751-11	Decision Data 3791-01	Decision Data 3761-01	Delta Data D2830-II
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Either 32 No 3278-2/3/4/5 Std. DEC VT100, ANSI X3.64	Either 8 No 5251-11 No —	Either 8 No 5291, 5251-1/-11 No —	Either 8 No 5291 No IBM 5251-11	Stand-alone — No No Std. Burroughs ET1100
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920-3564 — 24/32/43x80, 27x132 14 Std. 96 7x9 dot matrix P39 green std.; amber opt. No — Std. Std. Std. Std. Std. No No No Std. Addressable only Std. Std. No Std. Std. No Char./line/screen std.	1920 — 24x80 plus status line 15 Tilt std. 96, MNC-188 8x16 dot matrix P39 green No — Std. Std. Std. Std. No Std. Std. Std. Std. Std. Std. Std. Std. Std.	1920 — 24x80 plus status line 14 Std. 96, MNC-188 7x9 dot matrix P39 green No — Std. Std. Std. Std. Std. No Up/down std. Std. Std. Std. Std. Std. Std. Std. Std. Std.	1920 1920/24/10 24x60 plus status lines 14 Std. 128 ASCII 7x9 dot matrix P31 green No No Std. Std. Std. Std. Std. No Up/down std. 10 std. Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/display std.	
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter (IBM 3278/3290-style) ASCII/EBCDIC Std. 24 std. Std. No No No RS-232-C printer —	Typewriter, data entry EBCDIC Std. 24 std. Std. No No No No Light pen, magnetic card reader, keylock	Typewriter 16/188 MNC EBCDIC Std. 24 std. Std. No No No No Keylock	Typewriter 96, MNC-188 EBCDIC Std. 24 std. Std. No No No No Keylock	Typewriter 128 ASCII Std. All soft keyboard Std. Opt. Opt. No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half/full-duplex Sync./async. BSC/SDLC/ASCII/ANSI ASCII/EBCDIC 300-9600 Char./block Std. RS-232-C No No 1,800 — — 3/84 4/84 — Datastream	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 1M Block Std. Twinax phase- encoded No No 1,930 — 22.50 230 10/80 1/81 36,000 Decision Data	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 1M Block Std. Twinax, phase- encoded No No 1,550 — — 170/yr. (1st 2 yrs.) 7/83 7/83 17,000 Decision Data	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 1M Block Std. Twinax No No 1,820 — — 125 4/84 4/84 8000 Decision Data	Half/full-duplex Async./sync. Burr. poll/sel., TTY ASCII Up to 19,200 Char./line/block Std. RS-232-C No No 995-1,295 — 33 348 4/84 6/84 700 Delta Data
COMMENTS	Attaches to Data- stream 774, 776, 874, or MPC cluster controller; also attaches to any DEC host or timesharing service			Operator or prog- rammer can store 1920 characters in off-line workpad	Full Burroughs ET1100 emulation

Alphanumeric Display Terminals

VENDOR AND MODEL	Delta Data D8303	Digital Equipment (DEC) VT100	Digital Equipment (DEC) VT101	Digital Equipment (DEC) VT102	Digital Equipment (DEC) VT125
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. —	Stand-alone — No No Std. VT100	Stand-alone — No No Std. VT100	Stand-alone — No No Std. VT100	Stand-alone — No No Std. VT100
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	2240 40K characters 28x80 14 Std. 256 ASCII 7x9 dot matrix P31 green No No Std. Std. Std. Std. No Up/down std. 20 std. Std. Both std. Std. Std. 8 std. Fwd./back std. Std. Std. Char./line/display std.	1920; 3168 opt. — 24x80; 24x132 opt. 12 Opt. 128 ASCII 7x9 dot matrix P4 white std. No Line drawing set Std. Opt. Std. Opt. Std. Std. Smooth/bidir. No Std. Both std. No Std. 2 std. Std. & program tabs Opt. Opt. Char./line/screen std.	1848, 1920 — 14x132, 24x80 12 Opt. 128 ASCII 7x9 dot matrix P4 white std. No Line drawing set Std. No No No Std. Std. Smooth/bidir. No Std. Both std. No Std. 2 std. Std. & program tabs No No Char./line/screen std.	1920, 3168 — 24x80/132 12 Opt. 128 ASCII 7x9 dot matrix P4 white std. No Std. Std. Std. Std. Smooth/bidir. No Std. Both std. No Std. 2 std. Std. & program tabs Std. Std. Char./line/screen std.	1920; 3168 opt. — 24x80; 24x132 opt. 12 Opt. 128 ASCII 7x9 dot matrix P4 white std. No Std. Opt. Std. Std. Std. Smooth/bidir. No Std. Both std. No Std. 2 std. Std. & program tabs Std. No Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 127 ASCII Std. 96 std. No	Typewriter ASCII Std. 4 std. Std.	Typewriter ASCII Std. 4 std. Std.	Typewriter ASCII Std. 4 std. Std.	Typewriter ASCII Std. 4 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Opt. Opt. Opt. Std. —	30-240 cps impact No Std. Opt. —	30-240 cps impact No Std. No —	30-240 cps impact No Std. Std. —	30-240 cps impact No Std. Std. Graphics printer
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Async./sync. TTY, Xon/Xoff ASCII Up to 19,200 Char./block No RS-232-C No No	Full-duplex Asynchronous ASCII/ANSI ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Full-duplex Asynchronous ASCII/ANSI ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII/ANSI ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No	Full-duplex Asynchronous ASCII/ANSI ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Served by	2,395 — 33 348 7/84 9/84 200 Delta Data	1,945 — 18 — 1978 1978 — DEC	1,350 — 15 — 9/81 10/81 — DEC	1,595 — 22 — 9/81 10/81 — DEC	3,800 — 29 — 7/81 10/81 — DEC
COMMENTS	Expansion to full IBM PC operation including options for LAN, storage capacity, printers, & second host port	ANSI std. escape sequences; line drawing set std., industrial-enclosure model (RT 100) available; also available with LSI-11 back-plane (VT 103)	ANSI std. escape sequences; line drawing set std., local echo; national power cords; bounded	ANSI std. escape sequences; line drawing set std., local echo; national power cords; international modem support; bounded; industrial-enclosure model (RT 102) available	Same as VT 100 plus bit map graphics for business & scientific users

Alphanumeric Display Terminals

VENDOR AND MODEL	Digital Equipment (DEC) VT131	Digital Equipment (DEC) VT220	Digital Equipment (DEC) VT240	Digital Equipment (DEC) VT241	Direct 820
TERMINAL DESCRIPTION					
Standalone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	—
Transportability	No	No	No	No	Portable case
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	No
Other compatibility	VT100	VT100/VT52, ANSI X3.64	VT100/52;ANSIX3.64 Tektronix 4010/4014	VT100/52;ANSIX3.64 Tektronix 4010/4014	HP2640, HP2645A, HP2622
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920, 3168	1920, 3168	1920, 3168	1920, 3168	1920
Memory capacity, no. char./lines/pages	—	—	—	—	4.2K
Screen arrangement, lines x chars./line	24x80/132	24x80/132	24x80/132	24x80/132	24x80
Screen area, diagonal, inches	12	12	12	13	12
Tilt/swivel screen	Opt.	Tilt std.	Tilt std.	Tilt std.	No
Total displayable symbols	128 ASCII	256	256	256	128 ASCII
Symbol formation	7x9 dot matrix	7x10 dot matrix	8x10 dot matrix	8x10 dot matrix	7x11 dot matrix
Character phosphor	P4 white std.	White, green, or amber	White, green, or amber	Color	P4 white
Color capability	No	No	No	4 colors std.	No
Graphics	Line drawing	—	Std.	Std.	—
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	No	No	No	No	No
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	Std.	Std.	Std.	No
Scroll	Smooth/bidir.	Std.	Std.	Std.	Bidir.; 3 rates
Paging	No	No	No	No	Mult. pages std.
Selectable cursor blinking	Std.	Std.	Std.	Std.	No
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	No	No	No	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	2 std.	2 std.	2 std.	2 std.	Std.
Tabulation	Std. & program tabs	Std. & program tabs	Std. & program tabs	Std. & program tabs	Fwd./back tab
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	ASCII	ASCII	ASCII	ASCII	96 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	4 std.	20 std.	20 std.	20 std.	8 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	30-240 cps impact	30-240 cps impact	30-240 cps	30-240 cps impact	No
Line printer, type and speed	No	No	No	No	No
Composite video	Std.	Std.	Std.	Std.	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	No
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Full-duplex	Full-duplex	Full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII/ANSI	ASCII/ANSI	ASCII/ANSI	ASCII/ANSI	DC1/DC2; Eng. Ack.
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	75-19,200	75-19,200	75-19,200	50-19,200
Format	Char./line/block	Character	Character	Character	Char./line/block
Multipoint operation	No	No	No	No	No
Terminal interface	RS-232-C std.; 20mA opt.	RS-232-C, 20 mA, or RS-423	RS-232-C, 20 mA, or RS-423	RS-232-C, 20 mA, or RS-423	RS-232-C
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, purchase	1,695	1,395	2,195	3,195	1,495
Controller, purchase	—	—	—	—	—
Monthly prime-shift maintenance	22	6	16	23	24
Annual prime-shift maintenance	—	—	—	—	—
Date of announcement	9/81	11/83	11/83	11/83	4/83
Date of first production delivery	10/81	11/83	11/83	11/83	6/83
Display units installed to date	—	—	—	—	—
Serviced by	DEC	DEC	DEC	DEC	Contact vendor
COMMENTS					
	ANSI std. escape sequences; line drawing set std.; local echo; national power cords; inter- national modem support;	Plain language set- up menu for feature selection in English French, & German; multinational char- acter set support; multiple language keyboards available; word processing key- boards available	Bit-mapped graphics version of VT220; two graphic proto- cols: Tektronix 4010/4014 & DEC ReGIS; 800 x 240 pixel screen resolu- tion	Color version of VT240	

Alphanumeric Display Terminals

VENDOR AND MODEL	Direct 825	Direct 828/1	Direct 831	Esprit Systems Esprit	Esprit Systems Esprit II
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — Portable case No No HP2640, HP2645A, HP2622	Stand-alone — Portable case No No HP2640, HP2645A, DEC VT100/VT52	Stand-alone — Portable case No No DEC VT100/VT131/VT52	Stand-alone — No No Std. ADDS Regent 25, Lear Siegler ADM3A	Stand-alone — No No Std. ADDS Regent 25, Lear Siegler ADM 3A
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920, 3168 16K std.; 32K opt. 24x80/132 12 No 128 ASCII 7x11 dot matrix P4 white/P31 green No Line drawing set Std. Std. Std. Std. Std. No Bidir.; 3 rates Mult. pages std. No Both std. Std. Std. Std. Fwd./back tab Std. Std. Char./line/screen std.	1920, 3168, 3696 32K 24x80/132, 28x132 12 No 128 ASCII 7x11 dot matrix P4 white/P31 green No Line drawing set Std. Std. Std. Std. Std. No Bidir.; 3 rates Mult. pages std. No Both std. Std. Std. Std. Fwd./back tab Std. Std. Char./line/screen std.	1920, 3168, 3696 16K std.; 32K opt. 24x80/132, 28x132 12 No 128 ASCII 7x11 dot matrix P4 white/P31 green No Line drawing set Std. Std. Std. Std. Std. No Bidir.; 3 rates Mult. pages std. No Both std. Std. Std. Std. Fwd./back tab Std. Std. Char./line/screen std.	1920 No 24x80 12 No 128 ASCII 7x11 dot matrix Green No — Std. No No No Std. No No No Both std. Std. Std. No Std. No Std. Line/screen std.	1920 No 24x80 12 Tilt std. 128 ASCII 7x11 dot matrix Green No — Std. No No No Std. No No No Both std. Std. Std. No Std. Std. Std. Line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 96 ASCII Std. 8 std. Std.	Typewriter 96 ASCII Std. 8 or 16 std. Std.	Typewriter 96 ASCII Std. 16 std. Std.	Typewriter 128 ASCII No No Std.	Typewriter 128 ASCII Std. No Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. Modem opt., Plot 10 graphics opt.	No No No Std. Modem opt., plot 10 graphics opt.	No No No Std. Modem opt., Plot 10 graphics opt.	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous DC1/DC2; Eng./Ack. ASCII 50-19,200 Char./line/block No RS-232-C Opt. No	Half/full-duplex Asynchronous DC1/DC2; Eng./Ack. ASCII 50-19,200 Char./line/block No RS-232-C Opt. No	Half/full-duplex Asynchronous X-on/X-off, DTR ASCII 50-19,200 Char./line/block No RS-232-C Opt. No	Half/full-duplex Asynchronous TTY ASCII Up to 9600 Char./block No RS-232-C No No	Half/full-duplex Asynchronous TTY ASCII 50-19,200 Char./block No RS-232-C or 20 mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,890 — 24 — 7/81 7/81 — Contact vendor	2,790 — 24 — 3/81 4/81 — Contact vendor	1,395 — 24 — 11/82 11/82 — Contact vendor	595 — — — 5/81 6/81 — Esprit, TRW	645 — — — 6/82 8/82 — Esprit, TRW
COMMENTS	HP line-drawing set; fold-up keyboard; user-adjustable convenience fea- tures; upgrade to CP/M computer system opt.; screen-labeled function keys	Same as 825 plus downline loadable fonts	Full data entry check. & forms capa. downline load. char. fonts, line drawing set, fold-up kybd. All feat. & controls settable from kybd. & saveable in non- volatile RAM.	Low-cost buffered terminal	

Alphanumeric Display Terminals

VENDOR AND MODEL	Esprit Systems Esprit III	Esprit Systems Esprit III Color	Esprit Systems ESP	Esprit Systems ESP 6110	Esprit Systems Executive 10/25
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. TeleVideo 950	Stand-alone — No No Std. TeleVideo 950	Stand-alone — No No Std. TeleVideo 925, ADDS Viewpoint, Esprit II	Stand-alone — No No Std. Esprit II, ADDS R25, LSI ADM 3A	Stand-alone — No No Std. Executive Model 20
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 — 24x80 plus status line 12 Tilt std. 128 ASCII & graph. 7x11 dot matrix Green No Std. Std. Std. Std. Dim std. Std. No No No No No No No Both std. Std. Std. Std. Std. Std. Std. Std. Line/screen std.	1920 — 24x80 plus status line 13 Tilt std. 128 ASCII + graph. 7x11 dot matrix Green 8 colors std. Std. No No No Dim std. Std. No No No Std. Both std. Std. Std. Std. Std. Std. Std. Std. Line/screen std.	2000 4 pages opt. 25x80 14 Std. 128 ASCII + graph. 7x11 dot matrix P31 green No Std. Std. Std. Std. Std. Std. Smooth std. 4 opt. Std. Std. Std. Std. Fwd./back std. Std. Std. Std.	1920 — 24x80 14 Std. 128 ASCII 7x9 dot matrix Green std., amber opt. No No Std. Std. Std. Std. Std. Smooth Both std. Std. Std. No Fwd./back std. Std. Std. Line/screen std.	2000, 3000 — 25x80/132 14 Std. 128 ASCII + graph. 7x10 dot matrix P31 green No Std. Std. Std. Std. Std. Std. Smooth std. No Std. Std. Std. Std. 3 std. Fwd./back std. Std. Std. Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 22 std. Std.	Typewriter 128 ASCII Std. 22 std. Std.	Typewriter 128 ASCII Std. 22 Std.	Typewriter 96 ASCII Std. No Std.	Typewriter 128 ASCII Std. 32 Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	No No No Opt. —	No No No Opt. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous TTY ASCII 50-19,200 Char./block No RS-232-C or 20 mA	Half/full-duplex Asynchronous TTY ASCII 50-19,200 Char./block No RS-232-C or 20 mA	Half/full-duplex Asynchronous TTY — 50-19,200 Char./block No RS-232-C std.; 20mA, RS-422 opt.	Half/full-duplex Asynchronous TTY ASCII 50-19,200 Char./line/block No RS-232-C std., RS- 422, 20 mA opt.	Half/full-duplex Asynchronous TTY ASCII 110-19,200 Char./block No RS-232-C or 20mA
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	895 — — — 9/82 10/82 — Esprit, TRW	995 — — — 5/83 — — Esprit, TRW	699 — — — 11/83 12/83 — Esprit, TRW	495 — — — 7/84 8/84 2000 Esprit Depot Re- pair, TRW	1,045 — — — 10/83 12/83 — Esprit, TRW
COMMENTS			Upgradeable to stand-alone PC		

Alphanumeric Display Terminals

VENDOR AND MODEL	Esprit Systems Executive 10/51	Esprit Systems Executive 10/78	Esprit Systems Executive 10/102	Falco Endura	Falco Fame 2/Fame 3
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No 5251 Std. —	Stand-alone — No 3278 Std. —	Stand-alone — No No Std. DEC VT102/VT131	Stand-alone — No No Std. Lear Siegler ADM 31	Stand-alone — No No Std. Lear Siegler ADM 3A/ 31, DEC VT52 (2)
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 — 24x80 plus status line 12 Std. 124 ASCII 7x10 dot matrix P146 green No — Std. Std. No Std. Std. No No No Std. Both std. Std. Std. Std. Std. No Std. Std. Line/screen std.	1920 — 24x80 plus status line 12 Std. 124 ASCII 7x10 dot matrix P146 green No — Std. Std. No Std. Std. No No No Std. Both std. Std. Std. Std. Std. No Std. Std. Line/screen std.	1920, 3168 — 24x80/132 14 Std. 128 ASCII + graph. 7x10 dot matrix P31 green No Std. Std. Std. No Both std. Std. Std. 3 std. Fwd./back std. Std. Std. Std.	1920 — 24x80 12 — 128 ASCII+graphics 7x9 dot matrix P31 green std.; P4 wh., PC134 amb. opt. No Std. Std. Std. No Std. Std. No Std. Std. Line/page std.	1920 4K opt(2);2K std.(3) 24x80 plus status line 12 std.; 15 opt. Std. 128 7x9 dot matrix P31 green std.; amber, white opt. No — Std. (2 only) Std. (2 only) Std. Std. (2 only) Std. (2 only) Std. (2 only) Up/down std. — Std. Std. Std. (2 only) Std. (2 only) Std. (2 only) Std. Std. (2 only) Std. (2 only) Std. (2 only)
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter (IBM 5251-style) 124 ASCII Std. 8 std. Std.	Typewriter (IBM 3278-style) 124 ASCII Std. 12 Std. Std.	Typewriter 128 ASCII Std. No Std.	Typewriter 128 ASCII Std. — —	Typewriter 128 ASCII Std. 11 (2); 12 (3) Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	No No No Std. —	No No Opt. Std. —	No No Opt. Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous — ASCII 110-19,200 Block No RS-232-C or 20mA No No	Half/full-duplex Asynchronous — ASCII 110-19,200 Block No RS-232-C or 20mA No No	Half/full-duplex Asynchronous TTY ASCII 80-19,200 Char./block No RS-232-C or 20mA No No	Half/full-duplex Asynchronous ANSI X3.64 ASCII 50-19,200 Char./block No Dual RS-232-C std.; RS-422, CL opt. No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C std.; 20mA, RS-422 opt. (2 only) Opt. (2 only) No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,095 — — — 5/83 — — Esprit, TRW	1,150 — — — 5/83 — — Esprit, TRW	995 — — — 10/83 12/83 — Esprit, TRW	695 — — — 5/83 — — Dow Jones/factory	640 (3) — — — 9/83 11/83 — Dow Jones, factory
COMMENTS	Emulates IBM 5251 when used with protocol converter	Emulates IBM 3278 Model 2 when used with protocol converter	Tektronix Plot 10 graphics opt.		

Alphanumeric Display Terminals

VENDOR AND MODEL	Falco TSA-100	Falco TS-2624	General Digital VuePoint	General Digital VuePoint II	Harris 8000
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. DEC VT100/VT52	Stand-alone — No No Std. Hewlett-Packard 2624	Stand-alone — Portable case Special order Opt. —	Stand-alone — Special order Opt. —	Cluster 32 No 3270 No Burroughs, Honeywell, Sperry
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920, 3188 1 page 24x80/132 12 No 128 ASCII 7x9 dot matrix P31 green std.; P4 wht./PC134 amb. No — Std. Std. Std. Std. Std. Std. 8 std. Std. Both std. No No Std. Std. Fwd./back std. Std. Std. Line/page std.	1920 16K 24x80 12 No 128 ASCII 7x9 dot matrix P31 green std.; P4 wht./PC134 amb. No — Std. Std. Std. Std. Std. 8 std. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Line/page std.	480 128K opt. 12x40 10 No 96 ASCII 5x7 dot matrix Gas plasma panel No No (or limited) No Std. Std. Std. No No Up std. 3 std., up to 51 opt. Std. Addressable only Std. No No Fwd. std. No No Char./line/screen/ partial screen std.	480 143K opt. 12x40 10 No 96 ASCII 5x7 dot matrix Orange or green gas plasma No No (or limited) No Std. Std. Std. No No Up std. 3 std., up to 143 Std. Addressable only Std. No No Forward std. No No Char./line/screen/ partial screen std.	480, 960, 1920 — 12x40/80, 24x80 12 No 96/128 ASCII 7x9 dot matrix P4 white No — Std. Std. No Std. No No No No Std. Std. Std. Std. Std. Std. Char./line/screen Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter 128 ASCII Std. 14 std. Std. No No Opt. Std. —	Typewriter 128 ASCII Std. 8 std. Std. No No Opt. Std. —	Opt. (Typewriter) 128 ASCII Std. Via touchscreen Via touchscreen No No No Std.; 2 I/O ports Audible alarm std.	Opt. 128 ASCII Std. Via touchscreen Via touchscreen No No No Std., 2 I/O ports Audible alarm std., self-test diag- nostics	Typewriter, data entry, others ASCII/EBCDIC Std. Up to 36 Std. Impact, 40-165 cps Beit, 200 lpm No Std. Hard disk
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character Opt. RS-232-C std.; 20mA, RS-422 opt. Opt. No 1,295 — — — 12/82 12/82 — Dow Jones/factory	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block Opt. RS-232-C std.; 20mA opt. Opt. No 1,995 — — — 12/82 12/82 — Dow Jones/factory	Full-duplex Asynchronous — ASCII 300-19,200 Character Opt. RS-232-C or 20mA No No 3,500 — — — 9/79 — — General Digital	Full-duplex Asynchronous — ASCII 300-19,200 Character Opt. RS-232-C, RS-422/3, RS-485, 20 mA, TTL No No 1,767 — — — 1/84 1/84 — General Digital	Half/full-duplex Async./sync. BSC, SNA/SDLC ASCII/EBCDIC 1200-9600 Char./block Std. RS-232-C No No Contact vendor — — — — 1976 Over 4200 systems Harris
COMMENTS			The VuePoint is a touch-input terminal with optional keyboard & printer	OEM targeted; options include expansion memory, power & memory assemblies, battery backed-up memory, 19-inch rackmount panel	An interactive terminal system with enhanced capabilities for local format storage & queued transaction handling

Alphanumeric Display Terminals

VENDOR AND MODEL	Hewlett-Packard 2626A	Hewlett-Packard 2625A	Hewlett-Packard 2645A	Hewlett-Packard 2628A	Hewlett-Packard 2627A
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. —	Stand-alone 32 3276/3278 Std. HP2623A Graphics Set, Tektronix 4014	Stand-alone — No No Std. —	Stand-alone 8 No No Std. HP2623A Graphics Set, TEK 4014	Stand-alone — No No Std. Tektronix 4010, ANSI X3.64
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 5 pages 24x80 12 Std. 128 ASCII 7x11 dot matrix P4 white std.; P31 green opt. No — Std. Std. Std. No Std. No Up/down/back std. Up to 5 No Both std. Std. Std. Std. 4 std. Fwd./back std. Std. Std. Char./line/screen std.	1920 Up to 6 pages 24x80 12 Std. 128 ASCII 7x11 dot matrix White std.; amber or green opt. No Opt. Std. Std. Std. No Up/down, smooth Up to 6 pages Std. Std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 4K std.; plus opt. 8K 24x80 11 No 128 ASCII 9x15 dot matrix P39 white No — Opt. Opt. No Both std. Std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 Up to 6 pages 24x80 12 Std. 128 ASCII 7x11 dot matrix White std.; amber or green opt. No Opt. Std. Std. Std. No Up/down, smooth Up to 6 pages Std. Std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 2 pages 24x80 12 Std. 128 ASCII 7x11 dot matrix Color 8 colors std. Std. Std. Std. No No Std. No Up/down 2 std. Std. Std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 8 std. (screen labelled) Std.	Typewriter; over- lays for IBM mode 128 ASCII/96 EBCDIC Std. 16 std. Std.	Data entry 128 ASCII Std. 8 std. Std.	Typewriter 128 ASCII Std. 16 std. Std.	Typewriter 128 ASCII Std. 8 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Impact, 32/180 cps No No Std.	RS-232-C, HP1B 120 cps opt. No Opt. HP1B printer	Various 120 cps opt. Opt. 7 opt. slots	RS-232-C, HP1B 120 cps opt. No RS-232-C, HP1B	Printer port std. Printer port std. RGB video opt. RS-232-C std. Digitizing graphics tablet
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Async./sync. ASCII ASCII 110-9600 Char./line/block Std. RS-232-C No No	Full-duplex Async./sync. IBM mode-BSC ASCII, EBCDIC 9600-19,200 Char./line/block Opt. RS232; HP dc. 422 std. No No	Half/full-duplex Asynchronous TTY ASCII 110-9600 Char./line/block Std. RS-232-C or 20mA	Full-duplex Async./sync. — ASCII Up to 19,200 Char./line/block Opt. RS-232-C std.; 20mA opt. No No	Full-duplex Asynchronous — ASCII 110-9600 Char./line/block No RS-232-C or RS-422 No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	4,400 — 26 — 7/80 7/80 — Hewlett-Packard	3,495 — — — 10/83 10/83 — Hewlett-Packard	4,600 — 22-30 — 9/76 9/76 Over 120,000 (264X) Hewlett-Packard	3,195 — — — 10/83 10/83 — Hewlett-Packard	5,975 — — — 11/82 11/82 — Hewlett-Packard
COMMENTS	Optional integral thermal printer (\$1,210);	Dual System Display offers HP and IBM compatibility; optional graphics, word processing, printer; multiple modes		Operates as a dedicated word processor with HP3000 HPword software	High-quality color raster display, graphics standard

Alphanumeric Display Terminals

VENDOR AND MODEL	Honeywell VIP 7201	Honeywell VIP 7301/ 7303/7307	Honeywell VIP 7305	Honeywell VIP 7814	Honeywell VIP 7815
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone 1 No No Std. Honeywell VIP	Stand-alone — No No Std. Honeywell	Stand-alone — No No No Honeywell VIP	Stand-alone — No No No Honeywell VIP	Stand-alone — No No No Honeywell VIP
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 80/24/1 24x80 12 Tilt opt. 96 ASCII/26 special 7x11 dot matrix P31 green std. No — Std. Std. No No Std. No Up std. No Std. Both std. — Std. No Std. Std. Std. Std.	2000 80/25/1 25x80 12 No 120 7x9 dot matrix P31 green std. No — Std. Std. No No Std. No Up/horiz. std.(7303) No Std. Both std. No Std. No Std. Std. Std. Std.	2000 80/25/1 25x80 12 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green No Std. Std. Std. No No Up/horizontal std. No Std. Both std. No Std. No Fwd./back std. Std. Std. Line/screen std.	2000 6K/72/3 24x80 12 Tilt opt. 106 ASCII/special 7x9 dot matrix P31 green std. No — Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.	2000 3 pages 24x80 15 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green No Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 7 std. Std.	Typewriter, data entry, WP 128 ASCII Std. 12 std. Std. (7303/7307)	Typewriter (multi- func., low-profile) 128 ASCII Std. 12 dual std. Std.	Typewriter 128 ASCII Std. 12 std. Std.	Typewriter 128 ASCII Std. 12 dual std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	— No No Std.	No No No —	No No No —	100 cps impact Various dot matrix No No 10 terminal cluster unit	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Full-duplex Asynchronous ASCII 7-bit ASCII 300-19,200 Char./line/block No RS-232-C or RS-422A	Half/full-duplex Asynchronous ASCII 7-bit ASCII 300-19,200 Character No RS-232-C, RS-422A 20mA, or MIL-188C	Half/full-duplex Asynchronous Honeywell VIP ASCII 300-19,200 Character No RS-232-C or RS-422	Half/full duplex Synchronous Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C	Half/full-duplex Async./sync. Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	795 — 20 See comments 12/82 2/83 — Honeywell	1,900 — 20 See comments 4/81 7/81 — Honeywell	1,900 — 20 22 6/83 8/83 1500 — Honeywell	2,700 — 25 See comments 11/82 1/83 — Honeywell	3,095 — 30 295 5/84 8/84 — Honeywell
COMMENTS	Honeywell Customer Assistance Maintenance Program (CAMP) available at \$80/year	Honeywell Customer Assistance Maintenance Program (CAMP) available at \$40/year; separate/interchangeable keyboards for standard conversational, WP, or data entry applications	Multi-function keyboard w/special overlays; eligible for Customer Assisted Maintenance Program (CAMP); choice of roll or non-roll keyboard w/adjustable tilt mechanism	Honeywell Customer Assisted Maintenance Program (CAMP) available at \$115/year; horizontal & vertical line drawing symbols std.; 100-line buffer print adapter; 1000-foot drive cap.	15-inch screen provides large size characters & clear graphics display; buffered 16K-byte printer adapter; 72 line vertical scrolling; eligible for Customer Assist Maint. (CAMP)

Alphanumeric Display Terminals

VENDOR AND MODEL	Honeywell VIP 7816	Honeywell VIP 7817	Honeywell VIP 7823/7831	Honeywell VIP 7824	Honeywell VIP 7825
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No No Honeywell VIP	Stand-alone — No No No Honeywell VIP	Stand-alone — No No No Honeywell VIP	Stand-alone — No No NO Honeywell VIP	Stand-alone — No No No Honeywell VIP
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	2000 3 pages 24x80 12 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green No Std. Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.	2000 3 pages 24x80 15 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green No Std. Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.	2000 3 pages 24x80 plus status line 12 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green No Std. Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.	2000 3 pages 24x80 12 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green No Std. Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.	2000 3 pages 24x80 15 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green No Std. Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 12 dual std. Std.	Typewriter 128 ASCII Std. 12 dual std. Std.	Typewriter (multi- func., low-profile) 128 ASCII Std. 12 dual std. Std.	Typewriter (multi- func., low-profile) 128 ASCII Std. 12 dual std. Std.	Typewriter (multi- func., low-profile) 128 ASCII Std. 12 dual std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Async./sync. Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A No No	Half/full-duplex Async./sync. Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A No No	Half/full-duplex Asynchronous Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A No No	Half/full-duplex Async./sync. Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A No No	Half/full-duplex Async./sync. Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	2,800 — 25 250 10/84 1/85 — Honeywell	3,095 — 30 295 10/84 1/85 — Honeywell	2,350 — 25 250 6/83 8/83 Approx. 1500 Honeywell	2,700 — 25 250 10/84 1/85 — Honeywell	3,095 — 30 295 10/84 1/85 — Honeywell
COMMENTS	Multiple mode terminal; can emulate VIP 7705R or VIP 7800 family; 16K buffered printer adapter; eligible for Customer Assisted Maintenance Program (CAMP); 72-line scrolling	Multiple mode terminal w/large screen emulates the VIP 7705 or VIP 7800 family; 16K buffered printer adapter; eligible for Customer Assisted Maintenance Program (CAMP)	72-line scrolling; buffered printer adapter; visual & form attributes may be stored in each position; multi-function keyboard w/application specific software; eligible for CAMP	Multi-function capability; horizontal & vertical line drawing symbols; 100-line buffer printer adapter; eligible for CAMP at \$115/year	15-in. screen provides large characters & clear graphics display; multi-function keyboard designed to accept application-specific keyboard overlay eligible for CAMP; 72-line vrt. scroll

Alphanumeric Display Terminals

VENDOR AND MODEL	Honeywell VIP 7826	Honeywell VIP 7827	Honeywell VTS 7710	Human Designed Systems Concept AVT+	Human Designed Systems Concept AVT-APL+
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No No Honeywell VIP	Stand-alone — No No No Honeywell VIP	Cluster 4 No No No Honeywell VIP	Stand-alone — No No Std. DEC VT100	Stand-alone — No No Std. DEC VT100
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	2000 3 pages 24x80	2000 3 pages 24x80	1920 — 24x80	1920, 3168 4 pages std.; 8 opt. 24x80/132	1920, 3168 4 pages std.; 8 opt. 24x80/132
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green	15 Tilt opt. 96 ASCII 7x8 upper/7x9 lower P31 green	12 Tilt std. 96 ASCII 8x12 dot matrix P39 green	12 Tilt std. 128 ASCII 7x9 (80)/5x7 (132) Amber std.; P31 green, P4 white opt. No Std. (VT100)	12 Tilt std. 128 ASCII/APL 7x9 (80)/5x7 (132) Amber std.; P31 green, P4 white opt. No —
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No Std. Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.	No Std. Std. Std. Std. Std. No Up/down std. 3 std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Std.	No — No Std. Std. No No No No No No No Fwd./back std. Std. Std. Char./line/screen std.	No Std. Std. Std. Std. No Up/down std. 4 std.; 8 opt. Std. Both std. Std. Std. 4 std. Fwd./back std. Std. Std. Char./line/screen std.	No Std. Std. No Std. No Up/down std. 4 std.; 8 opt. Std. Both std. Std. Std. 4 std. Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys	Typewriter (multi- func., low-profile) 128 ASCII Std. 12 dual std.	Typewriter (multi- func., low-profile) 128 ASCII Std. 12 dual std.	Typewriter 96 ASCII Std. See comments	Typewriter 128 ASCII Std. 46 std.	Typewriter 128 ASCII, APL Std. 46 std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit	Dot matrix, impact Various dot matrix No No 10 terminal cluster unit	100/160 cps impact 220 lpm belt Std. No —	No No Opt. 1 std., 2 opt. Shared printer interface	No No Opt. 1 std., 2 opt. Shared printer interface
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half/full-duplex Async./sync. Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A	Half/full-duplex Async./sync. Honeywell VIP ASCII 2400-9600 Block Std. RS-232-C or RS-422A	Half-duplex Synchronous Honeywell VIP ASCII Up to 9600 Block Std. RS-232-C	Half/full-duplex Asynchronous ASCII 50-9600 Char./block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII 50-9600 Char./block No RS-232-C std.; 20mA opt. No No
Integral modem Integral acoustic coupler	No No	No No	No No	No No	No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	2,800 — 25 250 10/84 1/85 — Honeywell	3,095 — 30 295 10/84 1/85 — Honeywell	1,250 4,535 63 — 4/81 4/81 — Honeywell	1,295-1,445 — — — — — — HDS, distributors	1,495-1,645 — — — — 11/82 12/82 — HDS, distributors
COMMENTS	Multiple mode terminal; emulates VIP 7705R or VIP 7800 family; can perform character mode, WP, & data entry func. on multi-function keyboard w/overlays eligible for CAMP; 72-line scrolling	Multiple mode terminal w/15-inch screen (56% larger image than 12-in.); multi-function keyboard can perform char. mode, WP, & data entry func.; emulates VIP 7705R & VIP 7815	Function codes obtainable via control key sequences	Non-volatile memory; networking between mult. comm. lines; self-test capability; multiple status lines (25th line); light-weight	Non-volatile memory; networking between mult. comm. lines; self-test capability; multiple status lines (25th line); light-weight

Alphanumeric Display Terminals

VENDOR AND MODEL	Icot 700	Icot 701	Informer 201/203/205	Informer 207	Informer 304 Series
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone/cluster — No 3278 No DEC VT100	Stand-alone/cluster — No 3278 No DEC VT100	Either 1(VT100);32(376) No IBM 3276/3278 BSC No DEC VT100	Either 1; 32; 8 Portable IBM 3276/3278 No DEC VT100	Stand-alone — No No Std. See comments
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920, 3696 — 24x80, 28x132 12 No 87 ASCII Multiple P31 green No — Std. Std. Std. Std. Std. No No No Std. Addressable only Std. Std. No Std. Std. Std. Std. Std.	560-3696 — 14x40, 14/25/33/44x 80, 17/31x64, 28x132 11 No 87 ASCII Multiple P31 green No — Std. Std. Std. Std. Std. No No No Std. Addressable only Std. Std. No Std. Std. Std. Std. Std.	1920 4K 24x80 plus status line 11 Tilt std. ASCII (VT100) 8x10 dot matrix P31 green std. No — Std. Std. Std. Std. Std. Std. (VT100 only) Up/down std. (VT100) No Std. Std. Std. Std. Std. Std. No Std.	1920 4K 24x80 plus status line 11 Tilt std. ASCII; full IBM set 8x10 dot matrix P31 green std. No — Std. Std. Std. Std. Std. Std. (VT100 only) Up/down std. (VT100) No Std. Std. Std. Std. Std. Std. No Std.	2048 32/16/4; 40/12/4 12x40, 24x80, 16x32/64 9 Std. 128 ASCII 7x9 dot matrix P4 white std.; P31 green opt. No — Opt. Std. Std. Std. Std. Std. No Up/down std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter (IBM 3278-style) — Std. Std. Std. No No Std. Opt. —	Typewriter — Std. Std. Std. Std. Std. Std. Opt. —	Typewriter 201; Data entry (203/205) ASCII(VT100); EBCDIC Std. on 203, 205 18 (VT100); 24 Std. on some models 120 cps No No Std. Light pen	Typewriter — ASCII(VT100); EBCDIC Std. on 203, 205 18 (VT100); 24 Std. 120 cps No No Std. Light pen	Data entry — 128 ASCII Opt. 14 std.; 2 levels each Std. No No Std. Opt. Light pen, bar code wand
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Full-duplex Asynchronous Async, BSC, SNA/SDLC ASCII 110-19,200 Character Std. RS-232-C or RS-422 No No 1,095 5,800-9,800 — — 1982 1982 — Icot	Full-duplex Asynchronous Async, BSC, SNA/SDLC ASCII 110-19,200 Character Std. RS-232-C or RS-422 No No 1,750 5,800-9,800 — — 1982 1982 — Icot	Full-duplex Async./sync. ANSI (VT100); BSC ASCII; EBCDIC 38.4K (VT100); 19.2K Char. (VT100); block Std.(376 & 378 only) RS-232-C; coax (378 only) Opt. No 1,090-3,900 4,000 (378 only) Contact vendor — 10/82 1/83 — Informer	Full-duplex Async.; Sync. ANSI; BSC ASCII; EBCDIC 38.4K (VT100); 19.2K Char. (VT100); block Std.(376 & 378 only) RS-232-C; coax (378 only) Opt. No 1,390-3,850 4,000 (378 only) Contact vendor — 10/82 1/83 — Informer	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block Both std. RS-232-C or 20mA No No 1,650-2,200 — — — — — Informer
COMMENTS	Built-in keypad calculator, alter- nate application sessions	Built-in keypad calculator, alter- nate application sessions	Models available with Informer VT100, 376, or 378 software packages	Available with Informer VT100, 376, or 378 software packages	Emulations include: ADDS Regent 100, DEC VT52, NCR 796-101/301, Data- point 3601, Data General 6053/D200

Alphanumeric Display Terminals

VENDOR AND MODEL	Informer 401	Informer 375/376	Informer 377/378	Intecolor E 8001 G/H/R	Intecolor ColorTrend
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No 3101 Std. —	Stand-alone — No 3275 No No	Cluster 8 No 3277/3278 No No	Stand-alone — No 3275 opt. Std. No	Stand-alone — No No Std. DEC VT100, ANSI X3.64
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 80/24/1 24x80 9 Std. 128 ASCII 7x9 dot matrix P4 white std.; P31 green opt. No — Std. Std. Std. Std. No Up/down std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 80/24/1 24x80 plus status line 9 std., 12 opt. Std. 96 7x9 dot matrix P31 green std., P4 white opt. No — Std. Std. Std. Std. No No Fwd./back std. Std. No Char./line/screen std.	1920 80/24/1 24x80 plus status line 9 std., 12 opt. Std. 96 7x9 dot matrix P31 green std., P4 white opt. No — Std. Std. Both std. Std. Std. No Fwd./back std. Std. No Char./line/screen std.	3840 80/48/2 48x80 19 No 64 ASCII/64 ISA 5x7 (G); 6x8 (H&R) Color 8 colors Std. No Std. No Std. Std. No Up std. 2 opt. No Both std. Opt. No No Fwd. std. Std. Std. Char. std.	1920 80/24/2 24x80 14 No 64 ASCII/64 ISA 5x7 dot matrix Color 8 colors Std. Std. Std. Std. No Up/down std. 2 std. No Both std. No No Std. Fwd./back std. Std. Std. Char./line/page std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Data entry 128 ASCII No 8 std. No	Data entry 96 EBCDIC Opt. 24 std. Std.	Data entry 96 EBCDIC Opt. 24 std. Std.	Typewriter 64 ASCII Std. 16 std. Std.	Typewriter 64 ASCII Std. 12 std.; 72 functions Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Std. Opt. —	30 cps dot mat. opt. No Std. Opt. Light pen	30 cps dot mat. opt. No Std. Opt. Light pen	55 cps impact opt. No No RS-232-C Light pen (H&R), digitizer (R), plotter (R) all optional	55 cps impact opt. No No RS-232-C; 20mA opt. Light pen opt.
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character Opt. RS-232-C or 20mA No No	Half/full-duplex Synchronous BSC EBCDIC 50-9600 Block Std. RS-232-C Opt. No	Half/full-duplex Synchronous BSC EBCDIC 50-9600 Block Std. RS-232-C Opt. No	Half/full-duplex Async.; sync. opt. ASCII ASCII Up to 9600 Character No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ANSI X3.64 ASCII, ANSI Up to 19,200 Character No RS-232-C or 20mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	690 — — — — — — Informer	1,950-2,350 — — — — — — Informer	1,700-2,050 5,000-5,400 — — — — — Informer	2,745/3,175/3,975 — — — — 1975/1979/1982 — Intecolor rep., service centers	1,295 — — — — 1984 1984 — Intecolor rep., service centers
COMMENTS		Models I, D, and S, and 201-205, including executive inquiry with hide-away keyboard	Models I, D, and S, and 201-205, including executive inquiry with hide-away keyboard; all models used with 374 controller	Resolution—160 H x 192 V; 480 H x 384 V (H&R); low resolution character cell graphics mode	

Alphanumeric Display Terminals

VENDOR AND MODEL	Intecolor 2427	Interaction Systems TT-150/TT-151	IBM 3101	IBM 3104	IBM 3178
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. Tektronix 4010 & 4027	Stand-alone — No No No —	Stand-alone — No No Std. —	Either — No 8775, 3276, 3278 No —	Cluster 32 No 3270 System No IBM 3278 Model 2
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 80/24/2 24x80 13 No 64 ASCII 5x7 dot matrix Color 8 of 64 colors Std. Std. Std. Std. Std. No Up/down std. 2 pages std. No Both std. No Std. Hori./ver./f./b.std. Std. Std. Char./line/page std.	1920 80/24/2 24x80 plus status line 15 Std. 128 ASCII; grph. opt 10x14 dot matrix P31 green std. No — Opt. Opt. Opt. Opt. Std. No Up/down, smooth std. 2 std.; up to 8 opt. Std. Addressable only Opt. No No Fwd. std. No No No	1920 — 24x80 plus status line 12 Std. 128 ASCII 7x14 dot matrix Green No — No No No Std. Addressable Std. No No Std. Std. (Mdl 20,22,23) Std. (Mdl 20,22,23) Std. (Mdl 20,22,23)	1920 — 24x80 plus status line 12 Std. 94 7x14 dot matrix White No — Std. Std. Std. Std. Std. No Std. Std. Std. Std. Std. Std. Char./field/screen std.	1920 — 24x80 12 Std. 94 7x14 dot matrix Green No — Std. Std. Std. Std. Std. No Std. Std. Std. Std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter 64 ASCII Yes 12 or 24 opt. Std. 55 cps impact opt. No No RS-232-C; 20mA opt. Light pen opt.	Typewriter (151) 64 ASCII (151) Std. (151) 20 std. (151) Std. (151) No No No Std. Touch-sensitive screen	Typewriter ASCII Std. (151) 8 std. Std. No No No Std. —	Typewriter, data entry EBCDIC Std. 10 (Model B1); 24 (Model B2) Std. Std. Std. Std. Std. Std. Audible alarm, key-lock, clock	Typewriter, data entry EBCDIC Std. 10/12 std. Std. Std. No No Std. Audible alarm, security keylock
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half/full-duplex Asynchronous ANSI X3.64 ASCII, ANSI Up to 19,200 Character No RS-232-C or 20mA No No 2,695 — — — 6/83 11/83 — Intecolor, service centers	Half/full duplex Asynchronous ASCII ASCII Up to 19,200 Character No RS-232-C, 20mA opt.	Half/full-duplex Asynchronous ASCII ASCII Up to 9600 Char./block No RS-232-C, 20mA, or RS-422 No No	Half/full-duplex Synchronous BSC/SDLC EBCDIC Up to 38,400 Block Std. RS-232-C No No 2,190-2,250 — — 95-100 3/82 — IBM	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-9600 Block Std. RS-232-C No No 1,660-1,720 5,380-16,650 — — 75-252 3/83 — IBM
COMMENTS		Touch-sensitive display terminal; can be operated in a public environment since all user controls are accessed thru keyed door; keyboard std. on TT-151	Six models; 10, 12, 13 (conversational); 20, 22, 23 (block mode/editing)	Model B1 equipped with 75-key data entry keyboard, Model B2 equipped with 87-key typewriter keyboard; for use with the 8100 Information System	Part of 3270 Information Display System; attaches to 3274 or 3276 control unit

Alphanumeric Display Terminals

VENDOR AND MODEL	IBM 3179	IBM 3180	IBM 3276	IBM 3278	IBM 3279
TERMINAL DESCRIPTION					
Standalone or cluster	Cluster	Either	Cluster	Cluster	Cluster
Maximum displays/controller	32	32 (Mod.1); 9 (2)	8	32	32
Transportability	No	No	No	No	No
IBM compatibility	3270 System	3278 (1); 5251 (2)	3270 System	3270 System	3270 System
Teletype compatibility	No	No	No	No	No
Other compatibility	IBM 3279-S2A/-S2B	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920-3564(1); 1920	960-3440	960-3564	1920, 2560
Memory capacity, no. char./lines/pages	—	—	—	—	—
Screen arrangement, lines x chars./line	24x80	24/32/43x80, 27x132 (Mod.1); 24x80 (2)	12/24/32/43x80	12/24/32/43x80, 27x132	24/32x80
Screen area, diagonal, inches	14	15	14	14	14
Tilt/swivel screen	Std.	Std.	No	No	No
Total displayable symbols	94 EBCDIC	94 EBCDIC	96 EBCDIC; 120 APL	64/96 EBCDIC; 120 APL	94 EBCDIC; 120 APL
Symbol formation	7x14 dot matrix	8x8/8x11 dot matrix	7x11/7x14 dot matrix	7x12/7x14 dot matrix	9x12 dot matrix
Character phosphor	Color	Green	White	White	Color
Color capability	4/7 colors	No	No	No	4/7 colors
Graphics	—	—	—	—	Opt.
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	No	No	No	No	No
Paging	No	No	No	No	No
Selectable cursor blinking	Std.	Std.	No	Std.	Std.
Addressable/readable cursor	Addressable only	Addressable only	Addressable only	Addressable only	Addressable only
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	No	No	No	No	No
Tabulation	Std.	Std.	Std.	Std.	Std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	No	No	No	No	No
Erase	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry, APL	Typewriter, data entry, APL	Typewriter, data entry, APL	Typewriter, data entry, APL	Typewriter, data entry, APL
Character/code set	EBCDIC	EBCDIC	EBCDIC	EBCDIC	EBCDIC
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	24 std.	24 std.	12/24 std.	12/24 std.	10-12 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Std.	Std.	Std.	Std.	Std.
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	Audible alarm, security keylock	—	Audible alarm, mag. slot reader, light pen, keylock	Audible alarm, mag. slot reader, light pen, keylock, I.D. reader	Audible alarm, magnetic slot reader, light pen, keylock
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Synchronous	Synchronous	Synchronous	Synchronous
Communications protocol	BSC, SNA/SDLC	BSC, SNA/SDLC	BSC, SNA/SDLC	BSC, SNA/SDLC	BSC, SNA/SDLC
Code	EBCDIC	EBCDIC	EBCDIC	EBCDIC	EBCDIC
Speed, bits/second	1200-9600	1200-9600	1200-9600	1200-9600	1200-9600
Format	Block	Block	Block	Block	Block
Multipoint operation	Std.	Std.	Std.	Std.	Std.
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C	RS-232-C
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, purchase	2,295	2,295(2); 2,195(1)	5,380-5,830	1,855-2,575	3,160-5,190
Controller, purchase	5,380-16,650	2,650-16,650	Included	5,380-16,650	5,380-16,650
Monthly prime-shift maintenance	—	—	30.50-32.00	10-14	20.50-22.00
Annual prime-shift maintenance	87-135	69-135	—	—	—
Date of announcement	3/84	3/84	1977	1977	10/79
Date of first production delivery	3/84	3/84	1977	1978	10/79
Display units installed to date	—	—	—	—	—
Serviced by	IBM	IBM	IBM	IBM	IBM
COMMENTS	Part of 3270 Information Display System; attaches to 3274 or 3276 control unit	Available in two models; Model 1 is part of 3270 Information Display System; Model 2 is part of 5250 Information Display System; Model 1 features multiple display capacities	Control unit/display station; part of 3270 Information Display System; supports up to 7 additional devices	Part of 3270 Information Display System; attaches to 3274 & 3276 control units	Part of 3270 Information Display System; attaches to 3274 or 3276 control unit

Alphanumeric Display Terminals

VENDOR AND MODEL	IBM 3290	IBM 5251	IBM 5291/5292	IBM 8775	ITT Courier 2700
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 32 No 3270 System No —	Either Up to 9 No 5250 System No —	Either Up to 9 No 5251-11 No —	Either — No Std. No —	Cluster 32 No 3278 No —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	5300, 9920 — 50x106, 62x160 10.7 x 13.4 Tilt std. 64/96 EBCDIC; 120APL 5x8/7x9 dot matrix Amber gas plasma No — Std. Std. Std. Std. Std. No Std. No Std. No Std. Addressable only Std. Std. Up to 16 partitions Std. Std. No Std. Std. No Char./line/screen std.	1920 — 24x80 12 No 96 EBCDIC; 188 opt. 8x16 dot matrix White No — No No No No No Std. Both std. Std. Std. No Std. Std. No Char./field/screen std.	1920 — 24x80 plus status line 12 Tilt std. 96 EBCDIC 7x11 dot matrix White 7 colors (5292) — Std. Std. Std. Std. Std. No Std. No Std. Both std. Std. Std. No Std. Std. No Char./field/screen std.	960-3440 — 12/24/32/43x80 12 Tilt std. 96 9x12/9x16 dot matrix White No — Std. Std. No Std. Std. No Std. Both std. Std. Std. Std. Std. No Std. Std. No Char./field/screen std.	1920-3564 1920-3564 char. 24/32/43x80, 27x132 14 No 96 std. 9x12/9x11/9x9 Green No — Std./opt. Opt. No No No No No Std. Both std. Std. Std. No Std. Std. No Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter, APL EBCDIC Std. 24 std. Std. Std. No No Std. Audible alarm, security keylock	Typewriter EBCDIC Std. 24 std. Std. Std. No Mag. stripe reader, selector light pen, aud. alarm, keylock	Typewriter EBCDIC Std. 24 command functions Std. Std. No Mag. stripe reader, selector light pen, keylock	Typewriter, data entry EBCDIC/APL Std. Std. (various) Std. Std. Std. Std. Std. Audible alarm, key- lock, clock	Typewriter, data entry 96 EBCDIC Std. 24 std. Std. Impact, 150-240 cps Belt, 600 lpm No Std. Light pen, slot reader
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-9600 Block Std. RS-232-C No No 7,100 5,380-16,650 30 210 3/83 — IBM	Half/full duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-9600 Block Std. RS-232-C, twinax cable Opt. No 2,135-3,040 2,650 18.50-40.00 — 1977 1978 — IBM	Half/full duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-9600 Block Std. RS-232-C Opt. No 1,975/4,950 2,650 — 216/357 7/82 — IBM	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 38,400 Block Std. RS-232-C No No Rent/purchase only — 20.00-24.50 10/78 8/79 — IBM	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No 2,400-2,800 5,000-24,500 — — 1980 — ITT Courier
COMMENTS	Part of 3270 Infor- mation Display System; attaches to 3274 control unit	Part of 5250 Infor- mation Display System; 5251-11 is remote cluster or local station; 5251-12 is remote cluster controller/ station; attach to 5294 control unit	5291 is a mono- chrome terminal; 5292 is a color version; part of 5250 Information Display System; attach to 5294 control unit	Workstation for IBM 8100 Information System; also at- taches to 4331 processor, 4300 & S/370	Part of C-270 Infor- mation Display System; attaches to 7601, 7411, & 7412 controllers; 2780 also attaches to IBM controllers

Alphanumeric Display Terminals

VENDOR AND MODEL	ITT Courier 2790	ITT Courier 1700	ITT Courier 1900	ITT Courier 9230/9232	ITT Courier 9236
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 32 No 3279 No —	Cluster 32 No 3178 No —	Cluster 32 No 3179 No —	Cluster 32 No 3180, 3278 No —	Cluster — No 3279 No —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 1920 char. 24x80 14 No 96 9x12 dot matrix Color 7 colors std. — Std./opt. Opt. No No No No No No No Std. Addressable only Std. Std. No Fwd./back std. Std. Std. Char./line/screen/ var. fields std.	1920 1920 char. 24x 80 12 Std. 96 7x8 dot matrix Green No — Std./opt. Std./opt. No No No No No No No Std. Both std. Std. Std. No Fwd./back std. Std. No Char./line/screen std.	1920 1920 char. 24x80 14 Std. 96 7x8 dot matrix Color 7 colors std. — Std./opt. Std./opt. No No No No No No No Std. Both std. Std. Std. No Fwd./back std. Std. No Char./line/screen std.	1920-3564 1920-3564 char. 24/32/43x80, 27x132 15 Std. 96 7x7/7x8/7x10 Green (9230); amber (9232) — Std. Std. No No No No No Std. Both std. Std. Std. No Fwd./back std. Std. No Char./line/screen std.	1920, 2560 1920 or 2560 char. 24/32x80 14 Std. 96 7x8/7x10 dot matrix Color 7 colors std. — Std. Std. No No No No No No No Std. Both std. Std. Std. No Fwd./back std. Std. No Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry 96 EBCDIC Std. 24 std. Std.	Typewriter, data entry 64 ASCII, 96 EBCDIC Std. 24 std. Opt.	Typewriter 96 EBCDIC Std. 24 opt. Opt.	Typewriter, data entry, APL EBCDIC Std. 24 std. Opt.	Typewriter, data entry, APL EBCDIC Std. 24 std. Opt.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Impact, 150-240 cps Belt, 600 lpm No No Light pen, slot reader	Up to 400 cps 300/600 lpm No No —	150-240 cps 600 lpm No No —	Up to 400 cps 300/600 lpm No No —	Up to 400 cps 300/600 lpm No No —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	3,100-3,350 5,000-24,500 — — — 1981 — ITT Courier	1,550 5,000-24,500 — — — 1983 — ITT Courier	2,295 5,000-24,500 — — 4/84 Fall 1984 — ITT Courier	2,180 5,700 & up — — 4/84 Fall 1984 — ITT Courier	4,050 5,700 & up — — 4/84 Fall 1984 — ITT Courier
COMMENTS	Part of C-270 Infor- mation Display System; attaches to 7601, 7411, & 7412 controllers	Part of C-270 & 9000 Series; connects to all ITT Courier controllers	Part of C-270 & 9000 Series; connects to all ITT Courier cont- rollers	Part of 9000 Series; attaches to 941X, 942X, & 944X controllers only	Part of 9000 Series; attaches to 941X, 942X, & 944X controllers only

Alphanumeric Display Terminals

VENDOR AND MODEL	Lear Siegler ADM 3A	Lear Siegler ADM 5	Lear Siegler ADM 11	Lear Siegler ADM 12	Lear Siegler ADM 22
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. ADM 3	Stand-alone — No No Std. ADM 3A	Stand-alone — No No Std. See comments	Stand-alone — No No Std. ADM 3A, ADM 5, ADM 31, ADM 32	Stand-alone — No No Std. See comments
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 1 page 24x80 12 No 64 ASCII; 96 opt. 5x7 dot matrix P4 white or P31 green No Opt. No No No No No Up std. No No Addressable only No No No No No No No No No	1920 1 page 24x80 12 No 128 ASCII 5x9 dot matrix P4 white or P31 green No Opt. No No No Up std. No No Addressable only No No No No No No No No No Line/screen std.	1920 — 24x80 plus status line 12 std.; 14 opt. Std. 128 ASCII 7x10 dot matrix P31 green; amber opt. No Business graphics No Std. Std. Std. Reduced std. Std. No Std. No Std. Both std. No No No No No No No Line/page/screen std.	1920 2 pages 24x80 plus status line 12 std.; 14 opt. Std. 128 ASCII 7x10 dot matrix P31 green std.; amber opt. No Business graphics Std. Std. Std. Reduced std. Std. No Std. 2 std. Std. Both std. Std. Std. Std. Std. Std. Std. Std. Line/page/screen std.	1920 1 page 24x80 plus status line 12 No 128 ASCII 7x11 dot matrix P31 green No — Std. Std. No Std. No Std. Both std. Std. Std. No Std. Std. Std. Std. Std. Line/page std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Teletype 128 ASCII No No Opt.	Teletype 128 ASCII No No Std.	Typewriter 128 ASCII Std. 4 std. Std.	Typewriter 128 ASCII Std. 16 std. Std.	Typewriter 128 ASCII Std. 7 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. Graphics, voice recognition opt.	No No No Std. Graphics, voice recognition opt.	No No No Std. —	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous — ASCII 75-19,200 Character No RS-232-C or 20 mA No No	Half/full-duplex Asynchronous — ASCII 75-19,200 Character No RS-232-C or 20mA No No	Half/full-duplex Asynchronous — ASCII 300-19,200 Character No RS-232-C or 20mA No No	Half/full-duplex Asynchronous — ASCII 300-19,200 Char./block No RS-232-C std.; 20 mA, RS-422 opt. No No	Half/full-duplex Asynchronous — ASCII 75-19,200 Char./block No RS-232-C or 20mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	695 — 17 — 5/75 8/75 — Lear Siegler	745 — 17 — 6/80 12/80 — Lear Siegler	695 — 17 — 5/83 6/83 — Lear Siegler	895 — 22 — 12/83 3/84 — Lear Siegler	695 — 19 — 6/82 9/82 — Lear Siegler
COMMENTS			Emulations include: LSI ADM 3A, ADDS Viewpoint & Regent 25, Hazeltine 1400, 1420, & 1500, DEC VT52; international character sets opt.	International character sets opt.	Emulations include: LSI ADM 3A, ADM 5, & ADM 31, ADDS Regent 25, Hazeltine 1500

Alphanumeric Display Terminals

VENDOR AND MODEL	Lear Siegler ADM 220	Lear Siegler 1178	Lee Data 1220/1221	Lee Data 1230/1231	Lee Data 1214
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. DEC VT220/VT100/ VT52, ANSI X3.64	Stand-alone — No 3278 Std. —	Cluster 32 No 3278 Std. DEC VT100/VT52, HP 2624B	Cluster 32 No 3279 No —	Cluster 32 No 3278 Std. DEC VT100/VT52. HP 2624B
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 1 page std., 4 opt. 24x80/132 plus status 12 std., 14 opt. Std. 94 ASCII 7x9 dot matrix P31 green or amber	1920 No 24x80 plus status line 12 std.; 14 opt. Std. 128 7x10 dot matrix P31 green std.; amber opt.	1920-3564 1 page 24/32/43x80, 27x132 15 Std. 128 7x9 dot matrix Green	1920/1920-3564 1 page 24x80 (1230); 24/32/ 43x80, 27x132 (1231) 15 Std. 128 7x9 dot matrix Color	1920-3564 1 page 24/32/43x80, 27x132 14 Std. 128 7x9 dot matrix Green
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter ASCII Std. 30 std. Std.	IBM 3278-style ASCII Std. 24 std. Std.	Typewriter, data entry, APL EBCDIC/ASCII Std. 24 std. Opt.	Typewriter, data entry, APL 96 EBCDIC Std. 24 std. Std.	Typewriter EBCDIC/ASCII Std. 24 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std.	No No No Std.	80-340 cps 300 lpm No Opt. Bar code reader, mag. stripe reader, light pen	80-340 cps 300 lpm No Opt. Bar code reader, mag. stripe reader, light pen	80-340 cps 300 lpm No Opt. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Full-duplex Asynchronous ANSI X3.64 ASCII 75-19,200 Block No RS-232-C No No	Half/full-duplex Asynchronous — ASCII 300-19,200 Character No RS-232-C std.; 20 mA, RS-422 opt.	Half/full-duplex Sync./async. BSC, SNA/SDLC, ASCII EBCDIC/ASCII 19,200(sy)/9600(as) Char./line/block Std. RS-232-C No No	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC 2400-19,200 Block Std. RS-232-C No No	Half/full-duplex Sync./async. BSC, SNA/SDLC, ASCII EBCDIC/ASCII 19,200(sy),9600(as) Char./line/block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,165 — — — 1984 1984 — Lear Siegler	995 — 24 — 12/83 3/84 — Lear Siegler	Contact vendor Contact vendor — — 8/79 9/79 — Lee Data	Contact vendor Contact vendor — — 4/82 4/82 — Lee Data	1,462-2,162 Contact vendor — — 7/84 7/84 — Lee Data
COMMENTS		Emulates IBM 3278 Model 2 when used with protocol con- verter	For use with Series 300 (3270) & Series 400 (3270/Async) controllers; 1221 contains all of the features of 1220 plus windowing	For use with Series 300 (3270) controll- ers; can be used with Series 400 controllers in 3270 mode only	For use with Series 300 (3270) & Series 400 (3270/Async) controllers

Alphanumeric Display Terminals

VENDOR AND MODEL	Liberty Freedom 110	Liberty Freedom 200	Liberty Freedom 220	Link 125	Link 150
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. TeleVideo 910, ADDS R25, LSI ADM 3A/5	Stand-alone — No No Std. TeleVideo 950, LSI ADM 31	Stand-alone — No No Std. DEC VT220/VT100/ VT52	Stand-alone — No No Std. See comments (ADDS, LSI, TVI, Wyse)	Stand-alone — No No Std. See comments (ADDS, LSI, TeleVideo)
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 — 24x80 plus status line; 24x132 opt. 12; 14 opt. Std. 128 ASCII 7x9 dot matrix P31 green std.; amber opt. No Line drawing set Std. Std. Std. Std. Std. No Up std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Line/page std.	1920 4 pages opt. 24x80 plus status line; 24x132 opt. 12; 14 opt. Std. 128 ASCII & graphics 7x9 dot matrix P31 green std.; amber opt. No Graphics char. set Std. Std. Std. Std. Std. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Std.	1920 132 or 80/24/1 24x80 std.; 24x132 opt. 12; 14 opt. Std. 128 ASCII + graph. 7x9 in 10x12 field P31 green std., amber opt. No Std. Std. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Std.	1920 2 pages 24x80 14 Std. 128 ASCII + graphic 7x10 dot matrix P31 green or P24 amber No Std. Std. Std. No Smooth/jump 2 opt. Std. Std. Std. Std. Std. Std. Std. Char./line/page std.	1920 4 pages 24x80 12 Std. 128 ASCII + graphic 7x9 dot matrix P31 green or P24 amber No Std. Std. Std. No Smooth/jump 4 opt. Std. Std. Std. Std. Std. Std. Std. Char./line/page std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 10 std. (shiftable to 20) Std.	Typewriter ASCII Std. 10 std. (shiftable to 20) Std.	Typewriter 128 ASCII Std. 10 std. (20 func- tions) Std.	Typewriter ASCII 32 std. Std.	Typewriter ASCII 22 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	No No No Std. —	Bidirectional No No No —	Bidirectional No No No —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII 110-19,200 Char./block No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 110-19,200 Char./block No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character No RS-232-C No No	Half/full-duplex Asynchronous — ASCII 50-38,400 Char./line/block No RS-232-C or 20 mA No No	Half/full-duplex Asynchronous — ASCII 50-19,200 Char./line/block No RS-232-C or 20 mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	595 — — — 3/84 4/84 Liberty Electronics, Sorbus	695-745 — — — 11/83 11/83 Liberty Electronics, Sorbus	795-845 — — — 6/84 8/84 Liberty Electron- ics, Sorbus	599 — 16 65 11/84 12/84 Dow Jones	745 — 16 65 1/83 2/83 5000 Dow Jones
COMMENTS	Also provides Haz- eltine 1420 amula- tion; 15 graphics characters; 8 for- eign character sets			Emulations include: ADDS Viewpoint, Lear Siegler ADM 3A & ADM 5, TeleVideo 925 & 910, Wyse WY- 50	Emulations include: TeleVideo 950, 925, 920, & 910, Lear Siegler ADM 3A & ADM 5, ADDS View- point

Alphanumeric Display Terminals

VENDOR AND MODEL	Matra Scanset 410/415/415HS	Megadata System 850	Memorex 2078	Memorex 2079	Memorex 2178
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. —	Stand-alone — No Opt. Opt. Opt.	Cluster 32 No 3278 No —	Cluster 32 No 3279 No —	Cluster 32 No 3178 No —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	960, 1920 — 24x40/80 plus status line 9 No 96 ASCII 5x9 dot matrix P4 white No Graphics char. set No No No No No No No No No — — No No No No No — — No No No —	2000 16 pages 25x80 15 Std. 256 11x15 dot matrix P31 green std.; PC144 amber opt. — Std. Std. Std. Std. Std. No Up/down std. Std. Std. Both std. Std. Std. 2 std. Fwd./back std. Std. Std. Char./line/screen std.	1920-3564 1 page 24/32/43x80, 27x132 15 Tilt std. 94; APL up to 222 9x12, 9x16 dot mat. P39 green, PLA amber — Std. Std. Std. Std. Std. No No Std. Std. Std. No Fwd./back std. Std. No Char./field/screen std.	1920, 2560 1920/2560 char. 24x80, 32x80 13 Tilt std. Up to 222 9x12 dot matrix P22 color 4/7 colors std. Opt. Std. Std. Std. Std. No No No Both std. Std. Std. No Fwd./back std. Std. No Char./field/screen std.	1920 1920 char. 24x80 12 Std. 94 7x14 dot matrix P39 green No No No No No No No Both std. Std. Std. No Fwd./back std. Std. No Char./field/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter ASCII No 6 std.; 24 functions No 120 cps dot matrix No No Std. —	Typewriter 128 ASCII No 96 std. Std. 30-350 cps impact No Opt. 3 std. Tape punch, audible alarm, dual diskette drive	Typewr., data entry, APL, attr. select EBCDIC/ASCII/APL Std. 10/12/24 std. Std. Impact, up to 350 cps No No Std. Light pen, ext. highlighting, APL, graph., secur. key-lock, audible alarm	Typewr., data entry, APL, attr. select EBCDIC/ASCII/APL Std. 10/12/24 std. Std. Up to 350 cps impact No Opt. Std. Lgt. pen, alarm, ext. highlighting, graph. APL, keyboard num. lock, secu. lock	Typewriter, data entry 96 EBCDIC Std. 24 std. Std. (Typewriter) 120 cps impact No No No —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half/full-duplex Asynchronous ASCII ASCII 75-1200 Character No RS-232-C 415 and 415HS only No 495; 649; 1,095 — — 2/82 — Matra	Half/full-duplex Async./Sync. To spec. ASCII/EBCDIC 50-19,200 Char./block Std. RS-232-C Opt. No 1,700-2,800 — 20-50 — 10/81 Megadata, third party	Half/full-duplex Synchronous BSC/SDLC ASCII/EBCDIC/APL 1200-56,000 Block Std. RS-232-C; coax A No No 1,795-2,095 3,595-13,595 10-14 — 7/79 2/80 Memorex	Half/full-duplex Synchronous BSC/SDLC ASCII/EBCDIC/APL 1200-56,000 Block Std. RS-232-C; coax A No No 2,295-2,595 3,595-13,595 16-18 — 8/82 12/82 Memorex	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-56,000 Block Std. Coax A No No 1,485 — — 102 4/84 8/84 Memorex
COMMENTS	Personal information terminals; features include auto dial, speaker, & graphics char.; Model 415 includes built-in modem formerly marketed by Tymshare	8 bit microprocessor based terminal features noiseless operation and low power requirements; 2K EAROM for user-selection of transmission rate, parity mode, stop bits, etc.	Part of 207X Display System; includes: tiltable display, anti-glare screen, audible alarm, un-protected field indicator, upper/lower case; attaches to 2074 & 2076 controllers, plus IBM	Part of 207X Display System; includes: tiltable display, anti-glare screen, audible alarm, un-protected field indicator, upper/lower case; attaches to 2074 & 2076 controllers plus IBM	Modular design; etched, non-glare screen; automatic dimming; mono/dual case; audible alarm un-protected field indicator; line & column indicator; part of 207X Display System

Alphanumeric Display Terminals

VENDOR AND MODEL	Microdata Prism IV	NCR 7900 Model 1	NCR 7900 Model 3	NCR 7901	NCR 7910
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. —	Stand-alone — No No Std. —	Stand-alone — No No Std. —	Stand-alone — No No Std. —	Stand-alone — No No Std. No
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 80/25/1 25x80 12 No 96 7x9 dot matrix P31 green std. No — No No No Std. No Std. No Std. No Std. No Std. Both std. Opt. No No Fwd. std. No No Line/screen std.	2000 — 25x80 12 Std. 64/96/128 7x7 dot matrix Amber std. No — Std. Std. No No Std. No Std. Addressable only No No No No No No No Line/screen std.	2000 — 25x80 12 No 128 ASCII 7x7 dot matrix P31 green std. No — Std. Std. No No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 — 24x80 12 Tilt std. 96 ASCII 5x7 dot matrix P31 green std. No — Std. Std. No No Std. Addressable only No No No No No No No Screen std.	2000 12K 25x80/132 15 Std. 128 ASCII, 32 graph. 7x9, 5x9 dot matrix Amber std. No Graphics char. set Std. Std. Std. Std. Std. Std. Up/down std. 4 pgs std. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 96 ASCII Std. No Std.	Typewriter 64/96/128 ASCII Opt. 1 key (96 functions) Std., touch-tone opt.	Typewriter 128 ASCII Opt. No Std., touch-tone opt.	Typewriter 96 ASCII Std. No Std.	Typewriter 128 ASCII Std. — Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Opt. No No Std. —	Thermal/impact No No Std. —	No No No Std. —	Serial interface No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Character No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 50-9600 Line/page Both std. RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 110-19,200 Character No RS-232-C No No	Half/full-duplex Asynchronous TTY ASCII — — No RS-232-C, RS-422 opt. No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,295 — — — — 1/80 — Microdata	1,500 — 19 — — 6/79 — NCR	3,500-3,670 — 33 — — — — NCR	850 — 15 — 2/82 5/82 — NCR	1,995 — 18 — 9/83 9/83 — NCR
COMMENTS			Parallel interface std.		96 Int'l symbols, conforms to ANSI X3.64 and NCR 7900-1/-4

Alphanumeric Display Terminals

VENDOR AND MODEL	NCR 7950	Nixdorf 8278	Northern Telecom 298	Paradyne 9440	Paradyne 9476
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 32 No 3270 No No	Cluster 256 No 3278 No —	Cluster 16 No 3278 No —	Either 3 No 1052 No —	Either 32 No 3276 No —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920, 2560, 3564 — 24/32x80, 27x132 15; 14 (color) Std. 96 ASCII 7x9 dot matrix P31 green std., amber opt.; color 7 colors std. — Opt. Opt. Opt. Opt. Opt. No No Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Char./line/screen std.	1920 — 24x80 12 Opt. 96 EBCDIC 7x9 dot matrix Amber No No No No Std. Both std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Line/screen std.	1920, 2560, 3440 — 24/32/43x80 15 No 64, 96 7x9 dot matrix Green No — No No Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Char./screen std.	1920 — 24x80 12 Tilt std. 128 ASCII/EBCDIC 7x14 dot matrix P39 green No — No No Std. No No Both std. No Std. No No No No No Std.	1920 — 24x80 15 Tilt std. 128 ASCII/EBCDIC 8x16 dot matrix P39 green No — Std. Std. Std. Std. Std. No Std. Both std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry ASCII/EBCDIC Std. 24 std. Std.	Typewriter, data entry, enhanced 96 EBCDIC Std. 12-24 std. Std.	Typewriter, data entry, keypunch ASCII/EBCDIC Std. 12 opt.	Typewriter ASCII Std. 24 std.	Typewriter, data entry, WP ASCII/EBCDIC Std. 24 std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	200 cps matrix No No No Audible alarm	40/100/150/210 cps 300 lpm steel band No No Audible alarm, security keylock	Impact, 66-180 cps No No Std. ID badge reader, light pen	Impact No Opt. No Light pen, keylock	45/150 letter/dot 300/600 band Opt. Opt. Light pen, keylock
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Synchronous SNA/SDLC ASCII/EBCDIC 1200-9600 Block std. Std. RS-232-C No No	Half-duplex Synchronous HDLC EBCDIC Up to 9600 Block Std. RS-232-C/SAS No No	Half/full-duplex Synchronous BSC, SNA/SDLC ASCII/EBCDIC 1200-9600 Block Std. RS-232-C No No	Half/full-duplex Asynchronous Paradyne SDLC ASCII/EBCDIC Up to 19,200 Character Std. RS-232-C No No	Full-duplex Synchronous Paradyne SDLC ASCII/EBCDIC Up to 256KB Block Std. RS-232-C Opt. No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,395 6,000 46-75 — 7/83 7/83 — NCR	1,610 (8278) 12,850 (8274) 11 132 11/82 6/83 3500 Nixdorf	Contact vendor Contact vendor — — — 2/81 — NTI	3,000 1,000 27 — 11/80 1/81 200 Paradyne	5,850 2,500 30 — 11/80 1/81 400 Paradyne
COMMENTS		Components of 8270 Compatible Display System; concurrent local & remote device support; no remote software for controller requir- ed; connects to 8274 controller	Part of 290 Display System; attaches to 294 controller		All remote connect- ed devices appear as local channel attached; no need for remote software; Paradyne CRTs use loop technology

Alphanumeric Display Terminals

VENDOR AND MODEL	Paradyne 9478	Paradyne 7811	Perkin-Elmer Model 6100	Perkin-Elmer Model 6312	Phase Information Machines P3278
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Either 32 No 3278 No —	Stand-alone — No Emulation program Std. TeleVideo 910, Lear Sieglar ADM 31	Stand-alone — No No Std. —	Stand-alone — No No Std. —	Cluster 32 No 3278 — Std.
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920 — 24x80	1920 — 24x80	1920 — 24x80	1920 — 2 pages opt. 24x80	1920 — 24x80 plus status line
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	15 Tilt std. 128 ASCII/EBCDIC 8x16 dot matrix P39 green	12 Std. 128 ASCII 8x10 dot matrix P39 green	12 Std. 128 ASCII 7x9 dot matrix P31 green or P134 amber	12 Std. 128 ASCII 7x9 dot matrix P31 green or P134 amber	12 Std. 128 EBCDIC 7x14 dot matrix P42 green
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — Std. Std. Std. Std. Std. No No No Std. Both std. Std. Std. No Std. Std. No Std. No Std.	No Graphics char. set Std. No No Reduced std. Std. No Std. No No Std. Both std. No Std. No No No No Std.	No 96 char. std. No Std. Std. No Std. Up, smooth (opt.) 1 std. Std. Std. No No Std. No No No No No Line/page std.	No 32 char. std. Std. Std. Std. No Std. Up, smooth (opt.) 2 opt. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Char./line/page std.	No — Std. Std. Std. Std. Std. No No Std. Both std. Std. Std. Std. Std. Std. Std. Std. No No Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry, WP ASCII/EBCDIC Std. 24 std. Std.	Typewriter ASCII Std. 14 std. Std.	Typewriter 128 ASCII Std. 4 std. (8 func- tions) Std.	Typewriter 128 ASCII Std. 16 std. (32 func- tions) Std.	Typewriter, data entry EBCDIC Std. 24 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	45/150 letter/dot 300/600 band Opt. Opt. Light pen, keylock	Std. Std. No Std. —	No No No Std. —	No No No Std. —	No No No Std. Light pen, magnetic card reader
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Full-duplex Synchronous Paradyne SDLC ASCII/EBCDIC 256KB Block No RS-232-C Opt. No	Full-duplex Asynchronous — ASCII 300-19,200 Character No RS-232-C	Half/full-duplex Asynchronous — ASCII 300-19,200 Character No RS-232-C std.; 20 mA opt. No No	Half/full-duplex Asynchronous — ASCII 300-19,200 Char./line/page/mes No RS-232-C std.; 20 mA opt. No No	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC 1200-9600 Block Std. RS-232-C No No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	3,000 4,000 20 — 11/80 1/81 Over 1200 Paradyne	695 — — — 3/84 3rd Q/84 Paradyne	950 — 15 — 9/83 11/83 Perkin-Elmer	1,320 — 18 — 6/84 9/84 Perkin-Elmer	q 1,545 — — 12/82 1/83 Third party
COMMENTS		Attaches to Paradyne's System 8400 and networking multiplexers; func- tions as 3278 via emulation program in 8400; graphics & foreign language characters			Lightweight (31 pounds); designed for user mainte- nance; DIN compat- ible; auto video shut-down; IBM compatible

Alphanumeric Display Terminals

VENDOR AND MODEL	Phaze Information Machines P9020	Plantronics Vuphone 3200 Series	Plantronics Vuphone 3300 Series	Plantronics Vuset DS150C/DS150E	Plessey PT-220
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Either 32 — IBM 3278/IBM P.C. No Std.	Stand-alone — Portable case No Std. —	Stand-alone — Portable case No Std. —	Stand-alone — No No Std. —	Stand-alone — No No Std. DEC VT220/VT100, ANSI X3.64
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 To 360K 24x80 plus status line 12 Std. 256 EBCDIC, 256 ASCII 7x14 dot matrix P42 green Opt. — Std. Std. Std. Std. No No No No No No No Both std. Std. Std. No Std. Std. No Char./line/screen std.	32 700 chars. 1x32 7x1 No 55 Baudot/ASCII 14 segment Vacuum fluorescent No — No No No No No Right to left No No No No No No No No No No Screen std.	32 8K chars. 1x32 7x1 No 55 Baudot/ASCII 14 segment Vacuum fluorescent No — No No No No No Right to left No No No No No No No No No No Screen std.	128 16/8/1 8x16 3 No 64 ASCII 5x7 dot matrix P4 white No — No Std. No No No Std. Up/down std. No No No No No No No No No No Screen std.	1920, 3168 24x80/132 12 Std. 128 7x10 in 10x10 cell P4 white std.; P31 grn., P22 amb. opt. No Line drawing std. Std. Std. No Std. No Std. Std. Std. Std. Std. No Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry EBCDIC Std. 24 std. Std.	Typewriter 58 Baudot/56 ASCII No No	Typewriter 58 Baudot/56 ASCII No Yes	Typewriter 96 ASCII Std. No	Typewriter ASCII Std. 4 std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. Light pen, magnetic card reader	No No No Printer & tape —	No No No Printer —	No No No Std. Mag. stripe reader (DS 150E)	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Async./sync. BSC, SNA/SDLC, ASCII EBCDIC/ASCII 1200-9600 Block Std. RS-232-C No No	Half-duplex Asynchronous TTY Baudot & ASCII 45/110 Character No Modem Std. Std.	Half/full-duplex Asynchronous TTY Baudot & ASCII 45/110 Character No Modem Std. Std.	Half/full-duplex Asynchronous Char. oriented ASCII 300; 110/300/1200 Character No RS-232-C Opt. No	Half/full-duplex Asynchronous ASCII/ANSI ASCII 75-19,200 Character No RS-232-C or 20 mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	q 4,250 — — — 9/83 11/83 — Third party	350-411 — — 1/81 3/81 6,000 Bell System, Plantronics	700-750 — — 8/82 3/83 — Plantronics	998/925 — — — 1/72; 8/82 3/72; 2/83 12,000/new Bell System (DS 150C), Plantronics	Contact vendor — — — 1984 1984 — Plessey
COMMENTS	Designed for user maintenance; modular design; ergonomic features DIN compat- ible; auto video shutdown, compatible with IBM P.C.; parallel printer port				

Alphanumeric Display Terminals

VENDOR AND MODEL	Qume QVT 103	Qume QVT 108	Qume QVT 109	Racal-Milgo 4010 8A1	Racal-Milgo 8015S
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. DEC VT100/132, VT52	Stand-alone — No No Std. TeleVideo 912/920, 925	Stand-alone — No No Std. ADDS Viewpoint	Stand-alone — No No Bell 8A1 (40/3) —	Stand-alone — No No Bell 8A1 —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920, 3168 2 pages std. 24x80/132 14 Std. 128 ASCII 7x9 in 10x12 cell Green std.; amber opt. No 15 graphics symbols Std. Std. Std. Std. Std. Std. Smooth std. 2 std., up to 4 opt. Std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen opt.	1920 2 pages 24x80 plus status line 12 std.; 14 opt. Std. 128 ASCII 7x9 in 9x12 cell Green std.; amber opt. No 15 graphics symbols Std. Std. Std. Std. Std. No Std. 2 std. Std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.	1920 1 page 24x80 plus status line 14 Std. 128 ASCII 7x9 in 9x12 cell Green std.; amber opt. No 15 line draw symbol s Std. Std. Std. Std. Std. No No Smooth & jump 1 page Std. Std. Std. Std. Std. Std. Std. Std. Std. Char./line/screen std.	1920 3 std.; up to 8 opt. 24x80 15 Std. 127 ASCII 7x9 dot matrix Green std. No — Std. Std. Std. No No Std. 3 std., 8 max. No Addressable only Std. Std. Std. No Fwd. std. Std. (also word) Std. Char./line/screen/ word std.	1920 8 pages 24x80 15 Std. 64/96 ASCII 7x9 dot matrix Green std. No — No Std. Std. No No Std. 8 std. No Addressable only Std. Std. Std. No Fwd. std. Std. (also word) Std. Char./line/screen/ word std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 4 std. (12 func- tions) Std.	Typewriter 128 ASCII Std. 11 std. (22 func- tions) Std.	Typewriter 128 ASCII Std. 19 std. (38 func- tions) Std.	Typewriter ASCII Std. 6 std. Opt.	Typewriter ASCII Std. 6 std. Opt.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	No No No Std. —	160/200 cps matrix 200/300 lpm No Std. 120 cps 80-col. desk-top printer	160/200 cps matrix 200/300 lpm No Std. 120 cps 80-col. desk-top printer
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Char./block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Char./block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Char./line/block No RS-232-C, RS-422, RS-423, or 20 mA opt. No No	Half/full-duplex Asynchronous 8A1 ASCII Up to 4800 Block Std. RS-232-C No No	Half/full-duplex Async./sync. 8A1 ASCII Up to 1800/4800 Block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,095 — — — 12/82 1/84 — Qume	695 — — — 12/82 10/83 — Qume	795 — — — 7/84 10/84 — Qume	3,555 — 35 — 4/80 7/80 — Over 1,350 Racal-Milgo	Contact vendor — — — 8/84 8/84 — Racal-Milgo
COMMENTS	Foreign character sets, screen saver automatic shutoff	Foreign character sets, screen saver automatic shutoff	Capacitive keyboard and non-embedded attributes; compose feature for foreign characters	One-, three-, & five-year leases also available	

Alphanumeric Display Terminals

VENDOR AND MODEL	Racal-Milgo 8220S	Racal-Milgo 4276	Racal-Milgo 8278	Radio Shack DT-1	Radio Shack DT-100
TERMINAL DESCRIPTION					
Standalone or cluster	Stand-alone	Stand-alone	Cluster	Stand-alone	Stand-alone
Maximum displays/controller	—	1	32	—	—
Transportability	No	No	No	No	No
IBM compatibility	No	3276/3275	3278	No	No
Teletype compatibility	No	No	No	Std.	Std.
Other compatibility	Sperry	—	Racal-Milgo 4270 Series	ADDS, Hazeltine, LSI, Televideo	DEC VT100, ANSI X3.64
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920-3564	1920	1920, 3168
Memory capacity, no. char./lines/pages	1 page	—	—	—	—
Screen arrangement, lines x chars./line	24x80	24x80	24/32/43x80, 27x132	24x80	24x80/132
Screen area, diagonal, inches	15	15	15	12	14
Tilt/swivel screen	Std.	Std.	Std.	No	Std.
Total displayable symbols	127 ASCII	96 ASCII/EBCDIC	128 ASCII	—	128 ASCII
Symbol formation	7x9 dot matrix	7x9 dot matrix	7x8/7x9 dot matrix	—	—
Character phosphor	Green std.	Green std.	Green	White	White
Color capability	No	No	No	No	No
Graphics	—	—	—	—	—
Programmable field/char. highlighting via:					
Underline	Std.	No	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	No
Blank	Std.	Std.	Std.	Std.	No
Bold	No	No	No	No	Dim std.
Reverse	No	No	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	No	No	No	Std.
Paging	No	No	No	No	No
Selectable cursor blinking	No	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Std.	Std.
Protected format	Std.	Std.	Std.	No	No
Partial screen transmit	Std.	Std.	Std.	No	No
Split screen/windows	No	No	No	No	No
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back std.	Std.	Std.
Character insert/delete	Std.	Std.	Std.	No	No
Line insert/delete	Std.	No	No	No	No
Erase	Std.	Char./line/screen std.	Char./line/screen std.	Std.	Std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter, data entry	Typewriter, data entry, TSO	Typewriter	Typewriter (DEC VT220 style)
Character/code set	ASCII	ASCII/EBCDIC	128 ASCII	ASCII	ASCII
Detachability	Std.	Std.	Std.	No	Std.
Program function keys	4 std.; 22 opt.	24 std.	24 std.	No	16 std.
Numeric keypad	Opt.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	160/200 cps matrix	160/200 cps matrix	160/200 cps matrix	No	No
Line printer, type and speed	200/300 lpm	200/300 lpm	200/300 lpm	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	No	Std.	Std.
Other vendor-supplied devices	—	120 cps, 80-col. desk-top printer	120 cps desk-top printer	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Async./sync.	Synchronous	Synchronous	Asynchronous	Asynchronous
Communications protocol	Univac U200/UTS20	BSC, SNA/SDLC	BSC, SNA/SDLC	ASCII	ASCII/ANSI
Code	ASCII	EBCDIC/ASCII	EBCDIC/ASCII	ASCII	ASCII
Speed, bits/second	Up to 9600	9600	9600	85-19,200	Up to 19,200
Format	Block	Block	Block	Character	Character
Multipoint operation	Std.	Std.	Std.	No	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C, parallel	RS-232-C
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, purchase	Contact vendor	3,550	1,640-2,556	699	795
Controller, purchase	—	—	—	—	—
Monthly prime-shift maintenance	—	35	—	—	—
Annual prime-shift maintenance	—	—	—	—	—
Date of announcement	8/84	9/80	3/83	1/82	7/84
Date of first production delivery	8/84	1/81	1st quarter 1983	4/82	7/84
Display units installed to date	—	2,000	536	—	—
Serviced by	Racal-Milgo	Racal-Milgo	Racal-Milgo	Radio Shack	Radio Shack
COMMENTS		One-, three-, and five-year leases also available; part of 4270 System	Screen protect to prevent phosphor burn; attaches to 4274 controller	Available at selected Radio Shack stores and dealers	Available at selected Radio Shack stores & dealers; for use with Model 16 computer running TRS-XENIX

Alphanumeric Display Terminals

VENDOR AND MODEL	RCA VP-3301/VP-3303	RCA VP-3501	RCA VP-4801	RCA VP-5801	Soroc Challenger 530
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone 1 Briefcase Std. —	Stand-alone 2 Briefcase Std. —	Stand-alone — Briefcase Std. —	Stand-alone 2 Briefcase No Std. ADDS Viewpoint, Texas Instruments	Stand-alone — No No Std. Lear Siegler ADM 3
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	960 — 24x40, 12x20 — Opt. 95 ASCII 6x8 dot matrix — 8 colors NTSC — No Std. Std. No Std. Std. Up std. No Std. Both No No No Fwd. std. Std. No Line, screen std.	960 — 24x40, 12x20 — Opt. 95 ASCII 6x8 dot matrix — 8 colors NTSC — No Std. Std. No Std. Std. Up std. No Std. Both No No No Fwd. std. Std. No Line, screen std.	1920 — 1 page 24x80 12 No 95 ASCII 7x8 dot matrix P31 green — No — No Std. Std. Both No — Fwd./back opt. Std. No Line, screen std.	960, 1920 — 1 page 24x40/80, opt. status line 12 No — 7x8 dot matrix P31 green — No 2x3 block matrix — No Std. Std. No — No Std. Both std. No No No Fwd./back std. Std. Std. Char./line/screen std.	1920 — 1 page 24x80 plus status line 12 Std. 128 5x9 dot matrix P31 green std. — No Std. Std. Std. No Std. Up std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Membrane, typewriter 128 ASCII Std. No Std.	Membrane, typewriter 128 ASCII Std. No Std.	Membrane, typewriter 128 ASCII Std. 8 std. Std.	Typewriter 64 ASCII Std. 8 user programmable Std.	Typewriter 128 ASCII Std. 14 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Std. Std. No	No No Std. No Acoustic coupler	No No Std. Std. Acoustic coupler	No No No No Acoustic coupler	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII 110-19,200 Character No RS-232-C No No	Half/full-duplex Asynchronous ASCII 300 Character No 20 mA Std. Opt.	Half/full-duplex Asynchronous ASCII 110-9600 Character Std. RS-232-C, 20mA, or parallel Opt.	Half/full-duplex Asynchronous — ASCII Up to 9600 Character No RS-232-C Std. No	Half/full-duplex Asynchronous ASCII ASCII 110-36,400 Char./line/block No RS-232-C or 20mA Opt. No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	439/449 — — — 4/81 4/81 Over 5000 Factory	498 — — — 11/81 11/81 Over 3000 Factory	498 — — — 6/83 9/83 — Factory	798 — — — 11/84 1/85 — Factory	595 — — — 1/83 1/83 — Soroc
COMMENTS				Built-in 1200/300 bps direct connect modem; auto dial, auto logon capa- bility	

Alphanumeric Display Terminals

VENDOR AND MODEL	Soroc Challenger 540	Soroc Challenger 525	Sperry UTS 10	Sperry UTS 20	Sperry UTS 30
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. Basic IV, Alpha Micro	Stand-alone — No No Std. TeleVideo 925	Stand-alone — No No Std. —	Both 31 — 3270 opt. No Uniscope	Stand-alone — No No No Uniscope
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 1 page 24x80 plus status line 12 Std. 128 5x9 dot matrix P31 green std. No Std. Std. Std. No Std. No Up std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 1 page 24x80 plus status line 12 Std. 128 5x9 dot matrix P31 green std. No Std. Std. Std. No Std. No Up std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 1920 char. 24x80 12 Opt. 128 ASCII 7x11 dot matrix P31 green No — No No No No Up opt. No Over char. Both std. Std. Std. No Std. (Block mode) Std. Std. Char./line/screen std.	1920 4000 char. Up to 24x80, plus status line 12 Opt. 96 ASCII 7x11 dot matrix P31 green No — No Std. No Std. No Up/down std. 2 std. Over char. Both std. Std. Std. No Std. Std. Std. Char./line/screen std.	1920 4000 char. 24x80 plus status line 12 Opt. 96 ASCII 7x11 dot matrix P31 green No — Std. Std. Std. Std. No Up/down std. 2 std. Over char. Both std. Std. Std. No Std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 16 std. Std.	Typewriter 128 ASCII Std. 20 std. Std.	Typewriter, expanded function 128 ASCII Std. 12 std. Opt.	Typewriter, expanded function 96 ASCII Std. 22 std. Opt.	Typewriter, expanded function 96 ASCII Std. 22 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	80 cps impact No No No Magnetic stripe reader	80/200 cps impact No No No Magnetic stripe reader	40/160 cps No No No Magnetic stripe reader
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII 110-36,400 Char./line/block No RS-232-C or 20 mA Opt. No	Half/full-duplex Asynchronous ASCII ASCII 110-36,400 Char./line/block No RS-232-C or 20 mA Opt. No	Half/full-duplex Asynchronous TTY ASCII Up to 9600 Char./block No RS-232-C std.; 20mA opt. No No	Half-duplex Synchronous Uniscope/UTS 400 ASCII Up to 9600 Block Std. RS-232-C No No	Half-duplex Synchronous Uniscope ASCII Up to 9600 Block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	895 — — — 6/83 6/83 — Soroc	895 — — — 5/84 5/84 — Soroc	1,428-1,720 — — 91 6/80 3/81 Over 5000 Sperry	1,405-2,227 7,000-10,520 26-33 — 6/80 10/80 Over 35,000 Sperry	2,277 — — 29 — 6/83 9/83 — Sperry
COMMENTS			Operator selectable parameters	5-year lease avail.; operator-selectable parameters; customer set-up; UTS 20W cluster workstation attaches to UTS 4020 or UTS 4040 cluster controller	Editing/programmable terminal

Alphanumeric Display Terminals

VENDOR AND MODEL	TEC DP-84	Tektronix 4025A	Tektronix 4100 Series	Telegenix 1602	Telegenix 8024
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — Portable No No See comments	Stand-alone — No No Std. DEC VT100 opt.	Either — No No Std. DEC VT100	Stand-alone — Portable case opt. No Std. ANSI X3.64	Stand-alone — Castered stand opt. No Std. ANSI X3.64
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1280 80/24/1 16x80 (scrollable) 2.75 in. x 9.3 in. No (lap) 95 ASCII/32 graph. 5x7 Liquid crystal display (LCD) No Std. (VT100 comp.) Std. Std. Std. No Std. Std. Up/down, right/left No Std. Std. No Std. Fwd./back std. No No Char./line/screen std.	2720 16K/400/12 total 34x80 12 No 96 std. 7x9 dot matrix P39 green No Std. Std. Std. Std. No Std. Up/down std. Std. No Both std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.	2560 To 256K 30/32x80 13, 19 model dep. Opt. 224 ASCII 6x9/8x14 dot matrix P22 color 8 colors std. Std. Std. Std. Std. Std. Both std. No No Std. Fwd./back std. Std. Std. Std.	32 2 pages 2x16 20.1 Opt. 68 ASCII 16 stroke matrix Neon orange No — No Std. Std. Std. No No 5-way std. 2 std. Std. Addressable only No No 2 std. Fwd. std. No No Char./line/screen std.	1920 2 pages 24x80 124.6 Opt. 68 ASCII 16 stroke matrix Neon orange No — No Std. Std. Std. No No 5-way std. 2 std. Std. Addressable only No No 2 std. Fwd. std. No No Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter 95 ASCII/32 graph. No Std. Opt. No No No Std. (printer) —	Typewriter ASCII Std. 20 plus all keys std. Opt. Serial opt. No Std. Std. Tape, plotters	Typewriter ASCII Std. Std. Std. No No No Std. —	Typewriter (opt.) 68 ASCII Std. 15 std. Std. No No No Opt. Ceiling, floor, & wall mounts	Typewriter (opt.) 68 ASCII Std. 15 std. Std. No No No Opt. Ceiling, floor, & wall mounts
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half/full-duplex Asynchronous ASCII ASCII/ANSI X3.64 Up to 19,200 Character No RS-232-C No Opt. 995 — — 7/84 11/84 — Factory	Full/std.; half/opt. Asynchronous ASCII ASCII 75-9600 Char./block No RS-232-C or 20mA No No 5900 — 7 — 1977 1977 — Tektronix	Full-duplex Asynchronous ASCII ASCII Up to 38,400 Character No RS-232-C, Centronics No No 3,995-9,950 — — 4/83 10/83 — Tektronix	Half-duplex (std.) Asynchronous Start-stop ASCII-77 Up to 9600 (13 spds) Character No RS-232-C std.; 20 mA opt. No No 3,000 Included 30 — 2/82 10/82 — See comments Telegenix & third party	Half-duplex (std.) Asynchronous Start-stop ASCII-77 Up to 9600 (13 spds) Character No RS-232-C std.; 20 mA opt. No No 55,000 Included 620 — 6/82 3/83 — See comments Telegenix & third party
COMMENTS	Emulations include: DEC VT100/VT52, TeleVideo 910, Lear Sieglar ADM 3A & ADM 5, Hazeltine (Esprit) 1400 & 1410, ADDS Regent 20 & Regent 25	Updated to 4025A in 1981 w/new features, 3X speed, 4027A color terminal also available	132-character mode through vertical scrolling	Telegenix offers 60 models—1602 is the smallest; company has installed base of over 10,000 plasma display ter- minals; character size: 1 in. high by .75 in. wide; legi- bility up to 57 ft.	Telegenix offers 60 models—8024 is the largest; company has installed base of over 10,000 plasma display terminals; character size: 1 in. high by .75 in. wide; legibility at up to 57 feet

Alphanumeric Display Terminals

VENDOR AND MODEL	Telery Model 7	Telery Model 16/7801	Telery Model 16/16 APL	Telery Model 100	Telery Model 20-DDG
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No See comments Std. See comments	Stand-alone — No No Std. Honeywell VIP 7801	Stand-alone — No No Std. ANSI X3.64	Stand-alone — No No Std. DEC VT52/VT100/ VT132; ANSI X3.65	Stand-alone — No No Std. Data General D210, DEC VT102
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 3840 char. 24x80 or user-define plus status line 14; 9 & 12 opt. Std. 256, incl. 128 ASCII 8x10 dot matrix Green or amber No Opt. Std. Std. Std. Dim std. Std. Std. Up/down/horiz./sm. 2 std.; 4 opt. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen/ memory std.	1920 8 pages 24x80 plus status line 12; 9 & 15 opt. Opt. 128 ASCII + graphics 8x10 dot matrix White, green, or amber No Graphics char. set Std. Std. Std. Dim std. Std. No Std. Both std. Std. Std. Fwd./back std. Std. Std. Char./line/screen/ memory std.	1920 7760 char. 24x80 or user-define plus status line 12; 9 & 15 opt. Opt. 128 ASCII/64 graph. 8x10 dot matrix White std.; green, amber opt. No Graphics char. set Std. Std. Std. Dim std. Std. No Up/down/horiz./sm. 4 std.; plus 4 opt. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen/ memory std.	960-3168 3168 char. 24x40/66/80/132 12; 15 opt. Opt. 128 ASCII/32 graph. 7x9 dot matrix White, green or amber No Graphics char. set Std., & overline Std. Std. Std. Dim std. Std. Std. Up/down/smooth No Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. EOL/line/page/ EOP/memory std.	1920 3840 char. 24x80 plus status line 14; 9 & 12 opt. Std. 128 8x10 dot matrix Green or amber No Opt. Std. Std. Std. Dim std. Std. Std. Up/down/horiz./sm. 2 std. Std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen/ memory std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 32/64 user-defin. Std.	Typewriter 128 ASCII Std. 32/64 user- definable Std.	Typewriter 96 ASCII + 32 ctrl. Std. 32/64 user-defin. Std. & calc. mode	Typewriter 128 ASCII+32 graph. Std. 20 functions/880 char. Std.	Typewriter ASCII Std. 32/64 user-defined Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Std. full perform. Std. —	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —	No No Std. Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII/ANSI ASCII Up to 19,200 Char./line/block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ANSI/ASCII ASCII 50-19,200 Char./line/block No RS-232-C std.; RS-422 opt. No No	Half/full-duplex Asynchronous ASCII ASCII/ANSI Up to 19,200 Char./line/block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII/ANSI Up to 19,200 Char./line/block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII/ANSI ASCII Up to 19,200 Char./line/block No RS-232-C std; 20 mA opt. No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Contact vendor — — — 11/84 12/84 — Telery	1,795-1,995 — — — 5/83 — — Telery	1,545/1,665 (APL) — — — 3/82 4/82 — Telery	1,595 — — — — 12/80 — Telery	— — — — 11/84 12/84 — Telery
COMMENTS	7-DHP—HP 2622/ 2624 & DEC VT102 compat.; 7-7305— Honeywell ViP 7305 compat.; 7-DBM— IBM 3101 & DEC VT102 compat.; Tektronix 4010/ 4014 graphics opt. on all models		Add. 7680 char. mem. opt.—volatile or non-volatile; user- definable logical line & page length; realtime clock read- out; alpha-only/ numeric-only modes; Model 16 APL in- cludes 96 APL char.	Four scrolling speeds: 5/10/15/ 20 lps.	Multi-protocol terminal

Alphanumeric Display Terminals

VENDOR AND MODEL	TeleVideo 910	TeleVideo 910 Plus	TeleVideo 914	TeleVideo 921	TeleVideo 922
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. See comments	Stand-alone — No No Std. —	Stand-alone — No No Std. TeleVideo 910 Plus, ADDS Viewpoint	Stand-alone — No No Std. —	Stand-alone — No No Std. DEC VT220/VT100/ VT52
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 80/24/1 24x80 12 Swivel std. 128 ASCII 6x7 dot matrix P31 green No — Std. Std. Std. No Std. No Up/down std. 1 std. Std. Both std. No No No Fwd./back std. No No Line/screen std.	1920 80/24/1 24x80 12 Swivel std. 128 ASCII 6x7 dot matrix P31 green No — Std. Std. Std. No Std. No Up/down std. 1 std. Std. Both std. No No No Fwd./back std. Std. Std. Char./line/screen std.	1920 1 page; 2 opt. 24x80 plus status line 12 Std. 128 ASCII 6x7 dot matrix P31 green No — Std. Std. Std. No Std. 1 std. Std. Both std. Std. No No Fwd./back std. Std. Std. Char./line/screen std.	1920 1 page 24x80 12 Std. 128 ASCII 7x8 dot matrix P31 green No Std. (15 char.) Std. Std. Std. Std. Std. — Std. Std. Std. Std. Std. Std. Std. Std. Std. Char./line/screen std.	1920 1 page 24x80/132 12 Std. 128 ASCII/ANSI 6x8 dot matrix P31 green No Std. (96 char.) Std. Std. Std. Std. Std. No Std. Std. Std. Std. Std. Std. Std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII No No Std.	Typewriter 128 ASCII No No Std.	Typewriter 128 ASCII Std. 16 std. Std.	Typewriter 128 ASCII Std. 32 non-volatile std. Std. (true acctg.)	Typewriter 128 ASCII Std. 30 non-volatile std. Std. (true acctg.)
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —	No No Opt. Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous — ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. Opt. No	Half/full-duplex Asynchronous — ASCII 50-19,200 Char./line/block No RS-232-C std.; 20mA opt. Opt. No	Half/full-duplex Asynchronous — ASCII 150-19,200 Char./block No RS-232-C Opt. No	Half/full-duplex Asynchronous — ASCII 150-19,200 Char./block No RS-232-C No No	Half/full-duplex Asynchronous — ANSI X3.64 150-19,200 Char./block No RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	699 — — — 5/81 5/81 Over 10,000 GE Instr. & Comm.	699 — — — 2/82 2/82 — GE Instr. & Comm.	699 — — — 8/83 10/83 — GE Instr. & Comm.	695 — — — 5/84 9/84 — GE Instr. & Comm.	995 — — — 5/84 11/84 — GE Instr. & Comm.
COMMENTS	Emulations include: ADDS Regent 25, Hazeltine 1410, & Lear Siegler ADM 3A/5				

Alphanumeric Display Terminals

VENDOR AND MODEL	TeleVideo 924	TeleVideo 925	TeleVideo 925E	TeleVideo 950	TeleVideo 970
TERMINAL DESCRIPTION	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Standalone or cluster	—	1	—	—	—
Maximum displays/controller	No	No	No	No	No
Transportability	No	No	No	No	No
IBM compatibility	Std.	Std.	Std.	Std.	No
Teletype compatibility	TeleVideo 925/ 950	TeleVideo 912/920	TeleVideo 925	—	DEC VT100
Other compatibility	—	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	4 pages	80/24/2	1 page std., 2 opt	80/24/4	3 pages
Screen arrangement, lines x chars./line	24x80 plus status line	24x80	24x80	24x80	24x80/132
Screen area, diagonal, inches	12	12	12	12	14
Tilt/swivel screen	Std.	Std.	Std.	Std.	Tilt std.
Total displayable symbols	128 ASCII+graphics	128 ASCII	128 ASCII	128 ASCII	128
Symbol formation	6x8 dot matrix	6x8 dot matrix	7x8 dot matrix	10x7 dot matrix	7x8 dot matrix
Character phosphor	P31 green	P31 green	P31 green	P31 green	P31 green
Color capability	No	No	No	No	No
Graphics	Std.	—	No	15 graphics symbols	—
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	Std.
Scroll	Std.	Up/down std.	Std.	Up/down std.	Up/down std.
Paging	Std.	2 opt.	1 opt.	4 opt.	3 std.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	Std.	No	No	No	3 std.
Tabulation	Fwd./back std.	Fwd./back std.	Std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/field std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	32 std.	22 std.	No	22 std.	32 non-volatile
Numeric keypad	Std.	Std.	Std. (true acctg.)	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	No	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	Opt.	Opt.	Opt.	Opt.	Opt.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	No
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	—	—	—	—	ANSI X3.65
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	Up to 19,200	50-19,200	150-19,200	50-19,200	50-19,200
Format	Char./block	Char./line/block	Char./block	Char./line/block	Char./line/fld./blk.
Multipoint operation	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C	RS-232-C, RS-422, or 20mA
Integral modem	Opt.	Opt.	No	Opt.	Opt.
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, purchase	895	995	795	1,195	1,495
Controller, purchase	—	—	—	—	—
Monthly prime-shift maintenance	—	—	—	—	—
Annual prime-shift maintenance	—	—	—	—	—
Date of announcement	4/83	11/81	5/84	12/80	6/82
Date of first production delivery	8/83	11/81	9/84	1/81	1/83
Display units installed to date	—	Over 10,000	—	Over 40,000	—
Serviced by	GE Instr. & Comm.	GE Instr. & Comm.	GE Instr. & Comm.	GE Instr. & Comm.	GE Instr. & Comm.
COMMENTS					

Alphanumeric Display Terminals

VENDOR AND MODEL	TeleVideo Personal Terminal (PT)	Telex 078	Telex 079	Telex 178	Telex 276
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — Yes No Std. —	Cluster 32 No 3178/3278 No —	Cluster 32 No 3179/3279 No —	Cluster 32 No 3178/3278 No —	Either 8 No 3276 No —
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 1 page 24x40/80 9 No 128 ASCII 5x7 dot matrix P9 yellow-green No Std. (128 char.) Std. Std. Std. Std. Std. 1 std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std.	1920 — 24x80 12 Std. 96 EBCDIC 9x12 in 9x16 cell Green or amber No — No No No Std. No No No No Std. Both std. Std. Std. Std. Std. Fwd./back std. No Char./screen std.	1920 — 24x80 12 Std. 96 EBCDIC 9x12 in 9x16 cell Color 4/7 colors — No No No No Std. No No Std. Both std. Std. Std. Std. Std. Fwd./back std. Std. No Char./screen std.	1920 — 24x80 12 Opt. 96 EBCDIC 7x12 dot matrix Green No — No No No Std. No No Std. Both std. Std. Std. Std. Std. Fwd./back std. Std. No Char./screen std.	1920-3564 — 24/32/43x80, 27x132 15 Opt. 96 EBCDIC/ASCII 9x14 dot matrix Green or white No — No No No Std. No No Std. Both std. Std. Std. Std. Std. Fwd./back std. Std. No Char./screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter 128 ASCII No 14 std. No No No Opt. Std. —	Typewriter, data entry EBCDIC Std. 24 std. (typewriter only) Std. Std. Std. No Std. Std. Security keylock, numeric lock, audible alarm	Typewriter, data entry EBCDIC Std. 24 std. (Typewriter only) Std. Std. Std. No Std. Std. Security keylock, numeric lock, audible alarm	Typewriter, data entry EBCDIC/ASCII-B Std. 12/24 std. Std. Std. No No Std. Std. Security keylock, numeric lock, audible alarm	Typewriter, data entry EBCDIC/ASCII Std. 12/24 std. Std. Std. Std. No Std. Std. Security lock, audible alarm, light pen
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous — ASCII 150-19,200 Char./line/block No RS-232-C Opt. (300/1200 bps) No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 19,200 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC 2400-9600 Block Std. RS-232-C No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC 2400-9600 Block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	499 — — — 11/83 11/83 — GE Instr. & Comm.	1,550 3,700-10,000 — — 8/84 8/84 — Telex	2,095 3,700-10,000 — — 8/84 8/84 — Telex	1,550 3,700-10,000 — — 6/82 2nd quarter/82 — Telex	5,350 3,700-10,000 — — 6/79 8/79 — Telex
COMMENTS	Optional telephone handset for voice applications	Part of 270 Information Display System; attaches to 174 & 274C controllers, 276 control/display, & IBM control units	Part of 270 Information Display System; attaches to 174 & 274C controllers, 276 control/display, & IBM control units	Part of 270 Information Display System; attaches to 174 & 274C controllers, 276 control/display, & IBM control units	Part of 270 Information Display System; attaches to 174 & 274C controllers, 276 control/display, & IBM control units

Alphanumeric Display Terminals

VENDOR AND MODEL	Telex 278	Telex 279	Telex 476	Telex 479	Term Tronics 3270-A/3270-B
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 32 No 3278 No —	Cluster 32 No 3279 No —	Either 16 No 3270 No —	Either 16 No 3270 No —	Either 12 Handcarry 3275/3276 Std. DEC VT100 & others
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920-3564 — 24/32/43x80, 27x132	1920 — 24x80	1920 — 24x80	1920 — 24x80 plus status line	1920, 3168 3168 char. 24x80/132
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	15 Opt. 96 EBCDIC/ASCII 9x14 dot matrix Green or white	15 Opt. 96 EBCDIC/ASCII 9x14 dot matrix Color	15 Opt. 96 EBCDIC 8x15 dot matrix White or green	15 Opt. 96 EBCDIC 8x15 dot matrix Color	14 Tilt std. 128 ASCII 7x9 dot matrix P31 green std.
Color capability Graphics Programmable field/char. highlighting via:	No —	4 colors std. —	No —	4 colors —	4 std.; 7 opt. —
Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No No No No Std. No No No Std. Both std. Std. Std. No Fwd./back std. Std. No Char./screen std.	No No No No Std. No No Std. Both std. Std. Std. No Fwd./back std. Std. No Char./screen std.	No No No No Std. No Std. Std. Both std. Std. Std. No Std. Std. No Char./screen std.	No No No No Std. No Std. Std. Both std. Std. Std. No Std. Std. No Char./screen std.	No No Std. Std. Std. Std. Smooth No Std. Both std. Std. Std. in ASCII mode Std. in ASCII mode Forward/back std. Std. No Char./field/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter, data entry EBCDIC/ASCII Std. 12/24 std. Std.	Typewriter, data entry EBCDIC/ASCII-B Std. 12/24 std. Std.	Typewriter, data entry EBCDIC Std. 12/24 std. Std.	Typewriter, data entry EBCDIC Std. 12/24 std. Std.	Typewriter 96 EBCDIC, 128 ASCII Std. 24 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Std. Std. No Std. Security lock, audible alarm, light pen	Std. Std. No Std. Security lock, audible alarm, light pen	Std. Std. No Std. —	Std. Std. No Std. Security keylock, audible alarm, light pen opt.	120-160 cps No Opt. Opt. Personal Computer
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC/ASCII-B 2400-9600 Block Std. RS-232-C	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC 2400-9600 Block Std. RS-232-C	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 9600 Block Std. RS-232-C	Half/full-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 9600 Block Std. RS-232-C	Half-duplex Async./sync. BSC ASCII/EBCDIC 300-9600 Character/block Std. RS-232-C
Integral modem Integral acoustic coupler	No No	No No	No No	No No	Opt. No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	2,100 3,700-10,000 — — 6/79 8/79 — Telex	3,350 3,700-10,000 — — 1/82 1st Q. 1982 — Telex	2,800 — — — 5/82 8/82 — Telex	3,800 — — — 9/83 9/83 — Telex	1,695-2,295 — — — 5/82 6/82 — RCA
COMMENTS	Part of 270 Information Display System; attaches to 174 & 274C controllers, 276 control/display, & IBM control units	Part of 270 Information Display System; attaches to 174 & 274C controllers, 276 control/display, & IBM control units; red, green, blue, & white are std. colors	Part of 270 Information Display System; up to 16 476s and/or 479s may be daisy-chained; available in library terminal version (476L) at \$2,250	Part Of 270 Information Display System; up to 16 479s and/or 476s may be daisy-chained; red, blue, white, & green are std. colors	

Alphanumeric Display Terminals

VENDOR AND MODEL	Term Tronics MEGA II	Term-Tronics Miracle 178	Texas Instruments 931	Thomas Engineering TE-780xA	Thomas Engineering TE-780xV
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Cluster 32 Handcarry 3278 Std. DEC VT100 & others	Cluster 32 Handcarry (25 lbs.) 3178 No Std. —	Stand-alone — No No Std. —	Stand-alone — No No Std. Honeywell VIP 7801	Stand-alone — No No Std. Honeywell VIP 7801, DEC VT100/52, ANSI
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920, 3564 3564 char. 24x80, 27x132	1920 4K 24x80	2000 1 page 25x80	2000 — 25x80	2000 — 25x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	14 Tilt std. 128 ASCII 7x9 dot matrix P31 green std.	12 Std. 96 EBCDIC 9x14 dot matrix P39 green	12 Tilt std. 128 7x9 dot matrix Green	14 Std. 128 7x9 dot matrix P31 green	14 Std. 128 7x9 dot matrix P31 green
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No — No Std. Std. Std. Std. Std. Smooth No Std. Both std. Std. Std. in ASCII mode Std. in ASCII mode Forward/back std. Std. No Char./field/screen std.	No No Std. No Std. No Std. No Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std.	No — Std. Std. Std. Std. No Up/down std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/field/ screen std.	No Std. (11 line draw) Std. Std. Std. High/low intensity Std. No Up/down std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	No Std. (11 line draw) Std. Std. Std. High/low intensity Std. No Up/down std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter (IBM) 96 EBCDIC, 128 ASCII Std. 24 std. Std.	Typewriter 96 EBCDIC Std. 24 std. Std.	Typewriter 96 ASCII Std. 12 std. Std.	Typewriter 128 ASCII Std. 12 std. Std.	Typewriter 128 ASCII Std. 12 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	120-160 cps No Opt. Std. Personal Computer	160 cps impact No No Opt. RPQ	EIA, 35-150 cps No No Std.,EIA output only —	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half-duplex Async./sync. BSC, SNA/SDLC ASCII/EBCDIC 300-9600 Character/block Std. RS-232-C, coax No No	Half-duplex Synchronous BSC, SNA/SDLC EBCDIC Up to 56,000 See comments Std. (pollable) RG62A/U coax No No	Full-duplex Asynchronous TTY ASCII 300-19,200 Character No RS-232-C std., fiber optics opt. No No	Half/full-duplex Asynchronous TTY ASCII 50-19,200 Char./text/form No RS-232-C or 20 mA No No	Half/full-duplex Asynchronous TTY ASCII 50-19,200 Char./text/form No RS-232-C or 20 mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Contact vendor — — 7/83 8/83 — RCA	995 — — 8/84 8/84 — Depot	1,295(EIA); 1,350 — 19 4/83 9/83 — Texas Instruments	1,695 — Factory service Factory service 12/82 12/82 — Thomas Engineering	1,895 — Factory service Factory service 12/82 12/82 — Thomas Engineering
COMMENTS		Features optional printer port which is addressable from the control unit	Can be simultaneously connected to RS-232-C and fiber optics systems; separate buffering for auxiliary support; Int'l keyboards/character sets available	U.L. Listed; F.C.C. compliant; fully recessed connectors unlimited visual & logical display attributes; convection cooled; made in U.S.A.; available in TEMPEST version	U.L. Listed; F.C.C. compliant; fully recessed connectors unlimited visual & logical display attributes; convection cooled; made in U.S.A.; available in TEMPEST version

Alphanumeric Display Terminals

VENDOR AND MODEL	Thomas Engineering TE-780xS	3M Whisper Screen Model 1922	Visual 50	Visual 55	Visual 102
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No No Honeywell VIP 7814	Stand-alone — No No Std. DEC VT52	Stand-alone — No No Std. See comments	Stand-alone — No No Std. See comments	Stand-alone — No No Std. DEC VT100/VT102/ VT52
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	2000 — 25x80 14 Std. 128 7x9 dot matrix P31 green No Std. (11 line draw) Std. Std. Std. High/low intensity Std. No No Up/down std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	1920 22K char. 24x80 9 Tilt std. 128 ASCII — P31 green std. No Block graphics std. No No No No No No Addressable only No No Std. Std. Std. Std. Std.	1920 — 24x80 plus status line 12 Std. 128 ASCII 7x9 dot matrix White; P31 green opt. No — Std. Std. Std. No Std. Std. Std. Std. Std. Std. Std. Std. Std. Line/field/page std.	1920 1 page 24x80 plus status line 12 Std. 128 ASCII 7x9 dot matrix White; P31 green opt. No — Std. Std. Std. No Std. Both std. Std. Std. Std. Std. Std. Std. Std. Std. Char./line/screen std.	1920 1 page 24x80/132 14 Std. 128 ASCII 7x9 dot matrix P31 green std. No Opt. Std. Std. Std. Std. No No Up/down, smooth No Std. Std. No Std. Std. Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Typewriter 128 ASCII Std. 12 std. Std. No No No Std. —	Typewriter 128 ASCII Std. 8 std. No 40 cps thermal No No Std. —	Typewriter 128 ASCII Std. No Std. o No No No Std. —	Typewriter 128 ASCII Std. No Std. o No No No Std. —	Typewriter 128 ASCII Std. 8 std. Std. No No Std. Opt. Graphics card opt.
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Half/full-duplex Synchronous Honeywell VIP sync. ASCII 2400-19,200 Char./text/form Std. RS-232-C or 20 mA No No 1,895 — Factory service Factory service 12/82 12/82 — Thomas Engineering	Half/full-duplex Asynchronous — ASCII Up to 9600 Char./message Pollable std. RS-232-C Std. No 1,795 — — 240 (on-site) 1983 1983 — 3M	Half/full-duplex Asynchronous ANSI ASCII 75-19,200 Char./block — RS-232-C std.; 20mA opt. No No 695 — — 6/82 7/82 — Visual Technology	Half/full-duplex Asynchronous ANSI ASCII 50-19,200 Char./line/block No RS-232-C std.; 20mA opt. No No 895 — — 11/82 1/83 — Visual Technology	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character No RS-232-C std.; 20mA opt. No No 1,095 — — 4/83 5/83 — Visual Technology
COMMENTS	U.L. Listed; F.C.C. compliant; fully recessed connectors unlimited visual & logical display attributes; convection cooled; made in U.S.A.; available in TEMPEST version	Integral modem transmits up to 1200 bps; direct connect to DDD or TWX; depot service also available at \$168/year	Emulations include: ADDS Viewpoint, Hazeltine Esprit, Lear Siegler ADM 3A, DEC VT52; features 31-character line drawing set	Emulations include: ADDS Viewpoint, Hazeltine Esprit, Lear Siegler ADM-3A, DEC VT52; features 11-character line drawing set	Tektronix graphics option allows emulation of Tektronix 4010 & 4014

Alphanumeric Display Terminals

VENDOR AND MODEL	Visual 300	Visual 330	Visual 383	Visual 500	Visual 550
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. ANSI X3.64	Stand-alone — No No Std. See comments	Stand-alone — No No Std. Burroughs TD830	Stand-alone — No No Std. See comments	Stand-alone — No No Std. See comments
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920 8 pages 24x80 plus status line 12 std.; 14 opt. Std. 128 ASCII + 64 grph. 7x9 dot matrix P4 white std., P31 green opt. No 64 graphics char. Std. Std. Std. Std. Std. No Up/down, smooth 1 std.; 8 opt. Std. Both std. Std. Std. Std. Std. Fwd./back std. Std. Std. Std.	1920 1 page 24x80 12; 14 opt. Std. 128 ASCII 7x9 dot matrix P4 white std.; P31 green opt. No No Std. Std. Std. Std. Std. No Up/down, smooth Std. Std. Std. Std. Std. Std. Std. Std. Std.	1920 1 page 24x80 14 Std. 128 ASCII 7x11 dot matrix P31 green No — Std. Std. Std. Std. Std. Split screen 6 pages std. Std. — Std. Std. No Fwd./back std. Std. Std. No	2640 1 page 33x80 plus status line 14 Std. 128 ASCII 10x17 dot matrix P39 green No Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.	2640 1 page 33x80 plus status line 14 Std. 128 ASCII 10x17 dot matrix P39 green No Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Std. Both std. Std. Std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 12 std. Std.	Typewriter 128 ASCII Std. 12 std. Std.	Typewriter 128 ASCII Std. 8 std. Std.	Typewriter 128 ASCII Std. 12 std. Std.	Typewriter 128 ASCII Std. 12 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Opt. —	No No No Opt. —	No No No Std. —	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C std.; 20 mA opt. No No	Half-duplex Async./sync. ASCII ASCII 50-19,200 Character Pollable RS-232-C, TDI No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C or 20mA No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Char./line/block No RS-232-C or 20mA No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	995 — — — 9/81 9/81 — Visual Technology	995 — — — 9/81 1500 — Visual Technology & MAI Sorbus	1,695 — — — 5/83 6/83 — Visual Technology	2,495 — — — 8/82 9/82 — Visual Technology	2,695 — — — 4/82 5/82 — Visual Technology
COMMENTS	Block graphics & 16 line drawing char- acter set std.; menu-style setup	Emulations include: DEC VT52, Lear Siegler ADM 3A, Data General Dasher D200, Hazeltine (Esprit) 1500; line drawing graphics std.; foreign char- acter sets opt.	Compatible with Burroughs poll/ select protocol	Emulations include: Hazeltine 1500, Data General Dasher 200, Lear Siegler ADM-3A, DEC VT52, Tektronix 4010, 4014 (in graphics mode); code compatible w/ raster size of 768x 585 pixels (¾ scale)	Alphanumeric code compatible to DEC VT100 and ANSI X3.64. in alpha mode; code compat- ible with Tektronix 4014, 4014 in graph- ics mode, with raster size of 768x 585 pixels (¾ scale)

Alphanumeric Display Terminals

VENDOR AND MODEL	Volker-Craig VC3100 & VC3100/GX	Volker-Craig VC4604 & VC4604/GX	Volker-Craig VC5000	Western Union Video 100	Westinghouse Canada Model 1625
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. ANSI	Stand-alone — No No Std. Lear Siegler ADM 3A & VC4404	Stand-alone — No No Std. See comments	Stand-alone — No No Std. —	Either 48 No IPARS Opt. Honey. VIP7700, Uni- scope 100/200 opt.
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	1920 1 pg. std.; 2nd opt. 24x80	1920 — 24x80	1920 1920 char. 24x80	960, 1920 — 12/24x80	1920 80/24/1;3/5 pp. opt. 24x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12 No 128 ASCII 7x9 dot matrix P4 white std.; P31 green or amber opt.	12 No 128 ASCII 7x9 dot matrix P4 white std.; P31 green or amber opt.	12 Std. 128 ASCII —	12 No 64; 95 opt. 5x7 dot matrix P4 white std.	12 Opt. 126 ASCII; 254 opt. 5x7 dot matrix P31 green std.
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size	No Std. (GX) — Std. Std. Std. (3100 only) Std. Std. Std. Std.	No Std. (GX) — No No Dim Std. No Up std.	No — — Std. Std. No Std. Smooth std. 1 std.	No — — Std. No No No Up std.	No — — Field std. Field std. Field opt. Std. Field opt. No Up/down std. 1st; 3/5 opt.
Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	Up/down; smooth 1 std.; 2 opt. No Both std. Std. Std. 3 std. Fwd./back std. Std. Std. Char./line/screen std.	Up std. No Std. Addressable only Std. No No No No No Line/screen std.	Std. Std. Std. Std. Std. Std. Std. No No No Line/screen std.	Std. No No No No No No Addressable opt. No Std. No No No No No No	Std. Field std. Field opt. Std. Field opt. No Up/down std. 1st; 3/5 opt. No Both std. Std. Std. 2 opt. Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set Detachability Program function keys	96 ASCII Std. 16 user string	128 ASCII Std. 10 std.	128 ASCII Std. 16 std.	64 ASCII No No	126 ASCII Std. 7 std.; up to 19 opt. Std.
Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Std. No No Opt. Opt. —	Std. No No Opt. Std. —	Std. No No Opt. Std. —	Opt. 10/30/120 impact No No Std. Cassette tape drive	Opt. Std. 30-60 cps impact No Opt. Std.; Aux opt. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface	Half/full-duplex Asynchronous ASCII ASCII 50-9600 Char./line/block No RS-232-C std.; 20mA opt. No No	Half/full-duplex Asynchronous ASCII ASCII 50-19,200 Character No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII — Char./block No RS-232-C	Half/full-duplex Asynchronous ASCII ASCII 110-19,200 Character No RS-232-C	Half/full-duplex Async./sync. Various opt. ASCII 50-9600 Blk.std.;char./ln. Std. RS-232-C std.; 20mA, party line opt. No No
Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	No No 1,095 — — — — 9/81 — Third party	No No 695/1,790 — — — 5/83 — — Third party	No No 795 — — — 5/83 — — Third party	No No 325-350 — 15 — 8/75 12/75 Over 7500 Western Union	No No 2,600 650 Contact vendor — 6/76 11/76 Over 8000 WCI, third party
COMMENTS	VC3100/GX features Tektronix 4010 graphics format; 512x250 resolution; auto. scaling from 1024x780 resolution for Tektronix Plot 10 & Gino-F compat- ibility; National character sets	VC4604GX features Tektronix 4010 graphics format; 512x250 resolution; auto. scaling from 1024x780 resolution for Tektronix Plot 10 & Gino-F compat- ibility; National character sets	Emulates VC4604, VC4152, VC414H, Hazeltine Esprit, ADDS Viewpoint, & others	Built by Lear Siegler as ADM 3/3A; quantity discounts available	A base design CRT which can be sup- plied with customer firmware & I/O con- figured to meet specific customer requirements

Alphanumeric Display Terminals

VENDOR AND MODEL	Westinghouse Canada Model W1640	Westinghouse Canada Model W1640 VIP Dual	Westinghouse Canada Model W1642	Westinghouse Canada Model W1643	Wyse WY-50
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Either 48 No No No Honey. VIP7700, Uni- scope 100/200 opt.	Either; sw. select. 322 No No No Honey. 7700/7800	Either 48 No IPARS Opt. Univac UTS 20, Uni- scope 100	Either 48 No SDLC Opt. Honeywell VIP 7700, Uniscope 100	Stand-alone — No No Std. See comments
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	1920; 2000 opt. 80/25/1; multi opt. 24x80 plus status line 12 Opt. 94 ASCII + opt. 5x7/7x9 dot matrix P31 green std.	1920, 2000 1920/24/1;3 24x80 plus status line 12 Opt. 94 + 11 graphics 5x7 dot matrix P31 green std.	2000 80/25/1; multi-opt. 24x80 plus status line 12 Opt. 94 ASCII + opt. 5x7/7x9 dot matrix P31 green std.	2000 80/25/1 25x80 12 Opt. 512 5x7 dot matrix P31 green std.	1920 1 page std. 24x80/132 14 Std. 128 ASCII 7x13 in 10x13 cell Green
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	Field std. Field std. Field std. Std. Opt. No Opt. Opt. Opt. Opt. Add. std.; Read opt. Std. Std. 2 opt. Fwd./back std. Std. Std. Char./line/screen std.	Std. Std. Std. No No; std. (7800) No No; up/down std. No No Std. Std. No Fwd./back tab std. Std. Std. Char./line/screen std.	Field std. Field std. Field std. Std. Field opt. No Opt. Opt. Opt. Add. std.; Read opt. Opt. Std. Opt. Fwd./back std. Std. Std. Char./line/screen std.	Std. Std. Std. Std. Std. No Opt. Std. Std. Std. Add. std.; Read opt. Std. Std. Opt. Fwd./back std. Std. Std. Char./line/screen std.	Std. Std. Std. No Std. No Std. Std. Std. Std. Addressable only Opt. Std. Std. Std. Std. Std. Line/page/field std.
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	Typewriter 94 ASCII Std. 7 std.; up to 19 opt. Std. 30-60 cps impact No No Std. —	Typewriter 128 ASCII Std. 6 std.; 17 std. (7800) Std. No No No RS-232-C std. Opt. cluster con- troller, W1654	Typewriter 94 ASCII Std. Up to 32 user-de- fined Opt. 30-60 cps impact No No Std. Credit card reader, embedded numeric pad w/calculator functions	Typewriter 94 ASCII Opt. 24 Std. 30-60 cps impact No No Std. Card reader	Typewriter ASCII Std. 16 std. Std. No No No Std. —
COMMENTS	A base design CRT which can be sup- plied with customer firmware & I/O con- figured to meet specific customer requirements	In cluster opera- tion, from 1 to 7 printers may be shared by terminals for local printing without communica- tion to the host	A base design CRT which can be sup- plied with customer firmware & I/O con- figured to meet specific customer requirements	Can be supplied with customer firmware and I/O configured to meet specific customer requirements	Emulations include: Wyse WY-100, Lear Siegler ADM 31, ADDS Viewpoint, Hazeltine 1500, TeleVideo 910 & 925

Alphanumeric Display Terminals

VENDOR AND MODEL	Zenith ZTX-10	Zenith ZTX-11	Zenith Z-49	Zenith Z-22	Zentec 1021
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — Yes, case No Std. DEC VT52	Stand-alone — Yes, case No Std. DEC VT52	Stand-alone — No No Std. DEC VT102, ANSI X3.64	Stand-alone — No No Std. LSI ADM 3A/5/11, TeleVideo 914	Stand-alone — No No Std. ADDS Viewpoint, LSI ADM 3A, Hazel. 1500
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	2000 — 25x80 12 Opt. 128 ASCII 8x10 dot matrix P31 green No — No Std. No No Std. No No No Std. Addressable only No Std. No No Std. Std. Std. Line/page std.	2000 — 25x80 12 Opt. 128 ASCII 8x10 dot matrix P31 green No — No Std. No No Std. No No No Std. Addressable only No Std. No No Std. Std. Std. Line/page std.	2168 1 page 24x132 plus status line 14 Tilt std. 128 ASCII 10x12 dot matrix P31 green or amber No Business graphics Std. Std. Std. Std. Std. Up std., smth./jump No Std. Both std. No No No Fwd./back std. Std. Std. Char./line/screen std.	1920 1 page 24x80 plus status line 12 Std. 128 ASCII 5x9 dot matrix P31 green No Business graphics Std. Std. Std. Std. Std. Up std. No Std. Both std. Std. Std. No Fwd./back std. Std. Std. Char./line/screen std.	2000 — 25x80 12 Std. 128 7x9 dot matrix P31 green std; white, amber opt. 32 graphics char. Std. Std. Std. Std. Std. No No Std. Both std. Std. No No Fwd./back std. Std. Std. Char./line/screen std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter 128 ASCII Std. 4 std. No	Typewriter 128 ASCII Std. 4 std. No	Typewriter 64 ASCII Std. 9 std. Std.	Typewriter 64 ASCII Std. 10 std. Std.	Typewriter ASCII Std. 4 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No Std. Std. —	No No Std. Std. —	No No No Std. —	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII 110-9600 Character No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 110-9600 Character No RS-232-C Std. No	Half/full-duplex Asynchronous ASCII/ANSI ASCII 50-19,200 Character No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII 300-19,200 Char./line/block No RS-232-C No No	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Char./block Std. RS-232-C No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	399 — — — 4/83 5/83 — Zenith	479 — — — 4/83 5/83 — Zenith	1,099 — — — 6/84 8/84 — Zenith	649 — — — 11/84 12/84 — Zenith	650 — — — 6/83 11/83 — Zentec
COMMENTS	Stores up to 26 names and telephone numbers; The Source, Dow Jones, Compu-serve, Compu-Store account numbers provided; can be used as telephone	Stores up to 26 names and telephone numbers; The Source, Dow Jones, Compu-serve, Compu-Store account numbers provided; can be used as telephone	Emulates DEC VT52, VT100, & VT102, Zenith Z-19 & Z-29, ANSI X3.64	Auto logon permits programming of up to 10 different passwords or phone numbers	Includes 32 graphics characters

Alphanumeric Display Terminals

VENDOR AND MODEL	Zentec 1041	Zentec 1051	Zentec 8031	Zentec DD-220	Zentec WS-1000
TERMINAL DESCRIPTION Standalone or cluster Maximum displays/controller Transportability IBM compatibility Teletype compatibility Other compatibility	Stand-alone — No No Std. Lear Siegler ADM 31	Stand-alone — No No Std. DEC VT132, ANSI X3.64	Stand-alone — No No Std. —	Stand-alone — No No Std. DEC VT220	Stand-alone — No No Std. DEC VT220
DISPLAY PARAMETERS Display capacity, no. of chars. Memory capacity, no. char./lines/pages Screen arrangement, lines x chars./line	2000 2 pages 25x80	2000, 3300 4 pages 25x80/132	2000 16K 25x80	2000, 3300 1 page 25x80/132	2000 1 page 25x80
Screen area, diagonal, inches Tilt/swivel screen Total displayable symbols Symbol formation Character phosphor	12 Std. 128 ASCII 7x9 dot matrix P31 green std.; white, amber opt.	12 or 15 Std. 128 ASCII 9x12 dot matrix P134 amber std.; white, green opt.	12 Std. 128 ASCII 7x9 dot matrix P31 green std.; white, amber opt.	14 Std. 220 — P134 amber std.; P4 wht., P31 grn. opt.	14 Std. 128 ASCII — P134 amber std.; P4 wht., P31 grn. opt.
Color capability Graphics Programmable field/char. highlighting via: Underline Blink Blank Bold Reverse Double size Scroll Paging Selectable cursor blinking Addressable/readable cursor Protected format Partial screen transmit Split screen/windows Tabulation Character insert/delete Line insert/delete Erase	No 32 graphics char. Std. Std. Std. Std. Std. No Up/down std. 2 std. Std. Std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.	No 256 graphics char. Std. Std. Std. Std. Std. Std. Smooth std. 4 std. Std. Std. Std. Std. Fwd./back std. Std. Std. Std.	No — Std. Std. Std. Std. Std. No Up/down std. 2 std. Both std. Std. Std. Std. Fwd./back std. Std. Std. Char./line/screen std.	No No Std. Std. Std. Std. Std. Smmoth No Std. Std. Std. Std. Std. Fwd./back std. Std. Std. Std.	No No Std. Std. Std. Std. Std. No No Std. Std. Std. Std. Fwd./back std. Std. Std. Std.
KEYBOARD PARAMETERS Style Character/code set Detachability Program function keys Numeric keypad	Typewriter ASCII Std. 8 std. Std.	Typewriter ASCII Std. 16 std. Std.	Typewriter ASCII Std. 16 std. Std.	Typewriter ASCII Std. 15 std. Std.	Typewriter ASCII Std. 15 std. Std.
ANCILLARY DEVICES Serial printer, type and speed Line printer, type and speed Composite video Port for cust.-supplied devices Other vendor-supplied devices	No No No Std. —	No No No Std. —	No No No Std. —	No No No Std. —	No No No Std. —
TRANSMISSION PARAMETERS Mode Technique Communications protocol Code Speed, bits/second Format Multipoint operation Terminal interface Integral modem Integral acoustic coupler	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Char/line/block Std. RS-232-C or RS-422 No No	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Char/line/block Std. RS-232-C or RS-422 No No	Half/full-duplex Asynchronous ASCII ASCII Up to 19,200 Char/line/block Std. RS-232-C or RS-422; 20mA opt. No No No	Full-duplex Asynchronous ASCII ASCII 75-19,200 Character No RS-232-C, RS-423, or 20 mA No No	Full-duplex Asynchronous ASCII ASCII 75-19,200 Character No RS-232-C or RS-423 No No
PRICING AND AVAILABILITY Display station, purchase Controller, purchase Monthly prime-shift maintenance Annual prime-shift maintenance Date of announcement Date of first production delivery Display units installed to date Serviced by	1,095 — Contact vendor — 6/83 11/83 — Zentec	1,295 — Contact vendor — 6/83 1/84 — Zentec	1,195 — Contact vendor — 1/83 10/83 — Zentec	850 — — — 11/84 12/84 — Third party (Honeywell)	Contact vendor — — — 11/84 12/84 — —
COMMENTS	Includes user set-up mode with non-volatile memory, 32 graphics characters	RAM expandable to 64K (32K standard); soft set-up; 256 graphics characters		DEC special graphics; multi-national character set & downloadable character set; soft set-up; optional foreign keyboards	Expandable, with plug-in bus extender, to IBM PC & PC XT compatibility (separate work-station storage unit available); soft set-up

Alphanumeric Display Terminals Addendum

VENDOR AND MODEL	Telegenix TDS 2100/1602	Telegenix TDS 2100/8024	Telegenix TDS2200/802	Telegenix TDS2200/8024	Wang 2336 Series
TERMINAL DESCRIPTION					
Standalone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Cluster
Maximum displays/controller	—	—	—	—	4
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	—
Other compatibility	ANSI X3.64	ANSI X3.64	ANSI X3.64	ANSI X3.64	Wang
DISPLAY PARAMETERS					
Display capacity, no. of chars.	32	1920	16	1920	1920
Memory capacity, no. char./lines/pages	2 pages	2 pages	2 pages	2 pages	—
Screen arrangement, lines x chars./line	2x16	24x80	2x8	24x80	24x80
Screen area, diagonal, inches	20.1	124.6	20.3	223.7	12
Tilt/swivel screen	No	No	No	No	Tilt std.
Total displayable symbols	68 ASCII	68 ASCII	68 ASCII	68 ASCII	128 ASCII
Symbol formation	16-stroke matrix	16-stroke matrix	16-stroke matrix	16-stroke matrix	—
Character phosphor	Plasma:neon orange	Plasma:neon orange	Plasma:neon orange	Plasma:neon orange	Green std.
Color capability	No	No	No	No	No
Graphics	No	No	No	No	Opt.
Programmable field/char. highlighting via:					
Underline	No	No	No	No	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	No
Bold	Std.	Std.	Std.	Std.	No
Reverse	No	No	No	No	Std.
Double size	No	No	No	No	No
Scroll	4-way std.	4-way std.	4-way std.	4-way std.	—
Paging	2 std.	2 std.	2 std.	2 std.	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	No
Addressable/readable cursor	Addressable only	Addressable only	Addressable only	Addressable only	—
Protected format	No	No	No	No	—
Partial screen transmit	No	No	No	No	—
Split screen/windows	Hor./vert./rectgl.	Hor./vert./rectgl.	Hor./vert./rectgl.	Hor./vert./rectgl.	No
Tabulation	Forward std.	Forward std.	Forward std.	Forward std.	Std.
Character insert/delete	No	No	No	No	Std.
Line insert/delete	No	No	No	No	Std.
Erase	Char./line/screen	Char./line/screen	Char./line/screen	Char./line/screen	Std.
KEYBOARD PARAMETERS					
Style	Typewriter (opt.)	Typewriter (opt.)	Typewriter (opt.)	Typewriter (opt.)	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	15 std.	15 std.	15 std.	15 std.	16 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	No	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	Std.
Port for cust.-supplied devices	Opt.	Opt.	Opt.	Opt.	—
Other vendor-supplied devices	Ceiling, floor, & wall mounts	Ceiling, floor, & wall mounts	Ceiling, floor, & wall mounts	Ceiling, floor, & wall mounts	—
TRANSMISSION PARAMETERS					
Mode	Half-duplex	Half-duplex	Half-duplex	Half-duplex	Full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	Start-stop	Start-stop	Start-stop	Start-stop	—
Code	ASCII-77	ASCII-77	ASCII-77	ASCII-77	ASCII
Speed, bits/second	Up to 9600 (13 sp.)	Up to 9600 (13 sp.)	Up to 9600 (13 sp.)	Up to 9600 (13 sp.)	300-19,200
Format	Character	Character	Character	Character	Character
Multipoint operation	Std.	Std.	Std.	Std.	No
Terminal interface	RS-232-C std.; RS-485 opt.	RS-232-C std.; RS-485 opt.	RS-232-C std.; RS-485 opt.	RS-232-C std.; RS-485	RS-232-C
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, purchase	3,000	55,000	4,000	88,000	2,100-4,140
Controller, purchase	Included	Included	Included	Included	1,000-1,400
Monthly prime-shift maintenance	30	620	40	744	19-22
Annual prime-shift maintenance	360	7,440	480	8,928	—
Date of announcement	2/82	6/82	12/84	12/84	—
Date of first production delivery	10/82	3/83	6/85	6/85	—
Display units installed to date	Over 12,000 (all)	Over 12,000 (all)	Over 12,000 (all)	Over 12,000 (all)	—
Serviced by	Telegenix & third party	Telegenix & third party	Telegenix & third party	Telegenix & third party	Wang
COMMENTS					
	Telegenix offers 60 models in this series; 1602 is the smallest; character size 1" high by .75" wide; legibility up to 57 feet; supersedes info. found on page C25-010-172	Telegenix offers 60 models in this series; 8024 is the largest; character size 1" high by .75" wide; legibility up to 57 feet; supersedes info. found on page C25-010-172	Telegenix offers 120 models in this series; 802 is the smallest; character size 1.5" high by 1.5" wide; legibility up to 114 feet; supersedes info. found on page C25-010-172	Telegenix offers 120 models in this series; 8024 is the largest; character size 2" high by 1.5" wide; legibility up to 114 feet; supersedes info. found on page C25-010-172	Workstations for Wang 2200 systems; include 2336DE for DP, 2336 DW for DP/WP, 2326DW for DP/WP with expanded keyboard, & 2282 for DP/WP/graphics

