Alphanumeric Display Terminals

Within the last 10 years or so, it is extremely probable that anyone who has worked with computers has used a video display terminal (VDT or CRT, as they are commonly referred to). In today's business world computers are everywhere, whether they be large mainframes or the increasingly popular personal computer. In this atmosphere, the single most visible and recognizable piece of equipment remains the display terminal. Originally invented as a "glass teletype," or an alternative to the teleprinter, the display has evolved to the point that it is used in a wide variety of applications, including general-purpose alphanumeric, business and scientific graphics, word processing/text editing, CAD/CAM, etc. Advanced features (editing, highlighting, protected fields, split screen), color screens, and ergonomic designs are all factors which have contributed to the continued growth of the market. For the purpose of this report, only alphanumeric display terminals designed for general-purpose use will be discussed.

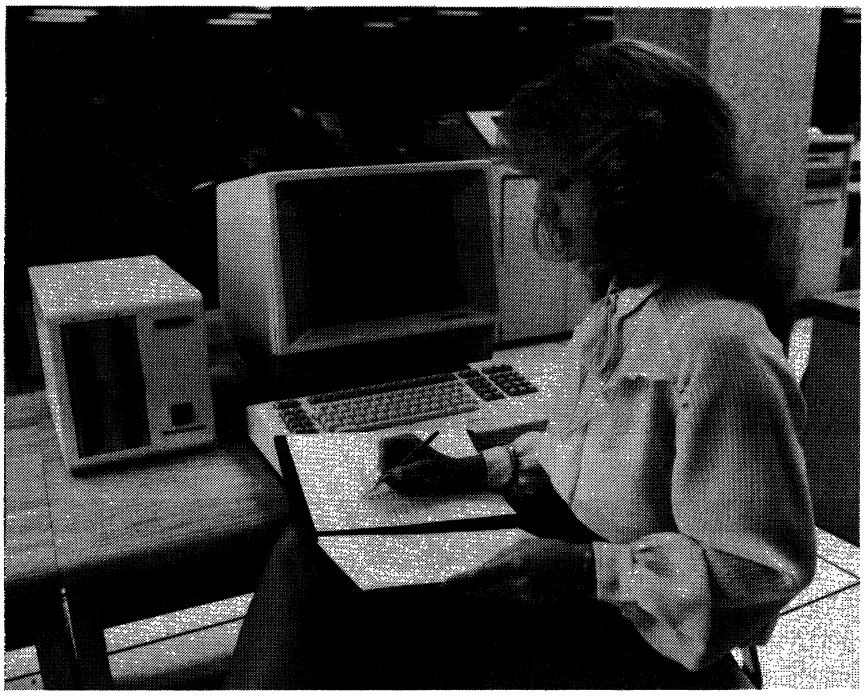
A comprehensive look at the general-purpose, non-user-programmable alphanumeric display terminal market.

This report includes a brief historical summary of the market; current market trends; a look at the industry's two major segments; and a discussion of an increasingly important factor for display terminal manufacturers, ergonomics. Also included are the results of Datapro's first annual Terminal Users' Survey, conducted in conjunction with *Data Communications* magazine. The survey details the experiences of 1,033 users, covering over 100,000 installed units, plus separate ratings of IBM 3270 and compatible clustered systems. Finally, Datapro's comparison columns detail the features and characteristics of 302 currently available display terminal models and families produced by 92 vendors.

The single most important factor in today's market, both in terms of how it affects the end-user and the vendor, is the plummeting price-tag affixed to the display terminal. Historically, price has been in proportion to capability: dumb terminals have carried the lowest price tags, while fully-featured editing terminals occupied the high end of the pricing structure. While this is basically still true, the lines of distinction have been smeared somewhat by a price war which is currently taking place in the low end of the market, and prices all along the line have fallen as a result.

The roots of this price war can be traced to the fact that, as in other segments of the computer market, technological advances have driven down the costs of display terminal hardware. The effect has been that terminal manufacturers can add more and more advanced features to their products while holding down, or even lowering, the price.

The current battle, which can be considered a skirmish in the long-term ongoing fight to control this market, began in March 1981, when Applied Digital Data Systems, a leader in the ASCII terminal market, introduced a new low-end terminal, the Viewpoint, which carried a price tag of $650 (quantity one). At the time, the Viewpoint was the ⊳



Harris Corporation, a leader in the IBM 3270-compatible equipment market, has recently enhanced their 9200 family with the addition of a pesonal computing capability. The new option consists of a 9200 multifunctional terminal with 64K bytes of memory, two 8-inch 1MB diskette drives, and a CP/M operating system. When not in the personal computing mode, the terminal serves as a 3270-compatible display. Other 3270-compatible vendors, including Lee Data and Paradyne, have also recently announced personal computing options for their terminal systems.

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lowest priced terminal of its kind. Soon, ADDS' competitors responded by offering low-priced models of their own. Today, nearly all of the major ASCII terminal makers offer a low-end unit with a price tag below $800. And these prices are even lower when the terminals are purchased in large quantities. An end-user willing to purchase terminals in large quantities can pay as little as $400 to $500 per unit.

GENERAL CATEGORIES

All 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.

Naturally, there is some overlap between 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.

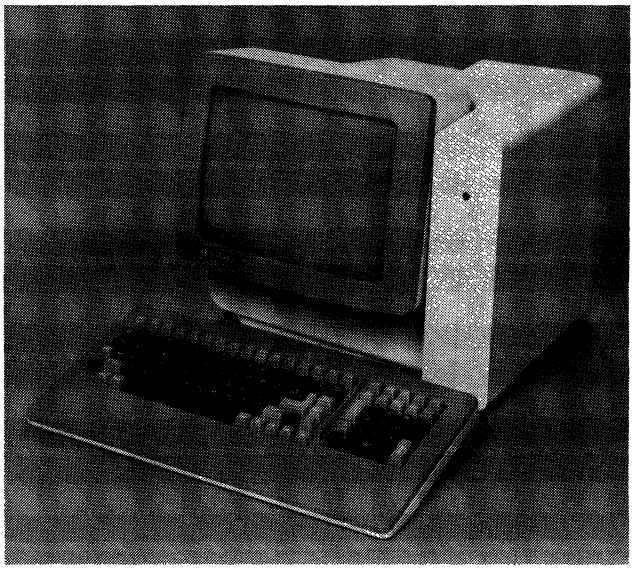
Smart terminals offer extended functions, such as editing and formatted data entry. In some cases, the user can tailor the terminal to fit his own application via a limited degree of programming, such as format creation and parameter definition.

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 number C21-010-101 entitled "Distributed Data Processing Systems and Intelligent Terminals."

MICROPROCESSOR CONTROL

Virtually all display terminals currently being 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



TeleVideo's new Model 970 features a unique ergonomic design. The 970 includes a 14-inch display screen, which is capable of displaying a 132-character line and can be tilted by an operator using only a single finger. The keyboard is detachable, and features a thin, sculpted design with palm rests and keys angled to minimize hand movement. The terminal's logic board and power supply are mounted vertically on the side to increase the air flow to the terminal, thus prolonging its life.

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 non-standard customer specifications 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 the user to submit his own firmware specifications.

DISPLAY MEDIA

The vast majority of display terminals manufactured today employ 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.

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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 several levels of brightness. Some CRT terminals can display double size characters. Many 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, the subject of Report 70D5-010-92 in DATAPRO 70. 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 Burroughs Self-Scan, which are common in bank teller terminals, ATMs (automatic teller machine), factory data collection equipment, general-purpose data entry equipment and hand-held display terminals. Liquid crystal displays (LCD) were also thought to be applicable to the terminal areas, but a clear, legible, alphabetic character has only recently been produced via liquid crystal. Consequently, use of these is confined primarily to digital watches and calculators which require only numerics. Some pocket computers employ a single-line alphanumeric LCD display.

The above-mentioned alternate types of displays are advantageous where a limited number of characters are needed, where format flexibility is not important, and space restrictions (particularly depth) may be severe. But for general-purpose dialog with a computer, the CRT has no peer and is here to stay.

ERGONOMICS

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

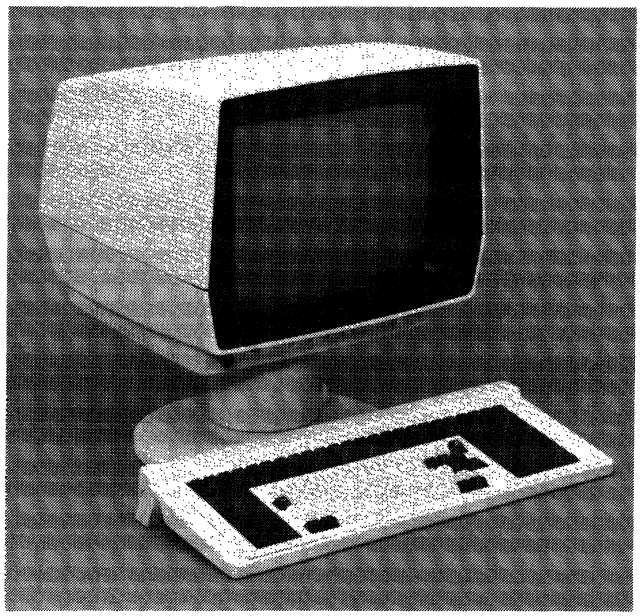
Recently, display terminal manufacturers have become increasingly aware of the need to consider human factors, or ergonomics, in the design of their equipment. The trend toward making CRTs more "operator-friendly" began in Europe, particularly the Scandinavian countries, where powerful unions representing 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, many CRT manufacturers are beginning to recognize market opportunities in ergonomic designs, and are appealing to the user 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 inputting of data, and the display screen, for verifying what was keyed and for reading the outputted data. Ergonomic design improvements are therefore concentrated on these two components.

The 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, duplicating the key arrangement of a pocket calculator or adding machine, for fast numeric entry. 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.



Megadata's System 850 is a smart terminal targeted at OEMs, system integrators, and large end users. The terminal is available with a large variety of configuration options. Ergonomic features include a detached, low-profile keyboard, and a tilt-and-swivel monitor.

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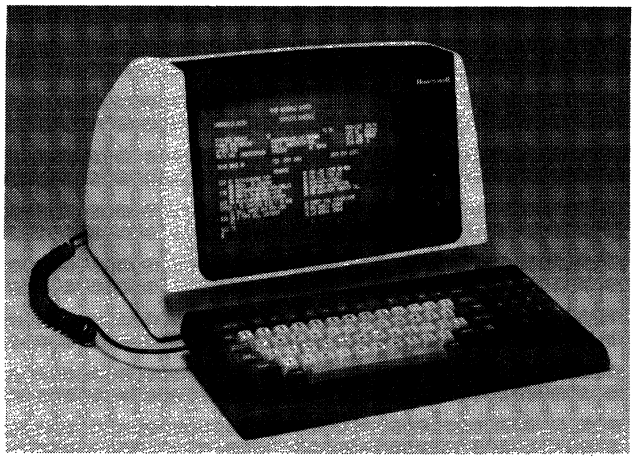

The VIP7201, priced at $795 in single quantities, is Honeywell's lowest priced display terminal. Introduced at Comdex '82 in Las Vegas, the VIP7201 features new Honeywell CRT and keyboard designs. The screen measures 12 inches diagonally, characters are displayed in green phosphor, and the keyboard is detached. The terminal is customer-installable and customer-maintainable.

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 is generally 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.

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. White or green phosphor characters are generally used in the United States; green phosphor characters are becoming increasingly popular, and in Europe they are considered easier on the eyes than the standard white. Amber phosphors are also used in Europe, and some domestic vendors who also have large European markets are beginning to offer amber phosphor characters in this country. 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 x 7 characters were the standard of the industry; today, 7 x 7 and 7 x 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. One vendor, DatagraphiX, uses a patented Charactron-shaped beam technique to generate fully-formed, high-resolution, flicker-free characters. This results in a physically larger and somewhat more expensive terminal, but one in which eye fatigue has been virtually eliminated.

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. Display enhancements such as double-height and double-width characters can alleviate this problem, but are generally included to highlight significant data, not for general usage.

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 variation 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, resulting in reduced noise level. Individually, these improvements may be slight, but when considered cumulatively, they represent a vast improvement over the terminals of say, 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. Even now, controversy is mounting on what effects constant use of a CRT has on the health of the operator. Workers whose jobs require that they 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 now a significant matter that must be addressed by both vendors and buyers.

MAJOR DISPLAY MARKETS

The alphanumeric display terminal market is generally acknowledged to contain two major segments: the ASCII (asynchronous) terminal market, and the IBM 3270 (synchronous) terminal replacement market. Both

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TABLE 1. IBM 3270 COMPATIBILITY

Vendor	System	Controllers	Displays
Beehive	DM 3270/DM 78/Topper	—	3276/3278
Carterfone	7276	—	3276
Computer Communications (CCI)	Group 8000	3274	3276/3278
Control Concepts	EM 3276/CC-3276	—	3276
Datamedia	3270-S/3270-6/3270-8	—	3275/3276/3278
Harris	8000	3271/3272	3277
Harris	9200	3274	3278/3279
Icot	700/701	—	3278
Informer	370	3271/3274	3275/3277/3278
ITT Courier	270	3271/3272/3274	3275/3276/3277/3278/3279
Lee Data	Series 300/400	3274	3278/3279
MDS Trivex	Plus 70	3271/3272	3275/3277
MDS Trivex	Plus 80	3274	3278
Memorex	1377	—	3277-2
Memorex	2076/2078/2079	—	3276/3278/3279
Northern Telecom	290	3272/3274	3276/3277
Paradyne	9476/9478	—	3276/3278
Phaze	P3278	—	3278
Racal-Milgo	4270 Series	3274	3276/3278
Raytheon	PTS-100	3271/3274	3277/3278
Raytheon	PTS-2000	3274	3276/3278/3279
Teletype	4540	3271/3272/3274	3275/3276/3277/3278
Teletype	40/4	—	3277
Telex	270	3271/3272	3275/3276/3277/3278/3279

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. Currently, IBM 3270-type terminals account for approximately one-fourth of all CRT terminals currently installed in the United States. Of these, about one-half are actually IBM terminals—the rest are compatible models offered by vendors such as Harris, ITT Courier, Lee Data, Memorex, Teletype, Telex, Raytheon, and a number of others.

These vendors utilize various strategies in an attempt to capture a share of the 3270 terminal market. The two most prevalent of these strategies are: to offer their 3270-compatible equipment at a price lower than what IBM is charging; and to feature faster delivery of their equipment than IBM (delivery time for IBM components currently is about 11 months ARO). In many cases, these are the only ways a new vendor can hope to penetrate an installation that has traditionally used only IBM equipment. Other strategies include offering increased price/performance, or enhanced ergonomic features.

A buyer who is looking to an independent vendor for 3270-compatible equipment should be aware that there are differing degrees of compatibility among the independents. Most major vendors offer some degree of plug-compatibility—that is, when you plug the equipment in, it will operate in the same way as the IBM unit it is replacing with regards to function and capability. However, a recent study done by Contel Information Systems (Great Neck, NY) concluded that none of the 3270-compatible vendors which they surveyed ". . . can provide a totally functionally compatible product that offers all the features provided by IBM in its 3270 product line." A specific concern in this area is the question of BSC and SNA/SDLC protocol compatibility. The original 3270 components operated under BSC protocol; SNA/SDLC protocol compatibility was implemented following IBM's unveiling of SNA in 1974. Although most major vendors now offer both, there are some independents who have yet to implement SDLC compatibility. Moreover, even those implementing the basic BSC or SDLC compatibility might not observe all of the finer points of IBM's own versions.

One trend which has seen increasing popularity in the past few months is that of replacing 3270-type terminals with ASCII terminals on a 3270 network. The replacement of synchronous terminals with asynchronous units is achieved through the use of a protocol converter (see Report C29-010-201 for a detailed discussion of protocol converters). The protocol converter allows the ASCII terminal to support the functional characteristics of the 3270-type unit. The advantage to this strategy is obvious—ASCII terminals are considerably less expensive than their 3270 counterparts. Two terminal vendors, ADDS and Beehive, have recently introduced ASCII terminals which, when combined with a protocol

converter, emulate the IBM 3278 display station. There is reason to believe that other ASCII terminal vendors may follow suit.

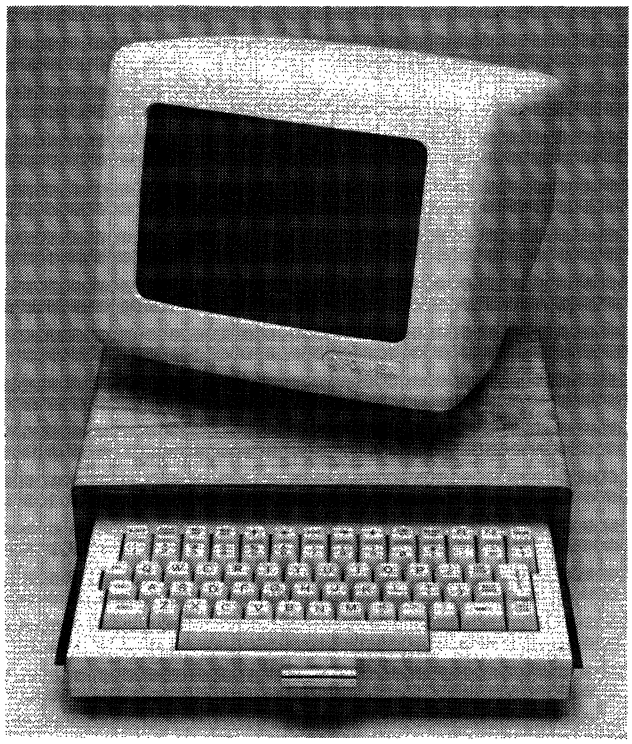
Table 1 provides a list of the major independent vendors that offer IBM 3270-compatible equipment.

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.

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 current 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 screens or windowing, and a variety of visual attributes. ASCII terminal vendors are also paying a lot of attention to ergonomics.



Informer manufactures small, compact display terminals for use in environments where office or desk space is at a premium. The Model 201, shown here, is an IBM 3270-compatible terminal featuring a 9-inch tilt-and-swivel display screen, and a keyboard which retracts into the terminal's base. The Model 201 features a footprint of only 9 inches by 13 inches when closed, or 14 inches by 13 inches with the keyboard out.

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 ADDS, Hazeltine, Lear Siegler, and a relative newcomer, TeleVideo. An active, but somewhat separate subsection of the ASCII terminal market consists of the Digital Equipment Corporation (DEC) VT100 and those terminals that offer VT100 (or VT52) emulation. The VT100 emulators differ from the other major ASCII terminals in that they offer 132-column display capability.

The success story of Sunnyvale, California-based TeleVideo Systems is worth noting here. The company, which began first commercial deliveries of its Model 912 and 920 smart terminals in March 1979, ranked only behind ADDS in shipments of ASCII terminals in 1981. TeleVideo's success in this field has encouraged a number of fledgling firms which hope to emulate that success (though not necessarily by following TeleVideo's blueprint), such as Falco Data Products, Kimtron Corporation, Liberty Electronics, Tandberg Data, and Wyse Technology.

USER EXPERIENCE

Datapro is proud to present the first edition of our Terminal Users Survey. The survey is based on results received from questionnaires mailed to a cross-section of *Data Communications* magazine subscribers.

The extensiveness of the survey serves to broaden considerably the scope of data communications user responses that has been presented by Datapro in the past, in terms of both the number of responses and the variety of vendors and equipment models represented. This in turn creates for our subscribers a more informative picture of terminal usage patterns, as well as a more comprehensive table of user ratings. The new survey takes the place of our traditional practice of including a separate survey questionnaire in each of four supplements to cover the following subjects: intelligent terminals, display terminals, teleprinter terminals, and RJE/batch terminals.

SURVEY METHODOLOGY

A questionnaire was designed and produced by Datapro and mailed by *Data Communications* personnel in June 1982 to approximately 10,000 addresses selected at random from a cross-section of *Data Communications'* U.S. end-user subscriber base.

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The questionnaire contained 42 questions, and was divided into five basic parts. In the first part, users were asked to provide information concerning the general characteristics of their data communications networks. In each of the remaining four parts, the users were asked to specify within a given category the types of data communications equipment and services being used in their networks, and to provide usage information and equipment ratings on each type. The four categories of equipment/services included: multi-station cluster terminals and distributed data processing systems, display terminals, teleprinter terminals, and RJE and batch terminals. The questionnaire allowed the user to rate up to two vendor/model types within each category of equipment. (Reproduction of the form was permitted when more than two types within given product category were being used.) User ratings given on non-programmable multi-station clustered display terminals and stand-alone display terminals are shown in this report.

When Datapro received the returns, they were audited by our senior level editors. All forms were carefully examined for validity before being sent for tabulation. The *Data Communications* labels were used for initial validation and identification. Responses to specific questionnaire sections or individual questions were disqualified whenever a vendor/model identity was omitted, user ratings were not assigned, a vested interest on the part of the respondent was judged to exist, or incomprehensible or unreasonable answers were given.

By the editorial cut-off of August 16, 1982, Datapro had processed 447 valid forms, which were then shipped to Mathematica Policy Research, Inc. for key entry and tabulation by computer. Summary information was prepared in the form of totals, percentages, or weighted averages, as appropriate for each question. Weighted averages were computed in a manner similar to most college grading systems: "Excellent" is weighted as 4, "Good" as 3, "Fair" as 2, and "Poor" as 1. The tallied numbers for each value were then multiplied by the corresponding weight, and the average taken by dividing the sum of the products by the total number of responses for that category.

Datapro suggests that the reader use the information presented with discretion. The individual equipment ratings are not presented to readers as the major consideration in making an acquisition decision. Rather, the ratings and other information should be used as guides to potential strengths and weaknesses that may call for further investigation in selecting the most suitable equipment for your needs.

THE RESULTS

The first part of the Terminal Users Survey consisted of nine questions that solicited information of the general characteristics of the user's networks. Taken together, the results provide a brief summary of the extent and complexity of these users' network configurations.

First, users were asked to indicate the number of sites that are linked by their networks, with the following results:

	Number of Responses	Percent of Responses
1 to 3 sites	121	27
4 to 10 sites	102	23
11 to 25 sites	74	17
26 to 50 sites	38	9
Over 50 sites	108	24
	443	100

These results present a fairly even spread of network sizes, with half the users in the 1-to-10 site range, and the other half in the 10-and-over range. Note that no distinction is made here as to the type or intelligence of the devices located at any site.

The second question asked the number of computers participating as hosts. As you can see, nearly 60 percent of these users are operating in multiple-host environments:

	Number of Responses	Percent of Responses
1 host	174	39
2 to 4 hosts	198	45
5 to 10 hosts	32	7
Over 10 hosts	39	9
	443	100

This adds some degree of clarity to the responses to Question 1, as well as developing a better picture of the level of sophistication of these users.

Another question asked the users to identify the overall network architecture with which their networks comply, with the following results:

	Number of Responses	Percent of Total Responses
IBM BSC (non-SNA) environment	196	44
IBM SNA	136	30
Digital Equipment DNA or DECnet	31	7
Hewlett-Packard DSN	16	4
Burroughs BNA	13	3
Sperry Univac DCA	12	3
Honeywell DSE or DSA	10	2
Other vendor-supported architecture	101	23
None, or user-developed architecture	82	18

The number of responses totals 597, indicating that 150, or approximately 34 percent, of the respondents are using more than one of the listed architectures in their networks. As we anticipated, the largest group of users is still operating in an IBM BSC environment. However, the percent of users complying with IBM's SNA is somewhat higher than we had expected, indicating that the acceptance of that architecture is becoming more widespread, despite strong objections by some portions of the user community. However, the fact remains that 18 percent of the respondents are not complying with any vendor-supported architectural scheme, either because their environments do not currently require it (but

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TABLE 2. USER RATINGS OF ALPHANUMERIC DISPLAY TERMINALS

Manufacturer & Model	Number of Responses	Number of Displays Installed	Overall Performance					Ease of Operation					Display Clarity				
			WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P
ADDS—																	
Consul	9	287	2.8	2	3	4	0	2.8	1	6	1	1	2.7	2	3	3	1
Regent	13	347	2.9	2	7	4	0	3.2	2	11	0	0	2.9	2	7	4	0
Viewpoint	3	28	3.7	2	1	0	0	3.3	1	2	0	0	3.7	2	1	0	0
Subtotals	25	662	2.9	6	11	8	0	3.0	4	19	1	1	2.9	6	11	7	1
Beehive—																	
all models	4	6,120	3.3	1	3	0	0	3.0	0	4	0	0	3.3	1	3	0	0
Burroughs—																	
MT 983	12	384	3.4	5	7	0	0	3.3	5	6	0	1	3.6	7	5	0	0
TD 830	19	897	3.2	5	13	1	0	3.2	6	11	1	1	3.3	5	14	0	0
Subtotals	31	1,281	3.3	10	20	1	0	3.2	11	17	1	2	3.4	12	19	0	0
Control Data—																	
all models	4	16	3.0	1	2	1	0	3.0	1	2	1	0	2.8	0	3	1	0
Datamedia—																	
Elite	4	43	3.5	2	2	0	0	3.0	1	2	1	0	3.8	3	1	0	0
Others & unspecified	5	34	3.6	3	2	0	0	3.8	4	1	0	0	3.8	3	1	0	0
Subtotals	9	77	3.6	5	4	0	0	3.4	5	3	1	0	3.8	6	2	0	0
DEC—																	
VT100	47	2,193	3.6	31	15	1	0	3.5	26	19	2	0	3.3	20	20	6	1
VT50/52	7	294	3.0	2	4	0	1	3.0	2	4	0	1	2.7	0	6	0	1
Others & unspecified	13	569	3.2	2	11	0	0	3.1	2	10	1	0	3.1	3	8	2	0
Subtotals	67	3,056	3.5	35	30	1	1	3.2	30	33	3	1	3.2	23	34	8	2
Delta Data—																	
all models	4	35	2.5	0	2	2	0	2.8	0	3	1	0	3.0	1	2	1	0
Data General—																	
D200	4	79	2.3	0	1	3	0	2.3	0	2	1	1	3.0	1	2	1	0
Dasher, others & unspecified	5	65	2.8	1	3	0	1	2.8	2	1	1	1	2.8	1	3	0	1
Subtotals	9	144	2.6	1	4	3	1	2.6	2	3	2	2	2.9	2	5	1	1
General Terminal—																	
all models	4	61	2.8	1	2	0	1	3.3	1	3	0	0	3.3	1	3	0	0
Harris—																	
8000	8	812	2.8	2	2	4	0	3.0	2	4	2	0	2.8	1	4	3	0
Hazeltine—																	
1400	4	41	2.8	1	1	2	0	3.5	2	2	0	0	2.8	2	0	1	1
1500	8	600	3.3	2	6	0	0	3.0	2	4	2	0	3.3	3	4	1	0
Others & unspecified	4	102	3.3	2	1	1	0	2.8	0	3	1	0	2.8	0	3	1	0
Subtotals	16	743	3.1	5	8	3	0	3.1	4	9	3	0	3.0	5	7	3	1
Honeywell—																	
VIP 7200	4	37	3.3	2	1	1	0	3.3	2	1	1	0	3.3	2	1	1	0
VIP 7800	4	225	3.5	2	2	0	0	3.5	2	2	0	0	3.5	2	2	0	0
VIP, others & unspecified	5	174	3.6	3	2	0	0	3.2	2	2	1	1	3.0	1	3	1	0
Subtotals	13	436	3.5	7	5	1	0	3.3	6	5	2	0	3.2	5	6	2	0
Hewlett-Packard—																	
2621	7	204	3.9	6	1	0	0	3.4	3	4	0	0	3.6	4	3	0	0
2622	4	47	3.8	3	1	0	0	3.8	3	1	0	0	4.0	4	0	0	0
2624	3	135	3.7	2	1	0	0	3.3	1	2	0	0	4.0	3	0	0	0
2626	3	60	3.3	1	2	0	0	3.0	1	1	1	0	3.0	1	1	1	0
2620, unspecified	4	90	3.0	1	2	1	0	2.8	1	1	2	0	3.0	1	2	1	0
2640	7	91	3.7	5	2	0	0	3.3	3	2	1	0	3.5	3	3	0	0
2645	8	773	3.9	7	1	0	0	3.3	4	2	2	0	3.5	4	4	0	0
Subtotals	36	1,400	3.7	25	10	1	0	3.3	16	13	6	0	3.5	20	13	2	0
IBM—																	
3101	14	1,446	3.4	8	4	2	0	3.0	6	4	2	2	3.6	8	6	0	0
3275	7	231	3.0	2	3	2	0	3.3	3	3	1	0	3.1	2	4	1	0
3276	16	682	3.4	9	5	2	0	3.4	7	8	1	0	3.4	7	8	1	0
3277	35	3,100	3.3	15	17	3	0	3.4	15	16	3	0	3.2	12	18	4	0
3278	141	28,332	3.6	81	58	2	0	3.4	67	61	11	1	3.4	61	67	12	0
3279	32	10,034	3.7	23	8	1	0	3.7	21	10	0	0	3.5	19	8	4	0
3270, unspecified	36	12,124	3.4	17	18	1	0	3.2	12	19	5	0	3.3	15	15	6	0
3600	4	175	3.5	2	2	0	0	3.3	1	3	0	0	3.3	1	3	0	0
4978	3	8	3.7	2	1	0	0	3.7	2	1	0	0	3.0	1	1	1	0
5251	12	710	3.6	7	5	0	0	3.6	7	5	0	0	3.3	4	8	0	0
8775	12	616	3.3	4	8	0	0	3.4	5	7	0	0	3.3	5	6	1	0
Subtotals	312	57,458	3.5	170	129	13	0	3.4	146	137	23	3	3.3	135	144	30	0

LEGEND: Weighted Average (WA) is based on assigning a weight of 4 to each user rating of Excellent (E), 3 to Good (G), 2 to Fair (F), and 1 to Poor (P).

Alphanumeric Display Terminals

TABLE 2. USER RATINGS OF ALPHANUMERIC DISPLAY TERMINALS (Continued)

Manufacturer & Model	Keyboard Feel & Usability					Hardware Reliability					Maintenance Service/ Technical/Support					Would you recommend this system to another user?		
	WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P	Yes	No	Undecided
ADDS—																		
Consul	2.8	1	5	3	0	2.8	1	5	3	0	2.2	1	1	6	1	2	5	1
Regent	2.9	1	9	3	0	2.9	2	7	4	0	1.9	0	3	6	4	6	4	1
Viewpoint	3.3	1	2	0	0	3.7	2	1	0	0	2.7	0	2	1	0	3	0	0
Subtotal	2.9	3	16	6	0	2.9	5	13	7	0	2.1	1	6	13	5	11	9	2
Beehive—																		
all models	3.3	1	3	0	0	3.3	1	3	0	0	3.0	1	2	1	0	4	0	0
Burroughs—																		
MT 983	3.1	4	6	1	1	3.4	5	7	0	0	3.0	4	4	4	0	8	1	2
TD 830	3.1	4	14	0	1	3.3	5	14	0	0	2.8	5	7	6	1	16	2	1
Subtotals	3.1	8	20	1	2	3.3	10	21	0	0	2.9	9	11	10	1	24	3	3
Control Data—																		
all models	3.3	1	3	0	0	3.3	1	3	0	0	3.0	1	2	1	0	2	1	1
Datamedia—																		
Elite	3.0	1	2	1	0	3.8	3	1	0	0	3.0	1	2	1	0	4	0	0
Others & unspecified	3.6	3	2	0	0	3.4	2	3	0	0	2.8	1	3	0	1	4	0	1
Subtotals	3.3	4	4	1	0	3.6	5	4	0	0	2.9	2	5	1	1	8	0	1
DEC—																		
VT100	3.3	19	23	5	0	3.4	22	22	3	0	3.0	15	19	8	4	38	2	2
VT50/52	2.7	2	2	2	1	2.9	1	5	0	1	2.7	1	4	1	1	3	1	3
Others & unspecified	3.2	5	5	3	0	2.9	2	7	3	0	2.9	3	4	4	0	8	2	2
Subtotals	3.2	26	30	10	1	3.3	25	34	6	1	2.9	19	27	13	5	49	5	7
Delta Data—																		
all models	3.0	1	2	1	0	2.5	1	1	1	1	2.8	1	2	0	1	2	1	1
Data General—																		
D200	1.8	0	1	1	2	1.8	0	0	3	1	3.3	2	1	1	0	3	1	0
Dasher, others & unspecified	2.8	2	1	1	1	2.6	2	1	0	2	2.8	1	3	0	1	3	0	2
Subtotals	2.3	2	2	2	3	2.2	2	1	3	3	3.0	3	4	1	1	6	1	2
General Terminal—																		
all models	3.0	0	4	0	0	2.8	1	2	0	1	2.3	0	1	2	0	2	2	0
Harris—																		
8000	3.0	3	2	3	0	2.5	1	3	3	1	2.3	1	2	3	2	3	4	1
Hazeltine—																		
1400	2.8	0	3	1	0	2.8	0	3	1	0	2.0	0	1	2	1	2	2	0
1500	2.6	0	5	3	0	2.6	2	1	5	0	2.7	1	3	3	0	4	2	2
Others & unspecified	2.8	1	1	2	0	2.5	0	3	0	1	2.5	0	3	0	1	3	1	0
Subtotals	2.7	1	9	6	0	2.6	2	7	6	1	2.5	1	7	5	2	9	5	2
Honeywell—																		
VIP 7200	3.0	2	1	0	1	3.8	3	1	0	0	3.5	2	2	0	0	3	1	0
VIP 7800	3.5	2	2	0	0	3.3	1	3	0	0	3.0	0	4	0	0	3	0	0
VIP, others & unspecified	3.2	3	1	0	1	3.6	3	2	0	0	3.4	2	3	0	0	3	2	0
Subtotals	3.2	7	4	0	2	3.5	7	6	0	0	3.3	4	9	0	0	9	3	0
Hewlett-Packard—																		
2621	3.4	3	4	0	0	3.7	5	2	0	0	3.3	3	3	1	0	5	0	0
2622	3.3	2	1	1	0	4.0	4	0	0	0	4.0	4	0	0	0	3	0	0
2624	3.7	2	1	0	0	3.0	1	1	1	0	2.7	1	1	0	1	3	0	0
2626	3.0	1	1	1	0	3.0	1	1	1	0	3.0	1	1	1	0	2	0	0
2620, unspecified	3.0	1	2	1	0	2.8	0	3	1	0	3.0	1	2	1	0	3	1	0
2640	3.5	3	3	0	0	3.3	3	2	1	0	3.5	4	1	1	0	6	1	0
2645	3.5	4	4	0	0	3.6	5	3	0	0	3.6	6	1	1	0	7	0	0
Subtotals	3.4	16	16	3	0	3.4	19	12	4	0	3.4	20	9	5	1	29	2	0
IBM—																		
3101	3.3	7	5	1	1	3.4	7	6	1	0	3.0	6	4	2	2	13	0	1
3275	3.3	3	3	1	0	3.0	3	1	3	0	3.0	2	3	2	0	4	1	1
3276	3.4	9	5	2	0	3.4	10	3	3	0	3.5	10	4	2	0	13	0	1
3277	3.4	15	18	1	0	3.4	17	12	5	0	3.2	11	17	4	1	25	3	1
3278	3.4	64	66	10	0	3.6	86	48	6	0	3.3	58	68	11	2	119	3	6
3279	3.6	21	8	2	0	3.7	22	9	0	0	3.5	19	8	3	1	27	1	1
3270, unspecified	3.3	15	16	4	1	3.4	17	16	3	0	3.2	13	16	7	0	28	2	3
3600	3.3	1	3	0	0	3.3	1	3	0	0	3.0	1	2	1	0	3	1	0
4978	3.0	1	1	1	0	3.3	2	0	1	0	3.0	1	1	1	0	2	0	0
5251	3.7	8	4	0	0	3.5	7	4	1	0	3.3	7	2	3	0	12	0	0
8775	3.3	4	7	1	0	3.5	6	6	0	0	3.2	3	8	1	0	8	2	0
Subtotals	3.4	148	136	23	2	3.5	178	108	23	0	3.3	131	133	37	6	254	13	14

LEGEND: Weighted Average (WA) is based on assigning a weight of 4 to each user rating of Excellent (E), 3 to Good (G), 2 to Fair (F), and 1 to Poor (P).

Alphanumeric Display Terminals

TABLE 2. USER RATINGS OF ALPHANUMERIC DISPLAY TERMINALS (Continued)

Manufacturer & Model	Number of Responses	Number of Displays Installed	Overall Performance					Ease of Operation					Display Clarity				
			WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P
ITT Courier—																	
270	19	1,614	3.1	5	11	3	0	3.2	6	10	3	0	3.2	6	10	3	0
Lear Siegler—																	
ADM 3/3A	17	361	3.4	9	6	1	1	3.1	5	9	2	1	3.2	7	6	4	0
ADM 5	3	5	3.7	2	1	0	0	3.3	2	0	1	0	3.0	1	1	1	0
ADM 31	7	268	3.3	2	5	0	0	3.1	2	4	1	0	3.0	1	5	1	0
ADM 42	4	204	3.3	2	1	1	0	3.5	2	2	0	0	3.8	3	1	0	0
Others & unspecified	7	213	3.3	2	5	0	0	3.3	2	5	0	0	3.0	1	5	1	0
Subtotals	38	1,051	3.3	17	18	2	1	3.2	13	20	4	1	3.2	13	18	7	0
MDS Trivex—																	
all models	5	2,462	3.0	2	1	2	0	3.4	2	3	0	0	2.6	1	2	1	1
Memorex—																	
1377	8	1,099	3.5	4	4	0	0	3.5	4	4	0	0	3.3	3	4	1	0
2078	11	1,533	3.3	3	8	0	0	3.4	4	7	0	0	3.4	4	7	0	0
Subtotals	19	2,632	3.4	7	12	0	0	3.4	8	11	0	0	3.3	7	11	1	0
NCR—																	
7900	3	32	3.7	2	1	0	0	3.7	2	1	0	0	3.7	2	1	0	0
796	6	227	3.5	3	3	0	0	3.3	2	4	0	0	3.0	1	4	1	0
Subtotals	9	259	3.6	5	4	0	0	3.4	4	5	0	0	3.2	3	5	1	0
Northern Telecom—																	
290	9	459	2.9	1	6	2	0	3.0	1	7	1	0	2.9	0	8	1	0
Perkin-Elmer—																	
all models	4	85	3.0	0	4	0	0	2.5	0	2	2	0	3.0	0	4	0	0
Racal-Milgo—																	
all models	4	170	3.3	1	3	0	0	3.5	2	2	0	0	3.5	2	2	0	0
Raytheon—																	
all models	7	8,591	3.1	2	4	1	0	3.1	2	4	1	0	2.7	0	5	2	0
SRI (Burroughs)—																	
Century	3	34	4.0	3	0	0	0	4.0	3	0	0	0	3.3	1	2	0	0
Tandem—																	
all models	4	72	3.3	2	1	1	0	3.5	2	2	0	0	3.8	3	1	0	0
Tektronix—																	
all models	3	7	3.7	2	1	0	0	3.7	2	1	0	0	3.0	0	3	0	0
Telex—																	
277	3	374	3.0	1	1	1	0	3.3	1	2	0	0	3.0	1	1	1	0
278	12	515	3.2	3	8	1	0	2.9	2	8	1	1	3.0	3	7	1	1
270, others & unspecified	5	114	3.0	0	5	0	0	3.0	0	5	0	0	3.0	1	3	1	0
Subtotals	20	1,003	3.1	4	14	2	0	3.0	3	15	1	1	3.0	5	11	3	1
Teleray—																	
all models	8	149	3.0	2	4	2	0	3.1	3	3	2	0	2.9	1	5	2	0
Teletype—																	
40	9	11,312	3.1	4	2	3	0	3.1	4	3	1	1	3.4	5	3	1	0
4540	10	13,638	3.7	7	3	0	0	3.4	5	4	1	0	3.5	6	3	1	0
Subtotals	19	24,950	3.4	11	5	3	0	3.3	9	7	2	1	3.5	11	6	2	0
TeleVideo—																	
920	5	163	3.2	3	1	0	1	3.0	2	2	0	1	2.8	1	3	0	1
925	3	165	4.0	3	0	0	0	3.7	2	1	0	0	3.3	1	2	0	0
950	3	16	3.3	1	2	0	0	2.3	0	1	2	0	3.7	2	1	0	0
Others & unspecified	5	177	3.2	1	4	0	0	3.2	1	4	0	0	3.6	3	2	0	0
Subtotals	16	521	3.4	8	7	0	1	3.1	5	8	2	1	3.3	7	8	0	1
Sperry Univac—																	
UTS 20	7	620	3.3	3	3	1	0	3.4	3	4	0	0	3.3	2	5	0	0
U 200	3	41	2.7	0	2	1	0	2.7	0	2	1	0	2.7	0	2	1	0
Subtotals	10	661	3.1	3	5	2	0	3.2	3	6	1	0	3.1	2	7	1	0
Zenith—																	
Z19	7	170	3.3	3	3	1	0	3.0	1	5	1	0	3.0	1	5	1	0
Zentec—																	
all models	4	3,202	2.8	1	1	2	0	3.3	2	1	1	0	2.8	1	2	0	1
All others	47	1,670	3.4	21	22	4	0	3.3	21	19	7	0	3.1	15	22	9	1
GRAND TOTALS	797	122,063	3.4	369	358	65	5	3.3	320	386	74	13	3.2	297	393	92	10

LEGEND: Weighted Average (WA) is based on assigning a weight of 4 to each user rating of Excellent (E), 3 to Good (G), 2 to Fair (F), and 1 to Poor (P).

Alphanumeric Display Terminals

TABLE 2. USER RATINGS OF ALPHANUMERIC DISPLAY TERMINALS (Continued)

Manufacturer & Model	Keyboard Feel & Usability					Hardware Reliability					Maintenance Service/ Technical/Support					Would you recommend this system to another user?		
	WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P	Yes	No	Undecided
ITT Courier—																		
270	2.7	4	9	3	3	2.7	5	6	5	3	2.6	3	8	6	2	10	4	3
Lear Siegler—																		
ADM 3/3A	2.9	2	12	2	1	3.2	6	9	1	1	2.6	1	10	3	2	14	3	0
ADM 5	3.0	1	1	1	0	3.3	1	2	0	0	3.0	1	1	1	0	2	0	1
ADM 31	3.1	3	2	2	0	2.6	1	2	4	0	2.3	0	4	1	2	5	0	2
ADM 42	3.5	2	2	0	0	2.3	1	1	0	2	3.0	2	0	2	0	2	0	2
Others & unspecified	2.9	0	6	1	0	2.6	0	4	3	0	2.0	0	3	1	3	4	1	1
Subtotals	3.0	8	23	6	1	2.9	9	18	8	3	2.5	4	18	8	7	27	4	6
MDS Trivex—																		
all models	3.2	2	2	1	0	2.2	1	1	1	2	2.6	2	0	2	1	3	2	0
Memorex—																		
1377	3.1	3	3	2	0	3.6	5	3	0	0	3.0	2	3	2	0	6	1	1
2078	2.9	2	6	3	0	3.3	4	6	1	0	2.9	3	4	2	1	10	0	1
Subtotals	3.0	5	9	5	0	3.4	9	9	1	0	2.9	5	7	4	1	16	1	2
NCR—																		
7900	3.7	2	1	0	0	3.7	2	1	0	0	3.7	2	1	0	0	3	0	0
796	3.2	2	3	1	0	3.3	3	2	1	0	3.2	3	2	1	0	4	2	0
Subtotals	3.3	4	4	1	0	3.4	5	3	1	0	3.3	5	3	1	0	7	2	0
Northern Telecom—																		
290	2.7	1	5	2	1	2.9	1	6	2	0	2.2	0	4	3	2	5	3	0
Perkin-Elmer—																		
all models	3.0	0	4	0	0	3.0	1	2	1	0	3.3	1	3	0	0	3	0	1
Racal-Milgo—																		
all models	3.3	1	3	0	0	3.3	2	1	1	0	3.8	3	1	0	0	3	0	1
Raytheon—																		
all models	2.9	1	4	2	0	2.7	1	4	1	1	2.7	1	4	1	1	5	2	0
SRI (Burroughs)—																		
Century	3.3	1	2	0	0	4.0	3	0	0	0	2.7	1	1	0	1	2	0	0
Tandem—																		
all models	3.3	1	3	0	0	3.0	2	1	0	1	3.3	2	1	1	0	3	1	0
Tektronix—																		
all models	3.7	2	1	0	0	3.3	1	2	0	0	3.3	1	2	0	0	3	0	0
Telex—																		
277	2.7	0	2	1	0	3.0	1	1	1	0	2.7	0	2	1	0	2	0	0
278	2.8	1	8	2	1	3.0	3	6	3	0	2.8	0	11	0	1	9	2	0
270, others & unspecified	2.8	0	4	1	0	2.8	0	4	1	0	3.2	1	4	0	0	5	0	0
Subtotals	2.8	1	14	4	1	3.0	4	11	5	0	2.9	1	17	1	1	16	2	0
Teleray—																		
all models	2.9	0	7	1	0	2.6	2	2	3	1	3.1	2	5	1	0	3	5	0
Teletype—																		
40	3.2	4	3	2	0	3.3	5	2	2	0	3.1	3	4	2	0	7	1	0
4540	3.2	3	6	1	0	3.5	6	3	1	0	3.0	3	4	3	0	10	0	0
Subtotals	3.2	7	9	3	0	3.4	11	5	3	0	3.1	6	8	5	0	17	1	0
TeleVideo—																		
920	2.4	0	3	1	1	3.0	2	2	0	1	2.8	1	3	0	1	4	1	0
925	3.0	1	1	1	0	3.7	2	1	0	0	3.3	1	2	0	0	3	0	0
950	3.0	1	1	1	0	3.7	2	1	0	0	2.7	1	1	0	1	3	0	0
Others & unspecified	3.2	1	4	0	0	2.8	1	2	2	0	3.2	1	4	0	0	3	0	0
Subtotals	2.9	3	9	3	1	3.2	7	6	2	1	3.0	4	10	0	2	13	1	0
Sperry Univac—																		
UTS 20	3.1	1	6	0	0	3.3	3	3	1	0	3.0	0	7	0	0	6	0	1
U 200	2.0	0	0	3	0	2.7	0	2	1	0	2.7	0	2	1	0	1	2	0
Subtotals	2.8	1	6	3	0	3.1	3	5	2	0	2.9	0	9	1	0	7	2	1
Zenith—																		
Z19	2.6	1	3	2	1	3.0	2	4	0	1	2.9	1	5	0	1	3	1	2
Zentec—																		
all models	2.8	1	1	2	0	3.0	1	2	1	0	3.3	2	1	1	0	2	1	1
All others	3.1	14	25	7	1	3.0	17	18	9	3	2.9	11	23	8	4	35	2	5
GRAND TOTALS	3.2	279	394	101	19	3.3	345	324	99	24	3.0	249	350	135	48	595	83	56

LEGEND: Weighted Average (WA) is based on assigning a weight of 4 to each user rating of Excellent (E), 3 to Good (G), 2 to Fair (F), and 1 to Poor (P).

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TABLE 3. USER RATINGS OF CLUSTERED TERMINAL SYSTEMS—IBM 3270 & COMPATIBLE

Manufacturer & System	No. of Responses	Avg. No. of Keyboard/ Displays	Avg. No. of Printers	Overall Performance					Ease of Operation					Reliability of Controller				
				WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P
Harris—																		
all models	3	11.3	1.0	3.3	1	2	0	0	3.3	1	2	0	0	3.3	1	2	0	0
IBM—																		
3274	80	49.7	8.0	3.4	34	44	2	0	3.2	26	45	7	1	3.4	37	39	3	0
3276	9	12.3	2.8	3.3	4	4	1	0	3.1	4	3	1	1	3.4	4	5	0	0
3270, others & unspecified	61	62.8	14.6	3.4	29	29	3	0	3.3	23	33	4	0	3.3	25	30	5	1
3600	9	10.9	8.6	3.3	5	3	0	1	2.8	1	5	3	0	3.7	6	3	0	0
5250	3	2.0	1.0	3.3	1	2	0	0	3.3	1	2	0	0	3.0	1	1	1	0
Subtotals	162	—	—	3.4	73	82	6	1	3.2	55	88	15	2	3.4	73	78	9	1
ITT Courier—																		
270	12	11.9	1.2	3.1	3	7	2	0	3.1	3	7	2	0	3.0	3	6	3	0
Memorex—																		
137X	6	32.2	13.5	3.3	3	2	1	0	3.3	3	2	1	0	3.4	3	1	1	0
Northern Telecom—																		
290	7	4.9	1.3	2.7	1	3	3	0	3.0	1	5	1	0	2.6	0	5	1	1
Racal-Milgo—																		
4270	3	3.3	1.0	2.3	1	0	1	1	2.3	0	1	2	0	2.7	1	1	0	1
Raytheon—																		
PTS-100	7	16.0	2.0	2.9	1	4	2	0	3.3	3	3	1	0	2.7	1	4	1	1
PTS-2000	5	6.6	1.3	2.4	1	1	2	1	2.8	1	3	0	1	2.0	0	2	1	2
Subtotals	12	—	—	2.7	2	5	4	1	3.1	4	6	1	1	2.4	1	6	2	3
Telex—																		
270	5	8.8	2.0	3.0	1	3	1	0	3.0	0	5	0	0	2.8	0	4	1	0
Teletype—																		
40	11	27.7	1.2	2.9	3	4	4	0	3.1	4	5	1	1	3.0	2	7	2	0
4540	9	7.3	1.2	3.8	7	2	0	0	3.7	6	3	0	0	3.8	7	2	0	0
Subtotals	20	—	—	3.3	10	6	4	0	3.4	10	8	1	1	3.4	9	9	2	0
All others	6	17.2	1.4	3.2	1	5	0	0	3.2	2	3	1	0	3.3	2	4	0	0
GRAND TOTALS	236	—	—	3.3	96	115	22	3	3.2	79	127	24	4	3.3	93	116	19	6

LEGEND: Weighted Average (WA) is based on assigning a weight of 4 to each user rating of Excellent (E), 3 to Good (G), 2 to Fair (F), and 1 to Poor (P).

potentially may in the future) or because they have found other satisfactory alternatives.

The users were also asked to indicate the primary protocols supported by their networks:

	Number of Responses	Percent of Total Responses
Bisynchronous (including IBM BSC)	289	65
Asynchronous	276	62
IBM SDLC	153	34
ADCCP HDLC (including Sperry Univac UDLC and Burroughs BDLC)	47	11
X.25 packet-level	19	4
Other	50	11

Eighty-seven percent of these users responded that they are using more than one protocol in their network, with ASCII and bisynchronous the front-runners. The use of the IBM SDLC protocol by 34 percent of these users correlates with the 30 percent figure represented for IBM SNA compliance in the preceding question, but the high response for multiple protocol usage suggests that many of these users are still in various stages of migration fo SNA.

The users were requested to identify which vendors' systems are functioning as hosts. The following list summarizes their responses:

	Number of Responses	Percent of Total Responses
IBM	272	61
DEC	77	17
Amdahl	40	9
Burroughs	35	8
Honeywell	31	7
Univac	31	7
Control Data	19	4
NCR	15	3
National Advanced Systems	12	3
Magnuson	3	1
Other	106	24

As expected, IBM came out well ahead of all other vendors; however, DEC placed second with a surprisingly strong showing. Forty-three percent of the users are using more than one vendors' system as hosts, indicating that the multiple-host environments represented in Question 2 are frequently multiple-vendor environments as well.

Alphanumeric Display Terminals

TABLE 3. USER RATINGS OF CLUSTERED TERMINAL SYSTEMS—IBM 3270 & COMPATIBLE (Continued)

Manufacturer & System	Reliability of Peripherals					Maintenance Service					Technical Support					Would you recommend this system to another user?		
	WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P	Yes	No	Undecided
Harris—																		
all models	3.3	1	2	0	0	3.7	2	1	0	0	3.0	0	3	0	0	3	0	0
IBM—																		
3274	3.4	34	39	3	1	3.2	27	40	11	1	3.0	20	43	14	2	57	3	5
3276	3.3	3	4	1	0	3.0	2	5	2	0	2.6	1	5	1	2	5	1	1
3270, others & unspecified	3.3	23	29	6	0	3.2	22	28	9	2	2.8	11	30	19	1	50	2	2
3600	3.0	1	6	1	0	3.2	2	7	0	0	2.4	2	1	5	1	7	2	0
5250	3.0	1	1	1	0	3.3	1	2	0	0	2.7	1	1	0	1	2	0	1
Subtotals	3.3	62	79	12	1	3.2	54	82	22	3	2.9	35	80	39	7	121	8	9
ITT Courier—																		
270	2.8	2	7	2	1	2.5	2	4	4	2	1.9	0	2	7	3	4	3	2
Memorex—																		
137X	3.2	2	3	1	0	2.8	1	3	2	0	2.7	0	4	2	0	3	0	2
Northern Telecom—																		
290	2.5	0	3	3	0	2.3	0	4	1	2	2.3	0	2	5	0	3	1	0
Racal-Milgo—																		
4270	2.3	1	0	1	1	3.3	2	0	1	0	2.3	0	2	0	1	1	1	1
Raytheon—																		
PTS-100	2.6	1	3	2	1	2.6	1	3	2	1	2.3	0	2	5	0	4	2	1
PTS-2000	2.5	0	2	2	0	2.6	0	4	0	1	2.2	0	1	4	0	2	2	1
Subtotals	2.6	1	5	4	1	2.6	1	7	2	2	2.3	0	3	9	0	6	4	2
Telex—																		
270	2.8	0	3	1	0	2.8	1	2	2	0	2.8	2	0	3	0	2	1	1
Teletype—																		
40	3.0	4	4	2	1	2.8	2	5	4	0	2.6	2	4	4	1	6	2	0
4540	3.7	6	3	0	0	3.6	6	2	1	0	3.2	4	3	2	0	8	0	0
Subtotals	3.3	10	7	2	1	3.2	8	7	5	0	2.9	6	7	6	1	14	2	0
All others	3.2	1	5	0	0	3.3	2	4	0	0	3.2	2	3	1	0	6	0	0
GRAND TOTALS	3.2	80	114	26	5	3.1	73	114	39	9	2.8	45	106	72	12	163	20	17

LEGEND: Weighted Average (WA) is based on assigning a weight of 4 to each user rating of Excellent (E), 3 to Good (G), 2 to Fair (F), and 1 to Poor (P).

Another question requested that the users indicate any commercial *local* networks which they operate. Only 13 percent of the users answered this question. A summary of these 57 responses is shown below:

	Number of Responses	Percent of Responses
Ethernet (Xerox)	10	18
ARC (Datapoint)	9	16
Hyperchannel (Network Systems)	3	5
LocalNet (Sytek)	3	5
Wangnet (Wang)	3	5
Net/One (Ungermann-Bass)	27	47
Other	57	100

Local area networking is being strongly promoted by the industry, and new vendors are entering that market at a significant rate. We expect user acceptance of the local area network concept to be reflected in fugure editions of this survey.

The users were also asked to indicate the total number of end-user workstations (CRTs, teleprinters, etc.) that are in use on their networks:

	Number of Responses	Percent of Responses
1 to 10 terminals	41	9
11 to 25 terminals	46	11
26 to 100 terminals	134	30
100 to 500 terminals	128	29
Over 500 terminals	93	21
	442	100

When examined in conjunction with Questions 1 and 2, these results characterize the typical (median) respondent to the survey as having a network configuration consisting of approximately 10 to 20 sites, two or three hosts, and between 100 and 200 terminals (an average of 10 per site).

We then asked the users to indicate for what types of applications these terminals were being used *now*, and what types of new applications they expected to implement within the next two years. The results follow:

	Percent of Total Responses		
	Now	Within 2 years	No immediate plans
Inquiry/response	85	4	3
Program development	81	4	5
Interactive data entry	81	9	2

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	Percent of Total Responses		
	Now	Within 2 years	No immediate plans
System console	64	3	11
Batch data entry	59	8	13
Remote job entry	54	9	15
Text editing/word processing	48	29	8
Intra-company message traffic	36	31	16
Distributed processing/local file maintenance	35	23	20
Business graphics	20	28	25
Other	5	2	5

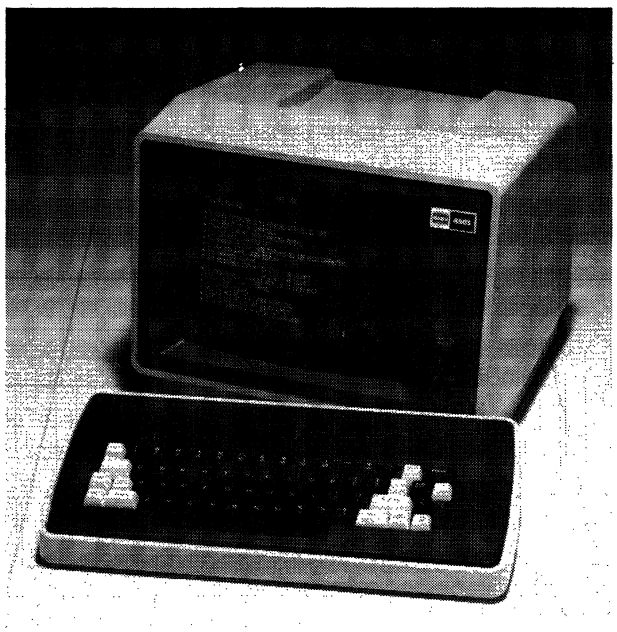
These results reveal the stability of the traditional applications, such as inquiry/response, program development, and data entry, and more interestingly, the projected growth for newer applications, such as word processing, electronic mail, distributed processing, and business graphics. Fully one-quarter to one-third of these users are planning to add one or more of these capabilities in the next two years!

The final question in the first part of the questionnaire provided a list of ten possible sources of networking problems, and asked the respondent to indicate whether they had had any problems related to each possible source, with these results:

	Percent of Total Responses		
	Severe or frequent problems	Less severe or occasional problems	No problems
Non-local comm. lines	12	51	20
Local loops	9	29	42
Front-end software	5	37	41
Terminals	4	60	27
Host software	4	50	35
Terminal controllers	4	38	40
Front-end hardware	3	31	48
Modems	3	50	38
Host hardware	3	44	41
Multiplexers	1	23	45

Not unexpectedly, the area of these users' networks that causes the most headaches is their communications lines. Although few users experience severe or frequent problems with their terminals, these devices seem to be the greatest single source of minor or sporadic problems. The least frequently experienced source of problems is multiplexer equipment.

The remaining parts of the questionnaire focused on specific categories of terminals and terminal systems. Users were asked to list the specific vendors and types of equipment they are using in their networks, and to provide user ratings based on their experiences with each. The Display Terminal section of the questionnaire asked the user to provide the manufacturers and model numbers of each type of display currently in use, the number of units installed, and ratings of six specific categories of user experience: overall performance, ease of operation, display clarity, keyboard feel and usability, hardware reliability, and maintenance service/technical support.



Nabu Commercial Terminals (formerly Volker-Craig) provides a family of low-priced ASCII terminals. The Nabu 4503, priced at $495, is the company's entry-level offering. The 4503 contains a 12-inch display and detachable keyboard, transmits in conversational (character-by-character) mode, and is compatible with the Lear Siegler ADM 3A.

Another section asked users to provide similar information about their multi-station clustered terminal systems. All non-programmable clustered systems rated were IBM 3270 and compatible systems. Specific categories rated include: overall performance, ease of operation, reliability of controller, reliability of peripherals, maintenance service, and technical support.

Summaries of the results of these questions for all non-programmable display terminal models, and clustered display terminal systems, are shown in Tables 1 and 2.

The Datapro Research staff extends a sincere thanks to all for responding so enthusiastically to our 1982 Terminal Users Survey. Without your participation, it could not have been the terrific success it is, and we hope that this compendium of user experience will be of significant value to you. We look forward to hearing from you again.

DISPLAY TERMINAL CHARACTERISTICS

The accompanying comparison charts summarize the characteristics of 302 commercially available alphanumeric display terminals from 92 vendors. Nearly all of the information was supplied by the manufacturers during the months of November and December 1982. Their cooperation is acknowledged and greatly appreciated.

Datapro sent repeated requests for information to over 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

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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, which can often 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.*

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.*

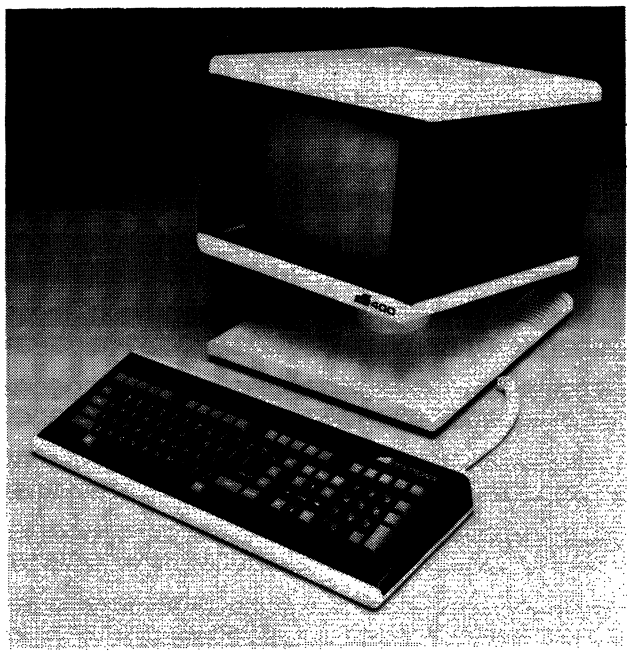
Some vendors provide *other compatibility,* and can replace terminals such as those produced by Burroughs, Digital Equipment, Honeywell, and Univac. For example, a wide variety of vendors market terminals which are compatible with the DEC VT100 (or VT52, the VT100's predecessor).

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. For example, although numerous vendors offer IBM 3270 compatibility, only a few, including ITT Courier, Memorex, Telex, and MDS Trivex, make a true plug-for-plug replacement for the 3277/3278 display stations.

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



Dentronix, located in Santa Ana, California, has recently entered the display terminal market with a new family of Data General Dasher emulators. The Dentronix 400, shown here, is a Dasher D400 replacement featuring a 12-inch display (15-inch displays are also available), tilt-and-swivel capability, and a detached keyboard. The 400 features display arrangements of 24 lines by 81/135 characters.

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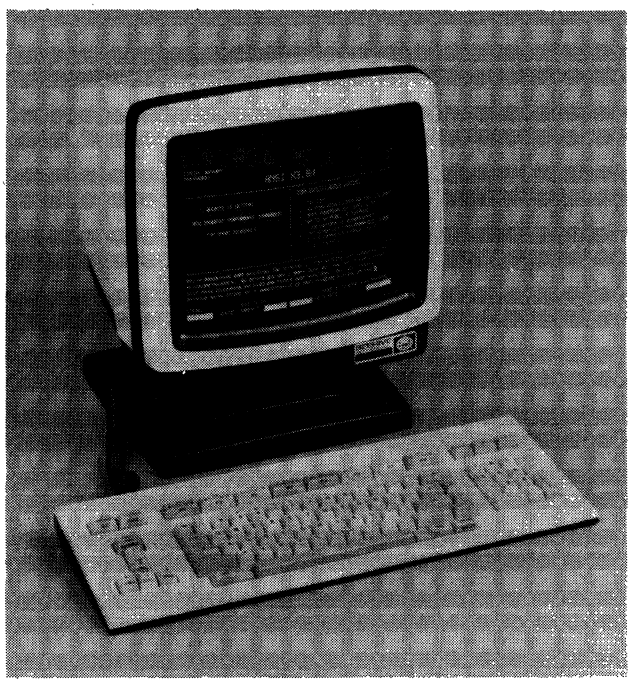
may be stored character-by-character, by the line, or by the "page" (a full screen of data). *Memory capacity* defines the total number of characters, lines, and pages that can be stored in the terminal's display memory.

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.

Egonomic 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.



The ATL-008 is the first member of a new family of 16-bit microprocessor-based smart terminals from Beehive. The ATL-008 features a 14-inch tilt-and-swivel monitor, a low-profile detached keyboard, and a display arrangement of 27 lines by 80/132 characters. The ATL-008 is targeted to compete against the ADDS Viewpoint/90 and Tele Video 970, and is intended as a bridge for Beehive into the desktop microcomputer market.

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 phosphorous 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.

Display arrangement, display medium, character phosphor, and symbol formation all have a great impact on display clarity. Test several units 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 can also 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.
- *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 leve.
- *Reverse*—highlights significant information by displaying a negative image of it; e.g., when normal data is 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 a 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: Σ

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

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

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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.

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.

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 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 Line Control (SDLC) line discipline. Other large mainframe vendors such as Burroughs, Honeywell, and Digital Equipment Corporation (DEC) have produced their own communications protocols.

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 multi-character 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. EIA RS-449, the heir apparent to RS-232-C, is not yet widely used.

Some terminals contain an *integral modem* that can be connected directly to a communications line. In some cases, the vendor provides an integral *acoustic telephone coupler,* so that the terminal can be connected to a conventional telephone handset. Σ

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PRICING AND AVAILABILITY

Terminal pricing is provided for unit quantities (one terminal) unless otherwise specified. Two-year lease prices, including maintenance, and 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 prime-shift maintenance charge is the cost of service during regular business hours (usually 9 A.M.-5 P.M., Monday-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. In some cases, the terminal vendor offers a lease term other than those shown, such as a 4- or 5-year lease or a 30- or 60-day, short-term rental. In such cases, the lease prices and terms appear in the Comments at the bottom of the charts.

Many terminal vendors do not lease their equipment, and in these cases you'll find dashes in the lease price entries. Also, a number of terminal makers sell their wares on an OEM basis only, for incorporation into systems supplied by other vendors. Quantity discounts, and discounts for educational and other institutions, are often available.

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 December 1, 1982. 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 92 vendors whose products are summarized in the comparison charts.

Altos Computer Systems, 375 East Trimble Road, San Jose, CA 95131. Telephone (408) 946-6700.

Ampex Corporation, 200 N. Nash Street, El Segundo, CA 90245. Telephone (213) 640-0150.

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

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

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

A.R. Shaw, Incorporated, 10800 Lyndale Avenue South, Minneapolis, MN 55420. Telephone (612) 888-6700.

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

The Braegen Corporation, 20740 Valley Green Drive, Cupertino, CA 95014. Telephone (408) 255-4200.

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

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

C. Itoh Electronics, Incorporated, 5301 Beethoven Street, Los Angeles, CA 90066. Telephone (213) 306-6700.

Cobar, Inc., 1181 N. Fountain Way, Anaheim, CA 92806. Telephone (714) 630-0970.

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

Control Concepts Corporation, 2361 South Jefferson Davis Highway, Arlington, VA 22202. Telephone (703) 553-2910.

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

Custom Terminals, Inc., 5249 North Boulevard, Raleigh, NC 27604. Telephone (919) 876-8731.

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

DatagraphiX, Incorporated, P.O. Box 82449, San Diego, CA 92138. Telephone (714) 291-9960.

Datamaxx USA Corporation, 1815 South Gadsden Street, Tallahassee, FL 32301. 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.

Datavue Corporation, 1911 22nd Avenue South, Seattle, WA 98144. Telephone (206) 322-9330.

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

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

Dentronix Systems, Incorporated, 2635 Croddy Way, Santa Ana, CA 92704. Telephone (714) 966-0015.

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.

Epic Computer Products, Inc., 18381 Bandilier Court, Fountain Valley, CA 92708. Telephone (714) 964-4722.

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

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

General Terminal Corporation, 14831 Franklin Avenue, Tustin, CA 92680. Telephone (714) 730-0123.

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

Hazeltine Corporation, Greenlawn, NY 11740. Telephone (516) 261-7000.

Hewlett-Packard, Data Terminals Division, 974 East Arques Avenue, Sunnyvale, CA 94086. Telephone (408) 735-1550.

Honeywell, Incorporated, U.S. Marketing & Service Division, 200 Smith Street, Waltham, MA 02154. Telephone (617) 890-8400.

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

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

Informer, Incorporated, 8332 Osage Avenue, Los Angeles, CA 90045. Telephone (213) 649-2030.

Intelligent Systems Corporation, 225 Technology Park/Atlanta, Norcross, GA 30092. Telephone (404) 449-5961.

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

International Anasazi, Inc., Emulog Division, 2219 East University Drive, Phoenix, AZ 85034. Telephone (602) 275-0303.

International Business Machines Corporation (IBM), Information Systems Group, National Accounts Division, 1133 Westchester Avenue, White Plains, NY 10604. Telephone (914) 696-1900.

International Business Machines Corporation (IBM), Information Systems Group, National Marketing Division, 4111 Northside Parkway, Atlanta, GA 30327. Telephone (404) 238-2000.

Intertec Data Systems Corporation, 2300 Broad River Road, Columbia, SC 29210. Telephone (803) 798-9100.

ITT Courier Terminal Systems, Incorporated, 1515 West 14th Street, Tempe, AZ 84281. Mailing Address: P.O. Box 29039, Phoenix, AZ 85038. Telephone (602) 275-7555.

IXO, Inc., 6041 Bristol Parkway, Culver City, CA 90230. Telephone (213) 417-8080.

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

Lear Siegler, Incorporated, Data Products Division, 714 North Brookhurst Street, Anaheim, CA 92803. Telephone (714) 774-1010.

Lee Data Corporation, 10206 Crosstown Circle, Minneapolis, MN 55344. Telephone (612) 932-0300.

Liberty Electronics USA, 100 Clement Street, San Francisco, CA 94118. Telephone (415) 751-7560.

MDS Trivex, Incorporated (Division of Mohawk Data Sciences), 3180 Red Hill Avenue, Costa Mesa, CA 92626. Telephone (714) 546-7781.

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.

Microdata Corporation, 17481 Red Hill Avenue, Irvine, CA 92713. Telephone (714) 540-6730.

Micro-Term, Incorporated, 1314 Hanley Industrial Court, St. Louis, MO 63144. Telephone (314) 968-8151.

Nabu Commercial Terminals, (formerly Volker-Craig), 330 Weber Street North, Waterloo, Ontario, Canada N2J 3H6. Telephone (519) 884-9300.

NCR Corporation, 1700 South Patterson Boulevard, Dayton, OH 45479. Telephone (513) 445-5000.

Northern Technologies, Limited, 85 Torbay Road, Markham, Ontario, Canada L3R 1H1. Telephone (416) 475-9123.

Northern Telecom, Inc., Electronic Office Systems, 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, Terminals Division, 360 Route 206 South, Flanders, NJ 07836. Telephone (201) 584-1400.

Perry Data Systems, Inc., 3401 Spring Forest Road, Raleigh, NC 27658. Telephone (919) 876-8100.

Phaze Information Machines Corporation, 7650 E. Redfield Road, Scottsdale, AZ 85260. Telephone (602) 991-6855.

Plantronics, Inc., 345 Encinal Street, Santa Cruz, CA 95060. Telephone (408) 426-5858.

Prime Computer, Inc., Prime Park, Natick, MA 01760. Telephone (617) 655-8000.

Qume Corporation, 2350 Qume Drive, San Jose, CA 95131. Telephone (408) 942-4000.

Racal-Milgo, Incorporated, 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.

Raytheon Data Systems, 1415 Boston-Providence Turnpike, Norwood, MA 02062. Telephone (617) 762-6700.

Soroc Technology, Incorporated, 165 Freedom Avenue, Anaheim, CA 92801. Telephone (714) 992-2860.

Tab Products Co., Electronics Office Products Division, 1451 California Avenue, Palo Alto, CA 94304. Telephone (415) 858-2500.

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Tandberg Data, Inc., Labriola Court, P.O. Box 99, Armonk, NY 10504. Telephone (914) 273-6400.

Tandem Computers, Inc., 19333 Vallco Parkway, Cupertino, CA 95014. Telephone (408) 725-6000.

Taumark, Incorporated, 6621 Century Avenue, Middleton, WI 53562. Telephone (608) 831-9291.

TEC, Incorporated, 2727 North Fairview Avenue, Tucson, AZ 85703. Telephone (602) 792-2230.

Tektronix, Incorporated, Information Display Division, P.O. Box 500, Beaverton, OR 97077. Telephone (503) 644-0161.

Telcon Industries, Inc., 1401 N.W. 69th Street, Ft. Lauderdale, FL 33309. Telephone (305) 971-2250.

Teleram Communications Corporation, 2 Corporate Park Drive, White Plains, NY 10604. Telephone (914) 694-9270.

Teleray, Division of Research Incorporated, P.O. Box 24064, Minneapolis, MN 55424. Telephone (612) 941-3300.

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

TeleVideo Systems, Incorporated, 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.

Termiflex Corporation, 18 Airport Road, Nashua, NH 03063. Telephone (603) 889-3883.

Texas Instruments, Inc., Digital Systems Group, P.O. Box 1444, Houston, TX 77001. Telephone (713) 937-2000.

Texas Instruments, Inc., Computer Systems Division, P.O. Box 2909, Austin, TX 78769. Telephone (512) 250-7111.

Tymshare, Inc., Equipment Product Marketing, 20705 Valley Green Drive, Cupertino, CA 95014. Telepone (408) 446-6000.

Sperry Univac Division, Sperry Rand Corp., P.O. Box 500, Blue Bell, PA 19422. Telephone (215) 542-4011.

Visual Technology, Incorporated, 540 Main Street, Tewksbury, MA 01876. Telephone (617) 851-5000.

Volker-Craig Limited, —see Nabu Commerical Terminals

Western Union Data Services Company, 1 Lake Street, Upper Saddle River, NJ 07458. Telephone (201) 825-5000.

Westinghouse Canada Inc., Box 5009, 777 Walker's Line, Burlington, Ontario, Canada L7R 4B3. Telephone (416) 528-8811.

Wyse Technology, Inc., 2184 Bering Drive, San Jose, CA 95131. 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.□

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SUPPLIER AND MODEL	Altos 2	Ampex D30	Ampex D80	Ampex D81	Ampex D150
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	—	—	—	—
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	Altos, ANSI X3.41 ANSI X3.64	Lear Siegler ADM 3A+	Lear Siegler ADM 3A+	Lear Siegler ADM 3A+	See Comments
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2000, 5280	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	—	80/24/1	80/24/2 or 4	80/24/2 or 4	80/24/2 or 4
Screen arrangement, lines x chars./line	25 x 80, 40 x 132	24 x 80	24 x 80	24 x 80	24 x 80
Screen area, diagonal, inches	14	12	12	12	12
Tilt/swivel screen	Std.	No	No	No	No
Total displayable symbols	512	128 ASCII	128 ASCII	128 ASCII	256 ASCII & graphics
Symbol formation	7 x 12, 5 x 7 dot	7 x 10 dot matrix	7 x 10 dot matrix	7 x 10 dot matrix	7 x 10 dot matrix
Character phosphor	P31 green	P4 white std., P31 green opt.	P4 white std., P31 green opt.	P4 white std., P31 green opt.	P4 white std., P31 green opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	Std.	Std.	Std.
Blink	Std.	No	Std.	Std.	Std.
Blank	Std.	No	Std.	Std.	Std.
Bold	Std.	No	No	No	No
Reverse	Std.	No	Std.	Std.	Std.
Double size	Std.	No	No	No	Std.
Scroll	Up, down, smooth	Up std.	Up/flip std.	Up/flip std.	Up/smooth/jump
Paging	3 std. (25 x 80)	No	2 std., 2 opt.	2 std., 2 opt.	2 std., 2 opt.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	No	Std.	Std.	Std.
Partial screen transmit	Std.	No	Std.	Std.	Std.
Split screen/windows	Std.	No	No	No	Std.
Tabulation	Fwd./back. std.	Forward std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	No	Std.	Std.	Std.
Line insert/delete	Std.	No	Std.	Std.	Std.
Erase	Std.	No	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter-Selectric	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	16 plus shifted std.	No	20	20	20
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	No
Port for cust.-supplied devices	RS-232-C	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
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	—	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-19,200	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Character	Character	Char./line/block	Char./line/block	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	995	999	1,199	1,249	849
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	11/82	11/80	5/80	11/81	11/82
Date of first production delivery	3/83	4/81	7/80	3/82	2/83
Display units installed to date	—	2,000	12,000	—	—
Serviced by	Altos/TRW	TRW	TRW	TRW	TRW
COMMENTS					Features selectable emulation of 18 terminal models from ADDS, DEC, Hazeltine, Lear Siegler, Soroc, & TeleVideo

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SUPPLIER AND MODEL	Ampex D175	Anderson Jacobson AJ 510	Anderson Jacobson AJ 520	Ann Arbor Ambassador	Ann Arbor Genie
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	1	1	—	—
Transportability	No	No	No	No	No
IBM compatibility	No	2741 (opt.)	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	See Comments	—	DEC VT100/VT52	DEC VT100/VT52 opt.	DEC VT100/VT52 opt.
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920, 3168	4800	2400
Memory capacity, no. char./lines/pages	80/24/2 or 4	—	16K	4800/60/1	2400 std./4800 opt.
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80, 24 x 132 plus status line	18 x 80 up to 60 x 80	30 x 80
Screen area, diagonal, inches	12	15	15	15	15"
Tilt/swivel screen	No	No	Tilt std.	Opt. stand	Opt. stand
Total displayable symbols	256 ASCII & graphics	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	7 x 10 dot matrix	7 x 10 dot matrix	10 x 12 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white std., P31 green opt.	P31 green std.	P31 green std.; amber opt.	P39 green std., P4 white opt.	P4 white std.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	No	No	Std.	No
Bold	No	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	Std.	Std.	No	No
Scroll	Up/smooth/jump	Up/down std.	Up/down std.	Up/down/slow std.	Up std.; slow
Paging	2 std., 2 opt.	No	8 std.	Std.	No; 2 pp opt.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Std.	Std.	Both std.	Both std.
Protected format	Std.	Std.	No	Std.	No
Partial screen transmit	Std.	Std.	No	Std.	No
Split screen/windows	Std.	No	2	Std.	3 std.
Tabulation	Fwd./back std.	Fwd. std.	Fwd. std.	Fwd./back std.	Fwd./back tab 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/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter-selectric	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	128 ASCII; APL opt.	128 ASCII; APL opt.	128 ASCII	128 ASCII
Detachability	Std.	No	Std.	Std.	Std.
Program function keys	20	No	24 std.	48 std.	24 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	Various, 30-200 cps	Various, 30-200 cps	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	Std.	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Opt.
Other vendor-supplied devices	—	Diskette recorder, acoustic coupler/ modems	Diskette recorder, acoustic coupler/ modems	Touch-screen opt.	
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	ASCII	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII std.	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	110-9600	50-19,200	110-19,200	110-19,200
Format; character, line, or block	Char./line/block	Char./line/page	Character	Char./line/block	Character
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C std.; 20mA opt.	RS-232-C std.; 20mA opt.	RS-232-C, std., 20mA opt., RS-422 opt.	RS-232-C std.; 20mA/ RS-422 opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	100-150	100-150	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	869	See comments	See comments	1,595	1,195-1,445
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	25	25-28	—	—
Date of announcement	11/82	—	—	5/80	9/82
Date of first production delivery	2/83	9/78	9/81	7/80	10/82
Display units installed to date	—	—	—	—	—
Serviced by	TRW	Anderson Jacobson	Anderson Jacobson	Ann Arbor	Ann Arbor
COMMENTS	Features selectable emulation of 18 terminal models from ADDS, DEC, Hazeltine, Lear Siegler, Soroc, & TeleVideo	APL keyboard opt.; widely used in X-L applications; terminals priced below $2,000—contact vendor for detailed pricing	APL unit includes line mode, user-defined overstrike memory, plus all video attributes except bold; contact vendor for detailed pricing	Implements the ANSI X3.64-1979 standard, user-definable operation	ANSI X3.64 compatible

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Ann Arbor Genie+	Ann Arbor Model 400S	ADDS Viewpoint	ADDS Viewpoint/60	ADDS Viewpoint/90
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	1	—	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	DEC VT100/VT52 opt.	—	—	ADDS Regent 40, 60	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2400	1920	1920	1920	1920, 3840
Memory capacity, no. char./lines/pages	4800 (60linex80char.)	1920/24/1	1 page	—	1-2 pages
Screen arrangement, lines x chars./line	30 x 80	12 x 40, 24 x 40, 24 x 80	24 x 80	24 x 80 plus status line	12-24 x 40-80
Screen area, diagonal, inches	15"	15	12	12	12
Tilt/swivel screen	Opt. stand	Opt. stand	Tilt std.	Tilt std.	Tilt std.
Total displayable symbols	128 ASCII	95 ASCII	128	128 ASCII	128; 256 prog.
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	5 x 7 dot matrix	7 x 8 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white std.; P42 green opt.	P4 white std., P39 green opt.	P4 white, P31 green	P4 white, P31 green	P4 white, P31 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	No	Std.	Std.	Std.
Bold	Std.	Std.	No	No	No
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	Opt.	No	No	Std.
Scroll	Up/down std.; slow	Up/down std.	Up std.	Std.	Std.
Paging	2 std.	No	No	No	2 pages opt.
Selectable cursor blinking	Std.	No	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Add. std., read opt.	Addressable only	Both std.	Both std.
Protected format	Std.	No	No	No	Std.
Partial screen transmit	Std.	No	No	No	Std.
Split screen/windows	3 std.	No	No	No	Std.
Tabulation	Fwd./back tab std.	No	No	Std.	Std.
Character insert/delete	Std.	No	No	Std.	Std.
Line insert/delete	Std.	No	No	Std.	Std.
Erase	Char./line/screen std.	Screen std.	Line/page std.	Std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	TTY	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	48 std.	Up to 36 opt.	3 std.	8 std.	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	Std.	Opt.	No	No
Port for cust.-supplied devices	Std.	No	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	ASCII	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-19,200	110-9600	Up to 19,200	110-19,200	Up to 9600
Format; character, line, or block	Char./line/block	Character	Character	Char./block	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C std.; 20mA/RS-422 opt.	RS-232-C std., 20mA opt.	RS-232-C	RS-232-C, 20mA, RS-422	RS-232-C; 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,395-1,495	1,220	650	895	895
Controller, purchase, $	—	795	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	11/82	6/77	3/81	4/82	12/81
Date of first production delivery	12/82	7/77	4/81	—	1st Q/82
Display units installed to date	—	—	—	—	—
Serviced by	Ann Arbor	Ann Arbor	ADDS, NCR, TRW, GE	ADDS, NCR, TRW, GE	ADDS, NCR, TRW, GE
COMMENTS	ANSI X3.64 compatible				

Alphanumeric Display Terminals

SUPPLIER AND MODEL	ADDS Viewpoint/3A Plus	ADDS Viewpoint/78	ADDS Viewpoint/ Color	A.R. Shaw Touch Command Model 40	Beehive DM5/5A/5B
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	—	—	—	1
Transportability	No	No	No	No	No
IBM compatibility	No	3278	No	No	No
Teletype compatibility	Std.	Std.	Std.	No	Std.
Other compatibility	Lear Siegler ADM 3	—	—	ADDS Regent 40	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	1 page	1 page	1 page	80/24/1	—
Screen arrangement, lines x chars./line	24 x 80	24 x 80 plus status line	24 x 80 plus status line	24 x 80	24 x 80 plus status line
Screen area, diagonal, inches	12	12	13	12	12
Tilt/swivel screen	Tilt std.	Tilt std.	Std.	No	No
Total displayable symbols	128	128 ASCII & 11 grap.	128 ASCII & 11 grap.	96 ASCII	128 ASCII
Symbol formation	5 x 7 dot matrix	7 x 8 dot matrix	5 x 7 dot matrix	5 x 8 dot matrix	5 x 7 dot matrix
Character phosphor	P4 white, P31 green	P4 white, P31 green	P22 color	White	P42 green
Color capability	No	No	8 colors std.	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	No	Std.	No	No	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	No	No	No	No
Scroll	Std.	Up std.	Up std.	Up std.	Std.
Paging	No	No	1 std.	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Addressable only	Both std.	Both std.	Addressable only	Both std.
Protected format	No	No	Std.	No	DM5B only
Partial screen transmit	No	No	Std.	No	No
Split screen/windows	No	No	No	No	No
Tabulation	No	No	Fwd./back std.	No	Fwd./back std.
Character insert/delete	No	No	Std.	No	No
Line insert/delete	No	No	Std.	Std.	Std.
Erase	Line/screen std.	Line/screen std.	Line/screen std.	Line/screen std.	Line/field/page std.
KEYBOARD PARAMETERS					
Style	Typewriter	IBM 3278-2	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	ASCII	ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	No	Std.
Program function keys	No	24 std.	8 std.	8 std.	DM5A/DM5B only
Numeric keypad	Std.	Std.	Std.	Std.	DM5A/DM5B only
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	No
Port for cust.-supplied devices	Std.	—	—	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII	—	ASCII	ASCII	—
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	Up to 19,200	110-19,200	110-19,200	110-9600	Up to 19,200
Format; character, line, or block	Character	Character	Char./line/block	Character	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C; RS-422, CL opt.	RS-232-C; RS-422, CL opt.	RS-232-C	RS-232-C; 20mA (DM5A/DM5B only)
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	Third party
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	650	1,095	995	2,800	880-1,295
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	25	—
Date of announcement	12/81	11/82	11/82	5/80	4/81
Date of first production delivery	1st Q/82	1/83	5/83	5/80	4/81
Display units installed to date	—	—	—	60	—
Serviced by	ADDS, NCR, TRW, GE	ADDS, NCR, TRW, GE	ADDS, NCR, TRW, GE	A.R. Shaw, Inc.	Beehive & Western Union
COMMENTS		Emulates IBM 3278 Model 2 when used with protocol converter		Comes equipped with a touch-sensitive CRT screen	Time-of-day clock.

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Beehive DM10	Beehive DM1A	Beehive DM20	Beehive DM30	Beehive DM310
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	3101-22/23
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	—	—	—	80/24/2 (4 opt.)	1 page
Screen arrangement, lines x chars./line	24 x 80 plus status line	24 x 80 plus status line	24 x 80 plus status line	24 x 80 plus status line	24 x 80
Screen area, diagonal, inches	12; 15 opt.	12; 15 opt.	12; 15 opt.	12; 15 opt.	12
Tilt/swivel screen	No	No	No	No	No
Total displayable symbols	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	5 x 7 dot matrix	5 x 7 dot matrix	5 x 7 dot matrix	5 x 7 dot matrix	7 x 10 cell
Character phosphor	P4 white	P4 white	P4 white	P4 white	P42 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	No
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	No	No	No	No	Std.
Reverse	Std.	Std.	Std.	Std.	No
Double size	No	No	No	No	No
Scroll	Up std.	Up std.	Up std.	Up/down std.	Up. Std.
Paging	1 std.	1 std.	1 std.	2 std.; 4 opt.	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	No	No	Std.	Std.	Std.
Partial screen transmit	No	No	Std.	Std.	Std.
Split screen/windows	Std.	Std.	Std.	Std.	No
Tabulation	Fwd. std.	Fwd. std.	Fwd./back std.	Fwd./back std.	Std.
Character insert/delete	No	No	Std.	Std.	Std.
Line insert/delete	No	No	Std.	Std.	Std.
Erase	EOL/EOP/screen std.	EOL/EOP/screen std.	Line/screen/field/ end-of-screen std.	Line/screen/field/ end-of-screen std.	EOP/EOL/EOF/ screen 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	No	12 std.	16 std.	16 std.	8 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	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	Bi-directional RS-232-C aux. port.	Bi-directional RS-232-C aux. port	Bi-directional RS-232-C aux. port	—
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	—	—	ASCII	ASCII	TTY
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110 to 19,200	110-19,200	110-19,200	110-19,200	110-9600
Format; character, line, or block	Character	Character	Char./line/blk/field	Char./line/blk/field	Char./line/blk
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA, RS-422
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Third party	Third party	Third party	Third party	Third party
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,245	1,645	1,895	2,095	1,295
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	—	—	—	—	11/81
Date of first production delivery	8/78	8/78	10/78	6/79	12/81
Display units installed to date	—	—	—	—	—
Serviced by	Beehive & Western Union	Beehive & Western Union	Beehive & Western Union	Beehive & Western Union	Beehive & Western Union
COMMENTS	Line lock/memory lock with invisible address pointer std.; 11 line drawing characters at time of day clock	All std. features of DM10 plus buffered bidir. aux. port	Full editing features; line drawing forms mode; line lock/memory lock with invisible address pointer std	All std. DM20 features plus two page display memory (four pages opt.) & parallel printer interface	

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Beehive DM3270	Beehive DM78	Beehive DM83	Beehive ATL-008	Beehive Topper
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Cluster	Stand-alone	Stand-alone	Either
Maximum displays/controller	1	32	1	1	8
Transportability	No	No	No	No	No
IBM compatibility	3276/3275 BSC	3278	No	No	3270 (w/CC76 cont.)
Teletype compatibility	No	Std.	No	Std.	Std.
Other compatibility	—	Beehive DM5A	Burroughs TD830/ MT983	ANSI X3.64 DEC VT 100/132	CP/M, BSTAM, BSTMS
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	2160, 3564	2000
Memory capacity, no. char./lines/pages	—	1 page	16K std., 36K opt.	32K std., 128K opt.	64K RAM
Screen arrangement, lines x chars./line	24 x 80 plus status line	24 x 80	24 x 80	27 x 80/132	24 x 80 plus status line
Screen area, diagonal, inches	12; 15 opt.	12; 15 opt.	12	14	12
Tilt/swivel screen	No	No	No	Std.	No
Total displayable symbols	128	128 ASCII	256 ASCII	256 ASCII	256 ASCII, EBCDIC
Symbol formation	7 x 7 dot matrix	7 x 10 cell	8 x 10 cell	9 x 13 dot matrix	7 x 10 dot matrix
Character phosphor	P42 green	P42 green	P42 green	P31 green	P42 green
Color capability	No	No	No	No	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.	Std.
Double size	No	No	No	Std.	No
Scroll	No	Up std.	Up std.	Up/down std.	Up/down std.
Paging	No	1 std., 2 opt.	4 std., 9 opt.	12 pages std.	Cont. by CP/M soft.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Std.
Protected format	Std.	No	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	w/CP/M soft. (opt.)
Split screen/windows	No	Std.	Std.	12 std.	w/CP/M soft. (opt.)
Tabulation	Fwd./back std.	Std.	Std.	Forward/back std.	Std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	No	Std.	Std.	Std.	Std.
Erase	Char./screen/field std.	Screen/char./EOF/ EOL std.	EOP/EOL/screen std.	Page/line/field/ BOP/EOP	Char./EOF std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	IBM 3270
Character/code set	128 EBCDIC	256 ASCII/EBCDIC	256 ASCII	256 ASCII	ASCII (or EBCDIC)
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	24 + 3 PA keys	24 std.	16 std.	16 std.	24 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	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std. RS-232-C
Other vendor-supplied devices	Alarm, bidir. RS-232-C aux. port	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half-duplex	Half/full-duplex	Half-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Asynchronous	Async./sync.	Asynchronous	Asynchronous
Communications protocol	BSC	TTY	Burroughs	ANSI X3.64	ASCII
Code	EBCDIC	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	150-9600	110-19,200	50-19,200	50-56K	110-9600
Format; character, line, or block	Block	Char./line/block	Block/line/page	Char./line/field/blk.	Char./field
Multipoint operation (pollable/addr.)	Std.	No	Std.	No	Opt.
Terminal interface	RS-232-C	RS-232-C, RS-422, 20mA	RS-232-C, TDI	RS-232-C, 20mA, RS-422	—
Integral modem	No	No	No	Opt.	RS-232-C
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Third party	Third party	Third party	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	2,395	1,495	1,995	1,395	2,995
Controller, purchase, $	—	4,000-up	—	—	6,000 (CC76)
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	—	1/82	4/82	11/82	6/82
Date of first production delivery	2/81	4/82	5/82	4/83	8/82
Display units installed to date	—	—		—	—
Serviced by	Beehive & Western Union	Beehive & Western Union	Beehive & Western Union	Beehive/Western Union	Beehive/Western Union
COMMENTS	Supports serial ASCII printer	Designed to emulate IBM 3278 when used with protocol converter			Operates in cluster configuration with CC76 Cluster Controller—IBM 3705 BSC/SNA-compatible

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Braegen 3081	Braegen 3161	Burroughs TD 830	Burroughs MT 985	Burroughs SR 110
TERMINAL DESCRIPTION					
Stand-alone or cluster	Cluster	Cluster	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	32	32	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	3270, 1403, 2501	3270 local/BSC	3275 opt.	—	No
Teletype compatibility	No	No	No	No	No
Other compatibility	—	—	Burroughs	Burroughs	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	480, 1920	1920	2000	2000	2000
Memory capacity, no. char./lines/pages	1 page	1 page	2000 char. (4080)	2000 char. (8000)	2000 char. (10,000)
Screen arrangement, lines x chars./line	12 x 40, 24 x 80	24 x 80	25 x 80	26 x 80	25 x 80
Screen area, diagonal, inches	12	15	11	12	12
Tilt/swivel screen	No	No	No	No	Std.
Total displayable symbols	196	196	128	128	128
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	5 x 7 dot matrix	7 x 11 dot matrix	7 x 9 dot matrix
Character phosphor	Green	Green	White	Green	P4 white
Color capability	No	No	No	No	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	No	No	Std.	Std.	Std.
Double size	No	No	Std.	Std.	No
Scroll	Opt.	Opt.	Up/down std.	Up/down std.	Std.
Paging	Opt.	Opt.	Std.	Std.	5 std.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Std.	Std.	Std.	Std.	Std.
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.	Fixed/var./reverse	Std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Opt.	Opt.	Std.	Std.	Std.
Erase	Char./field/screen std.	Char./field/screen std.	Line/page std.	Line/page std.	Std.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry, console	Typewriter, data entry, console	Typewriter, data entry	Typewriter, data entry	Typewriter, data entry
Character/code set	256 EBCDIC	256 EBCDIC	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	10 std.; 15 opt.	10 std.; 15 opt.	—	—	16 std.
Numeric keypad	Opt.	Opt.	Opt.	Opt.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	Std.	Std.	30 cps, 90 lps
Line printer, type and speed	No	No	Std.	Std.	375 lpm
Composite video	Opt.	Opt.	No	No	Std.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	Alarm, disk, card reader	Alarm, disk, card reader	Audible alarm, ID card reader	Magnetic card reader, microdisk subsystem	—
TRANSMISSION PARAMETERS					
Mode	Half-duplex	Half-duplex	Half-duplex	Half-duplex	Half-duplex
Technique	Synchronous	Synchronous	Async./sync.	Async./sync.	Async./sync.
Communications protocol	BSC	BSC	Burr./BSC	Burroughs	Burroughs
Code	ASCII/EBCDIC	ASCII/EBCDIC	ASCII	ASCII	ASCII
Speed, bits/second	1200-19,200	1200-19,200	Up to 38,400	Up to 38,400	Up to 9600
Format; character, line, or block	Char./block	Char./block	Char./block	Char./block	Char./block
Multipoint operation (pollable/addr.)	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, 2-year lease, $/mo.	47	47	143-179 (1 yr.)	164-174 (1 yr.)	—
Controller, 2-year lease, $/mo.	137	137	—	—	—
Display station, purchase, $	2,800	2,800	3,289-3,997	2,499	1,995
Controller, purchase, $	5,200	5,200	—	—	—
Monthly prime-shift maint., $/mo.	15 (disp.); 50 (cont.)	15 (disp.); 50 (cont.)	—	—	300/150 (depot)
Date of announcement	—	—	—	3/82	6/82
Date of first production delivery	—	3/80	8/76	4/82	8/82
Display units installed to date	—	—	—	—	—
Serviced by	Braegen	Braegen	Burroughs	Burroughs	Burroughs
COMMENTS	May be connected to up to 8 IBM hosts, local & remote, and switched to operate with 14 different applications	May be connected to up to 8 IBM hosts, local & remote, and switched to operate with 14 different applications; APL support	Models include TD 831, TD 832, TD 833, & TD 834		

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Carterfone 7276	Carterfone 9830	Cobar 3100	Cobar 3132	Cobar 3830
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	—	—	1
Transportability	No	No	No	No	No
IBM compatibility	3276 BSC	No	No	No	No
Teletype compatibility	No	Std.	No	No	No
Other compatibility	—	Burroughs TD 830/ MT 983	DEC VT100/ VT101/VT102	DEC VT131/VT132	Burroughs TD 830/ MT 983
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	480, 960, 1920	3168	3168	2000, 3300
Memory capacity, no. char./lines/pages	—	4000 std., 4000 opt.	4K	4K	80 or 132/25/2 or 8
Screen arrangement, lines x chars./line	24 x 80 plus status line	12 x 40/80, 24 x 40/80	24 x 80; 24 x 132	24 x 80; 24 x 132	25 x 80 or 132
Screen area, diagonal, inches	12	12	12	15	15
Tilt/swivel screen	No	No	No	No	No
Total displayable symbols	94 EBCDIC	128 ASCII	127 ASCII	127 ASCII	128 ASCII
Symbol formation	7 x 9 dot matrix	9 x 12 dot matrix	7 x 10 dot matrix	7 x 10 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white	P31 green	P4 white std.; P31 grn/P134 amber opt.	P4 white std.; P31 grn./P134 amb. opt.	Green std., white or amber opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	Std.	Std.	Std.	Std.
Blink	No	Std.	Std.	Std.	Std.
Blank	No	Std.	No	No	Std.
Bold	No	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	Std.	Std.	Std.
Scroll	No	Std.	Up/down/smooth	Up/down/smooth	Up/down std.
Paging	No	Std.	1 std.; 3 opt.	1 std.; 3 opt.	2 std., 8 opt.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	No	Std.	Std.
Partial screen transmit	Std.	Std.	No	Std.	Std.
Split screen/windows	No	No	3 std.	3 std.	No
Tabulation	Fwd./back std.	Fwd./back std.	Fwd. std.	Fwd./back std.	Fwd./back tab std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	No	Std.	Std.	Std.	Std.
Erase	Field/screen std.	Line/page std.	Line/screen std.	Line/screen std.	Line & screen std.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry	Typewriter	Typewriter	Typewriter	Typewriter, data entry
Character/code set	94 EBCDIC	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	24 std.	Prog.	18 std.	18 std.	14 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	32/120 cps impact	No	No	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	Opt.	Opt.	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half-duplex
Technique	Synchronous	Async./sync.	Asynchronous	Asynchronous	Async./sync.
Communications protocol	BSC	TDI, TTY	ASCII	ASCII	Burroughs
Code	EBCDIC	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	2400-9600	Up to 9600	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Block	Char./block	Character	Char./line/block	Char./block
Multipoint operation (pollable/addr.)	Std.	Std.	No	No	Std.
Terminal interface	RS-232-C	RS-232-C	RS-232-C, 20mA opt.	RS-232-C, 20mA opt.	RS-232-C/BDI/ TDI
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	181	—	Purchase only	Purchase only	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	3,450	1,795	1,395	1,595	1,995
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	25	—	—	—	—
Date of announcement	1/82	—	4/81	10/80	11/82
Date of first production delivery	—	—	5/81	1/81	11/82
Display units installed to date	—	—	650	400	50
Serviced by	Carterfone	Carterfone	Cobar	Cobar	Cobar
COMMENTS					

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Computer Communications (CCI) Group 8000	Control Concepts EM-3275	Control Concepts EM-3276	Control Concepts CC-3276
TERMINAL DESCRIPTION				
Stand-alone or cluster	Cluster	Stand-alone	Stand-alone/cluster	Stand-alone
Maximum displays/controller	Up to 240	1	8	8
Transportability	No	No	No	No
IBM compatibility	3274/3278 BSC	3275-BSC	3276-BSC	3276-SDLC
Teletype compatibility	No	No	No	No
Other compatibility	—	—	—	—
DISPLAY PARAMETERS				
Display capacity, no. of chars.	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	—	8K	12K	12K
Screen arrangement, lines x chars./line	24 x 80 plus status line	24 x 80, plus status line	24 x 80, plus status line	24 x 80, plus status line
Screen area, diagonal, inches	12	12; 15 opt.	12; 15 opt.	12
Tilt/swivel screen	No	Swivel opt.	Swivel opt.	Swivel opt.
Total displayable symbols	128	96 EBCDIC/ASCII	96 EBCDIC/ASCII	96 EBCDIC
Symbol formation	7 x 10 dot matrix	5 x 7 dot matrix	5 x 7 dot matrix	5 x 7 dot matrix
Character phosphor	—	P42 green	P42 green	P42 green
Color capability	No	No	No	No
Programmable field/char. highlighting via:				
Underline	Std.	No	No	No
Blink	Std.	No	No	No
Blank	Std.	Std.	Std.	Std.
Bold	Half intensity	Std.	Std.	Std.
Reverse	Std.	No	No	No
Double size	No	No	No	No
Scroll	No	No	No	No
Paging	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.
Addressable/readable cursor	Std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.
Split screen/windows	No	No	No	No
Tabulation	Std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.
Line insert/delete	No	Std.	Std.	Std.
Erase	Char./line/screen std.	Char./field/screen std.	Char./field/screen std.	Char./field/screen std.
KEYBOARD PARAMETERS				
Style	IBM 3278	Typewriter	Typewriter	Typewriter
Character/code set	EBCDIC/ASCII	96 EBCDIC/ASCII	96 EBCDIC/ASCII	96 EBCDIC
Detachability	Std.	Std.	Std.	Std.
Program function keys	24	24 std.	24 std.	24 std.
Numeric keypad	Std.	Std.	Std.	Std.
ANCILLARY DEVICES				
Serial printer, type and speed	120 cps impact	Std.	Std.	Std.
Line printer, type and speed	No	No	Std.	Std.
Composite video	No	Opt.	Opt.	Opt.
Port for cust.-supplied devices	Std.	Opt.	Opt.	Opt.
Other vendor-supplied devices	—	Audible alarm	Audible alarm	Audible alarm
TRANSMISSION PARAMETERS				
Mode	Half/full-duplex	Half-duplex	Half-duplex	Half-duplex
Technique	Synchronous	Synchronous	Synchronous	Synchronous
Communications protocol	BSC/SDLC	BSC	BSC	SDLC
Code	EBCDIC	EBCDIC/ASCII	EBCDIC/ASCII	EBCDIC
Speed, bits/second	UP to 1.544M	Up to 9600	Up to 9600	Up to 9600
Format; character, line, or block	—	Block	Block	Block
Multipoint operation (pollable/addr.)	Std.	Std.; contention opt.	Std.	Std.
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C
Integral modem	No	Opt.	Opt.	Opt.
Integral acoustic coupler	No	No	No	No
PRICING AND AVAILABILITY				
Display station, 2-year lease, $/mo.	66	128	138	179
Controller, 2-year lease, $/mo.	194-225	—	—	—
Display station, purchase, $	1,500	2,500-3,490	2,600-3,590	3,350-4,340
Controller, purchase, $	4,990-5,775	Included	Included	Included
Monthly prime-shift maint., $/mo.	15-25	32	35	42
Date of announcement	11/82	6/80	6/80	3/82
Date of first production delivery	2/83	9/80	9/80	6/82
Display units installed to date	—	—	—	—
Serviced by	CCI	Control Concepts, third party	Control Concepts, third party	Control Concepts, third party
COMMENTS				

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Control Data Model 714	Control Data Model 721	Control Data Model 722	Custom Terminals CTi 1000	Data General Dasher D100 (6106/6107)
TERMINAL DESCRIPTION					
Stand-alone or cluster	Either	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	15	1	1	—	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	2740/I & II	No
Teletype compatibility	No	Std.	Std.	No	Std.
Other compatibility	—	CDC 722	Control Data	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1280, 1920	2400, 3960	1920	1840	1920
Memory capacity, no. char./lines/pages	2560, 3940 char.	—	—	4 pages	—
Screen arrangement, lines x chars./line	16 x 80, 24 x 80	30 x 80, 30 x 132	24 x 80	23 x 80	24 x 80
Screen area, diagonal, inches	8 x 10	15	12	12	12
Tilt/swivel screen	No	Tilt and swivel std.	No	No	Std.
Total displayable symbols	96	96 ASCII	96 ASCII	64	96 ASCII
Symbol formation	5 x 9 dot matrix	8 x 16, 5 x 16	8 x 10 dot matrix	5 x 7 dot matrix	7 x 11 dot matrix
Character phosphor	P4 white	P39 green	P4 white	White	White
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	No	Std.
Blink	No	Std.	Std.	Std.	Std.
Blank	No	Std.	No	No	No
Bold	No	No	Std.	No	Std.
Reverse	Std.	Std.	No	Std.	Std.
Double size	No	No	No	No	No
Scroll	No	Up std.	Up/down std.	Up std.	Up std.
Paging	No	1 std.	1 std.	No	No
Selectable cursor blinking	Std.	Std.	Std.	No	No
Addressable/readable cursor	Both std.	Both std.	Both std.	No	Both std.
Protected format	Std.	Std.	No	Std.	No
Partial screen transmit	Std.	Std.	Std.	Std.	No
Split screen/windows	No	No	No	No	No
Tabulation	Std.	Std.	Std.	Fwd./back std.	Std.
Character insert/delete	Std.	Std.	Std.	No	No
Line insert/delete	Std.	Std.	Std.	No	No
Erase	Char./screen std.	Char./screen std.	No	Char. std.	Line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	ASCII	ASCII	ASCII	64 ASCII	128 ASCII
Detachability	No	Yes	No	No	Std.
Program function keys	8	15 std.	12	8 std.	No
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	180 cps	40/55/150 cps	150 cps	120/180 cps impact	No
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.	Opt.
Other vendor-supplied devices	Audible alarm	Audible alarm, touch panel	Audible alarm	Second printer port, OCR wand, mag card reader	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half-duplex	Full-duplex
Technique	Synchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII, CDC	ASCII, TTX	ASCII, TTY	IBM 2740	ASCII
Code	ASCII	ASCII	ASCII	EBCDIC	ASCII
Speed, bits/second	2000-9600	110-19,200	110-9600	600/1200/1800	Up to 19,200
Format; character, line, or block	Block	Char./block	Character	Block	Character
Multipoint operation (pollable/addr.)	Std.	No	No	Std.	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C	RS-232-C, 20mA
Integral modem	No	Opt.	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	112-284	126/180 (1 yr.)	74 (1-yr.)	131	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	4,490-10,108	2,295/3,295	1,375	2,350	1,750-2,150
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	53-82	31/43	19	25	20
Date of announcement	5/78	4/82	2/81	11/80	11/79
Date of first production delivery	5/78	6/82	2/81	11/80	2/80
Display units installed to date	Over 500	Over 500	Over 3000	—	—
Serviced by	Control Data	CDC	Control Data	TRW	Data General
COMMENTS		721-20 Basic TTY 732-30 Basic TTY & PLATO/Graphics Three maintenance options: On-Site; Mail-in to service center; Customer self-maintenance			Lease and rental available via third parties and terminal resellers

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Data General Dasher D200 (6108/6109)	Data General Dasher D280C	Data General Dasher D400 (6130)	Data General Dasher D450 (6134)	DatagraphiX 132A
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	DG Dasher D200	DG Dasher D200, D400	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920, 3240	1920, 3240	3960
Memory capacity, no. char./lines/pages	—	—	—	—	2 pages; 4 opt.
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80, 24 x 135	24 x 80, 24 x 135	30 x 132
Screen area, diagonal, inches	12	13	12	12	15
Tilt/swivel screen	Std.	Std.	Std.	Std.	No
Total displayable symbols	96 ASCII	96 ASCII	256	256	96
Symbol formation	7 x 11 dot matrix	7 x 10 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix	Charactron
Character phosphor	White	Color screen	P31 green std.	P31 green std.	P31 green
Color capability	No	8 colors std.	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	No
Blink	Std.	Std.	Std.	Std.	No
Blank	No	No	No	No	No
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	No
Double size	No	No	No	User definable	No
Scroll	Up std.	Up std.	Up/down/hor./sm.	Up/down/hor./sm.	Up/down std.
Paging	No	No	No	No	No
Selectable cursor blinking	No	No	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Std.
Protected format	No	No	Std.	Std.	No
Partial screen transmit	No	No	No	No	Std.
Split screen/windows	No	No	Std.; up to 24	Std.; up to 24	No
Tabulation	Std.	Std.	Std.	Std.	Std.
Character insert/delete	No	No	Std.	Std.	Std.
Line insert/delete	No	No	Std.	Std.	Std.
Erase	Line/screen std.	Line/screen std.	Char./line/screen/ window std.	Char./line/screen/ window std.	Char./line/screen 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	19 std.	15	15	15	No
Numeric keypad	Std.	Std.	Std.	Std.	No
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	Std. (TP1, TP2)	Std. (TP1, TP2)	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Opt.	Opt.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	Audible alarm
TRANSMISSION PARAMETERS					
Mode	Full-duplex	Full-duplex	Full-duplex	Full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	Up to 19,200	Up to 19,200	Up to 19,200	Up to 19,200	110-9600
Format; character, line, or block	Character	Character	Character	Character	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	272-307 (1 yr.)
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,950-2,350	3,750	2,300	2,800	3,950-4,450
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	20	—	20	22	504-576/yr.
Date of announcement	11/79	8/81	10/81	10/81	3/77
Date of first production delivery	2/80	—	2/82	2/81	8/77
Display units installed to date	—	—	—	—	—
Serviced by	Data General	Data General	Data General	Data General	DatagraphiX
COMMENTS	Lease and rental available via third parties and terminal resellers	Lease and rental available via third parties and terminal resellers	Lease and rental available via third parties and terminal resellers	Lease and rental available via third parties and terminal resellers, graphics capability with Trendview	Memory buffer of 60 or 120 lines

Alphanumeric Display Terminals

SUPPLIER AND MODEL	DatagraphiX 132B	Datamaxx Datamaxx Series	Datamaxx Maxxima Series	Datamedia Excel 10/20	Datamedia Excel 30
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	—	—	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	3275/3276 BSC	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	See comments	See comments	DEC VT100	See comments
DISPLAY PARAMETERS					
Display capacity, no. of chars.	3960	2000	2000	1920, 1848, 3168	1920,1848 (3168 opt.)
Memory capacity, no. char./lines/pages	2 pages; 4 opt.	2 pages	4 pages	132/24/1	132/24/1
Screen arrangement, lines x chars./line	30 x 132	25 x 80	25 x 80	24 x 80, 14 x 132, 24 x 132	24 x 80, 14 x 132 (24 x 132 opt.)
Screen area, diagonal, inches	15	12 std.; 15 opt.	12	12; 14 opt.	12; 14 opt.
Tilt/swivel screen	No	Opt.	No	Tilt std.	Tilt std.
Total displayable symbols	96	128 ASCII/EBCDIC	128 ASCII	128 ASCII	128 ASCII
Symbol formation	Charactron	7 x 11 dot matrix	7 x 11 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P31 green	P4 white std.; P31 grn/P34 amber opt.	P31 green std.; P4 wh./P34 amber opt.	P4 white std., P31 green opt.	P4 white std.; P31 green opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	Std.	Std.	Std.	Std.
Blink	No	Std.	Std.	Std./opt. (20)	Std.
Blank	No	Std.	Std.	No	No
Bold	Std.	Std.	Std.	Std./opt. (20)	Std.
Reverse	No	Std.	Std.	Std.	Std.
Double size	No	No	Std.	Std.	Std.
Scroll	Up/down std.	Up std.	Up/down std.	Up/down std.	Up/down std.
Paging	Std.	2 std.	2-24 pages std.	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Std.	Both std.	Std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	No	No
Partial screen transmit	Std.	Std.	Std.	No	No
Split screen/windows	No	No	No	1 std.	1 std.
Tabulation	Std.	Fwd./back/fix/var.	Fwd./back/fix/var.	Fwd. std.	Fwd. std.
Character insert/delete	Std.	Std.	Std.	No	No
Line insert/delete	Std.	Std.	Std.	No	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	128 ASCII	128 ASCII/EBCDIC	128 ASCII	64 ASCII	64 ASCII
Detachability	Std.	Opt.	Std.	Std.	Std.
Program function keys	12 std.	12 opt.	15 std.	4 std.	8 opt.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	340 cps matrix	340 cps matrix	No	No
Line printer, type and speed	No	600 lpm band	1000 lpm band	No	No
Composite video	No	No	Opt.	Opt.	Opt.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	Audible alarm	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Async./sync.	Async./sync.	Asynchronous	Asynchronous
Communications protocol	ASCII	Polled, pt. to pt., BSC	Polled, pt. to pt., BSC	X on/X off	—
Code	ASCII	ASCII/EBCDIC	ASCII	ASCII/ANSI	ASCII
Speed, bits/second	110-9600	50-9600	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Char./line/block	Char./line/block	Char./line/block	Character	Character
Multipoint operation (pollable/addr.)	No	Std.	Std.	No	No
Terminal interface	RS-232-C, 20mA	RS-232-C, TDI, 20mA std.	RS-232-C, TDI std.; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	306-341 (1 yr.)	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	4,450-4,950	1,670-2,250	1,800-2,450	1,695/1,495 (20)	1,395
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	600-672/yr.	37	37	—	—
Date of announcement	12/78	—	—	—	—
Date of first production delivery	11/78	2/79	8/81	—	—
Display units installed to date	—	Over 5000	—	—	—
Serviced by	DatagraphiX	Datamaxx; Dow Jones	Datamaxx; Dow Jones	RCA Service Co.	RCA Service Co.
COMMENTS	Memory buffer of 60 or 120 lines; quantity discounts available	Compatible with Burroughs TD 830; MT 983; NCR 796-501; Honeywell 7700; Tandem B52; IBM 3275/3276. Quantity discounts available	Compatible with Burroughs TD 830, MT 983; NCR 7900/3; DEC VT 100; VT 52. Quantity discounts available		Emulations include: Datamedia 1521, ADDS Regent 25, Hazeltine 1420, Lear Siegler ADM 3A

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Datamedia Excel 40	Datamedia Excel 50/60	Datamedia Excel 70	Datamedia ColorScan 10	Datamedia ColorScan 30
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	TeleVideo 950	DEC VT100 APL/ VT132	DG Dasher D200	DEC VT100	See comments
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920, 960, 480	1920, 3168	1920, 3168	1920, 3168	1920, 3168
Memory capacity, no. char./lines/pages	1920/24/2	132/24/1	132/24/1	132/24/1	132/24/1
Screen arrangement, lines x chars./line	24 x 80, 24 x 40, 12 x 40	24 x 80, 24 x 132	24 x 80, 24 x 132	24 x 80, 24 x 132	24 x 80, 24 x 132
Screen area, diagonal, inches	12; 14 opt.	12; 14 opt.	12; 14 opt.	12	12
Tilt/swivel screen	Tilt std.	Tilt std.	Tilt std.	Tilt std.	Tilt std.
Total displayable symbols	96 ASCII + 32 ctls.	APL/128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	5 x 7 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white std.; P31 green opt.	P4 white std.; P31 green opt.	P4 white std.; P31 green opt.	Color screen	Color screen
Color capability	No	No	No	8 colors std.	8 colors std.
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	No	No	No	No
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	Std.	Std.	Std.	Std.
Scroll	Up/down std.	Up/down std.	Up/down std.	Up/down std.	Up/down std.
Paging	2 std.	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	No/std. (60)	No	No	No
Partial screen transmit	Std.	No/std. (60)	No	No	Std.
Split screen/windows	1 std.	1 std.	1 std.	1 std.	1 std.
Tabulation	Fwd./back std.	Fwd. std.	Fwd. std.	Fwd. std.	Fwd. std.
Character insert/delete	Std.	No/std. (60)	No	No	No
Line insert/delete	Std.	No/std. (60)	Std.	No	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	64 ASCII	64 ASCII	64 ASCII	64 ASCII	64 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	32 std.	12 std.	12 std.	12 std.	8 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	Opt.	Opt.	Opt.	Opt.	Opt.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asychronous	Asynchronous	Asynchronous	Asynchronous	Asychronous
Communications protocol	X on/X off	X on/X off	X on/X off	X on/X off	—
Code	ASCII	ASCII/ANSI	ASCII	ASCII	ASCII
Speed, bits/second	110-19,200	50-19,200	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Char./line/block	Char./line/block	Character	Character	Character
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	995	1,840/1,895 (60)	1,395	3,195	3,195
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	11/81	—	10/81	—	11/81
Date of first production delivery	—	—	—	—	—
Display units installed to date	—	—	—	—	—
Serviced by	RCA Service Co.	RCA Service Co.	RCA Service Co.	RCA Service Co.	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

SUPPLIER AND MODEL	Datamedia ColorScan 60	Datamedia ColorScan 70	Datamedia 3270-S	Datamedia Excel 3270-6/3270-8	Datapoint 8220
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Cluster	Stand-alone
Maximum displays/controller	1	1	1	3	Variable
Transportability	No	No	No	No	No
IBM compatibility	No	No	3275/3276-BSC	3276/3278 BSC	W/Datapoint proc.
Teletype compatibility	Std.	Std.	Opt.	No	Std.
Other compatibility	DEC VT132	DG Dasher D200	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920, 3168	1920, 3168	1920	1920	1920
Memory capacity, no. char./lines/pages	132/24/1	132/24/1	80/24/1	—	80/24/1
Screen arrangement, lines x chars./line	24 x 80, 24 x 132	24 x 80, 24 x 132	24 x 80	24 x 80	24 x 80
Screen area, diagonal, inches	12	12	14	14 std.; 12 opt.	12
Tilt/swivel screen	Tilt std.	Tilt std.	Tilt std.	Tilt std.	No
Total displayable symbols	128 ASCII	128 ASCII	96 EBCDIC	96 EBCDIC	96 ASCII
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9
Character phosphor	Color screen	Color screen	P31 green std.	P31 green std., P4 white opt.	Amber/white
Color capability	8 colors std.	8 colors std.	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	No	No
Blink	Std.	Std.	No	No	No
Blank	No	No	No	No	No
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	No	No	Std.
Double size	Std.	Std.	No	No	No
Scroll	Up/down std.	Up/down std.	No	No	Std.
Paging	No	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	No	Std.	Std.	Opt.
Partial screen transmit	Std.	No	No	No	No
Split screen/windows	1 std.	1 std.	No	No	Std.
Tabulation	Fwd. std.	Fwd. std.	Std.	Std.	Std.
Character insert/delete	Std.	No	Std.	Std.	Via program control
Line insert/delete	Std.	Std.	Std.	Std.	Via program control
Erase	Char./line/screen std.	Char./line/screen std.	Screen std.	Screen std.	Via program control
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	64 ASCII	64 ASCII	96 EBCDIC	96 EBCDIC	96 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	12 std.	12 std.	24 std.	24 std.	5 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	Opt.	Opt.	Opt.	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half-duplex	Half-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Synchronous	Synchronous	Asynchronous
Communications protocol	Xon/Xoff ,	Xon/Xoff	BSC	BSC	—
Code	ASCII	ASCII	EBCDIC	EBCDIC	ASCII
Speed, bits/second	50-19,200	50-19,200	110-19,200	1200-9600	50-9600
Format; character, line, or block	Char./line/block	Character	Block	Block	Character
Multipoint operation (pollable/addr.)	No	No	Std.	Std.	No
Terminal interface	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C	RS-232-C	RS-232-C
Integral modem	No	No	Opt.	Opt.	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	85
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	3,395	3,195	2,295	1,995	Contact vendor
Controller, purchase, $	—	—	—	2,895	—
Monthly prime-shift maint., $/mo.	—	—	24	—	—
Date of announcement	11/81	11/81	3/82	6/82	11/81
Date of first production delivery	—	—	4/82	—	—
Display units installed to date	—	—	—	—	—
Serviced by	RCA Service Co.	RCA Service Co.	RCA Service Co.	RCA Service Co.	Datapoint
COMMENTS					Tilt/rotate base available; any key can be programmed as a special function control

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Datavue Displaymaster 132-C	Decision Data 3751-11	Delta Data 2830-II	Delta Data D2201	Dentronix 200
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Either	Either	Stand-alone	Stand-alone
Maximum displays/controller	1	Up to 9	—	—	1
Transportability	No	No	No	No	No
IBM compatibility	No	5251-11	No	No	No
Teletype compatibility	Std.	No	Std.	Std.	Std.
Other compatibility	Over 20 programmable	—	Burroughs TD830	—	Data General D200
DISPLAY PARAMETERS					
Display capacity, no. of chars.	3168	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	32K	—	1920 char. (4000 opt.)	Up to 40K	2000/25/1
Screen arrangement, lines x chars./line	24 x 80; 24 x 132	24 x 80 plus status line	24 x 80 plus status lines	24 x 80 plus status lines	24 x 80 plus status line
Screen area, diagonal, inches	11¾ x 5¾	15	12	12	12; 15 opt.
Tilt/swivel screen	No	Tilt std.	Std.	No	Tilt/swivel std.
Total displayable symbols	128 ASCII	96	136	128	96 ASCII
Symbol formation	5 x 9 dot matrix	8 x 16 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 11 dot matrix
Character phosphor	P31 green std.; P4 white, amber opt.	Green	P31 green	P31 green	P4 white/P31 green; amber opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Opt.	—	Std.	Std.	Std.
Blink	Opt.	—	Std.	Std.	Std.
Blank	Opt.	No	Std.	Std.	No
Bold	No	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	Std.	Up/down std.	Up/down std.	Up std.
Paging	8 (80 col.); 5 (132 col.)	No	12 std.	Std.	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Opt.
Addressable/readable cursor	Std.	Std.	Both std.	Both std.	Both std.
Protected format	Std.	No	Std.	Std.	No
Partial screen transmit	Std.	No	No	No	No
Split screen/windows	Opt.	No	No	Std.	No
Tabulation	Fwd./back std.	Std.	Fwd./back std.	Fwd./back std.	Std.
Character insert/delete	Std.	—	Std.	No	No
Line insert/delete	Std.	—	Std.	Std.	No
Erase	Char./line/screen std.	—	Char./line/screen std.	Line/field/screen std.	Line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter, data entry	Typewriter	Typewriter
Character/code set	128 ASCII	EBCDIC	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	16 std.	No	No	No	19 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Opt.	Std.	No	No	Std. interface
Line printer, type and speed	Opt.	Std.	No	No	Any RS-232-C
Composite video	Opt.	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Printer port std.
Other vendor-supplied devices	Light pen	—	Audible alarm	—	No
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Full-duplex
Technique	Asynchronous	Synchronous	Async./sync.	Async./sync.	Asynchronous
Communications protocol	ASCII	BSC/SDLC	Burroughs TDI	—	ASCII
Code	ASCII	EBCDIC	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200		Up to 9600	Up to 9600	Up to 19,200
Format; character, line, or block	Char./line/block	Block	Char./block	Char./block	Character
Multipoint operation (pollable/addr.)	Opt.	No	Std.	Std.	No
Terminal interface	RS-232-C, 20mA opt.	RS-232-C	RS-232-C std.	RS-232-C	RS-232-C, 20mA std.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Purchase only	98	See comments	—	Purchase only
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,795	2,100	2,150	2,500	1,450
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	21	—	—	—
Date of announcement	12/79	10/80	—	9/82	1/82
Date of first production delivery	1/80	1/81	9/79	—	1/82
Display units installed to date	1,000	15,000	Over 1,000	—	—
Serviced by	Third party	Decision Data	Delta Data & Sorbus	Delta Data & Sorbus	3rd party
COMMENTS	Z-80 microprocessor std.; two RS-232-C ports std., 24 standard instructions		Leasing available through distributors		Printer interface standard with full transparent pass through capability. Optional 15" CRT available designated 215

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Dentronix 400	Digital Equipment (DEC) VT100	Digital Equipment (DEC) VT101	Digital Equipment (DEC) VT102	Digital Equipment (DEC) VT125
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	Data General D400	VT100	VT100	VT100	VT 100
DISPLAY PARAMETERS					
Display capacity, no. of chars.	3240 max.	1920; 3168 opt.	1920	3168	1920; 3168 opt.
Memory capacity, no. char./lines/pages	7776/48/2 std.	—	—	—	—
Screen arrangement, lines x chars./line	24 x 81/135 plus status line	24 x 80; 24 x 132 opt.	24 x 80; 14 x 132	24 x 80; 24 x 132	24 x 80; 14 x 132
Screen area, diagonal, inches	12; 15 opt.	12	12	12	12
Tilt/swivel screen	Tilt/swivel std.	Opt.	Opt.	Opt.	Opt.
Total displayable symbols	256 plus graphics	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	10 x 12 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white/P31 green; amber opt.	P4 white std.	P4 white std.	P4 white std.	P4 white std.
Color capability	No	No	No	No	4 of 64 ext. monitor
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Opt.	No	Std.	Opt.
Blank	No	No	No	No	No
Bold	Std.	Opt.	No	Std.	Opt.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	Std.	Std.	Std.	Std.
Scroll	U,D,L,R,smooth std.	Smooth/bidir.	Smooth/bidir.	Smooth/bidir.	Smooth/bidir.
Paging	2 std., 8 opt.	No	No	No	No
Selectable cursor blinking	Std. plus selec. frmt.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	No	No	No	No
Partial screen transmit	No	Std.	Std.	Std.	Std.
Split screen/windows	1-24 std.	2 std.	2 std.	2 std.	2 std.
Tabulation	Std.	Std. & program. tabs	Std. & program. tabs	Std. & program. tabs	Std. & program tabs
Character insert/delete	Std.	Opt.	No	Std.	No
Line insert/delete	Std.	Opt.	No	Std.	No
Erase	Screen/window/ unprotect/line	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	128 ASCII	ASCII	ASCII	ASCII	ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	19 std.	4 std.	4 std.	4 std.	4 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Std. interface	30-240 cps impact	30-240 cps impact	30-240 cps impact	30-240 cps impact
Line printer, type and speed	Any RS-232-C	—	—	—	—
Composite video	No	Std.	Std.	Std.	Std.
Port for cust.-supplied devices	Printer port std.	Opt.	No	Std.	Std.
Other vendor-supplied devices	No	—	—	—	Graphics printer
TRANSMISSION PARAMETERS					
Mode	Full-duplex	Full-duplex	Full-duplex	Half/full-duplex	Full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	Up to 19,200	50-19,200	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Character	Character	Character	Character	Character
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C, 20mA std.	RS-232-C, 20mA opt.	RS-232-C, 20mA opt.	RS-232-C, 20mA opt.	RS-232-C, 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Purchase only	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,650	1,945	1,350	1,710	3,800
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	18	15	22	29
Date of announcement	11/82	1978	9/81	9/81	7/81
Date of first production delivery	1/83	1978	10/81	10/81	10/81
Display units installed to date	—	—	—	—	—
Serviced by	3rd party	DEC	DEC	DEC	DEC
COMMENTS	Printer inter. std. Bit mapped thin and wide graphics std. double width and height characters std. Opt. 15" CRT available designated 415. Non-volatile parameter RAM std.	ANSI std. escape sequences; line drawing set std., industrial-enclosure model (RT100) available; also available with LSI-11 backplane (VT103)	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 (RT102) available	Same as VT100 plus bit map graphics for business & scientific users

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Digital Equipment (DEC) VT131	Direct 825	Direct 828/1	Direct 831	Epic 14E
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	—
Transportability	No	Portable case	Portable case	Portable case	Std.
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	No	No	No	Std.
Other compatibility	VT100	HP2640, HP2645A, HP2622	HP2640, HP2645A, DEC VT100/VT52	DEC VT100/VT131/ VT52	TeleVideo 925
DISPLAY PARAMETERS					
Display capacity, no. of chars.	3168	1920, 3168	1920, 3168, 3696	1920, 3168, 3696	1920
Memory capacity, no. char./lines/pages	—	16K std.; 32K opt.	32K	16K std.; 32K opt.	—
Screen arrangement, lines x chars./line	24 x 80; 24 x 132	24 x 80; 24 x 132	24 x 80; 24 x 132; 28 x 132	24 x 80; 24 x 132; 28 x 132	24 x 80 plus status line
Screen area, diagonal, inches	12	12	12	12	14
Tilt/swivel screen	Opt.	No	No	No	Std.
Total displayable symbols	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII & graph.
Symbol formation	7 x 9 dot matrix	7 x 12 dot matrix	7 x 12 dot matrix	7 x 12 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white std.	P4 white/P31 green	P4 white/P31 green	P4 white/P31 green	P31 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	No	Std.	Std.	Std.	Std.
Bold	Std.	Std.	Std.	Std.	Dim std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	No	Std.	—	No
Scroll	Smooth/bidir.	Bidir.; 3 rates	Bidir.; 3 rates	Bidir.; 3 rates	Jump/smooth std.
Paging	No	Mult. pages std.	Mult. pages std.	Mult. pages std.	No
Selectable cursor blinking	Std.	No	No	No	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	2 std.	Std.	Std.	Std.	No
Tabulation	Std. & program tabs	Fwd./back tab	Fwd./back tab	Fwd./back tab	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.	Std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	ASCII	96 ASCII	96 ASCII	96 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	4 std.	8 std.	8 or 16 std.	16 std.	11 std.; 22 function
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	30-240 cps impact	No	No	No	No
Line printer, type and speed	—	No	No	No	No
Composite video	Std.	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	Modem opt., plot 10 graphics opt.	Modem opt.; plot 10 graphics opt.	Modem opt.; plot 10 graphics opt.	—
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	ASCII	DC1/DC2; Eng./Ack.	DC1/DC2; Eng/Ack.	X-on/X-off, DTR	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-19,200	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Char./line/block	Char./line/block	Char./line/block	Char./line/block	Char./block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C, 20mA opt.	RS-232-C	RS-232-C	RS-232-C	RS-232-C
Integral modem	No	Opt.	Opt.	Opt.	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	Purchase only	Purchase only	Purchase only	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,825	1,890	2,790	1,395	995
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	22	24	24	24	—
Date of announcement	9/81	7/81	3/81	11/82	6/82
Date of first production delivery	10/81	7/81	4/81	11/82	11/82
Display units installed to date	—	—	—	—	—
Serviced by	DEC	Direct; third party	Direct; third party	Direct; third party	Third party
COMMENTS	ANSI std. escape sequences; line drawing set std.; local echo; national power cords; international modem support; bounded	HP line-drawing set; fold-up keyboard; user-adjustable convenience features; 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 features & controls settable from kybd. & saveable in non-volatile RAM. Can upgd. to CP/M computer system	Communications modes keyboard-selectable; 64 block grahpics & 16 line graphics; room for 2 additional logic boards

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Falco Data Products TS-1	Falco TS-1SP	Falco TS-100SP	Falco TS-2	Falco TS-42
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	3275	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	DEC VT52 Lear Siegler ADM 31	—	DEC VT100/VT52	Lear Siegler ADM 2	Lear Siegler ADM 42
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	16K opt.	16K	16K	1 page	16K
Screen arrangement, lines x chars./line	24 x 80 plus status line	24 x 80	24 x 80	24 x 80	24 x 80
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	Opt.	No	No	No	No
Total displayable symbols	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	6 x 10 dot matrix	6 x 10 dot matrix	6 x 10 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P31 green std.; P4 wht./PC134 amb. opt.	P31 green std.; P4 wht./PC134 amb.	P31 green std.; P4 wht./PC134 amb.	P31 green std.; P4 wht./PC134 amb.	P31 green std.; P4 wht./PC134 amb.
Color capability	No	No	No	No	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.	Std.
Double size	Std.	Std.	Std.	Std.	Std.
Scroll	Up/smooth std.	Std.	Std.	Std.	Std.
Paging	Opt.	Std.	Std.	1 page	3 pages std.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	Std.	Std.	Std.	Std.	Std.
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Line/page std.	Line/page std.	Line/page std.	Line/page std.	Line/page std.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry	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	28 std., separate row opt.	—	7 std.; 14 func.	12 std.	44 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	Std.	Opt.	Opt.	Opt.	Opt.
Port for cust.-supplied devices	Std.; 2 I/O ports	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	212 plus modem	212 plus modem
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Async. std., syn. opt.	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	SDLC	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-19,200	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Char./line/block	Char./block	Char./block	Char./line/block	Char./line/block
Multipoint operation (pollable/addr.)	Opt.	Opt.	Opt.	No	Opt.
Terminal interface	RS-232-C	RS-232-C std.; 20mA, RS-422 opt.	RS-232-C std.; 20mA, RS-422 opt.	RS-232-C std.; 20mA opt.	RS-232-C std.; 20mA opt.
Integral modem	Opt. Auto dialer	No	No	Opt.	Opt.
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Purchase only	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,295	1,495	1,850	1,495	1,695
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	10/80	6/82	6/82	1/83	11/82
Date of first production delivery	—	—	—	1/83	11/82
Display units installed to date	5,000	—	—	—	—
Serviced by	Dow Jones/factory	Dow Jones/factory	Dow Jones/factory	Dow Jones/factory	Dow Jones/factory
COMMENTS	Additional emulations include: DEC VT100, Burroughs, NCR, Data General, line & business graphics; horizontal/down scrolling opt.				

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Falco TSA-100	Falco TS-2624	General Digital VuePoint/ VuePoint Rock Mount	General Terminal SW 10	General Terminal SW 80
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	—	—
Transportability	No	No	Portable case	No	No
IBM compatibility	No	No	Special order	No	No
Teletype compatibility	Std.	Std.	Opt.	Std.	Std.
Other compatibility	DEC VT100/VT52	Hewlett-Packard 2624	—	DEC VT100/VT52	None
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920, 3188	1920	480	1920	1920
Memory capacity, no. char./lines/pages	1 page	16K	—	80/24/1	3840 per page
Screen arrangement, lines x chars./line	24 x 80, 24 x 132	24 x 80	12 x 40	24 x 80 plus status line	24 x 80 & status line
Screen area, diagonal, inches	12	12	10	12	12
Tilt/swivel screen	No	No	No	No	No
Total displayable symbols	128 ASCII	128 ASCII	96 ASCII	96 ASCII	224
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	5 x 7 dot matrix	5 x 7 dot matrix	5 x 7 dot matrix
Character phosphor	P31 green std.; P4 wht./PC134 amb.	P31 green std.; P4 wht./PC134 amb.	Gas plasma panel	P31 green std.; P4 white opt.	P31 green std.; P4 opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	No	Std.
Blink	Std.	Std.	Std.	No	Std.
Blank	Std.	Std.	Std.	No	Std.
Bold	Std.	Std.	Std.	No	No
Reverse	Std.	Std.	No	Std.	Std.
Double size	Std.	Std.	No	No	Std.
Scroll	Std.	Std.	Up std.	Up/slow std.	Horiz. & vert. std.
Paging	8 pages std.	8 pages std.	3 std.; up to 51 opt.	No	3 std.; 7 opt.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Addressable only	Both std.	Std.
Protected format	No	Std.	Std.	Std.	Std.
Partial screen transmit	No	Std.	No	No	Std.
Split screen/windows	Std.	Std.	No	Std.	Std.
Tabulation	Fwd./back std.	Fwd./back std.	Fwd. std.	Fwd. std.	Fwd./back std.
Character insert/delete	Std.	Std.	No	Std.	Std.
Line insert/delete	Std.	Std.	No	Std.	Std.
Erase	Line/page std.	Line/page std.	Char./line/screen/. partial screen std.	Line/screen std.	Line, field, page
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter opt.	Typewriter	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII	96 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	14 std.	8 std.	Via touch screen	12 std.; 20 char./ key	24 std.
Numeric keypad	Std.	Std.	Via touch screen	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.	No	No	Opt.
Port for cust.-supplied devices	Std.	Std.	Std.; 2 I/O ports	Std.	Std.
Other vendor-supplied devices	212 plus modem	212 plus modem	Audible alarm std.	—	None
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Full-duplex	Full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII	ASCII	—	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-19,200	300-19,200	50-9600	50-19,200
Format; character, line, or block	Character	Char./line/block	Character	Character	Char./line/block
Multipoint operation (pollable/addr.)	Opt.	Opt.	Opt.	No	No
Terminal interface	RS-232-C std.; 20mA, RS-422 opt.	RS-232-C std.; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C, 20mA	RS-232-C
Integral modem	Opt.	Opt.	—	No	No
Integral acoustic coupler	No	No	—	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	Purchase only	Purchase only
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,295	1,995	3,500	899	995
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	12/82	12/82	—	5/81	11/81
Date of first production delivery	12/82	12/82	9/79	9/81	2/83
Display units installed to date	—	—	—	—	—
Serviced by	Dow Jones/factory	Dow Jones/factory	General Digital	General Terminal	General Terminal
COMMENTS			The VuePoint is a touch-input terminal with optional keyboard & printer; a rack-mount version is available, packaged in a 19-inch rack-compatible enclosure—$3,950.	11 international keyboards available	Options: 11 int'l. keyboards, 32K memory, current loop, INIT, PROM, DA

Alphanumeric Display Terminals

SUPPLIER AND MODEL	General Terminal Avant 250	General Terminal Avant 251	Harris 8000	Harris 9200	Hazeltine Esprit
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Cluster	Cluster	Stand-alone
Maximum displays/controller	1	1	32	32	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	3270 BSC/SDLC	3270 BSC/SDLC	No
Teletype compatibility	Std.	Std.	No	No	Std.
Other compatibility	None	None	Burroughs, Honeywell, Univac	—	ADDS Regent 25, Lear Siegler ADM3A
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	480, 960, 1920	960-3564	1920
Memory capacity, no. char./lines/pages	1920	1920	—	—	No
Screen arrangement, lines x chars./line	24 x 80 & status line	24 x 80 & status line	12 x 40, 12 x 80, 24 x 80	12/24/32/43 x 80, 27 x 132	24 x 80
Screen area, diagonal, inches	12	12	12	15	12
Tilt/swivel screen	No	No	No	—	No
Total displayable symbols	224	160	96/128 ASCII	128	128
Symbol formation	5 x 7 dot matrix	5 x 7 dot matrix	7 x 9 dot matrix	7 x 13 dot matrix	7 x 11 dot matrix
Character phosphor	P31 green std.; P4 white opt.	P31 green std.; P4 white opt.	P4 white	P39/P42 green, PC166 amber	Green
Color capability	No	No	No	Yes	No
Programmable field/char. highlighting via:					
Underline	Std.	No	Std.	No	No
Blink	Std.	No	Std.	No	Std.
Blank	Std.	No	No	Std.	No
Bold	No	No	Std.	Std.	No
Reverse	Std.	Std.	No	No	Std.
Double size	No	No	No	No	No
Scroll	Up	Up	No	No	No
Paging	—	—	No	No	No
Selectable cursor blinking	No	No	Std.	Std.	No
Addressable/readable cursor	Std.	Std.	Std.	Std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	No
Split screen/windows	No	No	No	No	No
Tabulation	Fwd./back std.	Fwd./back std.	Std.	Std.	Std.
Character insert/delete	Std.	Std.	Std.	Std.	No
Line insert/delete	Std.	Std.	Char./line/screen	—	Std.
Erase	Field, line, page	Field, line, page	Std.		Line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter, data entry, others	Typewriter, data entry, keypunch	Typewriter
Character/code set	128 ASCII	128 ASCII	ASCII/EBCDIC	ASCII/EBCDIC	128 ASCII
Detachability	Std.	Std.	Std.	Std.	No
Program function keys	16 std.	16 std.	Up to 36	Up to 24	No
Numeric keypad	Std.	Std.	Std.	Opt.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	Impact, 40-165 cps	Impact, 80-180 cps	No
Line printer, type and speed	No	No	Belt, 200 lpm	Band, 300 lpm	No
Composite video	Std.	Std.	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	None	None	Hard disk	Light pen, magnetic stripe reader	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Async./Sync.	Synchronous	Asynchronous
Communications protocol	ASCII	ASCII	BSC/SDLC	BSC/SDLC	TTY
Code	ASCII	ASCII	ASCII/EBCDIC	ASCII/EBCDIC	ASCII
Speed, bits/second	50-19,200	50-19,200	1200-9600	Up to 9600	Up to 9600
Format; character, line, or block	Char./line/block	Char./line/block	Char./block	Char./block	Char./block
Multipoint operation (pollable/addr.)	No	No	Std.	Std.	No
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, 2-year lease, $/mo.	Purchase only	Purchase only	Contact vendor	Contact vendor	—
Controller, 2-year lease, $/mo.	—	—	Contact vendor	Contact vendor	—
Display station, purchase, $	1,095	1,095	Contact vendor	Contact vendor	595
Controller, purchase, $	—	—	Contact vendor	Contact vendor	—
Monthly prime-shift maint., $/mo.	—	—	Contact vendor	Contact vendor	—
Date of announcement	6/82	6/82	—	—	—
Date of first production delivery	—	—	1976	5/80	6/81
Display units installed to date	—	—	4200 systems	—	—
Serviced by	General Terminal	General Terminal	Harris	Harris	Hazeltine & Western Union
COMMENTS			An interactive terminal system with enhanced capabilities for local format storage & queued transaction handling	Personal computing optional	Low-cost buffered terminal

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Hazeltine Esprit II	Hazeltine Esprit III	Hazeltine Executive 10	Hazeltine Executive 80 Model 20	Hazeltine Executive 80 Model 30
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920, 3168	1920, 3168
Memory capacity, no. char./lines/pages	—	—	1 page	1 page	2 pages
Screen arrangement, lines x chars./line	24 x 80	24 x 80 plus status line	24 x 80 plus status line	24 x80, 24 x 132	24 x 80, 24 x 132
Screen area, diagonal, inches	12	12	12	15	15
Tilt/swivel screen	Tilt std.	Tilt std.	Std.	Tilt opr.	Tilt std.
Total displayable symbols	128 ASCII	128 ASCII & graphics	124 ASCII	128	128
Symbol formation	7 x 11 dot matrix	7 x 11 dot matrix	7 x 10 dot matrix	7x10; 5x9 (132 col.)	7x10; 5x9 (132 col.)
Character phosphor	Green	Green	Green	P146 yellow green	P146 yellow green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	Std.	No	No	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	No	Std.	Std.	Std.	Std.
Bold	No	Dim std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	Opt.	Opt.
Scroll	No	No	No	No	No
Paging	No	No	1 page std.	1 page std.	2 pages std.
Selectable cursor blinking	No	No	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	No	No	Std.	Std.	Std.
Split screen/windows	No	No	No	2 std.	2 std.
Tabulation	Std.	Std.	Std.	Std.	Std.
Character insert/delete	No	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Line/screen std.	Line/screen std.	Std.	Std.	Std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	128 ASCII	124 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	No	22 std.	8 std.	8 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	No
Port for cust.-supplied devices	Std.	Std.	Opt.	Opt.	Std.
Other vendor-supplied devices	—	—	—	—	—
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	TTY	TTY	—	—	—
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-19,200	110-19,200	Up to 19,200	Up to 19,200
Format; character, line, or block	Char./block	Char./block	Char./block	Char./block	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	645	895	1,195	1,250	1,400
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	6/82	9/82	6/82	—	—
Date of first production delivery	—	10/82	—	2/81	2/81
Display units installed to date	—	—	—	—	—
Serviced by	Hazeltine & Western Union	Hazeltine & Western Union	Hazeltine & Western Union	Hazeltine & Western Union	Hazeltine & Western Union
COMMENTS				Enhanced video package includes 132 columns, smooth scrolling, double height/ width characters; split screen std.; CRT tilt opt.	Enhanced video package includes 132 columns, smooth scrolling, double height/ width characters; split screen, CRT tilt std.

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Hewlett-Packard 2621B	Hewlett-Packard 2622A	Hewlett-Packard 2623A	Hewlett-Packard 2624B	Hewlett-Packard 2626A
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	—
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	Tektronix 4010	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	2 pages	2 pages	2 pages	4 pages	5 pages
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80	24 x 80	24 x 80
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	No	No	No	No	No
Total displayable symbols	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	7 x 9 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix
Character phosphor	P4 white std.; P31 green opt.	P4 white std.; P31 green opt.	P4 white std.; P31 green opt.	P4 white std.; P31 green opt.	P4 white std.; P31 green opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	No	Std.	Std.	Std.	Std.
Blank	No	No	No	Std.	Std.
Bold	No	No	No	No	No
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	Up/down std.	Up/down std.	Up/down std.	Up/down/back std.
Paging	2 std.	2 std.	2 std.	4 std.; up to 9 opt.	Up to 5
Selectable cursor blinking	Std.	No	No	No	No
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	No	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	No	No	No	No	4 std.
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back 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/screen 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	8 std.	8 std. (screen labelled)	8 std.	8 std. (screen labelled)	8 std. (screen labelled)
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Opt. (integral)	Opt. (integral)	—	Impact, 32/180 cps	Impact, 32/180 cps
Line printer, type and speed	No	No	Thermal	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	No	No	Std.	Std.	Std.
Other vendor-supplied devices	—	—	7221 C/T 8-pen. plotter, 7225 1-pen plotter	—	—
TRANSMISSION PARAMETERS					
Mode	Full-duplex	Full-duplex	Full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Async./sync.	Async./sync.
Communications protocol	ASCII	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-9600	110-9600	110-9600	110-9600	110-9600
Format; character, line, or block	Char./line	Char./line/block	Char./line/block	Char./line/block	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	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, 2-year lease, $/mo.	80 (18-mo.)	131	222	173	246
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,595	2,175	3,750	3,000	4,350
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	17	24	38	26	33
Date of announcement	12/81	4/81	8/81	9/81	7/80
Date of first production delivery	—	4/81	8/81	9/81	7/80
Display units installed to date	—	—	—	—	—
Serviced by	Hewlett-Packard	Hewlett-Packard	Hewlett-Packard	Hewlett-Packard	Hewlett-Packard
COMMENTS	Optional integral thermal printer ($1,210); 8 user-definable soft keys; screen-labelled function keys; user-adjustable brightness	Optional integral thermal printer ($1,210)	Graphics terminal; optional integral thermal printer ($1,210)	Optional integral thermal printer ($1,210)	Optional integral thermal printer ($1,210); word processing version (2626W) available—$4,950

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Hewlett-Packard 2382A	Hewlett-Packard 2645A	Honeywell VIP 7201	Honeywell VIP 7301/ 7303/7307	Honeywell VIP 7801/ 7802/7804/ 7805
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	1	1	1
Transportability	Portable case	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	Honeywell	Honeywell	Honeywell
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	2000	2000
Memory capacity, no. char./lines/pages	2 pages	4K std.; plus opt. 8K	80/24/1	80/25/1	1 page std., 3 opt.
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80	25 x 80	25 x 80
Screen area, diagonal, inches	9	11	12	12	12/15
Tilt/swivel screen	No	No	Tilt opt.	No	Std. (7802/7805)
Total displayable symbols	128 ASCII	128 ASCII	96 ASCII/26 special	120	139 ASCII/special
Symbol formation	7 x 11 dot matrix	9 x 15 dot matrix	7 x 11 dot matrix	7 x 9 dot matrix	7 x 10 dot matrix
Character phosphor	P4 white	P39 white	P31 green std.	P31 green std.	P4 white/P31 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Opt.	Std.	Std.	Std.
Blink	Std.	Opt.	Std.	Std.	Std.
Blank	No	No	No	Std.	Std.
Bold	No	Opt.	No	No	No
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	Up/down std.	Up std.	Up/horiz std. (7303)	Up std.; down opt.
Paging	2 std.	1-2 std.; 3-6 opt.	No	No	1 std., 3 opt.
Selectable cursor blinking	No	No	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	—	No	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	No	No	No	No	2 std.
Tabulation	Fwd./back std.	Fwd./back std.	Std.	Std.	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.	Std.	Line/screen std.	Page/field std.
KEYBOARD PARAMETERS					
Style	Typewriter	Data entry	Typewriter	Typewriter, data entry, WP	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	8 std. (screen labelled)	8 std.	7 std.	12 std.	12 std.
Numeric keypad	No	Std.	Std.	Std. (7303/7307)	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	Various	—	No	100/120 cps impact
Line printer, type and speed	No	No	No	No	280 lpm
Composite video	No	Opt.	No	No	Opt.
Port for cust.-supplied devices	No	7 opt. slots	Std.	No	Std.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Full-duplex	Half/full-duplex	Full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Async.; Sync (04,05)
Communications protocol	ASCII	TTY	ASCII 7-bit	ASCII-7 bit	Honeywell VIP
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-9600	110-9600	300-19,200	300-19,200	110-19,200
Format; character, line, or block	Char./line/block	Char./line/block	Char./line/block	Character	Char./line/block
Multipoint operation (pollable/addr.)	No	Std.	No	No	Std. (7804, 7805)
Terminal interface	RS-232-C	RS-232-C, 20mA	RS-232-C/RS-422A	RS-232-C, RS-422A 20mA, MIL-188C	RS-232-C, 20/60 mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	99	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,700	4,600	795	1,900	3,175-3,705
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	16	22-30	20	20	32-39
Date of announcement	8/81	9/76	12/82	4/81	—
Date of first production delivery	8/81	9/76	2/83	7/81	10/78
Display units installed to date	—	Over 120,000 (264X)	—	—	—
Serviced by	Hewlett-Packard	Hewlett-Packard	Honeywell	Honeywell	Honeywell
COMMENTS			Honeywell CAMP maint. available at $80 year	Customer-assisted maintenance priced at $40/yr.; separate/ interchangeable key-boards for standard conversational, word processing or data entry applications	Horizontal & vertical line graphics forms creation; buffered printer adapter opt.; up to 32 units sync. can be multi-dropped on a single line

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Honeywell VIP 7814	Honeywell VIP 7700R/ 7705R	Honeywell VTS 7710	Honeywell VTS 7740	Human Designed Systems Concept AVT
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Cluster	Cluster	Stand-alone
Maximum displays/controller	1	1	4	8	—
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	No	No	No	No	Std.
Other compatibility	Honeywell	Honeywell	Honeywell VIP	Honeywell VIP	DEC VT100
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2000	1920	1920	1920	1920, 3168
Memory capacity, no. char./lines/pages	6K/72/3	80/24/1	—	—	4 pages std.; 8 opt.
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80	24 x 80	24 x 80, 24 x 132
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	Tilt opt.	No	Tilt std.	Tilt std.	Tilt std.
Total displayable symbols	106 ASCII/special	64/96 ASCII	96 ASCII	96 ASCII	128 ASCII
Symbol formation	7 x 9 dot matrix	5 x 7 dot matrix	8 x 12 dot matrix	8 x 12 dot matrix	7 x 9/5 x 7 (132)
Character phosphor	P31 green std.	P4 white	P39 green	P39 green	P4 white std.; P31 green/amber opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	No	No	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	Std.	No	No	No	No
Reverse	Std.	No	No	No	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	No	No	No	Up/down std.
Paging	3 pages std.	No	No	No	4 std., 8 opt.
Selectable cursor blinking	Std.	Std.	No	No	Std.
Addressable/readable cursor	Both std.	Addressable only	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	2 std.	No	No	No	4 std.
Tabulation	Fwd./back std.	Std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Std.	Char./line std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	96 ASCII	96 ASCII	96 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	12 std.	Std.	See comments	See comments	8 std., 11 additional opt.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	100 cps impact	120 cps impact	100/160 cps impact	100/160 cps impact	No
Line printer, type and speed	Var. dot matrix	No	220 lpm belt	220 lpm belt	No
Composite video	No	No	Std.	Std.	Opt.
Port for cust.-supplied devices	No	Opt.	No	No	2 opt.
Other vendor-supplied devices	10 terminal cluster unit	—	—	—	Shared printer interface
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half-duplex	Half-duplex	Half/full-duplex
Technique	Synchronous	Synchronous	Synchronous	Synchronous	Asynchronous
Communications protocol	Honeywell VIP	Honeywell	Honeywell VIP	Honeywell VIP	—
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	2400-9600	2400/4800/9600	Up to 9600	Up to 9600	50-9600
Format; character, line, or block	Block	Block	Block	Block	Char./block
Multipoint operation (pollable/addr.)	Std.	Poll/select	Std.	Std.	No
Terminal interface	RS-232-C	RS-232-C, MIL-188C	RS-232-C	RS-232-C	RS-232-C std.; 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	57 (3 yr.)	57 (3 yr.)	96-148.50
Controller, 2-year lease, $/mo.	—	—	215 (3 yr.)	525 (3 yr.)	—
Display station, purchase, $	2,700	3,990	1,250	1,250	1,295-1,445
Controller, purchase, $	—	—	4,535	12,200	—
Monthly prime-shift maint., $/mo.	25	36	63	96	—
Date of announcement	11/82	—	4/81	4/81	3/81
Date of first production delivery	1/83	3/77	4/81	4/81	3/81
Display units installed to date	—	—	—	—	—
Serviced by	Honeywell	Honeywell	Honeywell	Honeywell	HDS, distributors
COMMENTS	Honeywell CAMP maint. available at $115 year horizontal & vertical line drawing symbols standard—100 line buffer print adaptor standard—1000 foot drive capability standard	Up to 32 units can be multi-dropped on a single line	Function codes obtainable via control key sequences	Function codes obtainable via control key sequences	Non-volatile memory; networking between mult. comm. lines; self-test capability; multiple status lines (25th line); lightweight

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Human Designed Systems Concept AVT-APL	Icot 700	Icot 701	Informer 301/311 Series	Informer 304 Series
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Cluster	Cluster	Stand-alone	Stand-alone
Maximum displays/controller	—	12	12	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	3278 BSC/SDLC	3278 BSC/SDLC	No	No
Teletype compatibility	Std.	No	No	Std.	Std.
Other compatibility	DEC VT100	—	—	—	See comments
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920, 3168	2000, 3696	560-3696	512, 1024	2048
Memory capacity, no. char./lines/pages	4 pages std.; 8 opt.	—	—	32/16/1, 64/16/1	32/16/4; 40/12/4
Screen arrangement, lines x chars./line	24 x 80, 24 x 132	25 x 80, 28 x 132	14 x 40, 17/31 x 64, 14/25/33/44 x 80	16 x 32	12 x 40, 24 x 80, 16 x 32, 16 x 64
Screen area, diagonal, inches	12	12	12	6 std., 9 opt.	9
Tilt/swivel screen	Tilt std.	No	No	Std.	Std.
Total displayable symbols	128 ASCII/APL	87 ASCII	87 ASCII	64 ASCII	128 ASCII
Symbol formation	7 x 9/5 x 7 (132)	Multl.	Multl.	5 x 7 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white std.; P31 green/amber opt.	P31 green	P31 green	P4 white std.; P31 green opt.	P4 white std.; P31 green opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	No	Opt.
Blink	Std.	Std.	Std.	No (301); std. (311)	Std.
Blank	Std.	Std.	Std.	No	Std.
Bold	No	Std.	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	No	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	No	No	Up/down opt.	Up/down std.
Paging	4 std.; 8 opt.	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Opt.	Std.
Addressable/readable cursor	Both std.	Addressable only	Addressable only	Addressable only	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	No	Std.
Split screen/windows	4 std.	No	No	No	No
Tabulation	Fwd./back std.	Std.	Std.	Fwd. std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	No	Std.
Line insert/delete	Std.	Std.	Std.	No	Std.
Erase	Char./line/screen std.	Std.	Std.	Protected, screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Data entry	Data entry
Character/code set	128 ASCII	—	—	64 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Opt.	Opt.
Program function keys	8 std.; 11 additional opt.	Std.	Std.	2 std.	14 std., 2 levels each
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	Std.	No	No
Line printer, type and speed	No	—	—	No	No
Composite video	Opt.	Std.	Std.	Opt.	Std.
Port for cust.-supplied devices	2 opt.	Opt.	Opt.	No	Opt.
Other vendor-supplied devices	Shared printer interface	—	—	—	Light pen, bar code wand
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Full-duplex	Full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	—	Async./BSC	Async./BSC	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-9600	9600	9600	110-9600/50-9600	50-19,200
Format; character, line, or block	Char./block	Character	Character	Character	Char./line/block
Multipoint operation (pollable/addr.)	No	Yes	Yes	No	Both std.
Terminal interface	RS-232-C std.; 20mA opt.	RS-232-C/RS-422	RS-232-C/RS-422	RS-232-C, 20mA	RS-232-C, 20mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	106-156.50	—	—	Purchase only	Purchase only
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,495-1,645	1,500	1,750	1,675-2,025	1,650-2,200
Controller, purchase, $	—	5,200-7,200	5,200-7,200	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	3/81	1982	1982	—	—
Date of first production delivery	3/81	1982	1982	—	—
Display units installed to date	—	—	—	—	—
Serviced by	HDS, distributors	Icot	Icot	Informer	Informer
COMMENTS	Non-volatile memory; networking between mult. comm. lines; self-test capability; multiple status lines (25th line); light-weight	Built-in keypad calculator, alternate application sessions	Built-in keypad calculator, alternate application sessions		Emulations include: ADDS Regent 100, DEC VT52, NCR 796-101/301, Datapoint 3601, Data General 6053/D200

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Informer 401	Informer 375/376	Informer 377/378	Intelligent Systems 8001 G/H/R	Intelligent Systems 2405
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Cluster	Stand-alone	Stand-alone
Maximum displays/controller	1	1	8	1	1
Transportability	No	No	No	Yes	Yes
IBM compatibility	3101	3275-BSC	BSC & SDLC/SNA	No	No
Teletype compatibility	Std.	No	No	Std.	Std.
Other compatibility	—	No	No	DEC VT100	DEC VT100, ANSI 3.64
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	3840	1920
Memory capacity, no. char./lines/pages	80/24/1	80/24/1	80/24/1	48 x 80	24 x 80
Screen arrangement, lines x chars./line	24 x 80	24 x 80 plus status line	24 x 80 plus status line	48 x 80	24 x 80
Screen area, diagonal, inches	9	9 std., 12 opt.	9 std., 12 opt.	19	13
Tilt/swivel screen	Std.	Tilt and swivel std.	Tilt and swivel std.	No	No
Total displayable symbols	128 ASCII	96	96	64 ASCII/64 ISA	64 ASCII/64 ISA
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	5x7 (6); 6x8 (H&R)	5 x 9 dot matrix
Character phosphor	P4 white std.; P31 green opt.	P31 green std., P4 white opt.	P31 green std., P4 white opt.	8 colors	8 colors
Color capability	No	No	No	8 colors (fore,, back.)	8 colors (fore,, back.)
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	No	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	No	Std.
Bold	Std.	Std.	Std.	No	No
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	Std.	No
Scroll	Up/down std.	No	No	Up std.	Up/down std.
Paging	No	No	No	2 opt.	2 std.
Selectable cursor blinking	Std.	Std.	Std.	No	No
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Opt.	No
Partial screen transmit	Std.	Std.	Std.	No	No
Split screen/windows	No	No	No	No	Std.
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd. std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	No
Line insert/delete	Std.	No	No	Std.	No
Erase	Char./line/screen std.	Char., line & screen std.	Char., line & screen std.	Char. std.	Char. std.
KEYBOARD PARAMETERS					
Style	Data entry	Data entry	Data entry	Teletype	Typewriter
Character/code set	128 ASCII	96 EBCDIC	96 EBCDIC	64 ASCII	64 ASCII
Detachability	No	Opt.	Opt.	Std.	No
Program function keys	8 std.	24 std.	24 std.	16 std.	12 std.; 12 opt.
Numeric keypad	No	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	30 cps dot mat. opt.	30 cps dot mat. opt.	55 cps impact	55 cps impact
Line printer, type and speed	No	No	No	No	No
Composite video	Std.	Std.	Std.	No	No
Port for cust.-supplied devices	Opt.	Opt.	Opt.	RS-232-C (2 opt.)	RS-232-C
Other vendor-supplied devices	—	Light pen	Light pen	Light pen, ink jet print (H&R), digitizer (R), plotter (R)	Light pen
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Synchronous	Synchronous	Async. std./sync. opt.	Asynchronous
Communications protocol	ASCII	BSC	BSC	ASCII	ASCII
Code	ASCII	EBCDIC	EBCDIC	ASCII	ASCII
Speed, bits/second	50-19,200	50-9600	50-9600	Up to 9600	Up to 19,200
Format; character, line, or block	Character	Block	Block	Character	Character
Multipoint operation (pollable/addr.)	Opt.	Std.	Std.	Opt.	Opt.
Terminal interface	RS-232-C, 20mA	RS-232-C	RS-232-C	RS-232-C, 20mA opt.	RS-232-C, 20mA
Integral modem	No	Opt.	Opt.	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Purchase only	Purchase only	Purchase only	Purchase only	Purchase only
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	690	1,950-2,350	1,700-2,050	2,745/3,175/3,975	2,195
Controller, purchase, $	—	—	5,000-5,400	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	—	—	—	1975/1979/1982	7/82
Date of first production delivery	—	—	—	—	10/82
Display units installed to date	—	—	—	—	—
Serviced by	Informer	Informer	Informer	Intelligent Systems (rep.)	Intelligent Systems
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 (6); 480 H x 384 V (H&R); low resolution character cell graphics mode	Non-glare CRT coating

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Intelligent Systems 3601	Intelligent Systems 8301 G/H/R	Interaction Systems TT-150/TT-151	International Anasazi/ Emulog 200	IBM 3274/3278
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Cluster
Maximum displays/controller	1	1	—	1	32
Transportability	Yes	Yes	No	No	No
IBM compatibility	No	3275 BSC opt. (G&R)	No	No	3270 System
Teletype compatibility	Std.	Std.	No	Std.	No
Other compatibility	DEC VT100	DEC VT100	—	Data General D200/6053	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2048	3840	1920	1920	See comments
Memory capacity, no. char./lines/pages	32 x 64	48 x 80	80/24/2	—	—
Screen arrangement, lines x chars./line	32 x 64	48 x 80	24 x 80 plus status line	24 x 80	12/24/32/43 x 80, 27 x 132
Screen area, diagonal, inches	13	13	15	12	14
Tilt/swivel screen	No	No	Std.	No	No
Total displayable symbols	64 ASCII/64 ISA	64 ASCII/64 ISA	128 ASCII; graph. opt.	96 ASCII	64; 96; 120 APL
Symbol formation	5 x 7 dot matrix	5x7 (6); 6x8 (H&R)	10 x 14 dot matrix	7 x 9 dot matrix	7 x 9/14; 7 x 11
Character phosphor	8 colors	8 colors	P31 green std.	P31 green	White
Color capability	8 colors (fore,, back.)	8 colors (fore., back.)	No	No	No
Programmable field/char. highlighting via:					
Underline	No	No	Opt.	Std.	Std.
Blink	Std.	Std.	Opt.	Std.	Std.
Blank	No	No	Opt.	No	Std.
Bold	No	No	Opt.	No	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	Std.	No	No	No
Scroll	Up std.	Up std.	Up/down, smooth std.	No	No
Paging	No	2 opt.	2 std.; up to 8 opt.	No	No
Selectable cursor blinking	No	No	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Addressable only	Std.	Addressable only
Protected format	No	Opt.	Opt.	No	Std.
Partial screen transmit	No	No	No	No	Std.
Split screen/windows	No	No	No	No	
Tabulation	Fwd./back std.	Fwd. std.	Fwd. std.	Std.	Std.
Character insert/delete	No	Std.	No	No	Std.
Line insert/delete	No	Std.	No	No	No
Erase	Char. std.	Char. std.	No	Line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Teletype	Teletype	Typewriter (151)	Typewriter	Several
Character/code set	64 ASCII	64 ASCII	64 ASCII (151)	ASCII	ASCII/EBCDIC
Detachability	No	No	Std. (151)	Std.	Std.
Program function keys	16	16 opt.	20 std. (151)	20 std.	Std.
Numeric keypad	Opt.	Std.	Std. (151)	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	55 cps impact	55 cps impact	No	No	Std.
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	RS-232-C	RS-232-C (2 opt.)	Std.	—	Std.
Other vendor-supplied devices	Light pen	Light pen, ink jet printer, digitizer (R), plotter (R)	Touch-sensitive screen	—	Aud. alarm, mag. slot reader, light pen, keylock, I.D. reader
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full duplex	Half/full duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Synchronous
Communications protocol	ASCII	ASCII	ASCII	ASCII	BSC/SDLC
Code	ASCII	ASCII	ASCII	ASCII	ASCII/EBCDIC
Speed, bits/second	Up to 9600	Up to 9600	Up to 19,200	50-19,200	1200-9600
Format; character, line, or block	Character	Character	Character	Character	Block only
Multipoint operation (pollable/addr.)	Opt.	Opt.	No	—	Std.
Terminal interface	RS-232-C, 20mA opt.	RS-232-C; 20mA opt.	RS-232-C, 20mA opt.	RS-232-C, 20mA	RS-232-C
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Purchase only	Purchase only	—	—	69-103
Controller, 2-year lease, $/mo.	—	—	—	—	196-709
Display station, purchase, $	1,995	2,650-4,240	2,000(150);2,340(151)	1,250	2,060-3,070
Controller, purchase, $	—	—	—	—	6,035-20,570
Monthly prime-shift maint., $/mo.	—	—	—	—	13.00-18.50
Date of announcement	6/79	1975	11/82	8/81	1977
Date of first production delivery	6/79	1975	1/83	9/81	1978
Display units installed to date	—	—	—	—	—
Serviced by	Intelligent Systems	Intelligent Systems (rep.)	Interaction Systems	Anasazi	IBM
COMMENTS		Resolution—160 H x 192 V (G); 480 H x 384 V (H & R); low resolution character cell graphics mode	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		Display capacities available include: 960, 1920, 2560, 3440, & 3564; controller (3274) accommodates 3278 & 3277 display stations

Alphanumeric Display Terminals

SUPPLIER AND MODEL	IBM 3276/ 3278/3279	IBM 3101	IBM 3104	IBM 5251/5252	IBM 5291/5292
TERMINAL DESCRIPTION					
Stand-alone or cluster	Cluster	Stand-alone	Either	Either	Either
Maximum displays/controller	8	1	—	Up to 9	Up to 9
Transportability	No	No	No	No	No
IBM compatibility	3270 System	No	8775, 3276, 3278	SDLC	5251-11
Teletype compatibility	No	Std.	No	No	No
Other compatibility	—	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	See comments	1920	1920	960, 1920	1920
Memory capacity, no. char./lines/pages	—	—	—	—	—
Screen arrangement, lines x chars./line	12/24/32/43 x 80, 27 x 132 (3278)	24 x 80 plus status line	24 x 80 plus status line	12/24 x 80	24 x 80 plus status line
Screen area, diagonal, inches	14	12	12	12; 15 opt.	12
Tilt/swivel screen	No	Std.	Std.	No	Tilt std.
Total displayable symbols	96; 120 APL opt.	128	94	96; 188 Multi-Natl.opt.	96
Symbol formation	7 x 9/14; 7 x 11	7 x 14 dot matrix	7 x 14 dot matrix	8 x 16 dot matrix	7 x 11 dot matrix
Character phosphor	White	Green	White	White	White
Color capability	3279 only	No	No	No	7 colors (5292)
Programmable field/char. highlighting via:					
Underline	Std.	—	Std.	—	Std.
Blink	Std.	—	Std.	—	Std.
Blank	Std.	—	Std.	—	Std.
Bold	Std.	—	Std.	—	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	No	—	Std.	Std.	Std.
Paging	No	No	No	No	No
Selectable cursor blinking	No	Std.	Std.	Std.	Std.
Addressable/readable cursor	Addressable only		Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	No	Std.	Std.	Std.
Split screen/windows			Std.	—	—
Tabulation	Std.	Std.	Std.	Std.	Std.
Character insert/delete	Std.	Std. (Mdl 20,22,23)	Std.	Std.	Std.
Line insert/delete	No	Std. (Mdl 20,22,23)	Std.	No	No
Erase	Char./line/screen std.	Std. (Mdl 20,22,23)	Char./field/screen std.	Char./field/screen std.	Char./field/screen std.
KEYBOARD PARAMETERS					
Style	Several	Typewriter	Typewriter, data entry	Typewriter	Typewriter
Character/code set	ASCII/EBCDIC	ASCII	EBCDIC	EBCDIC	EBCDIC
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	Opt.	8	10 (Model B1); 24 (Model B2)	24 std.	24 command functions
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Std.	No	Std.	Std.	Std.
Line printer, type and speed	No	No	Std.	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, mag. slot reader, light pen, keylock	—	Audible alar, key-lock, clock	Mag. stripe reader, selector light pen, aud. alarm, keylock	Mag. stripe reader, selector light pen, keylock
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Asynchronous	Synchronous	Synchronous	Synchronous
Communications protocol	BSC/SDLC	ASCII	BSC/SDLC	BSC/SDLC	BSC/SDLC
Code	ASCII/EBCDIC	ASCII	EBCDIC	EBCDIC	EBCDIC
Speed, bits/second	1200-9600	Up to 9600	Up to 38,400	1200-9600	1200-9600
Format; character, line, or block	Block only	Char./block	Block	Block only	Block
Multipoint operation (pollable/addr.)	Std.	No	Std.	Std.	Std.
Terminal interface	RS-232-C	RS-232-C, 20mA, RS-422	RS-232-C	RS-232-C, twinax cable	RS-232-C
Integral modem	No	No	No	Opt.	Opt.
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	69-142	Purchase only	—	86-146	—
Controller, 2-year lease, $/mo.	203-221	—	—	—	—
Display station, purchase, $	2,060-4,760	1,355-1,590	2,190-2,250	2,420-3,445	2,100/4,950
Controller, purchase, $	5,980-6,480	—	—	—	—
Monthly prime-shift maint., $/mo.	13-29	70-80	950-100/yr.	19.50-44.50	230/yr./420/yr.
Date of announcement	1977	1979	3/82	—	7/82
Date of first production delivery	1977	1979	—	1978	—
Display units installed to date	—	—	—	—	—
Serviced by	IBM	IBM	IBM	IBM	IBM
COMMENTS	Display capacities available include: 960, 1920, 2560, 3440, & 3564 (3278 only)	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	Workstations for IBM S/34, S/38, & Series 1; 5251-1/11 is remote cluster or local station; 5251-2/12 is remote cluster controller/station; 5252 is remote cluster or local dual station	5291 is a monochrome terminal; 5292 is a color version

Alphanumeric Display Terminals

SUPPLIER AND MODEL	IBM 8775	Intertec Intertube III	C. Itoh CIT 80	C. Itoh CIT 90	C. Itoh CIT 101
TERMINAL DESCRIPTION					
Stand-alone or cluster	Either	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	Std.	No	No	No	No
Teletype compatibility	No	Std.	Std.	Std.	Std.
Other compatibility	—	—	DEC VT52/VT101	DEC VT101/VT52	DEC VT52/VT100/ VT101/VT102
DISPLAY PARAMETERS					
Display capacity, no. of chars.	960-3440	2000	1920	1920	3168
Memory capacity, no. char./lines/pages	—	—	80/24/1	80/24/1	80 or 132/24/1
Screen arrangement, lines x chars./line	12/24/32/43 x 80	25 x 80	25 x 80	25 x 80	
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	Tilt std.	No	No	No	No
Total displayable symbols	96	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	9 x 12/9 x 16	8 x 10 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	White	White	P4 white std.; P31 green/amber opt.	P4 white std.; P31 green/amber opt.	P4 white std.; P31 green/amber opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	No	Std.	Std.	Std.	Std.
Bold	No	No	Std.	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	Std.	Std.
Scroll	Std.	Std.	Up/down/jump/sm.	Up/down/jump/sm.	Up/down/jump/sm.
Paging	No	Std.	No	Opt.	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	No	Std.	No
Partial screen transmit	Std.	Std.	No	No	No
Split screen/windows	Std.	No	3 std.	3 std.	3 std.
Tabulation	Std.	Std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std.	No	Std.	No
Line insert/delete	Std.	Std.	No	Std.	No
Erase	Char./field/screen std.	Std.	Line/screen/char./ window	Line/screen/char./ window	Line/screen/char./ window
KEYBOARD PARAMETERS					
Style	Typewriter, data entry	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	EBCDIC/APL	ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	No	Std.	Std.	Std.
Program function keys	Std. (various)	14 std.	16 std.	16 std.	16 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Std.	No	50-19.2K bps	50-19.2K bps	50-19.2K bps
Line printer, type and speed	Std.	No	50-19.2K bps	50-19.2K bps	50-19.2K bps
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	Audible alarm, key-lock, clock	RS-232-C	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	BSC/SDLC	ASCII	ANSI/ASCII	ANSI/ASCII	ANSI/ASCII
Code	EBCDIC	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	Up to 38,400	110-9600	Up to 19,200	Up to 19,200	Up to 19,200
Format; character, line, or block	Block	Char./line/block	Char./line/block	Char./line/block	Character
Multipoint operation (pollable/addr.)	Std.	Opt.	No	No	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C, 20mA std.	RS-232-C, 20mA std.	RS-232-C, 20mA std.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	93-113	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	3,566-4,233	895	1,195	1,295	1,695
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	24.50-31.50	108/yr.	—	—	—
Date of announcement	10/78	—	6/81	1/82	6/80
Date of first production delivery	8/79	8/78	9/81	1/82	12/80
Display units installed to date	—	—	—	—	—
Serviced by	IBM	Intertec & third party	Western Union	Western Union	Western Union
COMMENTS	Worksation for IBM 8100 Information System; also attaches to 4331 processor, 4300, & S/370	Z-80 processor based, single board design; uses specifically designed non-glare high resolution CRT; also features local editing capability	Lease plans available from authorized distributors	Lease plans available from authorized distributors	Lease plans available from authorized distributors. Graphics, power supply and other expansion options available

Alphanumeric Display Terminals

SUPPLIER AND MODEL	C. Itoh CIT 161	ITT Courier 270	ITT Courier 275	ITT Courier 277	ITT Courier 278
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Cluster	Stand-alone	Cluster	Cluster
Maximum displays/controller	1	32	1	32	32
Transportability	No	No	No	No	No
IBM compatibility	No	3270, full line	3275	3277	3278
Teletype compatibility	Std.	No	No	No	No
Other compatibility	DEC VT100/VT52	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920, 3168	1920-3564	480, 1920	480, 1920	1920-3564
Memory capacity, no. char./lines/pages	—	1920-3564 char.	480, 1920 char.	480, 1920 char.	1920-3564 char.
Screen arrangement, lines x chars./line	24 x 80, 24 x 132	24/32/43 x 80; 27 x 132	12 x 40; 12/24 x 80	12 x 40, 24 x 80	24/32/43 x 80, 27 x 132
Screen area, diagonal, inches	12	14	15	15	14
Tilt/swivel screen	No	No	No	No	No
Total displayable symbols	128 ASCII	64 std.	64 std., 96 opt.	64 std.; 96 opt.	96 std.
Symbol formation	7 x 9 dot matrix	9x12,9x11,9x9,5x7	7 x 10 dot matrix	7 x 10 dot matrix	9 x 12, 9 x 11, 9 x 9
Character phosphor		Green	Green	Green	Green
Color capability	8 colors std.	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std./opt.	Std./opt.	Std./opt.	Std./opt.
Blink	Std.	Opt.	Opt.	Opt.	Opt.
Blank	Std.	No	No	No	No
Bold	No	No	No	No	No
Reverse	No	No	No	No	No
Double size	Std.	No	No	No	No
Scroll	Std.	No	No	No	No
Paging	No	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	—	Std.	Std.	Std.	Std.
Partial screen transmit	—	Std.	Std.	Std.	Std.
Split screen/windows	3 std.	No	No	No	No
Tabulation	Std.	Std.	Std.	Std.	Std.
Character insert/delete	No	Std.	Std.	Std.	Std.
Line insert/delete	No	No	No	No	No
Erase	Std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter, data entry, APL	Typewriter, data entry	Typewriter, data entry	Typewriter, data entry
Character/code set	128 ASCII	64 ASCII/96 EBCDIC	64 ASCII/96 EBCDIC	64 ASCII/96 EBCDIC	96 EBCDIC
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	4 std.	24 std.	12 std.	12 std.	24 std.
Numeric keypad	Std.	Opt.	Opt.	Opt.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	50-19.2K bps	Impact, 150-240 cps	Impact, 60-180 cps	Impact, 60-180 cps	Impact, 150-240 cps
Line printer, type and speed	50-19.2K bps	Belt, 600 lpm	Belt, 340 lpm	Belt, 340 lpm	Belt, 600 lpm
Composite video	—	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	Light pen, slot reader, extended device adapter	—	Badge reader, light pen	Light pen, slot reader
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half-duplex	Half-duplex	See comments	See comments
Technique	Asynchronous	Synchronous	Synchronous	See comments	See comments
Communications protocol	ANSI/ASCII	BSC/SDLC	BSC	See comments	See comments
Code	ASCII	ASCII/EBCDIC	ASCII/EBCDIC	See comments	See comments
Speed, bits/second	50-19,200	Up to 19,200	Up to 9600	See comments	See comments
Format; character, line, or block	Character	Block	Block	See comments	See comments
Multipoint operation (pollable/addr.)	No	Std.	Std.	Std.	Std.
Terminal interface	RS-232-C, 20mA	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, 2-year lease, $/mo.	—	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Controller, 2-year lease, $/mo.	—	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Display station, purchase, $	2,695	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Controller, purchase, $	—	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Monthly prime-shift maint., $/mo.	—	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Date of announcement	6/82	—	—	—	—
Date of first production delivery	—	1974	1974	1977	1980
Display units installed to date	—	—	—	—	—
Serviced by	Western Union	ITT Courier	ITT Courier	ITT Courier	ITT Courier
COMMENTS		Fully compatible with IBM 3270 Information Display System including 3271/2/4/6/7/8/9		Interfaces to IBM 3271, 3272, and 3790 controllers (or System/3) in same manner as on IBM 3277	Interfaces to IBM 3274, 3276, or 4300 CPUs in same manner as on IBM 3278

Alphanumeric Display Terminals

SUPPLIER AND MODEL	ITT Courier 279	ITT Courier 7700	IXO Telecomputing System	Kimtron ABM 85
TERMINAL DESCRIPTION				
Stand-alone or cluster	Cluster	Cluster	Stand-alone	Stand-alone
Maximum displays/controller	32	32	—	—
Transportability	No	No	Std.	No
IBM compatibility	3279-2A	No	No	Opt.
Teletype compatibility	No	No	Std.	Std.
Other compatibility	—	Honeywell 7700/ 7700R/7760	—	—
DISPLAY PARAMETERS				
Display capacity, no. of chars.	1920	960, 1920	16	2000
Memory capacity, no. char./lines/pages	1920 char.	960, 1920 char.	80 char.	2 page opt.
Screen arrangement, lines x chars./line	24 x 80	12 x 80, 24 x 80	1 x 16	25 x 80
Screen area, diagonal, inches	14	15	1 line (LCD)	12
Tilt/swivel screen	No	Opt.	No	Tilt std.
Total displayable symbols	96	96 std.	64 ASCII	128 ASCII/11 graph.
Symbol formation	9 x 12 dot matrix	7 x 10 dot matrix	5 x 7 dot matrix	7 x 9 dot matrix
Character phosphor	Green	Green	LCD	P31 green std., P4 white & amber opt.
Color capability	7 colors std.	No	No	No
Programmable field/char. highlighting via:				
Underline	Std./opt.	Std.	No	Std.
Blink	Opt.	Std.	No	Std.
Blank	No	No	No	Std.
Bold	No	No	No	Std.
Reverse	No	No	No	Std.
Double size	No	No	No	No
Scroll	No	No	2-30 cps	No
Paging	No	No	No	8 opt.
Selectable cursor blinking	Std.	Std.	No	Std.
Addressable/readable cursor	Addressable only	Addressable only	No	Both std.
Protected format	Std.	Std.	No	Std.
Partial screen transmit	Std.	Std.	No	No
Split screen/windows	No	No	Std.	No
Tabulation	Fwd./back std.	Fwd./back std.	No	Fwd./back std.
Character insert/delete	Std.	Std.	No	Std.
Line insert/delete	Std.	Std.	No	Std.
Erase	Char./line/screen/ var. fields std.	Char./line/screen std.	No	Char./line/screen std.
KEYBOARD PARAMETERS				
Style	Typewriter, data entry	Typewriter, data entry	Typewriter	Typewriter
Character/code set	96 ASCII; 128 opt.	96 ASCII/128 opt.	128 ASCII	96 ASCII
Detachability	Std.	Std.	No	Std.
Program function keys	24 std.	10 std.	No	16 std.
Numeric keypad	Std.	Std.	No	Std.
ANCILLARY DEVICES				
Serial printer, type and speed	Impact, 150-240 cps	60/120/180 cps	40 cps opt.	No
Line printer, type and speed	Belt, 600 lpm	115/340 lpm	No	No
Composite video	No	No	Opt.	No
Port for cust.-supplied devices	Std.	No	Opt.	Std.
Other vendor-supplied devices	Light pen, slot reader	Mag slot reader, audible alarm, security keylock	—	—
TRANSMISSION PARAMETERS				
Mode	Half-duplex	Half-duplex	Full-duplex	Half/full-duplex
Technique	Synchronous	Synchronous	Asynchronous	Asynchronous
Communications protocol	BSC/SDLC	HIS VIP 7700	—	ASCII
Code	ASCII/EBCDIC	ASCII	ASCII	ASCII
Speed, bits/second	Up to 19,200	2400-9600	300	75-19,200
Format; character, line, or block	Block	Block	Character	Char./block
Multipoint operation (pollable/addr.)	Std.	Std.	No	No
Terminal interface	RS-232-C	RS-232-C	—	RS-232-C, 20mA opt.
Integral modem	No	No	Std.	Opt.
Integral acoustic coupler	No	No	Opt.	No
PRICING AND AVAILABILITY				
Display station, 2-year lease, $/mo.	Contact vendor	Contact vendor	—	—
Controller, 2-year lease, $/mo.	Contact vendor	Contact vendor	—	—
Display station, purchase, $	Contact vendor	Contact vendor	500	795
Controller, purchase, $	Contact vendor	Contact vendor	—	—
Monthly prime-shift maint., $/mo.	Contact vendor	Contact vendor	—	—
Date of announcement	—	—	3/82	5/81
Date of first production delivery	1981	1977	—	9/81
Display units installed to date	—	—	—	6,200
Serviced by	ITT Courier	ITT Courier	IXO	RCA Service Co.
COMMENTS	Red, blue, green, white, pink, yellow, & turquoise are standard colors	Compatible with computers that support Honeywell VIP 7700/7700R/7760 protocol, redundant terminal controller opt.; integral line monitor functions	Hand-held system for one-button access to public and privat databases	

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Kimtron ABM 86	Kimtron KGT-100	Lear Siegler ADM 3A	Lear Siegler ADM 5	Lear Siegler ADM 22
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	—
Transportability	No	No	No	No	No
IBM compatibility	Opt.	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	TeleVideo 912, 920, 925 std.; LSI, ADDS, IBM opt.	DEC VT100, Tektronix 4010/4012	ADM 3	ADM 3A	ADDS Regent 25, Hazeltine 1500
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2160	2000, 3300	1920	1920	1920
Memory capacity, no. char./lines/pages	4 pages opt.	4 pages	1 page	1 page	1 page
Screen arrangement, lines x chars./line	27 x 80	27 x 80, 25 x 132	24 x 80	24 x 80	24 x 80 plus 25th status line
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	Tilt std.	No	No	No	No
Total displayable symbols	128 ASCII/15 graph.	256 plus graphics	64 ASCII; 96 opt.	128 ASCII	128 ASCII
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	5 x 7 dot matrix	5 x 9 dot matrix	7 x 11 dot matrix
Character phosphor	P31 green std., P4 white or amber opt.	Green, gray, amber	P4 white, P31 green	P4 white, P31 green	P31 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	No	Std.
Blink	Std.	Std.	No	No	Std.
Blank	Std.	Std.	No	No	No
Bold	Std.	Std.	No	No	No
Reverse	Std.	Std.	No	Std.	Std.
Double size	No	Std.	No	No	No
Scroll	Up/down/smooth std.	Std.	Up std.	Up std.	Std.
Paging	2 opt.	4 std.	No	No	No
Selectable cursor blinking	Std.	Std.	No	No	Std.
Addressable/readable cursor	Std.	Std.	Addressable only	Addressable only	Both std.
Protected format	Std.	Std.	No	No	Std.
Partial screen transmit	Std.	Std.	No	No	Std.
Split screen/windows	Std.	Std.	No	No	No
Tabulation	Fwd./back std.	Fwd./back std.	No	No	Std.
Character insert/delete	Std.	Std.	No	No	Std.
Line insert/delete	Std.	Std.	No	No	Std.
Erase	Std.	Std.	No	Line/screen std.	Line/page std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Teletype	Teletype	Typewriter
Character/code set	96 ASCII	96 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	No	No	Std.
Program function keys	16 std.	16 std.	No	No	7 std.
Numeric keypad	Std.	Std.	Opt.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	Dot matrix, 180 cps	Dot matrix, 180 cps	Dot matrix, 180 cps
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	—	—	Graphics, voice recognition	Graphics, voice recognition	—
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	ASCII	ASCII	—	—	—
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-19,200	75-19,200	75-19,200	75-19,200
Format; character, line, or block	Char./block	Char./block	Character	Character	Char./block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA
Integral modem	Opt.	Opt.	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	995	1,800	595	645	695
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	17	17	—
Date of announcement	5/82	11/82	5/75	6/80	6/82
Date of first production delivery	12/82	1/83	8/75	12/80	9/82
Display units installed to date	200	—	157,892	23,585	1,000
Serviced by	RCA Service Co.	RCA Service Co.	Lear Siegler	Lear Siegler	Lear Siegler
COMMENTS					

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Lear Siegler ADM 23	Lear Siegler ADM 24	Lear Siegler ADM 31	Lear Siegler ADM 32	Lear Siegler ADM 36
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	—
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	Hazeltine 1500	—	—	—	DEC VT100/VT52/ VT131 opt.
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920, 3168
Memory capacity, no. char./lines/pages	80/24/2, 80/51/1	48 ls. std., 96 ls. opt.	2 pages	2 pages	1 page
Screen arrangement, lines x chars./line	24 x 80	24 x 80 plus 25th status line	24 x 80	24 x 80 plus 25th status line	24 x 80, 24 x 132
Screen area, diagonal, inches	12	12; 14 opt.	12	12 std.; 15 opt.	12 std.; 15 opt.
Tilt/swivel screen	No	Tilt opt.	No	Tilt opt.	Tilt opt.
Total displayable symbols	128 ASCII, graph.	128 ASCII, graph.	128 ASCII, graph.	128 ASCII, graph.	96 ASCII, graph.
Symbol formation	7 x 8 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white, P31 green	P4 white, P31 green	P4 white, P31 green	P4 white, P31 green	P4 white, P31 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	No
Bold	No	No	No	No	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	Double wide	No	No	Std.
Scroll	Up std.	Up/smooth std.	Up std.	Up/smooth std.	Up/smooth std.
Paging	2 std.	1 or 2 std.	2 std.	2 std.	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	Window	2 std.	No	No	2 std.
Tabulation	No	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd. std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Line/screen std.	Line/screen std.	Line/screen std.	Line/screen std.	Std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Teletype	Teletype	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	No	Std.	No	Std.	Std.
Program function keys	8 opt.	8 prog. std.	2 std.	10 prog. plus 2 key std.	4 std. plus alt. mode
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Dot matrix, 180 cps	Dot matrix, 180 cps	Dot matrix, 180 cps	Dot matrix, 180 cps	Dot matrix, 180 cps
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	Opt.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	Integral modem, touch screen	Graphics board	Integral modem, touch screen, graphics board	Integral modem, graphics board
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Full-dup. (half opt.)
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	—	—	—	—	—
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-19,200	75-19,200	110-9600	110-19,200	50-19,200
Format; character, line, or block	Char./line/block	Char./line/block	Char./line/block	Char./line/block	Char. (blk. opt.)
Multipoint operation (pollable/addr.)	No	Opt.	Std.	Opt.	No
Terminal interface	RS-232-C std.; 20mA opt.	RS-232-C std.; 20mA, RS-422 opt.	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA, RS-422
Integral modem	No	Opt.	No	Opt.	Opt.
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	795	995	1,095	1,295	1,195
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	19	—	26	27.50	—
Date of announcement	10/82	6/82	6/78	10/80	8/81
Date of first production delivery	12/82	—	8/78	5/81	10/81
Display units installed to date	1,000	—	30,175	2,259	3,350
Serviced by	Lear Siegler	Lear Siegler	Lear Siegler	Lear Siegler	Lear Siegler
COMMENTS					

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Lear Siegler ADM 42	Lee Data 310/320	Lee Data 410/420	Liberty Electronics Freedom 50	Liberty Electronics Freedom 100
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Cluster	Cluster	Stand-alone	Stand-alone
Maximum displays/controller	—	32	32	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	3274/3278, 3279	3274/3278	No	No
Teletype compatibility	Std.	No	Std.	Std.	Std.
Other compatibility	—	—	DEC VT100, VT52	TVI 910, ADDS Regent 25 LSI ADM 3A/5, Haz 1420	Televideo 910, LSI ADM 3A/5, Haz. 1400, ADDS 25
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2000	1920-3564	1920-3564	2000	1400, 2000
Memory capacity, no. char./lines/pages	8 pages	—	—	2000 char.	2000 char.
Screen arrangement, lines x chars./line	24 x 80 plus 25th status line	24 x 80, 32 x 80, 43 x 80, 27 x 132	24 x 80, 32 x 80, 43 x 80, 27 x 132	25x 80	25x 80
Screen area, diagonal, inches	15	15	15	12	12
Tilt/swivel screen	Tilt std.	Std.	Std.	Tilt std.	Tilt std.
Total displayable symbols	128 ASCII, graph.	128	128	128 ASCII	128 ASCII
Symbol formation	7 x 11 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white, P31 green	Green	Green	P31 green	Green
Color capability	No	Yes	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Opt.	Opt.	Std.	Std.
Blink	Std.	Opt.	Opt.	Std.	Std.
Blank	Std.	Opt.	Opt.	Std.	Std.
Bold	No	Std.	Std.	Std.	Std.
Reverse	Std.	Opt.	Opt.	Std.	Std.
Double size	No	No	No	No	No
Scroll	Up std.	No	No	Up std.	—
Paging	4 std.; 8 opt.	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Addressable only	Addressable only	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	—
Partial screen transmit	Std.	Std.	Std.	Std.	—
Split screen/windows	No	Application control	Application control	No	No
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd./back std.	Std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	No	No	Std.	Std.
Erase	Std.	Std.	Std.	Line/screen std.	Line/page std.
KEYBOARD PARAMETERS					
Style	Teletype	Typewriter, data entry, APL	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	96 EBCDIC	96 EBCDIC/ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	16 std.—opt. pro.	24 std.	24 std.	5 std.	10 std.
Numeric keypad	Std.	Opt.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Dot matrix, 180 cps	Matrix, 180/340 cps	Matrix, 180/340 cps	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Opt.	Opt.	Std.	Std.
Other vendor-supplied devices	Touch screen	Bar code reader, mag. stripe reader, light pen	Bar code reader, mag. stripe reader, light pen	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Synchronous	Sync./Async.	Asynchronous	Asynchronous
Communications protocol	—	BSC/SDLC	BSC/SDLC	ASCII	ASSCII
Code	ASCII	EBCDIC	EBCDIC/ASCII	ASCII	ASCII
Speed, bits/second	110-9600	2400-19,200	See comments	110-19,200	110-19,200
Format; character, line, or block	Char./line/block	Block	Char. (async.)/block	Char./block	Char./block
Multipoint operation (pollable/addr.)	Opt.	Std.	Std.	No	No
Terminal interface	RS-232-C, 20mA	RS-232-C	RS-232-C	RS-232-C; 20mA	RS-232-C; 20mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	Contact vendor	Contact vendor	—	—
Controller, 2-year lease, $/mo.	—	Contact vendor	Contact vendor	—	—
Display station, purchase, $	2,195	Contact vendor	Contact vendor	395	595
Controller, purchase, $	—	Contact vendor	Contact vendor	—	—
Monthly prime-shift maint., $/mo.	30	Contact vendor	Contact vendor	—	—
Date of announcement	6/78	8/79	4/82	11/82	6/82
Date of first production delivery	8/78	9/79	4/82	—	9/82
Display units installed to date	12,605	—	—	—	—
Serviced by	Lear Siegler	Lee Data	Lee Data	Liberty Electronics, Sorbus	Liberty Electronics, Sorbus
COMMENTS		Model 310 is the remote version; Model 320 is local version; screen has status line	Model 410 is the remote version; Model 420 is local version; up to 16 async. ports; line speeds; sync—2400 to 19,200; async—300-9600	Product for OEM purchase only	Foreign character sets supported; switchable 115-230V power

Alphanumeric Display Terminals

SUPPLIER AND MODEL	MDS Trivex Plus 70	MDS Trivex Plus 80	Megadata System 850	Memorex 1371/1372/ 1377	Memorex 2076/2078
TERMINAL DESCRIPTION					
Stand-alone or cluster	Either	Cluster	Stand-alone	Cluster	Cluster
Maximum displays/controller	32	32	1	32	8
Transportability	No	No	No	No	No
IBM compatibility	3277/3278	3274/3278 BSC/SDL	Opt.	3271/3272/3277	3276/3278
Teletype compatibility	No	No	Opt.	No	No
Other compatibility	—	—	Opt.	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	480-1920	480-3440	2000	1920	960-3564
Memory capacity, no. char./lines/pages	1 page	1 page	16 pages	1920 char.	1 page
Screen arrangement, lines x chars./line	24 x 80, 12 x 40	12/24 x 40, 24/ 32/43 x 80	25 x 80	24 x 80	12/24/32/43 x 80; 27 x 132
Screen area, diagonal, inches	15	15	15	15	15
Tilt/swivel screen	No	Opt.	Std.	Tilt std.	Tilt std.
Total displayable symbols	90 EBCDIC	95 EBCDIC/ASCII	256	89 ASCII/EBCDIC	94; APL up to 222
Symbol formation	7 x 9 dot matrix	9x14/9x16 dot mat.	11 x 15 dot matrix	7 x 8 dot matrix	9 x 12, 9 x 16
Character phosphor	P4 White/green	Green	P31 green std.; PC144 amber opt.	Green	Green
Color capability	No	Avail. 1983	No	No	No
Programmable field/char. highlighting via:					
Underline	No	No	Std.	Std.	Std.
Blink	No	No	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	Std.	Std.	Std.	Std.	Opt.
Reverse	No	No	Std.	No	Opt. field
Double size	No	No	No	No	No
Scroll	No	No	Up/down std.	No	No
Paging	No	No	Std.	No	No
Selectable cursor blinking	Opt.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Std.	Std.	Both std.;	Std.	Addressable only
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Appl. dependent
Split screen/windows	No	No	2 std.	No	No
Tabulation	Std.	Std.	Fwd./back std.	Std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	No	No	Std.	No	No
Erase	Field/screen std.	Field/screen std.	Char./line/screen std.	Char./field/screen std.	Char./field/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry, console	Typewriter, data entry, keypunch	Typewriter	Typewriter, data entry, console	Typewriter, data entry, APL
Character/code set	90 EBCDIC	ASCII/EBCDIC	128 ASCII	EBCDIC/ASCII	EBCDIC/ASCII/APL
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	12 opt.	10/12 std.; 24 opt.	96 std.	12 std.	10/12/24 std.
Numeric keypad	Opt.	Opt.	Std.	Opt.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Impact, 180 cps	Impact, 180 cps	30-350 cps impact	No	Impact, 180 cps
Line printer, type and speed	Belt, 340 lpm	Belt, 340 lpm	No	Belt, 200-415 lpm	No
Composite video	No	No	Opt.	No	No
Port for cust.-supplied devices	Opt.	No	3 std.	Opt.	Std.
Other vendor-supplied devices	Audible alarm ID card reader, light pen, security lock	Audible alarm, security lock, light pen, controller selector	Tape punch, audible alarm, dual diskette drive	Security keylock, light pen, alternate coaxial switch	Audible alarm, light pen, ext. highlighting, APL, graphics, keyboard num. lock
TRANSMISSION PARAMETERS					
Mode	Half-duplex	Half-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Synchronous	Async./Sync.	Synchronous	Synchronous
Communications protocol	BSC	BSC/SDLC	To spec.	BSC/SDLC	BSC/SDLC
Code	EBCDIC	ASCII/EBCDIC	ASCII/EBCDIC	EBCDIC/ASCII	EBCDIC/ASCII/APL
Speed, bits/second	110-9600	Up to 19,200	50-19,200	1200-19,200	1200-9600
Format; character, line, or block	Block	Block	Char./block	Block	Block
Multipoint operation (pollable/addr.)	Std.	Std.	Std.	Std.	Std.
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C; coax B	RS-232-C; coax A
Integral modem	No	No	Opt.	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Contact vendor	Contact vendor	—	90	86.50-125.50
Controller, 2-year lease, $/mo.	Contact vendor	Contact vendor	—	291 (1371); 348 (1372)	138-186
Display station, purchase, $	Contact vendor	Contact vendor	1,700-2,800	1,900	2,126-3,145 & opt.
Controller, purchase, $	Contact vendor	Contact vendor	—	2,650/3,020	4,030-5,440
Monthly prime-shift maint., $/mo.	Contact vendor	Contact vendor	20-50	25 (1377); 47/188	33-39
Date of announcement	1/75	10/79	—	5/76	1/79
Date of first production delivery	5/75	2/80	10/81	5/76	2/80
Display units installed to date	37,000	6,000	—	Over 50,000	Over 60,000
Serviced by	MDS Trivex	MDS Trivex	Megadata, third party	Memorex	Memorex
COMMENTS	Includes 712/722 controllers, 752 stand-alone, 712 minicluster, & 722 terminal; 722 attaches to MDS Trivex or IBM controllers	Includes 8074 controller & 8078 display; Trivex and/ or IBM terminals attach to Trivex or IBM controllers in same cluster. 27 x 132 (3564 char.) screen arrangement avail. in 1983	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.	1377 display unit attaches to Memorex or IBM controller; controllers (1371/ 1372) separate	Separate controller (2076)

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Memorex 2079	Microdata Prism II/IV	Micro-Term Mime 2A	Micro-Term Ergo 2000	Micro-Term Ergo 3001
TERMINAL DESCRIPTION					
Stand-alone or cluster	Cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	32	—	1	—	—
Transportability	No	No	No	No	No
IBM compatibility	3279	No	No	No	No
Teletype compatibility	No	Std.	Std.	Std.	Std.
Other compatibility	—	—	DEC VT52, Hazeltine 1500, Soroc 120	DEC VT52, Haz. 1500, LSI ADM 3A	DEC VT100
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920, 2560	1920	1920	1920	1920, 3168
Memory capacity, no. char./lines/pages	1920/2560 char.	80/24/1	—	—	2 pages (80-col.)
Screen arrangement, lines x chars./line	24 x 80, 32 x 80	24 x 80	24 x 80	24 x 80	24 x 80, 24 x 132 plus status line
Screen area, diagonal, inches	13	12	12	12	12
Tilt/swivel screen	Tilt std.	No	—	Tilt std.	Tilt std.
Total displayable symbols	Up to 222 (APL)	96	128	128	128
Symbol formation	7 x 9 dot matrix	5 x 7 dot matrix	7 x 11 dot matrix	5 x 7 dot matrix	7 x 9 dot matrix
Character phosphor	P22	P4 white std. (II); P31 green std. (IV)	P4 white	P31 green	P31 green
Color capability	4/7 colors std.	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	Std.	Std.	Std.
Blink	Std.	No	Std.	Std.	Std.
Blank	Std.	No	No	No	No
Bold	Std.	No	No	No	No
Reverse	Opt. field	Std.	Std.	Std.	Std.
Double size	No	No	No	No	Std.
Scroll	No	Std.	Std.	Std.	Std.
Paging	No	No	No	No	Std.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Std.	Both std.	Both std.
Protected format	Std.	Opt.	Std.	Std.	Std.
Partial screen transmit	Appl. dependent	No	Std.	Std.	Std.
Split screen/windows	No	—	No	No	Std.
Tabulation	Fwd./back std.	Fwd. std.	Std.	Std.	Std.
Character insert/delete	Std.	No	Std.	Std.	Std.
Line insert/delete	No	No	Std.	Std.	Std.
Erase	Char./line/screen std.	Line/screen std.	Char./line/screen std.	Line/field/screen std.	Line/field/screen std.
KEYBOARD PARAMETERS					
Style	Typew., data entry, APL, attr. select	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	EBCDIC/ASCII/APL	96 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	No	Std.	Std.
Program function keys	24 std.	No	Std.	No	4 std.
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	Opt.	No	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	Opt.	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	Light pen, alarm, ext. highlighting, graphics APL, key-board numeric lock, security keylock	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	BSC/SDLC	ASCII	ASCII	ASCII	ASCII
Code	ASCII/EBCDIC/APL	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	1200-9600	Up to 9600	110-9600	300-19,200	50-19,200
Format; character, line, or block	Block	Character	Char./line/block	Char./block	Char./block
Multipoint operation (pollable/addr.)	Std.	No	No	No	No
Terminal interface	RS-232-C; coax A	RS-232-C	RS-232-C, 20mA	RS-232-C std. 20mA opt.	RS-232-C, 20mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	133.50-212	Purchase only	Purchase only	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	3,735-6,016	2,200	1,045	1,195	1,495
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	28.50-38.00	—	18-22	18-22	18-22
Date of announcement	8/82	—	—	—	6/82
Date of first production delivery	12/82	1/80	8/78	—	—
Display units installed to date	—	—	—	—	—
Serviced by	Memorex	Microdata	Western Union	Western Union	Western Union
COMMENTS	Includes: tiltable display, antiglare screen, audible alarm, unprotected field indicator, upper/lower case switch, 2/4 color switch, energy efficient				

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Micro-Term Mime 340	Micro-Term Mime 740	Nabu (Volker-Craig) 4503	Nabu (Volker-Craig) 4404 & 4404/GX	Nabu (Volker-Craig) 3100
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	Haz. 1500, LSI ADM 3A, DEC VT52	DEC VT100, VT52	Lear Siegler ADM 3A	Lear Siegler ADM 3A & VC404	ANSI
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920, 3168	960, 1920	1920	1920
Memory capacity, no. char./lines/pages	—	2 pages (80 col.)	—	1920 char.	1 pg. std.; 2nd opt.
Screen arrangement, lines x chars./line	24 x 80	24 x 80, 24 x 132	24 x 40, 24 x 80	24 x 80	24 x 80
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	No	No	No	No	No
Total displayable symbols	128	128	128 ASCII	128 ASCII	128 ASCII + 32 grph.
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	Green	Green	Green	P4 white std., P31 green or amber std.	P4 wh. std.; P31 grn. or amber opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	Std.	No	No	Std.
Blink	No	Std.	No	No	Std.
Blank	No	No	No	No	Std.
Bold	No	No	No	Dim	Std.
Reverse	Std.	Std.	Std.	Hdw. select	Std.
Double size	No	Std.	No	No	Std.
Scroll	Std.	Std.	Std.	Up std.	Up/down std.
Paging	No	Std.	No	No	1 std.; 2 opt.
Selectable cursor blinking	Std.	Std.	Non-select.	Std.	No
Addressable/readable cursor	Std.	Both std.	Addressable only	Addressable only	Both std.
Protected format	Std.	No	No	No	Std.
Partial screen transmit	Std.	No	No	No	Std.
Split screen/windows	Std.	Std.	No	No	3 std.
Tabulation	Std.	Std.	Std.	No	Fwd./back std.
Character insert/delete	Std.	Std.	No	No	Std.
Line insert/delete	Std.	Std.	No	No	Std.
Erase	Line/field/screen std.	Line/field/screen std.	Line/screen std.	Line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII	96 ASCII	96 ASCII
Detachability	No	No	Std.	Std.	Std.
Program function keys	13 std.	4 std., plus 4 add. functions	No	10 std.	16 user string
Numeric keypad	Std.	Std.	—	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	No	120 cps	—
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	Opt.	Opt.
Port for cust.-supplied devices	Std.	Std.	No	Std.	Opt.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII/ANSI	ASCII/ANSI	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-19,200	75-19,200	110-19,200	50-19,200	50-9600
Format; character, line, or block	Block	Character	Character	Character	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C std.; 20mA opt.	RS-232-C std.; 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	750-995	1,295	495	695; 1,695 (GX)	Contact vendor
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	18-22	18-22	—	—	—
Date of announcement	—	—	6/82	5/82 (GX)	—
Date of first production delivery	—	—	—	6/81; 9/82 (GX)	9/81
Display units installed to date	—	—	—	—	—
Serviced by	Western Union	Western Union	Third party	Third party	Third party
COMMENTS				4404/GX features Tektronix 4010 graphics format; 512 x 250 resolution; auto. scaling from 1024 x 780 resolution for Tektronix Plot 10 & Gino-F compatibility	

Alphanumeric Display Terminals

SUPPLIER AND MODEL	NCR 7900 Model 1	NCR 7900 Model 3	NCR 7900 Model 4	NCR 7901	Northern Technologies Vision 2000
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	—	NA
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	—	—	DEC VT100
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2000	2000	2000	1920	25 x 132 31-248 lines
Memory capacity, no. char./lines/pages	—	—	—	—	80 or 132 x 25 lines
Screen arrangement, lines x chars./line	25 x 80	25 x 80	25 x 80	24 x 80	12 or 15
Screen area, diagonal, inches	12	12	12	12	Tilt std.
Tilt/swivel screen	No	No	No	Tilt std.	256 std., 512 opt.
Total displayable symbols	64/96/128	128 ASCII	128 ASCII	96 ASCII	6 x 9 dot matrix
Symbol formation	7 x 7 dot matrix	7 x 7 dot matrix	7 x 7 dot matrix	5 x 7 dot matrix	P31 green std./ white & amber opt.
Character phosphor	P31 green std.	P31 green std.	P31 green	P31 green std.	No
Color capability	No	No	No	No	
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	No	Std.	Opt.	Std.	Std.
Bold	No	No	Std.	No	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	Std.
Scroll	Up std.	No	Up std.	No	Up & down smooth std.
Paging	No	No	No	No	1 page std./8 opt.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Addressable only	Both std.	Both std.	Addressable only	Std.
Protected format	No	Std.	Std.	No	Std.
Partial screen transmit	No	Std.	Std.	No	Opt.
Split screen/windows	No	No	No	No	4 std.
Tabulation	No	Fwd./back std.	Fwd. std.	No	Std.
Character insert/delete	No	Std.	Std.	No	Opt.
Line insert/delete	No	Std.	Std.	No	Opt.
Erase	Line/screen std.	Char./line/screen std.	Char./line/screen std.	Screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	64/96/128 ASCII	128 ASCII	128 ASCII	96 ASCII	94 ASCII
Detachability	Opt.	Opt.	Std.	Std.	Std.
Program function keys	1 key (96 functions)	No	8 dedicated std.	No	20 std.
Numeric keypad	Std., touch-tone opt.	Std., touch-tone opt.	Std., touch-tone opt.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Thermal/impact	No	Serial std., para. opt.	Serial interface	Supported
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	Opt.
Port for cust.-supplied devices	Opt.	Std.	No	Std.	Std.
Other vendor-supplied devices	—	—	No	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII	ASCII	ASCII	ASCII	TTY
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-9600	Up to 9600	110-19,200	19.2K bits/sec.
Format; character, line, or block	Char./line	Line/page	Std.	Character	Char. std.; block, opt.
Multipoint operation (pollable/addr.)	No	Both std.	No	No	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C, 20mA	RS-232-C	RS-232-C, 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	108 (1 yr.); 97 (3 yr.)	173 (1 yr.); 162 (3 yr.)	143 (1 yr.); 122 (3 yr.)	—	NA
Controller, 2-year lease, $/mo.	—	—	—	—	1,595
Display station, purchase, $	1,500	3,500-3,670	2,495	850	
Controller, purchase, $	—	—	—	—	NA
Monthly prime-shift maint., $/mo.	19	33	29	15	
Date of announcement	—	—	6/82	2/82	6/82
Date of first production delivery	6/79	—	—	5/82	10/82
Display units installed to date	—	—	—	—	—
Serviced by	NCR	NCR	NCR	NCR	Northern Technologies
COMMENTS		Parallel interface std.			Additional features: 5-line non destructive overlay window; 16 function keys can access 96 separate functions. 1.5K non volatile function memory; host switchable function key memory

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Northern Technologies Vision 830	Northern Telecom 292-IV	Northern Telecom 294C/296C	Northern Telecom Displayphone	Paradyne 9440
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Cluster	Cluster	Stand-alone	Either
Maximum displays/controller	NA	16	16 (294); 8 (296)	—	3
Transportability	No	No	No	Std. (13½ lbs.)	No
IBM compatibility	No	3272	3270 BSC/SNA	No	1052
Teletype compatibility	No	No	No	Std.	No
Other compatibility	Burroughs TD830	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	25 x 80	1920	1920, 2560, 3440	960, 1920	1920
Memory capacity, no. char./lines/pages	2 pages std, 8 opt.	—	—	2 pages	—
Screen arrangement, lines x chars./line	80 x 25	24 x 80	24 x 80, 32 x 80, 43 x 80	24 x 40, 24 x 80, plus 25th line	24 x 80
Screen area, diagonal, inches	12 or 15	15	15	7	12
Tilt/swivel screen	Tilt std.	No	No	No	Tilt std.
Total displayable symbols	256 std., 512 opt.	64, 96	64, 96	96 ASCII, 64 ANSI	128 ASCII/EBCDIC
Symbol formation	6 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	5 x 7 dot matrix	7 x 14 dot matrix
Character phosphor	P31 green std./ white & amber opt.	Green	Green	White	P39 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	No	Std.	No
Blink	Std.	No	No	Std.	No
Blank	Std.	Std.	Std.	No	Std.
Bold	Std.	Std.	Std.	Std.	No
Reverse	Std.	No	No	Std.	No
Double size	Std.	No	No	No	No
Scroll	Up & down smooth.	No	No	No	Std.
Paging	2 pages std.	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	No
Addressable/readable cursor	Std.	Addressable only	Addressable only	—	Both std.
Protected format	Std.	Std.	Std.	No	No
Partial screen transmit	Std.	Std.	Std.	No	Std.
Split screen/windows	—	No	No	No	No
Tabulation	Opt.	Std.	Std.	—	No
Character insert/delete	Std.	Std.	Std.	No	No
Line insert/delete	Std.	No	No	No	No
Erase	Char./line/screen std.	Char./screen std.	Char./screen std.	—	Std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter, data entry, keypunch	Typewriter, data entry, keypunch	Typewriter	Typewriter
Character/code set	128 ASCII	ASCII/EBCDIC	ASCII/EBCDIC	128 ASCII	ASCII
Detachability	Std.	Std.	Std.	Retractable	Std.
Program function keys	816 std.	12 opt.	12 opt.	No	24 std.
Numeric keypad	Std.	Opt.	Opt.	No	Opt.
ANCILLARY DEVICES					
Serial printer, type and speed	180 cps prtr. avail.	Impact, 66-180 cps	Impact, 66-180 cps	120 cps	Impact
Line printer, type and speed	No	No	No	No	No
Composite video	Opt.	No	No	No	Opt.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	No
Other vendor-supplied devices	—	ID badge reader, light pen	ID badge reader, light pen	—	Light pen, keylock
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Channel connect	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Async./sync.	—	Synchronous	Asynchronous	Asynchronous
Communications protocol	Polled TD830 comp.	—	BSC/SDLC	ASCII	Paradyne SDLC
Code	ASCII	—	ASCII/EBCDIC	ASCII	ASCII/EBCDIC
Speed, bits/second	19.2K bits/sec.	—	1200-9600	75-1200	Up to 19,200
Format; character, line, or block	Block & line	—	Block	Character	Character
Multipoint operation (pollable/addr.)	Std.	—	Std.	No	No
Terminal interface	FDI or multi-drop	—	RS-232-C	RS-232-C	RS-232-C
Integral modem	No	—	No	—	No
Integral acoustic coupler	No	—	No	—	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	65	57	—	134
Controller, 2-year lease, $/mo.	1,995	541	253	—	33
Display station, purchase, $	—	2,240	2,265	1,995	3,000
Controller, purchase, $	—	18,160	10,475	—	1,000
Monthly prime-shift maint., $/mo.	—	—	—	—	27
Date of announcement	11/82	—	—	2/81	11/80
Date of first production delivery	4/83	—	2/81	2/82	1/81
Display units installed to date	—	—	—	—	200
Serviced by	Northern Technologies	NTI	NTI	Northern Telecom	Paradyne
COMMENTS	Additional features: Local forms storage; supports full Burroughs polling & screen formal protocol; latest in ergonomic styling			Telephone and display in same unit; includes built-in modem; stores up to 81 telephone numbers, also includes clock, speaker, and built-in battery back-up for memory	

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Paradyne 9476	Paradyne 9478	Perkin-Elmer 550B/550E	Perkin-Elmer 550S	Perkin-Elmer 1245/1251
TERMINAL DESCRIPTION					
Stand-alone or cluster	Either	Either	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	32	32	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	3276-looks local	3278	No	No	No
Teletype compatibility	No	No	Std.	Std.	Std.
Other compatibility	—	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	2000
Memory capacity, no. char./lines/pages	—	—	80/24/1	80/48/2	80/24/1
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80	24 x 80	24 x 80
Screen area, diagonal, inches	15	15	12	12	12
Tilt/swivel screen	Tilt std.	Tilt std.	No	No	Tilt std.
Total displayable symbols	128 ASCII/EBCDIC	128 ASCII/EBCDIC	128 ASCII	128 ASCII	128 ASCII, 32 forms
Symbol formation	8 x 16 dot matrix	8 x 16 dot matrix	5 x 9 dot matrix	5 x 9 dot matrix	7 x 11 dot matrix
Character phosphor	P39 green	P39 green	P4 white std.; P31 green/amber opt.	P4 white std.; P31 green/amber opt.	P4 white std.; P31 green/amber opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	No	Std.
Blink	Std.	Std.	No	Std.	Std.
Blank	Std.	Std.	No	Std.	Std.
Bold	Std.	Std.	No	No	No
Reverse	Std.	Std.	No	Std.	Std.
Double size	No	No	No	No	No
Scroll	No	No	Up std.	Up/down std.	Up std.
Paging	No	No	No	2 opt.	No
Selectable cursor blinking	Std.	Std.	No	No	Std.
Addressable/readable cursor	Both std.	Both std.	Addressable only	Both std.	Both std.
Protected format	Std.	Std.	No	Std.	Std.
Partial screen transmit	Std.	Std.	No	No	Std.
Split screen/windows	No	No	No	No	No
Tabulation	Std.	Std.	Fwd. std.	Fwd/back std.	Fwd./back std.
Character insert/delete	Std.	Std.	No	Std.	Std.
Line insert/delete	No	No	No	Std.	Std.
Erase	Std.	Std.	Line/screen std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry, WP	Typewriter, data entry, WP	Typewriter	Typewriter	Typewriter
Character/code set	ASCII/EBCDIC	ASCII/EBCDIC	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	Std.	No	No	Opt.
Program function keys	24 std.	24 std.	No	8 std.	24/32 opt.
Numeric keypad	Std.	Std.	Std. (550E)	Std.	Opt.
ANCILLARY DEVICES					
Serial printer, type and speed	45/150 letter/dot	45/150 letter/dot	Thermal, 96 cps	Thermal, 96 cps	Thermal, 96 cps
Line printer, type and speed	300/600 band	300/600 band	Thermal, 180 lpm	Thermal, 180 lpm	No
Composite video	Opt.	Opt.	No	No	No
Port for cust.-supplied devices	Opt.	Opt.	Std.	Std.	Std.
Other vendor-supplied devices	Light pen, keylock	Light pen, keylock	—	—	Light pen
TRANSMISSION PARAMETERS					
Mode	Full-duplex	Full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Synchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	Paradyne SDLC	Paradyne SDLC	—	—	—
Code	ASCII/EBCDIC	ASCII/EBCDIC	ASCII	ASCII	ASCII
Speed, bits/second	256KB	256KB	110-9600	50-19,200	110-9600
Format; character, line, or block	Block	Block	Character	Char./block	Char./line/block
Multipoint operation (pollable/addr.)	Std.	No	No	No	Std.
Terminal interface	RS-232-C	RS-232-C	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.
Integral modem	Opt.	Opt.	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	166	77	Contact vendor	Contact vendor	Contact vendor
Controller, 2-year lease, $/mo.	95	135	—	—	—
Display station, purchase, $	5,850	3,000	Contact vendor	Contact vendor	Contact vendor
Controller, purchase, $	2,500	4,000	—	—	—
Monthly prime-shift maint., $/mo.	30	20	—	—	—
Date of announcement	11/80	11/80	—	—	—
Date of first production delivery	1/81	1/81	—	—	—
Display units installed to date	400	1,200	—	—	—
Serviced by	Paradyne	Paradyne	Perkin-Elmer	Perkin-Elmer	Perkin-Elmer
COMMENTS	All remote connected devices appear as local channel attached; no need for remote software; Paradyne CRTs use loop technology		International character sets/keyboards available	International character sets/keyboards available	International character sets/keyboards

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Perry Data Systems 9200	Perry Data Systems 9310	Perry Data Systems 9460	Phaze Information Machines P3278	Plantronics Vuphone 3200 Series
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Cluster	Stand-alone
Maximum displays/controller	1	1	1	32	—
Transportability	No	No	No	—	Portable case
IBM compatibility	No	No	BSC (1983 saving)	3278	No
Teletype compatibility	Std.	Std.	Std.	—	Std.
Other compatibility	Data General D200	Data General D200	DG/IBM/Datapoint/ ADDS	Std.	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	32
Memory capacity, no. char./lines/pages	1 page	1 page	1 page	—	700 chars.
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80	24 x 80 plus status line	1 x 32
Screen area, diagonal, inches	9	12	12	12	7 x 1
Tilt/swivel screen	No	No	No	Std.	No
Total displayable symbols	64 ASCII	64 ASCII	64 ASCII	128 EBCDIC	55 Baudot/ASCII
Symbol formation	5 x 7 dot matrix	5 x 7 dot matrix	5 x 7 dot matrix	7 x 14 dot matrix	14 segment
Character phosphor	P31 green	P31 green	P31 green	P42 green	Vacuum flourescent
Color capability	No	No	No	—	No
Programmable field/char. highlighting via:					
Underline	—	—	—	Std.	No
Blink	—	—	—	Std.	No
Blank	—	—	—	Std.	No
Bold	—	—	—	Std.	No
Reverse	—	—	—	Std.	No
Double size	—	—	—	No	No
Scroll	Up std.	Up std.	Up std.	No	Right to left
Paging	No	No	No	No	No
Selectable cursor blinking	No	No	No	Std.	No
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	No
Protected format	Std.	Std.	Std.	Std.	No
Partial screen transmit	No	No	No	Std.	No
Split screen/windows	No	No	No	No	No
Tabulation	No	No	No	Std.	No
Character insert/delete	Std.	Std.	Std.	Std.	No
Line insert/delete	No	No	No	No	No
Erase	Screen std.	Screen std.	Screen std.	Char./line/screen std.	Screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter, data entry	Typewriter
Character/code set	64 ASCII	64 ASCII	64 ASCII	EBCDIC	58 Baudot/56 ASCII
Detachability	No	No	No	Std.	No
Program function keys	6 std.	6 std.	10 std.	24 std.	No
Numeric keypad	Std.	Std.	Std.	Std.	No
ANCILLARY DEVICES					
Serial printer, type and speed	80-col dot matrix	Int. 80-col dot mat.	Int. 40-col dot mat.	No	No
Line printer, type and speed	—	—	—	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	No	Printer & tape
Other vendor-supplied devices	Cash drawers	Cash drawers	Cash drawers	Light pen	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Synchronous	Asynchronous
Communications protocol	—	—	—	BSC/SDLC	TTY
Code	ASCII	ASCII	ASCII	EBCDIC	Baudot & ASCII
Speed, bits/second	110-9600	110-9600	110-9600	1200-9600	45/110
Format; character, line, or block	Character	Character	Character	Block	Character
Multipoint operation (pollable/addr.)	No	No	No	Std.	No
Terminal interface	RS-232-C, RS-422	RS-232-C, RS-422	RS-232-C, RS-422	RS-232-C	Modem
Integral modem	No	No	No	No	Std.
Integral acoustic coupler	No	No	No	No	Std.
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,545	3,495	3,495	1,995	560-690
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	—	—	—	12/82	1/81
Date of first production delivery	—	—	—	1/83	3/81
Display units installed to date	250	875	400	—	6,000
Serviced by	Perry Data Systems	Perry Data Systems	Perry Data Systems	Third party	Bell System, Plantronics
COMMENTS	POS terminals	POS terminals w/ internal 80 column dot matrix printer	POS terminals w/ internal 40 column dot matrix printer	Lightweight (31 pounds); designed for user maintenance; modular design; ergonomic features DIN-compatible; auto video shut-down	

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Plantronics Vuphone 3300 Series	Plantronics Vuset DS150C/DS150E	Prime PST 100	Qume QVT 102	Qume QVT 103
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	—
Transportability	Portable case	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	Prime	ADDS Viewpoint, Haz. 1500, LSI ADM 3A/5, TVI 910	DEC VT100/132
DISPLAY PARAMETERS					
Display capacity, no. of chars.	32	128	1920	1920	1920, 3168
Memory capacity, no. char./lines/pages	8K chars.	16/8/1	80/24/1 or 2	—	80/24/2
Screen arrangement, lines x chars./line	1 x 32	8 x 16	24 x 80 plus status line	24 x 80 plus status line	24 x 80/132
Screen area, diagonal, inches	7 x 1	3	15	12	12
Tilt/swivel screen	No	No	Std.	Std.	Std.
Total displayable symbols	55 Baudot/ASCII	64 ASCII	128 ASCII & graph.	128 ASCII	128 ASCII
Symbol formation	14 segment	5 x 7 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	Vacuum flourescent	P4 white	P136 white	Green std.; amber opt.	Green std.; amber opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	No	Std.	Std.	Std.
Blink	No	Std.	Std.	Std.	Std.
Blank	No	No	Std.	Std.	Std.
Bold	No	No	Dim std.	Std.	Std.
Reverse	No	No	Std.	Std.	Std.
Double size	No	Std.	No	No	Std.
Scroll	Right to left	Up/down std.	Up/down std.	Std.	Smooth std.
Paging	No	No	1 or 2 std.	No	2 std.
Selectable cursor blinking	No	No	Std.	Std.	Std.
Addressable/readable cursor	No	No	Std.	Std.	Std.
Protected format	No	No	Std.	Std.	Std.
Partial screen transmit	Std.	No	Std.	Std.	Std.
Split screen/windows	Std.	No	No	No	Std.
Tabulation	No	No	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	No	Std.	Std.	Std.
Line insert/delete	No	No	Std.	Std.	Std.
Erase	Screen std.	Screen std.	Std.	Std.	Std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	58 Baudot/56 ASCII	96 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	No	Std.	Std.	Std.	Std.
Program function keys	Yes	No	22 std.	4 std.	4 std./8 functions
Numeric keypad	No	No	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	—	—	—
Line printer, type and speed	No	No	—	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Printer	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	Mag. stripe reader (DS 150E)	—	—	—
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	TTY	Char. oriented	ANSI	ASCII	ASCII
Code	Baudot & ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	45/110	300; 110/300/1200	50-19,200	Up to 19,200	Up to 19,200
Format; character, line, or block	Character	Character	Char./block	Char./block	Char./block
Multipoint operation (pollable/addr.)	No	No	—	No	No
Terminal interface	Modem	RS-232-C	RS-232-C	RS-232-C	RS-232-C
Integral modem	Std.	Opt.	No	No	No
Integral acoustic coupler	Std.	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	995-1,060	998/925	1,595	695	895
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	8/82	1/72; 8/82	9/82	11/82	11/82
Date of first production delivery	3/83	3/72; 2/83	—	1/83	4/83
Display units installed to date	New	12,000/new	—	—	—
Serviced by	Plantronics	Bell System (DS 150C), Plantronics	Prime	Qume	Qume
COMMENTS			Supported on all Prime 50 Series computer systems by PRIMOS operating system; English, French, & German character sets available		

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Qume QVT 108	Racal-Milgo 4010 8A1	Racal-Milgo 4015	Racal-Milgo 4220	Racal-Milgo 4274/4278
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Cluster
Maximum displays/controller	—	1	1	1	32
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	3274/6/8 BSC/SDLC
Teletype compatibility	Std.	Bell 8A1 (40/3)	Bell 8A1	No	No
Other compatibility	TeleVideo 912/ 920, 925	—	—	Univac	SNA, non-SNA local
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	See comments
Memory capacity, no. char./lines/pages	80/24/2	3 std.; up to 8 opt.	8 pages	1 page	—
Screen arrangement, lines x chars./line	24 x 80 plus status line	24 x 80	24 x 80	24 x 80	24 x 80, 32 x 80, 43 x 80, 27 x 132
Screen area, diagonal, inches	12	15	15	15	15
Tilt/swivel screen	Std.	Std.	Std.	Std.	Std.
Total displayable symbols	128 ASCII	127 ASCII	64/96 ASCII	127 ASCII	96 ASCII/EBCDIC
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	Green std.; amber opt.	Green std.	Green std.	Green std.	Green std.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	Std.	No	No	No	No
Reverse	Std.	No	No	No	Std.
Double size	Std.	No	No	No	No
Scroll	Std.	Std.	Std.	Up/down std.	No
Paging	2 std.	3 std., 8 max.	8 pages std.	No	No
Selectable cursor blinking	Std.	No	No	No	Std.
Addressable/readable cursor	Std.	Addressable only	Addressable only	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	Std.	No	No	No	No
Tabulation	Fwd./back std.	Fwd. std.	Fwd. std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std. (also word)	Std. (also word)	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	No
Erase	Std.	Char./line/screen/ word std.	Char./line/screen/ word std.	Std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter, data entry
Character/code set	128 ASCII	ASCII	ASCII	ASCII	ASCII/EBCDIC
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	11 std./22 functions	6 std.	6 std.	4 std.; 22 opt.	24 std.
Numeric keypad	Std.	Opt.	Opt.	Opt.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	—	160/200 cps matrix	160/200 cps matrix	160/200 cps matrix	160/200 cps matrix
Line printer, type and speed	No	200/300 lpm	200/300 lpm	200/300 lpm	200/300 lpm
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	No
Other vendor-supplied devices	—	120 cps 80-col. desk-top printer	120 cps 80-col. desk-top printer	—	120 cps 80-col. desk-top printer
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Async./sync.	Synchronous
Communications protocol	ASCII	8A1	8A1	Univac U200/UTS20	BSC, SNA/SDLC
Code	ASCII	ASCII	ASCII	ASCII	EBCDIC/ASCII
Speed, bits/second	Up to 19,200	Up to 4800	Up to 4800	Up to 9600	9600
Format; character, line, or block	Char./block	Block	Block	Block	Block
Multipoint operation (pollable/addr.)	No	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, 2-year lease, $/mo.	—	108	164	82	67
Controller, 2-year lease, $/mo.	—	—	—	—	BSC-113; SDLC-143
Display station, purchase, $	895	3,555	4,155	3,370	2,560
Controller, purchase, $	—	—	—	—	BSC-3,949;SDIC-4,724
Monthly prime-shift maint., $/mo.	—	35	35	35	Disp.-14; cont.-32
Date of announcement	11/82	4/80	6/82	2/81	3/80
Date of first production delivery	2/83	7/80	8/82	5/81	6/80
Display units installed to date	—	1,200	220	800	7,000
Serviced by	Qume	Racal-Milgo	Racal-Milgo	Racal-Milgo	Racal-Milgo
COMMENTS		One-, three-, & five-year leases also available	Time, date & security password may be down-line loaded from host or master terminal; PF keys have ability to store 746 characters per system	One-, three-, & five-year leases also available; Univac mux-compatible	Display capacities: 1920, 2560, 3440, 3564; one-, three-, and five-year leases also available

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Racal-Milgo 4276	Radio Shack DT-1	Raytheon PTS-100	Raytheon PTS-2000	Raytheon R2079
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Cluster	Cluster	Cluster
Maximum displays/controller	1	1	32	8/32	8/32
Transportability	No	No	No	No	No
IBM compatibility	3276/3275, BSC/SD.	No	3271/3274	3274, 3276, 3278	3279
Teletype compatibility	No	Std.	Std.	No	No
Other compatibility	—	ADDS, Hazeltine, LSI, Televideo	Honeywell, Univac	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	480, 960, 1920	960-3654	960, 1920, 2560
Memory capacity, no. char./lines/pages	—	—	—	—	—
Screen arrangement, lines x chars./line	24 x80	24 x80	12 x 40, 15 x 64, 12 x 80, 24x80, 30x64	12/24/32/43 x 80, 27 x 132	12 x 80, 24 x 80, 32 x 80
Screen area, diagonal, inches	15	12	15	15	15
Tilt/swivel screen	Std.	No	No	No	Opt.
Total displayable symbols	96 ASCII/EBCDIC	—	64/96 ASCII	128 ASCII	128 ASCII
Symbol formation	7 x 9 dot matrix	—	7 x 7, 7 x 9	7 x 14/7 x 9	7 x 9 dot matrix
Character phosphor	Green, std.	White	P31 green	P31 green	—
Color capability	No	No	No	No	2/4 colors
Programmable field/char. highlighting via:					
Underline	No	Std.	No	No	No
Blink	Std.	Std.	No	No	No
Blank	Std.	Std.	No	Std.	Std.
Bold	No	No	No	Std.	Std.
Reverse	No	Std.	No	No	No
Double size	No	No	No	No	No
Scroll	No	No	No	No	No
Paging	No	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Std.	Both std.	Both std.	Both std.
Protected format	Std.	No	Std.	Std.	Std.
Partial screen transmit	Std.	No	Std.	Std.	Std.
Split screen/windows	No	No	No	No	No
Tabulation	Fwd./back std.	Std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	No	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.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry	Typewriter	Typewriter, data entry	Typewriter, data entry	Typewriter, data entry
Character/code set	ASCII/EBCDIC	ASCII	ASCII/EBCDIC	ASCII/EBCDIC	ASCII/EBCDIC std.
Detachability	Std.	No	No	Std.	Std.
Program function keys	24 std.	No	2 std., 4 opt.	24 std.	24 std.
Numeric keypad	Std.	Std.	Opt.	Opt.	Opt.
ANCILLARY DEVICES					
Serial printer, type and speed	160/200 cps matrix	No	30,50,100,120 cps	Impact, 150 cps	Impact, 150 cps
Line printer, type and speed	200/300 lpm	No	300, 600 lpm	300/600 lpm	300/600 lpm
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	—	Std.	Std.	Std.
Other vendor-supplied devices	120 cps, 80-col. desk-top printer	—	Card reader, mag. stripe reader	Light pen, screen printer, letter quality printer, card reader	Light pen, card reader, OCR
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half-duplex	Half-duplex
Technique	Synchronous	Asynchronous	Async./sync.	Synchronous	Synchronous
Communications protocol	BSC	ASCII	BSC/SDLC	BSC/SDLC	BSC/SDLC
Code	EBCDIC/ASCII	ASCII	ASCII/EBCDIC	ASCII/EBCDIC	ASCII/EBCDIC
Speed, bits/second	9600	85-19,200	Up to 9600	Up to 19,200	Up to 19,200
Format; character, line, or block	Block	Character	Block	Block	Block
Multipoint operation (pollable/addr.)	Std.	No	Std.	Std.	Std.
Terminal interface	RS-232-C	RS-232-C, parallel	RS-232-C CCITT V.24	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, 2-year lease, $/mo.	127	—	Contact vendor	56-66	99
Controller, 2-year lease, $/mo.	—	—	Contact vendor	95-194	—
Display station, purchase, $	5,660	699	Contact vendor	1,775-2,500	2,800
Controller, purchase, $	—	—	Contact vendor	2,850-6,320	—
Monthly prime-shift maint., $/mo.	35	—	Contact vendor	12-60	21
Date of announcement	9/80	1/82	5/71	4/80	—
Date of first production delivery	1/81	4/82	10/72	4/80	—
Display units installed to date	1,800	—	Over 175,000 disp.	Over 15,000 displays	—
Serviced by	Racal-Milgo	Radio Shack	Raytheon	Raytheon	Raytheon
COMMENTS	One-, three-, and five-year leases also available	Availble at selected Radio Shack stores and dealers	IBM compatibility includes IPARS, 3270 BSC, 3274 BSC/SDLC, 3271 SDLC	Permits field-upgradability from small to large controller	For use with PTS-2000 system

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Soroc Challenger 135	Soroc Challenger 530	Soroc IQ 150	Sperry Univac U 100
TERMINAL DESCRIPTION				
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	—
Transportability	No	No	No	No
IBM compatibility	No	No	Std.	No
Teletype compatibility	Std.	Std.	Std.	No
Other compatibility	Lear Siegler ADM 3, TeleVideo 9XX	Lear Siegler ADM 3, TeleVideo 9XX	Lear Siegler ADM	Univac
DISPLAY PARAMETERS				
Display capacity, no. of chars.	1920	1920	1920	960, 1024
Memory capacity, no. char./lines/pages	1 page	1 page	5 pages	960/1024 char.
Screen arrangement, lines x chars./line	24 x 80 plus status line	24 x 80 plus status line	24 x 80 plus status line	12 x 80, 16 x 64
Screen area, diagonal, inches	12	12	12	12
Tilt/swivel screen	Std.	No	No	No
Total displayable symbols	128	128	128	64; 96 opt.
Symbol formation	5 x 9 dot matrix	5 x 9 dot matrix	5 x 9 dot matrix	Stroke
Character phosphor	P31 green std.	P31 green std.	White	P31 green
Color capability	No	No	No	No
Programmable field/char. highlighting via:				
Underline	Std.	Std.	Std.	No
Blink	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	No
Bold	No	No	No	No
Reverse	Std.	Std.	Std.	No
Double size	No	No	No	No
Scroll	Up std.	Up std.	Std.	Up/down std.
Paging	No	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.
Split screen/windows	No	No	Vertical	No
Tabulation	Fwd./back std.	Fwd./back std.	Std.	Std.
Character insert/delete	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.
Erase	Char./line/screen std.	Char./line/screen std.	Std.	Char./line/screen std.
KEYBOARD PARAMETERS				
Style	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	96 ASCII	96 ASCII	96 ASCII	96 ASCII
Detachability	Std.	Std.	Std.	No
Program function keys	14 std.	14 std.	16 std.	4 opt.
Numeric keypad	Std.	Std.	Std.	Opt.
ANCILLARY DEVICES				
Serial printer, type and speed	No	No	No	30/200 cps impact
Line printer, type and speed	No	No	No	No
Composite video	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	No
Other vendor-supplied devices	Audible alarm	—	—	Cassette tape
TRANSMISSION PARAMETERS				
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Async./sync.
Communications protocol	ASCII	ASCII	ASCII	Uniscope
Code	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-19,200	110-19,200	110-19,200	Up to 9600
Format; character, line, or block	Char./line/block	Char./line/block	Char./block	Block
Multipoint operation (pollable/addr.)	No	No	No	Std.
Terminal interface	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C	RS-232-C
Integral modem	Opt.	No	Opt.	No
Integral acoustic coupler	No	No	No	No
PRICING AND AVAILABILITY				
Display station, 2-year lease, $/mo.	Purchase only	Purchase only	Purchase only	152-173*
Controller, 2-year lease, $/mo.	—	—	—	—
Display station, purchase, $	995	595	1,395	3,915-4,815
Controller, purchase, $	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	82
Date of announcement	—	—	—	1969
Date of first production delivery	6/82	1/83	3/82	5/70
Display units installed to date	—	—	—	—
Serviced by	Soroc	Soroc	Soroc	Sperry Univac
COMMENTS	Includes 11 business graphics characters; palm rest; auto repeat	Soft-start set-up for transmission rate, word structure, display format, and intensity; includes 15 business graphics characters		*Five-year lease

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Sperry Univac U 200	Sperry Univac UTS 10	Sperry Univac UTS 20	Tab Products 132/15	Tandberg Data TDV 2200 Family
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Both	Stand-alone	Stand-alone
Maximum displays/controller	—	—	31	1	—
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	3101
Teletype compatibility	No	Std.	No	Std.	Std.
Other compatibility	Univac	—	Univac	DEC VT52/VT100/ VT132, Prime, HIS	DEC VT100/VT52, DG, Datapoint, Honeywell, Comp. Auto.
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1536, 1920	1920	1920	1920, 3168	1920
Memory capacity, no. char./lines/pages	1536/1920 char.	1920 char.	4000 char.	4 pages	24K std.; 40/56 opt.
Screen arrangement, lines x chars./line	24 x 64, 24 x 80	24 x 80	Up to 24 x 80	24 x 80, 24 x 132, plus status	24 x 80 plus status line
Screen area, diagonal, inches	12	12	12	15	15
Tilt/swivel screen	No	Opt.	Opt.	Tilt std.	Std.
Total displayable symbols	64; 96 opt.	128 ASCII	96 ASCII	128	128 ASCII
Symbol formation	7 x 9 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix	7 x 11 dot matrix	9 x 14 dot matrix
Character phosphor	P31 green	P31 green	P31 green	P31 green std., P4 white opt.	P31 green
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	No	No	Std.	Std.
Blink	Std.	No	Std.	Std.	Std.
Blank	No	No	No	Std.	Std.
Bold	No	No	Std.	Std.	Dim std.
Reverse	No	No	Std.	Std.	Std.
Double size	No	No	No	Std.	Std.
Scroll	Up/down std.	Up opt.	Up/down std.	Up/down/sm./jump	Std.
Paging	No	No	No	4 std.	Std.
Selectable cursor blinking	Std.	Over char.	Over char.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	No	No	No	Std.	No
Tabulation	Std.	Std. (Block mode)	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.	Line/screen/ memory std.	Std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter, expanded function	Typewriter, expanded function	Typewriter	Typewriter
Character/code set	96 ASCII	128 ASCII	96 ASCII	96 ASCII	128 ASCII
Detachability	No	Std.	Std.	Std.	Std.
Program function keys	4 opt.	12 std.	22 std.	26 std.; 8 downloadable	8 std.
Numeric keypad	Opt.	Opt.	Opt.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	30/200 cps impact	80 cps impact	80/200 cps impact	120/200 cps matrix	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	No	No	No	Opt.	Std.
Other vendor-supplied devices	Cassette tape	Magnetic stripe reader	Magnetic stripe reader	—	—
TRANSMISSION PARAMETERS					
Mode	Half-duplex	Half/full-duplex	Half-duplex	Half/full-duplex	Half/full-duplex
Technique	Async./sync.	Asynchronous	Synchronous	Asynchronous	Asynchronous
Communications protocol	Uniscope	TTY	Uniscope/UTS 400	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	Up to 9600	Up to 9600	Up to 9600	50-19,200	50-19,200
Format; character, line, or block	Block	Char./block	Block	Char./line/blk./pg.	Char./line/block
Multipoint operation (pollable/addr.)	Std.	No	Std.	No	Std.
Terminal interface	RS-232-C	RS-232-C; 20mA	RS-232-C	RS-232-C, 20mA	RS-232-C, RS-422 std.; 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	173-194*	—	100-142*	105	—
Controller, 2-year lease, $/mo.	—	—	321	—	—
Display station, purchase, $	4,992-5,913	1,428-1,720	2,640-3,555	2,100	1,875-2,050
Controller, purchase, $	—	—	9,000	—	—
Monthly prime-shift maint., $/mo.	82	See comments	26-32	22	—
Date of announcement	9/74	6/80	6/80	2/81	6/82
Date of first production delivery	2/75	3/81	10/80	4/81	—
Display units installed to date	—	—	—	Over 6,000	—
Serviced by	Sperry Univac	Sperry Univac	Sperry Univac	Tab	Tandberg Data
COMMENTS	*Five-year lease	Central Repair Service-$80/year; unit is customer-installable; operator-selectable parameters	*Five-year lease; operator-selectable parameters; customer set-up; UTS 20W cluster workstation attaches to UTS 4020 cluster controller	Also available with Tektronix 4010 graphics emulation as Model 132/ 15-G	TDV 2200 Family currently consists of 11 models

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Tandem 6530	Taumark Tera System (Handheld)	TEC ET 80	TEC 630	TEC 631/632
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Radio net. cluster	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	250	1	1	1
Transportability	No	Std. (handheld)	No	No	No
IBM compatibility	No	3270 opt.	No	No	No
Teletype compatibility	Std.	Std. (controller)	Std.	Std.	Std.
Other compatibility	Tandem	To customer requirements	DEC VT131, TEC 70	Upon request	Upon request
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2000	64	2000	2000	2000
Memory capacity, no. char./lines/pages	Up to 8 pages	1920 char. opt.	5 pages	Up to 4 pages	4 pages
Screen arrangement, lines x chars./line	25 x 80	4 x 16	24 x 80 plus status line	25 x 80	25 x 80
Screen area, diagonal, inches	15	2.5 x 3.62 in.	15	12	12
Tilt/swivel screen	Std.	—	Std. (raise/lower opt.)	Opt.	Opt.
Total displayable symbols	128 ASCII	64 ASCII std.	256	128	128 ASCII
Symbol formation	7 x 9 dot matrix	5 x 7 dot matrix	7 x 12 dot matrix	6 x 8	6 x 8 dot matrix
Character phosphor	P31 green	—	White; green opt.	P4 white std., P31 green opt.	P4 white std.; P31 green opt.
Color capability	No	—	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	Std.	Std.	Std.
Blink	Std.	No	Std.	Std.	Std.
Blank	Std.	No	Std.	Std.	Std.
Bold	Std.	No	No	Reduced std.	Reduced std.
Reverse	Std.	No	Std.	Std.	Std.
Double size	No	No	Std.	No	No
Scroll	Std.	Up/down std.	Up/down/jump/sm.	Std.	Std.
Paging	Std.	1920 char. opt.	Std.	2/4 opt.	2/4 opt.
Selectable cursor blinking	Std.	No	Std.	Std.	Std.
Addressable/readable cursor	Std.	Addr. std.; read opt.	Std.	Both std.	Both std.
Protected format	Std.	16 1-line form std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	No	No	Std.	Std.	Std.
Tabulation	Std.	No	Std.	Fwd./back/auto	Fwd./back/auto std.
Character insert/delete	Std.	No	Std.	Std.	Std.
Line insert/delete	Std.	No	Std.	Std.	Std.
Erase	—	Char./line/screen std.	Std.	Line/page/screen/ memory std.	Line/page/screen/ memory std.
KEYBOARD PARAMETERS					
Style	Typewriter	40 key A/N std.; others opt.	Typewriter	Typewriter	Typewriter
Character/code set	ASCII	64 ASCII std.	256 ASCII	128 ASCII	128 ASCII
Detachability	Std.	No	Std.	Std.	Std.
Program function keys	16 std.	Opt.	18 std.	6 std.	6 std.
Numeric keypad	Std.	Std.	Std.	Opt.	Opt.
ANCILLARY DEVICES					
Serial printer, type and speed	Std.	No	No	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	No	No	Opt.	Opt.
Port for cust.-supplied devices	—	No	Std.	Std.	Std.
Other vendor-supplied devices	—	Bar code reader, A/D probe, audible alarm, battery-low indicator	Card reader/writer	Mag card reader/ writer	Mag. card reader/ writer
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Async./sync.	Async./sync./bisync.	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII	ASCII std., BSC opt.	ASCII	—	—
Code	ASCII	600-50K (cont.)	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	Block	Up to 19,200	110-9600	110-9600
Format; character, line, or block	Char./block	Std. (terminals)	Char./block/line	Char./line/block	Char./line/block
Multipoint operation (pollable/addr.)	Std.	RS-232-C, 20mA (controller)	No	No	No
Terminal interface	RS-232-C, 20mA	Std. (terminal)	RS-232-C; 20/60 mA opt.	RS-232-C std.; 20mA opt.	RS-232-C; std.; 20mA opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No		No	No	No
PRICING AND AVAILABILITY		Third party			
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	3,600 (w/o radio)	—	—	—
Display station, purchase, $	3,200	5,250 (w/o radio)	1,975	1,475-1,995	1,310
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	3/82	7/78	6/82	3/81	9/80
Date of first production delivery	4/82	—	—	5/81	11/80
Display units installed to date	—	—	—	—	800
Serviced by	Tandem	Taumark	TEC	TEC	TEC
COMMENTS		Provides 2-way on-line comm. via FM radio btwn. mobile personnel & base station controller, which controls network & converts radio protocol to acceptable digital format for host comp	Auto word wrap; positive display	Available in rack-mount or mag card reader/writer versions	

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Tektronix 4025A	Telcon VCS-200/ VCS-202	Telcon VCS-203/ VCS-204	Telcon VCS-205/ VCS-206	Telcon VCS-780
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	—	—	—	—
Transportability	No	Portable case	Portable case	Portable case	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	DEC VT100 opt.	DEC VT52/VT100	DEC VT52/VT100 std.; ADDS Viewpoint	DEC VT52/VT100	DEC VT52/VT100
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2720	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	16K/400/12 total	144 lines (370 opt.)	1 page	144 lines (370 opt.)	144 lines (370 opt.)
Screen arrangement, lines x chars./line	34 x 80	24 x 80	24 x80	24 x 80	24 x 80
Screen area, diagonal, inches	12	7	7	7	12
Tilt/swivel screen	No	No	No	No	No
Total displayable symbols	96 std.	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	7 x 9 dot matrix	5 x 8 dot matrix	5 x 8 dot matrix	5 x 8 dot matrix	5 x 8 dot matrix
Character phosphor	P39 green	P31 green std.	P31 green std.	P31 green std.	P31 green std.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	No	No	No
Blink	Std.	No	No	No	No
Blank	Std.	No	No	No	No
Bold	No	No	No	No	No
Reverse	Std.	No	No	No	No
Double size	No	No	No	No	No
Scroll	Up/down std.	Up/down std.	No	Up/down std.	Up/down std.
Paging	Std.	6 std.; 15 opt.	1 std. (VCS-203)	6 std.; 15 opt.	6 std.; 15 opt.
Selectable cursor blinking	No	No	No	No	No
Addressable/readable cursor	Both std.	No	Addressable only	No	Addressable only
Protected format	Std.	No	No	No	No
Partial screen transmit	Std.	No	No	No	Std.
Split screen/windows	Std.	No	No	No	No
Tabulation	Fwd./back std.	Fwd. std.	Fwd. std.	Fwd. std.	No
Character insert/delete	Std.	Std.	No	Std.	Std.
Line insert/delete	Std.	Std.	No	Std.	Std.
Erase	Char./line/screen std.	Word/paragraph/ screen std.	Screen std.	Word/paragraph/ screen std.	Word/paragraph/ screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	ASCII	96 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	Std.	No	No	No	Std.
Program function keys	20 plus all keys std.	No	3 std.	No	No
Numeric keypad		No	Std.	No	No
ANCILLARY DEVICES					
Serial printer, type and speed	Serial opt.	40/80-col. electro.	80-col. electro (204)	No	No
Line printer, type and speed	No	No	No	No	No
Composite video	Std.	Opt.	Opt.	Opt.	Opt.
Port for cust.-supplied devices	Std.	No	No	No	Std.
Other vendor-supplied devices	Tape, plotters	144K mini cassette tape drive (VCS-200)	—	144K mini cassette tape drive (VCS-206)	144K mini cassette tape drive
TRANSMISSION PARAMETERS					
Mode	Full (std.); half (opt.)	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	ASCII	—	—	—	—
Code	ASCII	ASCII, Baudot, TTS	ASCII	ASCII, Baudot, TTS	ASCII, Baudot, TTS
Speed, bits/second	75-9600	45.5-4800	110-4800	45.5-4800	45.5-4800
Format; character, line, or block	Char./block	Char./block	Char./page	Char./block	Char./block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C, 20mA	RS-232-C	RS-232-C; 20mA (opt. 204)	RS-232-C, 20mA opt.	RS-232-C
Integral modem	No	Opt. 212A	Opt. 212A	Opt. 212A	Opt. 212A
Integral acoustic coupler	No	Std.	Std.	Std.	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	273	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	5,900	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	7	Contact vendor	Contact vendor	Contact vendor	Contact vendor
Date of announcement	1977	—	—	—	—
Date of first production delivery	1977	—	—	—	—
Display units installed to date	—	—	—	—	—
Serviced by	Tektronix	Telcon	Telcon	Telcon	Telcon
COMMENTS	Updated to 4025A in 1981 w/new features, 3X speed, 4027A color terminal also available				Built-in 201C or 212A-type modems planned

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Telcon Newsman 1	Telcon Satellite 1	Teleram 2277 Mark II	Teleram Portabubble 81/91	Teleray Model 7
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Either	Either	Stand-alone
Maximum displays/controller	—	—	1	1	—
Transportability	Portable case	Portable case	No	Portable case	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	No	Std.	Std.	Std.	Std.
Other compatibility	—	DEC VT52/VT100	—	—	ANSI X3.64
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1840	544, 816	1920
Memory capacity, no. char./lines/pages	2 10K-char. stories	144 lines (370 opt.)	84K/disk	62K/13K (P91)	3840 char.
Screen arrangement, lines x chars./line	24 x 80, 20 x 70	24 x80	23 x 80	16 x 34, 15 x 54	24 x 80 or user-defined, plus stat ln.
Screen area, diagonal, inches	7	7	12	5	12; 9 & 15 opt.
Tilt/swivel screen	No	No	No	No	Opt.
Total displayable symbols	128 ASCII	128 ASCII	128 ASCII	128 ASCII	256, incl. 128 ASCII
Symbol formation	5 x 9 dot matrix	5 x 8 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	8 x 10 dot matrix
Character phosphor	P31 green std.	P31 green std.	White	White	White, green, amber
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	No	No	Std.
Blink	Std.	No	Std.	Std.	Std.
Blank	No	No	No	No	Std.
Bold	No	No	No	No	Dim std.
Reverse	Std.	No	No	No	Std.
Double size	No	No	No	No	2x, 4x and 8x std.
Scroll	Up/down std.	Up/down std.	Up/down std.	Up/down std.	Up/down/horiz./sm.
Paging	No	6 std.; 15 opt.	Full memory std.	Full memory std.	2 std.; 4 opt.
Selectable cursor blinking	No	No	No	No	Std..; any displ. char.
Addressable/readable cursor	No	Addressable only	No	No	Both std.
Protected format	Std.	No	No	No	Std.
Partial screen transmit	No	Std.	No	No	Std.
Split screen/windows	No	No	No	No	Std.
Tabulation	No	No	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Line/partial or entire memory	Word/paragraph/ screen std.	Char./line/screen std.	Char./line/screen std.	Char./line/screen/ memory std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	128 ASCII	128 ASCII	128 ASCII, 64 TTS	128 ASC., 64	128 ASCII
Detachability	No	No	Std.	No	Std.
Program function keys	6	No	No	No	32/64 user-defin. std. Std. & calc. mode
Numeric keypad	No	No	No	No	No
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	No	No	No
Line printer, type and speed	No	No	No	No	Opt.
Composite video	Opt.	Opt.	No	No	Std. full performance
Port for cust.-supplied devices	Std.	Std.	Std.	—	—
Other vendor-supplied devices	—	Built-in 160K floppy disk storage	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	—	—	—	—	ASCII
Code	ASCII	ASCII, Baudot, TTS	ASCII, TTS, Baudot	ASCII, TTS, Baudot	ASCII/ANSI
Speed, bits/second	50-4800	45.5-4800	300/1200	50-9600	To 19,200
Format; character, line, or block	Block	Char./block	Char./block	Char./block	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C, acoustic coupler	RS-232-C/20mA opt.
Integral modem	Opt. 212A	Opt. 212A	No	No	No
Integral acoustic coupler	Std.	Std.	No	Std.	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	74
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	Contact vendor	Contact vendor	4,795	4,995/2,995 (P91)	1,295
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	Contact vendor	Contact vendor	—	—	—
Date of announcement	11/81	1/82	—	—	11/82
Date of first production delivery	—	—	—	—	1/83
Display units installed to date	—	—	—	—	—
Serviced by	Telcon	Telcon	Teleram	Teleram	Teleray
COMMENTS			Floppy disk (8-inch) available for $720	Weighs 12½ pounds; Portabubble 91 is identical to P81, but without bubble memory, for newspaper applications	Additional 3840 char. mem. opt.— volatile or non-volatile; user-definable logical line and page lengths; 100+ user-configurable control sequences; graphics char. sets

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Teleray Model 10	Teleray Model 11 APL	Teleray Model 16/ 16 APL	Teleray Model 100	Teletype 4420
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	DEC VT52, DG 6053, Microdata	—	ANSI X3.64	DEC VT52/VT100/ VT132; ANSI X3.65	Teletype 40/1, 40/2
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	3168	1920
Memory capacity, no. char./lines/pages	1920 char.	1920 char.	7760 char.	3168 char.	5,760 char.
Screen arrangement, lines x chars./line	24 x 80, 24 x 40	24 x 80, 24 x 40	24 x 80, or user-defined, plus status	24 x 40, 24 x 66, 24 x 80, 24 x 132	24 x 80
Screen area, diagonal, inches	12; 15 opt.	12; 15 opt.	12; 9 & 15 opt.	12; 15 opt.	12
Tilt/swivel screen	Opt.	Opt.	Opt.	Opt.	Tilt std.
Total displayable symbols	128 ASCII	128 ASCII/96 APL	128 ASCII/64 graph.	128 ASCII/32 graph.	128 ASCII
Symbol formation	7 x 9 dot matrix	7 x 9 dot matrix	8 x 10 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	White, green, amber	White, green, amber	White std.; green, amber opt.	White, green, amber	P4 white std.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std., + overline	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	No
Bold	Dim std.	Dim std.	Dim std.	Std.	No
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	Std.	No
Scroll	Up/down std.	Up/down std.	Up/down/hor./sm.	Up/down/smooth	Up/down std.
Paging	No	No	4 std., plus 4 opt.	No	3 std.
Selectable cursor blinking	No	No	Std.	Std.	No
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	No	No	Std.	Std.	No
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	EOL/EOP/page std.	EOL/EOP/page std.	Char./line/screen/ memory std.	EOL/line/page/ EOP/memory std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	96 ASCII +32 ctrl.	128 ASCII/96 APL	96 ASCII +32 ctrl.	128 ASCII +32 graph.	128 ASCII
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	8 keys-32 functions; 527 char.	8 keys-32 functions; 527 char.	32/64 user-definable	20 functions/ 880 char.	10 std.
Numeric keypad	Std.	Std.	Std. + calc. mode	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	No	No	30/340 cps impact
Line printer, type and speed	No	No	No	No	300 lpm belt
Composite video	No	No	Opt.	Opt.	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Asynchonous	Asynchronous	Asynchronous
Communications protocol	ASCII	ASCII	ASCII	ASCII	—
Code	ASCII	ASCII	ASCII/ANSI	ASCII/ANSI	ASCII
Speed, bits/second	Up to 9600	Up to 9600	Up to 19,200	Up to 19,200	Up to 9600
Format; character, line, or block	Char./line/block	Char./line/block	Char./line/block	Char./line/block	Char./line/blk/page
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20/60 mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	68	68	87/96 (APL)	99	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,195	1,195	1/545/1,665 (APL)	1,595	4,105
Controller, purchase, $	—	—	—	—	Incl.
Monthly prime-shift maint., $/mo.	—	—	—	—	19
Date of announcement	—	—	3/82	—	11/80
Date of first production delivery	9/78	7/79	4/82	12/80	10/80
Display units installed to date	—	—	—	—	—
Serviced by	Teleray	Teleray	Teleray	Teleray	Teletype
COMMENTS		True overstrike	Additional 7680 char. memory opt.—volatile or non-volatile; user-definable logical line & page length; real-time clock read-out; alpha-only/numeric-only modes; Model 16 APL includes 96 APL char	Four scrolling speeds: 5/10/15/ 20 lps.	10 user-programmable function keys

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Teletype 4424	Teletype 4430	Teletype 4540	Teletype 4543	Teletype 40/4
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Cluster	Stand-alone	Stand-alone
Maximum displays/controller	1	1	32	1	2
Transportability	No	No	No	No	No
IBM compatibility	No	No	3270 BSC, SDLC	SDLC only	3270 BSC
Teletype compatibility	Std.	Std.	No	No	No
Other compatibility	DEC VT100	Teletype 33, 35, 40/3 (multi-pt.)	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	3,840 char.	5,760 char.	1920 char.	1920 char.	1920 char.
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x80	24 x 80	24 x 80
Screen area, diagonal, inches	13	13	13	13	13
Tilt/swivel screen	Tilt std.	Tilt std.	Tilt std.	Tilt std.	Tilt std.
Total displayable symbols	96 ASCII +32 graph.	128 ASCII	97 ASCII/EBCDIC	64 EBCDIC	64 ASCII/EBCDIC
Symbol formation	8 x 14 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P4 white std.	P4 white std.	P4 white std.	P4 white std.	P4 white std.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	No	No
Blink	Std.	Std.	Std.	Std.	Std.
Blank	No	No	Std.	Std.	Std.
Bold	Std.	No	No	No	No
Reverse	Std.	No	No	No	No
Double size	No	No	No	No	No
Scroll	Up/down std.	Up/down std.	No	No	No
Paging	2 std.	3 std.	No	No	No
Selectable cursor blinking	Std.	No	No	No	No
Addressable/readable cursor	Both std.	Addressable only	Both std.	Both std.	Both std.
Protected format	No	Std.	Std.	Std.	Std.
Partial screen transmit	No	Std.	Std.	Std.	Std.
Split screen/windows	1 std.	No	No	No	No
Tabulation	Fwd./back std.	Fwd./back std.	Std.	Std.	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/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter, data entry	Typewriter, data entry	Typewriter, data entry
Character/code set	128 ASCII	128 ASCII	96 ASCII/EBCDIC	64 EBCDIC	96 ASCII/EBCDIC
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	16 std.	1 std.	12 std.	12/24 std.	12 std.
Numeric keypad	Std.	Opt.	Opt. (typewr. keyb.)	Opt. (typewr. keyb.)	Opt. (typewr. keyb.)
ANCILLARY DEVICES					
Serial printer, type and speed	30 cps impact	30/340 cps impact	30/340 cps impact	30/340 cps impact	30/340 cps impact
Line printer, type and speed	300 lpm belt	300 lpm belt	300 lpm belt	300 lpm belt	300 lpm belt
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	No	No	No
Other vendor-supplied devices	—	Comm-Stor 2	Mag card reader	Mag card reader	Mag card reader
TRANSMISSION PARAMETERS					
Mode	Full-duplex	Half-duplex	Half-duplex	Half/full-duplex	Half-duplex
Technique	Asynchronous	Async./sync.	Synchronous	Synchronous	Synchronous
Communications protocol	ASCII	8A1, 85A1 opt.	BSC, SDLC	SDLC	BSC
Code	ASCII	ASCII	ASCII/EBCDIC	EBCDIC	ASCII/EBCDIC
Speed, bits/second	Up to 9600	Up to 4800	Up to 9600	Up to 9600	Up to 4800
Format; character, line, or block	Character	Char./line/blk/page.	Block	Block	Block
Multipoint operation (pollable/addr.)	No	Std.	Std.	Std.	Std.
Terminal interface	RS-232-C; 20/60 mA	RS-232-C; 20/60 mA	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, 2-year lease, $/mo.	—	—	Purchase only	Purchase only	Purchase only
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	4,207	3,977	1,952	4,745	4,785
Controller, purchase, $	Incl.	Incl.	6,682 (cluster-32)	Incl.	Incl.
Monthly prime-shift maint., $/mo.	19	19	30 (cluster) 19 (disp.)	19	19
Date of announcement	1/82	6/81	3/79	5/81	11/76
Date of first production delivery	10/81	12/81	9/79	—	—
Display units installed to date	—	—	—	—	—
Serviced by	Teletype	Teletype	Teletype	Teletype	Teletype
COMMENTS	ANSI 3.64 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 43RO, Model 43RT set, and Model 40 printer	Controllers for local connect or remote operation; local & remote self-diagnostics; also available from AT&T (Bell System) as Dataspeed 4540	Also available from AT&T (Bell System) as Dataspeed 4540	

Alphanumeric Display Terminals

SUPPLIER AND MODEL	TeleVideo 910	TeleVideo 910 Plus	TeleVideo 912/920	TeleVideo 925	TeleVideo 950
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	See comments	—	—	TeleVideo 912/920	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	80/24/1	80/24/1	80/24/2	80/24/2	80/24/4
Screen arrangement, lines x chars./line	24 x 80	24 x 80	24 x 80	24 x 80	24 x 80
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	Swivel std.	Swivel std.	Swivel std.	Std.	Std.
Total displayable symbols	128 ASCII	128 ASCII	96 ASCII	128 ASCII	128 ASCII
Symbol formation	6 x 7 dot matrix	6 x 7 dot matrix	6 x 7 dot matrix	6 x 8 dot matrix	10 x 7 dot matrix
Character phosphor	P31 green	P31 green	P31 green	P31 green	P31 green
Color capability	No	No	No	No	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	No	No	No	Std.	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	Up/down std.	Up/down std.	Up/down std.	Up/down std.
Paging	1 std.	1 std.	2 opt.	2 opt.	4 opt.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Both std.	Both std.	Both std.	Both std.	Both std.
Protected format	No	Std.	Std.	Std.	Std.
Partial screen transmit	No	No	No	Std.	Std.
Split screen/windows	No	No	No	No	No
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd./back std.	Fwd./back std.
Character insert/delete	No	Std.	Std.	Std.	Std.
Line insert/delete	No	Std.	Std.	Std.	Std.
Erase	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	128 ASCII	128 ASCII	96 ASCII	128 ASCII	128 ASCII
Detachability	No	No	No	Std.	Std.
Program function keys	No	No	22 (920 only)	22 std.	22 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	Opt.	Opt.	Opt.	Opt.	Opt.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
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	—	—	—	—	—
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-19,200	50-19,200	75-9600	50-19,200	50-19,200
Format; character, line, or block	Character	Char./line/block	Char./line/block	Char./line/block	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C	RS-232-C
Integral modem	Opt.	Opt.	Opt.	Opt.	Opt.
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Purchase only	Purchase only	Purchase only	Purchase only	Purchase only
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	699	699	925/995	995	1,195
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	5/81	2/82	9/79	11/81	2/81
Date of first production delivery	5/81	2/82	9/79	11/81	2/81
Display units installed to date	10,000	—	40,000	10,000	40,000
Serviced by	GE Instr. & Comm.	GE Instr. & Comm.	GE Instr. & Comm.	GE Instr. & Comm.	GE Instr. & Comm.
COMMENTS	Emulations include: ADDS Regent 25, Hazeltine 1410, & Lear Siegler ADM 3A/5				

Alphanumeric Display Terminals

SUPPLIER AND MODEL	TeleVideo 970	Telex 275	Telex 276	Telex 277	Telex 278
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Both	Cluster	Cluster
Maximum displays/controller	1	1	8	32	32
Transportability	No	No	No	No	No
IBM compatibility	No	3275	3276 BSC/SDLC	3277	3278 BSC/SDLC
Teletype compatibility	No	No	No	No	No
Other compatibility	DEC VT100	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920-3564	1920	1920-3564
Memory capacity, no. char./lines/pages	80/132, 24, 3/2	—	—	—	—
Screen arrangement, lines x chars./line	24 x 80, 24 x 132	24 x 80	24 x80, 32 x 80, 43 x 80, 27 x 132	24 x 80	24 x 80, 32 x 80, 43 x 80, 27 x 132
Screen area, diagonal, inches	14	15	15	15	15
Tilt/swivel screen	Tilt std.	No	No	No	No
Total displayable symbols	128	96 EBCDIC/ASCII	96 EBCDIC/ASCII	96	96 EBCDIC/ASCII
Symbol formation	7 x 8 dot matrix	7 x 9/7 x 8 dot matrix	9 x 14 dot matrix	7x9/7x8 dot matrix	9 x 14 dot matrix
Character phosphor	P31 green	White std., green opt.	White std., green opt.	White std., green opt.	Green or White
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	No	No	No	No
Blink	Std.	No	No	No	No
Blank	Std.	No	No	No	No
Bold	Std.	No	No	No	No
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	Std.	No	No	No	No
Scroll	Up/down std.	No	No	No	No
Paging	3 std.	No	No	No	No
Selectable cursor blinking	Std.	No	Std.	No	Std.
Addressable/readable cursor	Std.	Both std.	Both std.	Std.	Both std.
Protected format	Std.	Std.	Std.	Std.	Std.
Partial screen transmit	Std.	Std.	Std.	Std.	Std.
Split screen/windows	3 std.	No	No	No	No
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back std.	Std.	Fwd./back std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	No	No	Std.	No
Erase	Char./line/field std.	Char./line/screen std.	Char./screen std.	Char./line/screen std.	Char./screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter, data entry	Typewriter, data entry	Typewriter, data entry	Typewriter, data entry
Character/code set	128 ASCII	ASCII/EBCDIC	64 ASCII/94 EBCDIC	ASCII/EBCDIC	64 ASCII/96 EBCDIC
Detachability	Std.	Std.	Std.	Std.	Std.
Program function keys	32 non-volatile	Opt.	24 opt.	Opt.	24 opt.
Numeric keypad	Std.	Std.	Opt.	Std.	Opt.
ANCILLARY DEVICES					
Serial printer, type and speed	No	Std.	Std.	Std.	Std.
Line printer, type and speed.	No	—	—	Std.	No
Composite video	Opt.	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	No	Audible alarm, light pen, mag. stripe reader opt.	Security lock, audible alarm, light pen	Audible alarm, light pen, mag. stripe reader opt.	Security lock, audible alarm, light pen
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half-duplex	Half-duplex	Half-duplex	Half-duplex
Technique	Asynchronous	Synchronous	Synchronous	Synchronous	Synchronous
Communications protocol	ANSI X3.65	BSC/SDLC	BSC/SDLC	BSC/SDLC	BSC/SDLC
Code	ASCII	ASCII/EBCDIC	ASCII/EBCDIC	ASCII/EBCDIC	ASCII/EBCDIC
Speed, bits/second	50-19.2K	1200-4800	2400-9600	2400-9600	2400-9600
Format; character, line, or block	Char./line/fld./blk.	Block	Block	Block	Block
Multipoint operation (pollable/addr.)	No	Std.	Std.	Std.	Std.
Terminal interface	RS-232-C, RS-422, 20mA	RS-232-C	RS-232-C	RS-232-C	RS-232-C
Integral modem	Opt.	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	121	184	64	55-82
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,495	3,800	5,300	1,590	2,100-2,800
Controller, purchase, $	No	—	—	—	—
Monthly prime-shift maint., $/mo.	No	26	24	10	7-10
Date of announcement	6/82	1/74	6/79	1/74	6/79
Date of first production delivery	1/83	9/74	8/79	3/74	8/79
Display units installed to date	—	—	—	—	—
Serviced by	GE Instr. & Comm.	Telex Service Co.	Telex Service Co.	Telex Service Co.	Telex Service Co.
COMMENTS					

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Telex 279	Telex 310	Telex 178	Telex 476	Termiflex HT/2
TERMINAL DESCRIPTION					
Stand-alone or cluster	Cluster	Stand-alone	Cluster	Either	Stand-alone
Maximum displays/controller	32	1	32	Up to 16	—
Transportability	No	No	No	No	Hand-held
IBM compatibility	3279	3101	3278 BSC/SDLC	3270	—
Teletype compatibility	No	Std.	No	No	Opt.
Other compatibility	—	See comments	—	—	Opt.
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	20
Memory capacity, no. char./lines/pages	—	—	—	—	1000
Screen arrangement, lines x chars./line	24 x 80	24 x 80 plus status line	24 x 80	24 x 80	2 x 10
Screen area, diagonal, inches	15	15	12	15	—
Tilt/swivel screen	No	—	No	No	—
Total displayable symbols	96 EBCDIC/ASCII	128	96	96 EBCDIC	96/128 selectable
Symbol formation	9 x 14 dot matrix	7 x 11 dot matrix	—	8 x 15 dot matrix	5 x 7 dot matrix
Character phosphor	—	White std., green opt.	Green or white	White std.; green opt.	Red LED
Color capability	4 colors std.	No	No	No	—
Programmable field/char. highlighting via:					
Underline	No	Std.	No	No	No
Blink	No	Std.	No	No	No
Blank	No	Std.	No	No	No
Bold	No	Std.	No	No	No
Reverse	Std.	Std.	Std.	Std.	No
Double size	No	No	No	No	No
Scroll	No	Up std.	No	No	Up/down std.
Paging	No	Opt.	No	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	No
Addressable/readable cursor	Both std.	Std.	Both std.	Both std.	Opt.
Protected format	Std.	Opt.	Std.	Std.	No
Partial screen transmit	Std.	Opt.	Std.	Std.	No
Split screen/windows	No	No	No	No	No
Tabulation	Fwd./back std.	Std./Prog. tabs	Fwd./back std.	Std.	No
Character insert/delete	Std.	Opt.	Std.	Std.	Via backspace
Line insert/delete	No	Opt.	No	No	No
Erase	Char./screen std.	Std.	Char./screen std.	Char./screen std.	No
KEYBOARD PARAMETERS					
Style	Typewriter, data entry	Typewriter	Typewriter, data entry	Typewriter, data entry	20 keys + 3 shift
Character/code set	ASCII/EBCDIC	128 ASCII	64 ASCII/96 EBCDIC	EBCDIC	128 ASCII
Detachability	STd.	Std.	Std.	Std.	No
Program function keys	Opt.	8 std.	Opt.	12/24 std.	No
Numeric keypad	Std.	Std.	Std.	Std.	Std.
ANCILLARY DEVICES					
Serial printer, type and speed	Std.	Std.	No	Std.	No
Line printer, type and speed	No	No	No	Std.	No
Composite video	No	No	No	No	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	No
Other vendor-supplied devices	Security lock, audible alarm, light pen	Audible alarm	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half-duplex	Half/full-duplex	Half-duplex	Half/full-duplex	Half/full-duplex
Technique	Synchronous	Asynchronous	Synchronous	Synchronous	Asynchronous
Communications protocol	BSC/SDLC	ASCII	BSC/SDLC	BSC/SDLC	Bit serial
Code	ASCII/EBCDIC	ASCII	ASCII/EBCDIC	EBCDIC	ASCII
Speed, bits/second	2400-9600	50-19,200	2400-9600	Up to 9600	110-1200 (2400 opt.)
Format; character, line, or block	Block	Char./block	Block	Block	Character
Multipoint operation (pollable/addr.)	Std.	No	Std.	Std.	Opt.
Terminal interface	RS-232-C	RS-232-C, 20mA, RS-422	RS-232-C	RS-232-C	RS-232-C, TTL, 20 mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY	—				
Display station, 2-year lease, $/mo.		Purchase only	Contact vendor	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	3,500	1,250-1,400	Contact vendor	3,700	2,495
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	Contact vendor	—	—
Date of announcement	1/82	2/80	2/82	5/82	—
Date of first production delivery	1st Q. 1982	5/80	—	8/82	—
Display units installed to date	—	—	—	—	—
Serviced by	Telex Service Co.	Telex Service Co.	Telex Service Co.	Telex Service Co.	Factory
COMMENTS	Red, green, blue, & white standard colors	Custom options & other compatibility available on custom quote. User set-up & control options are selected from keyboard & stored in non-volatile storage	Small screen & cabinet version of the 278		Quantity discounts available

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Termiflex HT/3-HT/4	Termiflex HT/5	Termiflex HT/6-HT/7-HT/8	Termiflex HT/10-HT/11-HT/12	Termiflex HT/20
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	—
Transportability	Hand-held	Hand-held	Hand-held	Hand-held	Hand-held/panel
IBM compatibility	—	—	—	—	—
Teletype compatibility	Opt.	No	Opt.	Opt.	Opt.
Other compatibility	Opt.	Opt.	Opt.	Opt.	Opt.
DISPLAY PARAMETERS					
Display capacity, no. of chars.	12 (HT/3); 24 (HT/4)	12 status lamps	20 (6)/40 (7)/80 (8)	12(10)/16(11)/32(12)	16
Memory capacity, no. char./lines/pages	12/24	—	940/960/1000	12/16/32	16
Screen arrangement, lines x chars./line	1 x 12/2 x 12	2 x 6 status lamps	1/2/4 x 20	1 x 12 (10)/16 (11-12)	1 x 16
Screen area, diagonal, inches	—	—	—	—	—
Tilt/swivel screen	—	—	—	—	—
Total displayable symbols	96	—	96/128 selectable	96; 128 opt.	96
Symbol formation	5 x 7 dot matrix	—	5 x 7 dot matrix	16/18 ele. starburst	18 ele. starburst
Character phosphor	Red LED	Red LED	Red LED	Red LED	Red LED
Color capability	—	—	—	—	—
Programmable field/char. highlighting via:					
Underline	No	—	No	No	No
Blink	No	—	No	Std./opt.	Opt.
Blank	No	—	No	No	No
Bold	No	—	No	No	No
Reverse	No	—	No	No	No
Double size	No	—	No	No	No
Scroll	No	—	Up/down std.	Up/down opt.	No
Paging	No	—	No	No	No
Selectable cursor blinking	No	—	No	No	No
Addressable/readable cursor	No	—	Opt.	No	No
Protected format	No	—	No	No	No
Partial screen transmit	No	—	No	No	No
Split screen/windows	No	—	No	No	No
Tabulation	No	—	No	No	No
Character insert/delete	No	—	Via backspace	Via backspace	Via backspace
Line insert/delete	No	—	No	No	No
Erase	No	—	No	No	No
KEYBOARD PARAMETERS					
Style	20 keys + 3 shift	20 keys + 3 shift	20 keys + 3 shift	20 keys + 3 shift	20 keys +3 shift
Character/code set	128 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	No	No	No	No	No
Program function keys	No	No	No	No	No
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	No
Port for cust.-supplied devices	No	No	No	No	No
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Full std./half opt.	Full std./half opt.	Half/full-duplex	Full std.; half opt.	Full, half opt.
Technique	Asynchronous	Asynchronous	Asynchronous	Asynchronous	Asynchronous
Communications protocol	Bit serial	Bit serial	Bit serial	Bit serial	Bit serial
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-1200 (2400 opt.)	110-1200 (2400 opt.)	110-1200 (2400 opt.)	300/1200 std. (9600)	300/1200/9600
Format; character, line, or block	Character	Character	Character	Character	Character
Multipoint operation (pollable/addr.)	Opt.	Opt.	Opt.	Opt.	Opt.
Terminal interface	RS-232-C, TTL, 20 mA	RS-232-C, TTL, 20 mA	RS-232-C, TTL, 20 mA	RS-232-C, TTL, 20mA, RS-422	RS-232-C, TTL, 20mA, RS-422
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	795(HT/3)/1,195(HT/4)	495	See Comments	495/745/995	495
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	—	—	—	—	—
Date of first production delivery	—	—	—	—	—
Display units installed to date	—	—	—	—	—
Serviced by	Factory	Factory	Factory	Factory	Factory
COMMENTS	Quantity discounts available	Quantity discounts available	Purchase prices: HT/6—$1,795; HT/7—$7,595; HT/8—$3,995; Quantity discounts available	Quantity discounts available	Quantity discounts available

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Termiflex CD/20	Texas Instruments 911	Texas Instruments 915	Texas Instruments 940	Tymshare Scanset 410/415
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Both	Both	Stand-alone	Stand-alone
Maximum displays/controller	—	2	1-8	—	1
Transportability	Hand-held/panel	No	No	No	No
IBM compatibility	—	No	No	No	No
Teletype compatibility	Opt.	No	No	Std.	Std.
Other compatibility	Opt.	—	—	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	16	1920	1920	1920	960, 1920
Memory capacity, no. char./lines/pages	16	1 page (cont.)	1 page (cont.)	1 page std., 4 opt.	—
Screen arrangement, lines x chars./line	1 x 16	24 x 80	24 x 80	24 x80, 11 x 132	24 x 40, 24 x 80 plus status line
Screen area, diagonal, inches	—	12	12	12	9
Tilt/swivel screen	—	No	No	Opt.	No
Total displayable symbols	96	128	128	128 std.; 320 opt.	96 ASCII
Symbol formation	18 ele. starburst	5 x 7 dot matrix	5 x 7 dot matrix	7 x 9 dot matrix	5 x 9 dot matrix
Character phosphor	Red LED	Green	Green	White	P4 white
Color capability	—	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	No	No	Std. (prog.)	No
Blink	Opt.	No	No	Std., (prog.)	No
Blank	No	No	No	Std. (prog.)	No
Bold	No	No	No	Std. (prog.)	No
Reverse	No	No	No	Std.	No
Double size	No	No	No	Std.	No
Scroll	No	Std. (prog.)	Std. (prog.)	Std.	No
Paging	No	No	No	Std.	No
Selectable cursor blinking	No	No	No	Std.	—
Addressable/readable cursor	No	Std.	Std.	Both std.	—
Protected format	No	Std.	Std.	Std.	No
Partial screen transmit	No	No	No	Std.	No
Split screen/windows	No	No	No	12 opt.	No
Tabulation	No	Std.	Std.	Fwd./back std.	No
Character insert/delete	Via backspace	Std.	Std.	Std.	No
Line insert/delete	No	Std.	Std.	Std.	No
Erase	No	Std.	Std.	Char./line/field/ screen std.	—
KEYBOARD PARAMETERS					
Style	24 keys	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	24 ASCII	128 ASCII	128 ASCII	ASCII	ASCII
Detachability	No	Std.	No	Std.	No
Program function keys	No	8 std.	8 std.	12 std. (24 functions)	6 std.; 24 functons
Numeric keypad	Std.	Std.	Std.	Std.	No
ANCILLARY DEVICES					
Serial printer, type and speed	No	No	EIA Port	EIA Device	No
Line printer, type and speed	No	No	No	No	No
Composite video	No	Std.	No	No	No
Port for cust.-supplied devices	No	No	No	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Full, half opt.	Full-duplex	Full-duplex	Half/full-duplex	Half/full-duplex
Technique	Asynchronous	Asynchronous	Synchronous	Asynchronous	Asynchronous
Communications protocol	Bit serial	Non-std.	BSC	TTY	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	300/1200/9600	6 MHz	9600	110-19,200	75-1200
Format; character, line, or block	Character	Character	Block	Char./blk/field	Character
Multipoint operation (pollable/addr.)	Opt.	No	No	No	No
Terminal interface	RS-232-C, TTL, 20mA, RS-422	Non-std.	Non-std. sync.	RS-232-C std.; 20mA, RS-422 opt.	RS-232-C
Integral modem	No	No	Std.	No	415 only
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	155 (see comments)	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	495	2,400	3,500	1,895	495 (410); 649 (425)
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	20	53	34	—
Date of announcement	—	1975	1979	1981	2/82
Date of first production delivery	—	4th Q/75	8/79	6/81	—
Display units installed to date	—	—	—	—	—
Serviced by	Factory	Texas Instruments	Texas Instruments	Texas Instruments	Tymshare
COMMENTS	Quantity discounts available			All leased units include 3 pages additional memory, special character sets; screen can be split into 12 regions, vertical & horizontal divisions	Personal information terminals; features include auto dial, speaker, & graphics char.; Model 415 includes built-in modem; manufactured by Matra (France)

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Tymshare Scanset XL	Visual 50	Visual 55	Visual 100	Visual 110
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	—	—	—	—
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	See comments	See comments	DEC VT100/VT52	Data General D200/ D300/6053
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	1920	1920
Memory capacity, no. char./lines/pages	—	—	1 page	1 page	1 page
Screen arrangement, lines x chars./line	24 x 80 plus status line	24 x 80 plus status line	24 x 80 plus status line	24 x 80, 24 x 132	24 x 80, 24 x 132
Screen area, diagonal, inches	9	12	12	12; 14 opt.	12; 14 opt.
Tilt/swivel screen	No	Std.	Std.	Std.	Std.
Total displayable symbols	96 ASCII	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Symbol formation	5 x 9 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix	7 x 7 dot matrix	7 x 7 dot matrix
Character phosphor	P4 white	White; P31 green opt.	White; P31 green opt.	P4 white std.; P31 green opt.	P4 white std., P31 green opt.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	Std.	Std.	Std.	Std.
Blink	No	Std.	Std.	Std.	Std.
Blank	No	Std.	Std.	Std.	Std.
Bold	No	No	No	Std.	Std.
Reverse	No	Std.	Std.	Std.	Std.
Double size	No	No	No	Std.	Std.
Scroll	No	Std.	Std.	Up/down/smooth	Up/down/smooth
Paging	No	No	No	No	No
Selectable cursor blinking	—	Std.	Std.	Std.	Std.
Addressable/readable cursor	—	Std.	Both std.	Std.	Std.
Protected format	No	Std.	Std.	No	No
Partial screen transmit	No	Std.	Std.	No	No
Split screen/windows	No	No	No	Std.	Std.
Tabulation	No	Std.	Std.	Fwd./back std.	Fwd./back std.
Character insert/delete	No	No	Std.	No	No
Line insert/delete	No	Std.	Std.	No	No
Erase	—	Line/field/page 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	128 ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	No	Std.	Std.	Std.	Std.
Program function keys	6 std.; 24 functions	No	No	4 std.	16 std.
Numeric keypad	No	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	Std.	Std.
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
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	ASCII	ANSI	ANSI	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	75-1200	75-19,200	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Character	Char./block	Char./line/block	Character	Character
Multipoint operation (pollable/addr.)	No	—	No	No	No
Terminal interface	RS-232-C	RS-232-C; 20mA opt.	RS-232-C; 20mA opt.	RS-232-C, 20mA	RS-232-C, 20mA
Integral modem	Std.	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	895	695	845	1,695	1,395
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	11/82	6/82	11/82	—	—
Date of first production delivery	2Q/83	7/82	1/83	12/80	6/81
Display units installed to date	—	—	—	—	—
Serviced by	Tymshare	Visual Technology	Visual Technology	Visual Technology	Visual Technology
COMMENTS	Includes integrated telephone, touch-tone dial pad, & 2 phone lines (voice, data)	Features emulation of ADDS Viewpoint, Hazeltine Esprit, Lear Siegler ADM 3A, and DEC VT52; features 31-character line drawing set	Emulations include: ADDS Viewpoint, Hazeltine Esprit, Lear Siegler ADM-3A, and DEC VT52; features character line drawing set	ANSI X3.64 compliant	ANSI X3.64 compliant

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Visual 200	Visual 300	Visual 400	Visual 500	Visual 550
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	—	—	—	—	—
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	See comments	ANSI X3.64	DEC VT100/VT132	See comments	See comments
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	1920	1920	2640	2640
Memory capacity, no. char./lines/pages	1 page	8 pages	4 pages	1 page	1 page
Screen arrangement, lines x chars./line	24 x 80	24 x 80 plus status line	24 x 80, 24 x 132	33 x 80 plus status line	33 x 80 plus status line
Screen area, diagonal, inches	12; 14 opt.	12; 14 opt.	12; 14 opt.	14	14
Tilt/swivel screen	Std.	Std.	Std.	Std.	Std.
Total displayable symbols	128 ASCII	128 ASCII +64 grph.	128 ASCII +64 graph.	128 ASCII	128 ASCII
Symbol formation	7 x 7 dot matrix	7 x 9 dot matrix	7 x 7 dot matrix	10 x 17 dot matrix	10 x 17 dot matrix
Character phosphor	P4 white std., P31 green opt.	P4 white std., P31 green opt.	P4 white std.; P31 green opt.	P39	P39
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	No	Std.	Std.	Std.	Std.
Blink	Std.	Std.	Std.	Std.	Std.
Blank	Std.	Std.	Std.	Std.	Std.
Bold	Std.	Std.	Std.	Std.	Std.
Reverse	No	Std.	Std.	Std.	Std.
Double size	No	No	Std.	No	No
Scroll	Up/down/smooth	Up/down/smooth	Up/down/smooth	Std.	Std.
Paging	No	1 std., 8 opt.	1 std., 4 opt.	No	No
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Std.	Both std.	Both std.	Both std.	Both std.
Protected format	Opt.	Std.	Std.	Std.	Std.
Partial screen transmit	Opt.	Std.	Std.	Std.	Std.
Split screen/windows	No	Std.	Std.	Std.	Std.
Tabulation	Fwd./back std.	Fwd./back std.	Fwd./back 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.	Std.	Std.	Char./line/screen std.	Char./line/screen 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	12 opt.	12 std.	12 std.	12 std.	12 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	Std.	No	Std.	No	No
Port for cust.-supplied devices	Std.	Opt.	Opt.	Std.	Std.
Other vendor-supplied devices	—	—	—	—	—
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	ASCII	ASCII	ASCII	ASCII	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-19,200	50-19,200	50-19,200	50-19,200	50-19,200
Format; character, line, or block	Char. std.; blk. opt.	Char./line/block	Char./line/block	Char./line/block	Char./line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA	RS-232-C, 20mA std.	RS-232-C, 20mA std.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	1,205	1,150	1,650	2,495	2,695
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	—	—	—	8/82	4/82
Date of first production delivery	4/79	9/81	6/81	9/82	5/82
Display units installed to date	—	—	—	2,000 (1/83)	3,000 (1/83)
Serviced by	Visual Technology	Visual Technology	Visual Technology	Visual Technology	Visual Technology
COMMENTS	Emulations include: ADDS 520, DEC VT52, Lear Siegler ADM 3A	Block graphic & 16 line drawing character set std.; menu-style setup	ANSI X3.64 compliant	Emulations include: Hazeltine 1500, Data General Dasher 200, Lear Siegler ADM-3A, and DEC VT52; In graphics mode Tektronix 4010, 4014 is code compatible with raster size of 768 x 585 pixels (¾ scale)	Alphanumeric code compatible to DEC VT100 and ANSI X3.64. in alpha graphics mode Tektronics 4010, 4014 is code compatible with raster size of 768 x 585 pixels (¾ scale)

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Western Union Video 100	Westinghouse Canada Model 1625	Westinghouse Canada Model W1640	Westinghouse Canada Model W1640 VIP Dual	Westinghouse Canada Model W1642
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Either	Either	Either; sw. select.	Either
Maximum displays/controller	1	48	48	322	48
Transportability	No	No	No	No	No
IBM compatibility	No	IPARS	No	No	IPARS
Teletype compatibility	Std.	Opt.	No	No	Opt.
Other compatibility	—	Honey. VIP7700, Uniscope 100/200 opt.	Honey. VIP 7700, Uniscope 100/200 opt.	Honey. 7700/7800	Univac UTS 20, Uniscope 100
DISPLAY PARAMETERS					
Display capacity, no. of chars.	960, 1920	1920	1920; 2000 opt.	1920, 2000	2000
Memory capacity, no. char./lines/pages	—	80/24/1; 3/5 pp. opt.	80/25/1; multi opt.	1920/24/1;3	80/25/1; multi opt.
Screen arrangement, lines x chars./line	12 x 80, 24 x 80	24 x 80	24 x 80 plus status line	24 x 80, 25 x 80	24 x80 plus status line
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	No	Opt.	Opt.	Tilt, swivel, hgt. opt.	Opt.
Total displayable symbols	64; 95 opt.	126 ASCII; 254 opt.	94 ASCII + opt.	94 + 11 graphics	94 ASCII + opt.
Symbol formation	5 x 7 dot matrix	5 x 7 dot matrix	5 x 7/7 x 9 dot	5 x 7	5 x 7/7 x 9 dot
Character phosphor	P4 white std.	P31 green std.	P31 green std.	P31 green std.	P31 green std.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Field std.	Field std.	Std.	Field std.
Blink	No	Field std.	Field std.	Std.	Field std.
Blank	No	Field opt.	Field std.	Std.	Field std.
Bold	No	Std.	Std.	No	Std.
Reverse	No	Field opt.	Opt.	No; std. (7800)	Field opt.
Double size	No	No	No	No	No
Scroll	Up std.	Up/down std.	Opt.	No; up/down std.)	Opt.
Paging	No	1st; 3/5 opt.	Opt.	No	Opt.
Selectable cursor blinking	No	No	Opt.	No	Opt.
Addressable/readable cursor	Addressable opt.	Both std.	Add. std.; Read opt.	Both std.	Add. std.; Read opt.
Protected format	No	Std.	Std.	Std.	Opt.
Partial screen transmit	No	Std.	Std.	Std.	Std.
Split screen/windows	No	2 opt.	2 opt.	No	Opt.
Tabulation	No	Fwd./back std.	Fwd./back std.	Fwd./back tab std.	Fwd./back std.
Character insert/delete	No	Std.	Std.	Std.	Std.
Line insert/delete	No	Std.	Std.	Std.	Std.
Erase	No	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	64 ASCII	126 ASCII	94 ASCII	128 ASCII	94 ASCII
Detachability	No	Std.	Std.	Std.	Std.
Program function keys	No	7 std.; up to 19 opt.	7 std.; up to 19 opt.	6 std.; 17 std. (7800)	Up to 32 user-defined
Numeric keypad	Opt.	Std.	Std.	Std.	Opt.
ANCILLARY DEVICES					
Serial printer, type and speed	10/30/120 impact	30-60 cps impact	30-60 cps impact	No	30-60 cps impact
Line printer, type and speed	No	No	No		No
Composite video	No	Opt.	No	No	No
Port for cust.-supplied devices	Std.	Std.; Aux. opt.	Std.	RS-232-C std.	Std.
Other vendor-supplied devices	Cassette tape drive	—	—	Opt. cluster controller, W1654	Credit card reader, embedded numeric pad w/calculator functions
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half/full-duplex	Half std.; full opt.
Technique	Asynchronous	Async./sync.	Synchronous	Synchronous	Async./sync.
Communications protocol	ASCII	Various opt.	Honey., Univac opt.	Honeywell VIP	Various opt.
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-19,200	50-9600	Up to 9600	Up to 9600	Up to 9600
Format; character, line, or block	Character	Blk. std.; char./line opt.	Block	Block/line (7800)	Block
Multipoint operation (pollable/addr.)	No	Std.	Std.	Pollable/address. std.	Std.
Terminal interface	RS-232-C	RS-232-C; 20mA, party line opt.	RS-232-C; party line opt.	RS-232-C; 5-cond. party line	Party line; RS-232-C opt.
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	53	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	325-350	2,600	2,800	3,065 (U.S.)	2,400
Controller, purchase, $	—	650	1,565	1,500 (U.S.)	425
Monthly prime-shift maint., $/mo.	15	Contact vendor	Contact vendor	—	Contact vendor
Date of announcement	8/75	6/76	2/80	—	5/80
Date of first production delivery	12/75	11/76	1/81	2/83	3/81
Display units installed to date	7500	8000	1800	—	2300
Serviced by	Western Union	WCI, third party	WCI, third party	WCI, third party	WCI, third party
COMMENTS	Built by Lear Siegler as ADM 3/3A; quantity discounts available	A base design CRT which can be supplied with customer firmware & I/O configured to meet specific customer requirements	A base design CRT which can be supplied with customer firmware & I/O configured to meet specific customer requirements	In cluster operation, from 1 to 7 printers may be shared by terminals for local printing without communication to the host	A base design CRT which can be supplied with customer firmware & I/O configured to meet specific customer requirements

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Wyse WY-100	Wyse WY-200	Wyse WY-210	Wyse WY-220	Xerox 1330
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Either
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	No	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	Std.	Std.	Std.	Std.
Other compatibility	—	—	—	—	XCS network
DISPLAY PARAMETERS					
Display capacity, no. of chars.	1920	2080, 3432	2080, 3432	2080, 3432	1920
Memory capacity, no. char./lines/pages	1 page std.; 2 opt.	32K	128K	128K	2 pages
Screen arrangement, lines x chars./line	24 x 80 plus 2 status lines	24 x 80/132 plus 2 status lines	24 x 80/132 plus 2 status lines	24 x 80/132 plus 2 status lines	24 x 80
Screen area, diagonal, inches	12	14	14	14	12
Tilt/swivel screen	Std.	Std.	Std.	Std.	No
Total displayable symbols	128 ASCII	256 (ASCII & spec.)	256 (ASCII & spec.)	256 (ASCII & spec.)	128 ASCII
Symbol formation	8 x 10 dot matrix	8 x 10 dot matrix	8 x 10 dot matrix	8 x 10 dot matrix	9 x 11 dot matrix
Character phosphor	Green	Green	Green	Green	P4 white std.
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	Std.	Std.	Opt.
Blink	Std.	Std.	Std.	Std.	Opt.
Blank	Std.	Std.	Std.	Std.	Opt.
Bold	No	Std.	Std.	Std.	Opt.
Reverse	Std.	Std.	Std.	Std.	Opt.
Double size	No	Std.	Std.	Std.	No
Scroll	Std.	Std., smooth	Std., smooth	Std., smooth	No
Paging	Std.	Std.	Std.	Std.	2 std.
Selectable cursor blinking	Std.	Std.	Std.	Std.	Std.
Addressable/readable cursor	Addressable only	Std.	Std.	Std.	Both std.
Protected format	Std.	Std.	Std.	Std.	No
Partial screen transmit	Std.	Std.	Std.	Std.	No
Split screen/windows	Std.	Std.	Std.	Std.	No
Tabulation	Std.	Std.	Std.	Std.	Std.
Character insert/delete	Std.	Std.	Std.	Std.	Std.
Line insert/delete	Std.	Std.	Std.	Std.	Std.
Erase	Line/page/field std.	Std.	Std.	Std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	ASCII	ASCII	ASCII	ASCII	128 ASCII
Detachability	Std.	Std.	Std.	Std.	No
Program function keys	8 std.	8 std.	8 std.	8 std.	9 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	No
Port for cust.-supplied devices	Std.	Std.	Std.	Std.	Opt.
Other vendor-supplied devices	—	—	—	—	—
TRANSMISSION PARAMETERS					
Mode	Half/full-duplex	Full-duplex	Full-duplex	Full-duplex	Either
Technique	Asynchronous	Async./sync.	Async./sync.	Async./sync.	Asynchronous
Communications protocol	ASCII/TTY	TTY	TTY	TTY	ASCII
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	50-9600	Up to 19,200	Up to 19,200	Up to 19,200	50-9600
Format; character, line, or block	Char./block	Char./block	Char./block	Char./block	Line/block
Multipoint operation (pollable/addr.)	No	No	No	No	No
Terminal interface	RS-232-C std., 20mA opt.	RS-232-C	RS-232-C	RS-232-C	RS-232-C, 20mA
Integral modem	No	No	No	No	No
Integral acoustic coupler	No	No	No	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	—	—	—	—	102
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	995	1,295	1,595	1,695	1,550
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	30
Date of announcement	10/81	—	—	—	11/79
Date of first production delivery	12/81	—	—	—	11/79
Display units installed to date	—	—	—	—	700
Serviced by	Wyse Technology	Wyse Technology	Wyse Technology	Wyse Technology	Sorbus
COMMENTS					

Alphanumeric Display Terminals

SUPPLIER AND MODEL	Zenith Z-19	Zenith Z-29	Zenith ZT-1	Zentec Cobra	Zentec Zephyr
TERMINAL DESCRIPTION					
Stand-alone or cluster	Stand-alone	Stand-alone	Stand-alone	Stand-alone	Stand-alone
Maximum displays/controller	1	1	1	1	1
Transportability	No	No	Yes	No	No
IBM compatibility	No	No	No	No	No
Teletype compatibility	Std.	No	Std.	Std.	Std.
Other compatibility	ANSI, DEC VT52	ANSI & DEC VT52	DEC VT52	—	—
DISPLAY PARAMETERS					
Display capacity, no. of chars.	2000	2000	2000	2000	2000
Memory capacity, no. char./lines/pages	2000 char.	—	—	4000/25/2	4000/25/2
Screen arrangement, lines x chars./line	24 x 80 plus 25th user line	24 x 80 plus 25th user line	25 x 80	25 x 80	25 x 80
Screen area, diagonal, inches	12	12	12	12	12
Tilt/swivel screen	No	Yes	No	Std.	No
Total displayable symbols	95 ASCII + 33 graph.	128 (91 ASCII + 33h)	128 ASCII	128 ASCII	128 ASCII
Symbol formation	5 x 7/5 x 9 dot	5 x 7 dot matrix	8 x 10 dot matrix	7 x 9 dot matrix	7 x 9 dot matrix
Character phosphor	P31 green std., P4 white opt.	P31 green	P31 green	P4 white std., P31 green opt.	P4 white
Color capability	No	No	No	No	No
Programmable field/char. highlighting via:					
Underline	Std.	Std.	No	Std.	Std.
Blink	No	Std.	Std.	Std.	Std.
Blank	No	Std.	No	Std.	Std.
Bold	No	Std.	No	No	Std.
Reverse	Std.	Std.	Std.	Std.	Std.
Double size	No	No	No	No	No
Scroll	Up/down std.	Std.	No	Up/down Std.	Up/down std.
Paging	No	No	No	2 std.	2 std.
Selectable cursor blinking	Std.	Std.	Std.	—	No
Addressable/readable cursor	Both std.	Both std.	Addressable only	Both std.	Both std.
Protected format	No	Std.	No	Std.	Std.
Partial screen transmit	No	No	No	Std.	Std.
Split screen/windows	No	No	No	No	No
Tabulation	Fwd. std.	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.	Std.	Line/page std.	Char./line/screen std.	Char./line/screen std.
KEYBOARD PARAMETERS					
Style	Typewriter, data entry	Typewriter	Typewriter	Typewriter	Typewriter
Character/code set	ASCII	ASCII	128 ASCII	128 ASCII	128 ASCII
Detachability	No	Std.	Std.	Std.	No
Program function keys	8 std.	9	4 std.	16 std. (32 codes)	16 std. (32 codes)
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	Std.	No	No
Port for cust.-supplied devices	Std.	No	Std.	Std.	Opt.
Other vendor-supplied devices	Auto-dial modem	—	—	—	—
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	ASCII	DC1-DC3	ASCII	—	—
Code	ASCII	ASCII	ASCII	ASCII	ASCII
Speed, bits/second	110-9600	75-19,200	110-2400	110-19,200	110-19,200
Format; character, line, or block	Char./block	Char./block	Character	Char./line/block	Char./line/block
Multipoint operation (pollable/addr.)	No	RS-232-C	No	—	No
Terminal interface	RS-232-C	—	RJ-11C, RF-12C, RJ-13C RS-232-C	RS-232-C, 20mA	RS-232-C, 20mA
Integral modem	No	No	Std.	No	No
Integral acoustic coupler	No	No	—	No	No
PRICING AND AVAILABILITY					
Display station, 2-year lease, $/mo.	Contact dealer	—	—	—	—
Controller, 2-year lease, $/mo.	—	—	—	—	—
Display station, purchase, $	895	849	699	938-1125*	1,350
Controller, purchase, $	—	—	—	—	—
Monthly prime-shift maint., $/mo.	—	—	—	—	—
Date of announcement	—	1/83	4/82	4/82	—
Date of first production delivery	6/79	—	—	—	1/80
Display units installed to date	—	—	—	—	—
Serviced by	Zenith Data Systems	Zenith Data Systems	Zenith	Zenith	Zentec and distributors
COMMENTS	Available in kit version as Heathkit H-19A-$695; 90-day on-site service under warranty; follow-on service contract available; 300 Zenith svc. ctrs.; 75 Heathleit elec. ctrs.	Emulates: DECVT 100, Lear Siegler ADM-3A, Hazeltine 1500; includes: power-up diagnostics; on-screen configuration; subscript/superscript; screen saver feature	Stores up to 26 names and telephone numbers; The Source DOW Jones, Compuserve, Compu-Store account numbers provided; can be used as telephone	*Based on OEM quantity 100	OEM discounts available

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TABLE 3. USER RATINGS OF CLUSTERED TERMINAL SYSTEMS—IBM 3270 & COMPATIBLE (Continued)

Manufacturer & System	Reliability of Peripherals					Maintenance Service					Technical Support					Would you recommend this system to another user?		
	WA	E	G	F	P	WA	E	G	F	P	WA	E	G	F	P	Yes	No	Undecided
Harris—																		
all models	3.3	1	2	0	0	3.7	2	1	0	0	3.0	0	3	0	0	3	0	0
IBM—																		
3274	3.4	34	39	3	1	3.2	27	40	11	1	3.0	20	43	14	2	57	3	5
3276	3.3	3	4	1	0	3.0	2	5	2	0	2.6	1	5	1	2	5	1	1
3270, others & unspecified	3.3	23	29	6	0	3.2	22	28	9	2	2.8	11	30	19	1	50	2	2
3600	3.0	1	6	1	0	3.2	2	7	0	0	2.4	2	1	5	1	7	2	0
5250	3.0	1	1	1	0	3.3	1	2	0	0	2.7	1	1	0	1	2	0	1
Subtotals	3.3	62	79	12	1	3.2	54	82	22	3	2.9	35	80	39	7	121	8	9
ITT Courier—																		
270	2.8	2	7	2	1	2.5	2	4	4	2	1.9	0	2	7	3	4	3	2
Memorex—																		
137X	3.2	2	3	1	0	2.8	1	3	2	0	2.7	0	4	2	0	3	0	2
Northern Telecom—																		
290	2.5	0	3	3	0	2.3	0	4	1	2	2.3	0	2	5	0	3	1	0
Racal-Milgo—																		
4270	2.3	1	0	1	1	3.3	2	0	1	0	2.3	0	2	0	1	1	1	1
Raytheon—																		
PTS-100	2.6	1	3	2	1	2.6	1	3	2	1	2.3	0	2	5	0	4	2	1
PTS-2000	2.5	0	2	2	0	2.6	0	4	0	1	2.2	0	1	4	0	2	2	1
Subtotals	2.6	1	5	4	1	2.6	1	7	2	2	2.3	0	3	9	0	6	4	2
Telex—																		
270	2.8	0	3	1	0	2.8	1	2	2	0	2.8	2	0	3	0	2	1	1
Teletype—																		
40	3.0	4	4	2	1	2.8	2	5	4	0	2.6	2	4	4	1	6	2	0
4540	3.7	6	3	0	0	3.6	6	2	1	0	3.2	4	3	2	0	8	0	0
Subtotals	3.3	10	7	2	1	3.2	8	7	5	0	2.9	6	7	6	1	14	2	0
All others	3.2	1	5	0	0	3.3	2	4	0	0	3.2	2	3	1	0	6	0	0
GRAND TOTALS	3.2	80	114	26	5	3.1	73	114	39	9	2.8	45	106	72	12	163	20	17

LEGEND: Weighted Average (WA) is based on assigning a weight of 4 to each user rating of Excellent (E), 3 to Good (G), 2 to Fair (F), and 1 to Poor (P).

Another question requested that the users indicate any commercial *local* networks which they operate. Only 13 percent of the users answered this question. A summary of these 57 responses is shown below:

	Number of Responses	Percent of Responses
Ethernet (Xerox)	10	18
ARC (Datapoint)	9	16
Hyperchannel (Network Systems)	3	5
LocalNet (Sytek)	3	5
Wangnet (Wang)	3	5
Net/One (Ungermann-Bass)	2	4
Other	27	47
	57	100

Local area networking is being strongly promoted by the industry, and new vendors are entering that market at a significant rate. We expect user acceptance of the local area network concept to be reflected in fugure editions of this survey.

The users were also asked to indicate the total number of end-user workstations (CRTs, teleprinters, etc.) that are in use on their networks:

	Number of Responses	Percent of Responses
1 to 10 terminals	41	9
11 to 25 terminals	46	11
26 to 100 terminals	134	30
100 to 500 terminals	128	29
Over 500 terminals	93	21
	442	100

When examined in conjunction with Questions 1 and 2, these results characterize the typical (median) respondent to the survey as having a network configuration consisting of approximately 10 to 20 sites, two or three hosts, and between 100 and 200 terminals (an average of 10 per site).

We then asked the users to indicate for what types of applications these terminals were being used *now*, and what types of new applications they expected to implement within the next two years. The results follow:

	Percent of Total Responses		
	Now	Within 2 years	No immediate plans
Inquiry/response	85	4	3
Program development	81	4	5
Interactive data entry	81	9	2

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	Percent of Total Responses		
	Now	Within 2 years	No immediate plans
System console	64	3	11
Batch data entry	59	8	13
Remote job entry	54	9	15
Text editing/word processing	48	29	8
Intra-company message traffic	36	31	16
Distributed processing/local file maintenance	35	23	20
Business graphics	20	28	25
Other	5	2	5

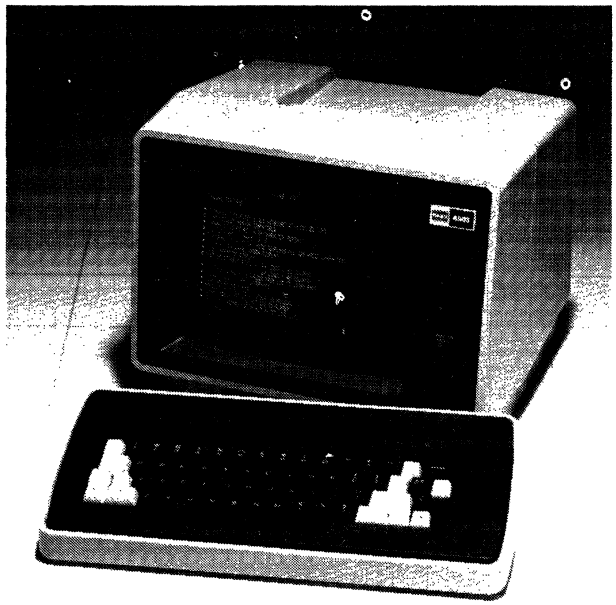
These results reveal the stability of the traditional applications, such as inquiry/response, program development, and data entry, and more interestingly, the projected growth for newer applications, such as word processing, electronic mail, distributed processing, and business graphics. Fully one-quarter to one-third of these users are planning to add one or more of these capabilities in the next two years!

The final question in the first part of the questionnaire provided a list of ten possible sources of networking problems, and asked the respondent to indicate whether they had had any problems related to each possible source, with these results:

	Percent of Total Responses		
	Severe or frequent problems	Less severe or occasional problems	No problems
Non-local comm. lines	12	51	20
Local loops	9	29	42
Front-end software	5	37	41
Terminals	4	60	27
Host software	4	50	35
Terminal controllers	4	38	40
Front-end hardware	3	31	48
Modems	3	50	38
Host hardware	3	44	41
Multiplexers	1	23	45

Not unexpectedly, the area of these users' networks that causes the most headaches is their communications lines. Although few users experience severe or frequent problems with their terminals, these devices seem to be the greatest single source of minor or sporadic problems. The least frequently experienced source of problems is multiplexer equipment.

The remaining parts of the questionnaire focused on specific categories of terminals and terminal systems. Users were asked to list the specific vendors and types of equipment they are using in their networks, and to provide user ratings based on their experiences with each. The Display Terminal section of the questionnaire asked the user to provide the manufacturers and model numbers of each type of display currently in use, the number of units installed, and ratings of six specific categories of user experience: overall performance, ease of operation, display clarity, keyboard feel and usability, hardware reliability, and maintenance service/technical support.



Nabu Commercial Terminals (formerly Volker-Craig) provides a family of low-priced ASCII terminals. The Nabu 4503, priced at $495, is the company's entry-level offering. The 4503 contains a 12-inch display and detachable keyboard, transmits in conversational (character-by-character) mode, and is compatible with the Lear Siegler ADM 3A.

Another section asked users to provide similar information about their multi-station clustered terminal systems. All non-programmable clustered systems rated were IBM 3270 and compatible systems. Specific categories rated include: overall performance, ease of operation, reliability of controller, reliability of peripherals, maintenance service, and technical support.

Summaries of the results of these questions for all non-programmable display terminal models, and clustered display terminal systems, are shown in Tables 1 and 2.

The Datapro Research staff extends a sincere thanks to all for responding so enthusiastically to our 1982 Terminal Users Survey. Without your participation, it could not have been the terrific success it is, and we hope that this compendium of user experience will be of significant value to you. We look forward to hearing from you again.

DISPLAY TERMINAL CHARACTERISTICS

The accompanying comparison charts summarize the characteristics of 302 commercially available alphanumeric display terminals from 92 vendors. Nearly all of the information was supplied by the manufacturers during the months of November and December 1982. Their cooperation is acknowledged and greatly appreciated.

Datapro sent repeated requests for information to over 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