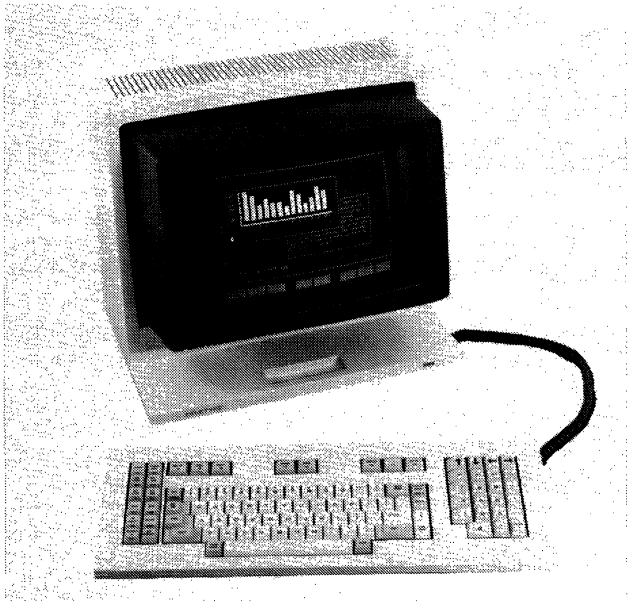
AT&T 4400 Series Display Terminals



The 4425 is AT&T's high-end asynchronous display terminal offering. The terminal is buffered and features horizontal split screen, windowing, 80-/132-column display capability, and compatibility with both the Unix operating system and the Digital VT102 display. An integral modem is optional.

The 4400 Series is AT&T's latest generation of ASCII display terminal products, replacing the older 4400 models. The 4400 Series was formerly marketed as the 5400 Series by AT&T Teletype. Models 4410 and 4425 are ANSI X3.64-compliant terminals. Model 4418 is an asynchronous terminal that is designed to function in an IBM 3270 environment when used with a protocol converter.

MODELS: 4410, 4418, and 4425.
DISPLAY: All models contain a 12-inch display with 80/132-column display capability; amber or white phosphor characters may be selected. All models have a tiltable display.
KEYBOARD: The 5410 and 5425 feature a typewriter-style keyboard with 8 function keys; the 5418 features an IBM 3278-style keyboard with 24 function keys. Keyboards are detachable, and contain a low-profile design with height adjustment.
COMPETITION: Wyse Technology, TeleVideo Systems, Applied Digital Data Systems (ADDS), Lear Siegler, Esprit Systems, and several others.
PRICE: Purchase prices for the 4400 Series terminals range from $902 to $1,720.

MANAGEMENT SUMMARY

UPDATE: *This report reflects the removal of the Teletype name from all AT&T display terminals. Teletype (based in Skokie, IL) has been absorbed into the Computer Systems Division of AT&T Information Systems; it remains the manufacturing arm of AT&T-IS.*

Since 1930, Teletype Corporation was responsible for manufacturing and supplying the Bell System's teletypewriter equipment and, in recent times, computer display terminals and printers. The Bell System used Teletype products internally and resold them to end users on a tariffed basis. In addition, Teletype marketed its own products on a nontariffed basis directly to end users, and through a large network of dealers, distributors, leasing companies, and OEMs.

The AT&T divestiture and deregulation have changed most of that. Teletype has been absorbed into the Computer Systems Division of AT&T Information Systems, and its Teletype and Dataspeed labels have disappeared from view. The company was known for a while as "AT&T Teletype," but now products coming out of Skokie display only the AT&T logo. Some AT&T-IS terminal equipment is obtained from other OEMs, as well.

AT&T's family of display terminals encompasses the 4400 Series, the E4540 Series (an IBM 3270-compatible line), Model 5620 (a bit-mapped graphics display), and the 6500 Series (multifunctional replacements for the IBM 3270

CHARACTERISTICS

VENDOR: AT&T Information Systems, 1 Speedwell Avenue, Morristown, NJ 07960. Telephone (201) 898-2000. In Canada: AT&T Canada, 1500 Don Mills Road, Don Mills, Ontario M3B 3K4. Telephone (416) 449-4300.

DATE OF ANNOUNCEMENT: 4410—April 1983; 4418—May 1984; 4425—September 1984.

DATE OF FIRST DELIVERY: 4410—Third quarter 1983; 4418—May 1984; 4425—October 1984.

NUMBER DELIVERED TO DATE: Information not available.

SERVICED BY: AT&T Information Systems.

MODELS

The 4400 Series currently consists of the following three models.

- **4410—an asynchronous, conversational terminal. The 4410 conforms to the ANSI X3.64 standard. It provides 80/132-column display capability, horizontal split screen, editing capabilities, and five display attributes.**
- **4418—an asynchronous, conversational terminal that features IBM 3270 emulation when used in conjunction with a protocol converter. It provides 80-/132-column display capability, conforms to the ANSI X3.64 standard, and includes an IBM 3278-style keyboard.**

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line) of products. The 4400 Series, E4540 Series, and 5620 are equivalent to the former Teletype 5000 Series; the 6500 Series are new products.

The 4400 Series currently consists of models 4410, 4418, and 4425. The 4410 is a conversational, asynchronous, ASCII display based on the ANSI X3.64 standard. It features a monochrome 80-/132-column display, full editing, horizontal split screen, eight programmable function keys, visual attributes, and business graphics. The 4418 is similar to the 4410 but has an IBM 3270 look-alike keyboard, and is designed to replace a more expensive IBM 3270 terminal when used with a protocol converter. The 4425 is a buffered terminal that provides up to 78 lines of display in memory (80 column mode), and is compatible with Digital Equipment Corporation VT102/VT52 display terminals as well as the ANSI X3.64 standard. The 4425 features 38 function keys and four fixed-program function keys.

The 4400 Series terminals are designed for general-purpose asynchronous applications, as well as for use with AT&T's 3B line of computers.

COMPETITIVE POSITION

Prior to AT&T's divestiture, Teletype Corporation possessed what was, essentially, a built-in market. The company's products were sold primarily to the Bell Operating Companies (BOCs) for their internal use or for resale to their customers. At that time, as much as 40 percent of Teletype's revenues were attributed to their business with the BOCs. As part of Computer Inquiry II, the BOCs were forbidden to sell new premises equipment to users during 1983. Also as part of Computer Inquiry II, Teletype was prohibited from selling its products directly to end users. With the AT&T divestiture, the BOCs were divested from AT&T, thus loosening, to some extent, Teletype's hold on them. Teletype remains a part of AT&T, while the BOCs are now free to purchase equipment from whatever source they prefer.

All of this forced Teletype (which soon became AT&T Teletype) to change its strategy in the new, deregulated marketplace. As a result, the company poured more money into research and development, beefed up marketing, cut manufacturing costs in order to reduce prices, and established new distribution channels.

In 1985, AT&T Teletype became a wholly owned subsidiary of the Computer Systems Division of AT&T Information Systems. All sales and marketing for Teletype terminals was relocated to AT&T-IS headquarters in Morristown, New Jersey. Teletype, based in Skokie, Illinois, will remain the manufacturing arm for the production of asynchronous and synchronous data terminals. However, the Teletype logo will no longer be found on the terminals.

The 4400 line of asynchronous terminals competes with terminal product lines from independent vendors such as Wyse Technology, TeleVideo Systems, Lear Siegler, Applied Digital Data Systems (ADDS), Esprit Systems, Visual Technology, and several others. For general-purpose appli-

- **4425—an asynchronous, buffered terminal. The 4425 contains all of the features of the 4420, plus Unix operating system compatibility and Digital VT102 terminal compatibility.**

TRANSMISSION SPECIFICATIONS

For the 4400 terminals, transmission is asynchronous, in half or full duplex, at speeds up to 19,200 bits per second; isochronous transmission is selectable on the 4425. Multipoint operation is available on all models except the 4410. All models conform to both the ASCII and ANSI X3.64 communications protocols. Vertical parity generation and detection options are available. All models provide an EIA RS-232-C interface, as well as an auxiliary EIA RS-232-C printer interface. A self-test capability is standard. An integral modem/dialer is optionally available on all models. The integral modem is compatible with 212A-type modems for operation at 1200 or 300 bps.

DEVICE CONTROL

The 4410 and 4418 conversational display terminals transmit data a character at a time as it is keyed. The option menu is displayed on the screen in a "plain English" manner. Eight user- or host-programmable function keys are included on the 4410, each of which has up to a 50-character per key capacity in nonvolatile memory. Each function key has a corresponding screen label, with up to 16 characters displayable on each label. The 4418 contains 24 function keys. When used with a protocol converter, the 4418 emulates the IBM 3278 for both local and remote communications. The 4418 features single-key access to all 3278-like keystrokes.

Visual display attributes available on the 4410 and 4418 include normal, blank, half intensity, blink, underline, and reverse video. The display screen may be horizontally split into a maximum of two static regions and one scrolling region. Editing capabilities include character and line insert/delete, as well as clear functions. Line drawing and special symbol graphics are available. The 4410 and 4418 conform to the ANSI X3.64 standard.

The 4425 buffered display can transmit data a character at a time from the keyboard, or by line/page/block from the display. Up to 78 lines of display memory are available when using the 80-column display format, and up to 54 lines of memory are available when using the 132-column display format. The 4425 contains all of the basic operating features of the 4410 and 4418 (including visual attributes and editing), plus some additional features not found on the conversational models, including single or multiple character or line insert/delete. The 4425 is compatible with the Unix operating system and with the Digital VT102 display terminal.

The 4425 provides three separate methods to access and manipulate the display memory; scroll mode, horizontal split screen, and windowing. Scroll mode allows the operator to scroll through display memory. The horizontal split screen feature is the same as found on the 4410 and 4418, with one scrolling region and two static regions. With windowing, the 4425's memory can be divided into a maximum of four rectangles of varying lengths and widths, called workspaces. A window or viewport into each workspace can be created, and its position defined and located on the screen. One viewport can be overlapped or eclipsed with another.

The optional integral modem feature allows the 4410, 4418, and 4425 displays to plug directly into a telephone line for manual dialing of calls from the keyboard, automatic dialing of stored numbers, or automatic repeat dialing. A security feature hides all or part of the dial command log-on string.

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cations, AT&T will also go up against terminals from computer vendors like Digital Equipment Corporation and IBM. However, the chief market for the AT&T terminals will be for use with AT&T's 3B line of computers. It is this market that will assure AT&T of continuing to hold the large market share that Teletype managed to carve out.

ADVANTAGES AND RESTRICTIONS

Teletype's products have traditionally maintained a reputation for exceptionally good functionality and reliability, as well as for their rather high price tags. The AT&T 4400 Series terminals retained the high degree of functionality offered by their predecessors, but prices have fallen somewhat to reflect the current trends in the display terminal market. Still, the AT&T terminals are priced higher than many comparable terminals from the independent vendors. For the money, the AT&T terminals feature a variety of attractive features; these include 80-/132-column display capability, windowing (on the buffered models), and ANSI X3.64 compatibility. UNIX operating system compatibility and Digital VT102 compatibility have been implemented on the 5425. An optional integral modem/dialer has also been added to the line. All AT&T 4400 Series terminals include a tiltable display and a detachable, low-profile keyboard.

USER REACTION

In Datapro's 1985 Terminal Users Survey, conducted in conjunction with *Data Communications* magazine, a total of 32 users of the AT&T 4400 Series (then AT&T Teletype 5400 Series) display terminals responded. These users represented an installed base of approximately 1,500 units. The users were asked to rate their terminals with respect to seven specific categories. Their responses are summarized in the following table.

	Excellent	Good	Fair	Poor	WA*
Overall performance	26	5	1	0	3.8
Ease of operation	24	7	1	0	3.7
Display clarity	25	4	1	1	3.7
Keyboard feel & usability	13	15	3	0	3.3
Ergonomics	21	7	3	0	3.6
Hardware reliability	25	5	1	0	3.8
Mfr.'s maintenance service/technical support	24	5	2	0	3.7

*Weighted Average on a scale of 4.0 for Excellent.

When asked whether or not they would recommend the 4400 Series terminals to other users, 26 of the respondents answered that they would; the remaining six did not answer the question. When asked what factors *most* influenced their decision to purchase the AT&T terminals, nearly half (48 percent) cited the terminals' features and/or functionality. □

Screen labels are available to simplify dialing, and call progress status and prompts are displayed on the screen's 25th display line.

COMPONENTS

4410/4418/4425 DISPLAY UNITS: Include a 12-inch (diagonal) display screen, capable of displaying 24 lines of 80 or 132 characters. One status line is available, plus 2 lines for screen labels. Characters are formed utilizing a 7-by-9 dot matrix with descenders in a 9-by-13 field (80-column format), or using a 5-by-7 dot matrix with descenders in a 7-by-13 field (132-column format). White or amber phosphor characters are available. Two character sets are selectable: 128 ASCII alphanumeric plus control characters, or 96 line drawing and special graphic characters. Other character sets available include United Kingdom, videotex mosaics, and securities industry. The screen features 7 tilt positions, a nonglare finish, and brightness control.

4410/4425 KEYBOARDS: Feature a typewriter-style layout with a separate numeric cluster and 8 programmable function keys. Function keys offer 16 functions: 8 defined by the host and 8 defined by the user. Each function key is capable of storing 80 characters per key. The 4425 provides 11 additional function keys, shiftable to provide 22 functions.

4418 KEYBOARD: Features a layout similar to that found on the IBM 3278, including 24 function keys. Otherwise, the 4418 keyboard contains the same features found on the 4410 and 4425 keyboards, including a low-profile design, tilt adjustments, and detachability.

PRICING

The AT&T 4400 Series display terminals are available for purchase only. Quantity discounts are available on the following schedule: 25 to 49 units—10 percent; 50 to 99 units—15 percent; 100 to 199 units—20 percent; 200+ units—25 percent.

Maintenance service for the 4400 Series terminals is available from AT&T Information Systems field personnel. Maintenance contracts are available on a yearly basis.

EQUIPMENT PRICES

	Purchase Price ($)
4410 Display Terminal	902
4418 Display Terminal	1,080
4425 Display Terminal	1,265-1,720 ■

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