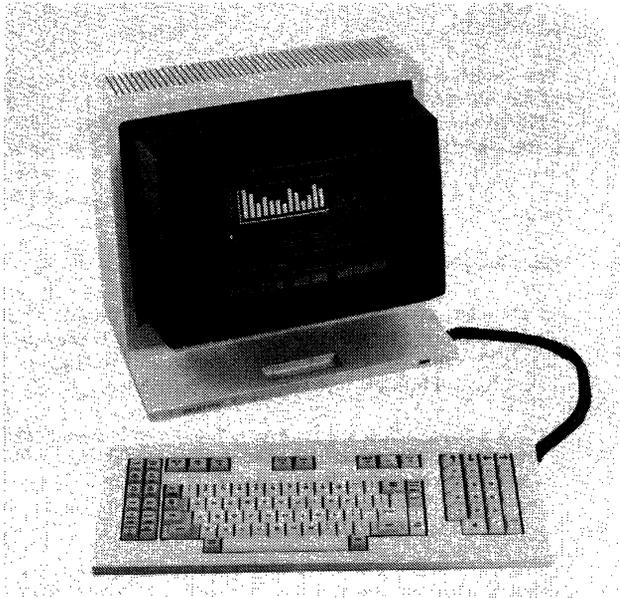


AT&T Teletype 5000 Series Display Terminals



The 5425 is AT&T Teletype'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 DEC VT102 display. An integral modem is optional.

MANAGEMENT SUMMARY

The 5000 Series products are AT&T Teletype's new generation of display terminals. (As a by-product of divestiture, Teletype Corporation recently changed its name to AT&T Teletype.) These new products cover a broad field, with new terminals for four different application areas: asynchronous conversational, asynchronous buffered, IBM 3270-compatible, and intelligent dot-mapped graphics. This report will cover AT&T Teletype's products in the first three application areas only.

The 5400 family is AT&T Teletype's asynchronous display terminal product line. It consists of two conversational terminals (5410 and 5418) and two buffered terminals (5420/2 and 5425). The 5410 Display is a low-priced, character mode asynchronous terminal. The 5410 conforms to the ANSI X3.64 standard, and contains several features not normally associated with conversational terminals. These include: 80/132-column display capability; horizontal split screen; eight programmable function keys with associated screen labels; full editing features and visual attributes; and graphics capabilities.

The 5420/2 is a buffered version of the 5420 (a production which is no longer offered). The 5420/2 provides up to 78 lines of display memory in 80-column mode (54 lines in 132-column mode). In addition to the horizontal split screen capability, a scroll mode and windowing capability are provided in order to access and manipulate the 5420/2's

The 5000 Series is AT&T Teletype's latest generation of display terminal products, replacing the 4400 and 4540 product lines. The 5000 Series consists of two separate families of products: the 5400 asynchronous terminals, and the 5540 synchronous (IBM 3270-compatible) terminals. All of the display terminal models contain a new design enclosure, and feature lower prices than previous Teletype display terminal products.

MODELS: 5400 Family—5410 and 5418 Conversational Displays, 5420/2 and 5425 Buffered Displays; 5540 Family—5544 and 5546 Controllers, 5548-12, 5548-22, 5548-25 Display Terminals, 5549 Color Display Terminal.

DISPLAY: The 5410, 5418, 5420/2, 5425, and 5548-12 contain a 12-inch display; the 5548-22, 5548-25, and 5549 feature a 13-inch screen. The 5410, 5418, 5420/2, 5425, and 5548-25 feature 80/132-column display capability; the 5548-12, 5548-22, and 5549 feature 80-column display capability only. All models have a tilttable display.

KEYBOARD: The 5410, 5420/2, and 5425 feature a typewriter-style keyboard with 8 function keys; the 5418 features an IBM 3278-style keyboard with 24 function keys. A variety of 3270-style keyboard layouts are available for the 5540 displays, including typewriter and data entry; all keyboard models feature 24 function keys. Keyboards for the 5400 and 5540 displays are detachable, and contain a low-profile design with height adjustment.

COMPETITION: 5400 Family—TeleVideo Systems, Applied Digital Data Systems, Lear Siegler, Esprit Systems, and several others; 5540 Family—IBM, ITT Courier, Telex, Lee Data, Memorex, and several others.

PRICE: Purchase prices for the 5000 Series terminals range from \$995 to \$2,817.

CHARACTERISTICS

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

DATE OF ANNOUNCEMENT: 5410, 5420/2, 5544, 5546, and 5548—April 1983; 5418 and 5549—May 1984; 5425—September 1984.

DATE OF FIRST DELIVERY: 5410, 5420/2, 5544, 5546, and 5548—Third quarter 1983; 5418 and 5549—May 1984; 5425—October 1984.

AT&T Teletype 5000 Series Display Terminals

▷ memory. The 5420/2 also provides all of the operational and design features of the 5410, and is compatible with the older Teletype 40/1 and 40/2 terminals.

The 5418 and 5425 are newcomers to the AT&T Teletype product line. The 5418 is a conversational terminal designed for both local and remote communications over IBM 3270 networks when used with a protocol converter. It features an IBM 3278-style keyboard layout, with single-key access to each 3278-like keystroke. Otherwise, all other features are the same as found on the 5410. The 5425 is an enhanced version of the 5420. The 5425 is compatible with the UNIX operating system, as well as with the DEC VT102 display terminal.

The 5540 is a family of IBM 3270-compatible products; the new products are also compatible with Teletype's existing 4540 series of 3270-compatible controllers and displays. The 5540 family consists of two controllers (5544 and 5546), three monochrome displays (5548-12, 5548-22, and 5548-25), a color display (5549), and a line of printers.

The 5544 is an IBM 3274-compatible control unit. Available in 16-port and 32-port versions, the 5544 is a floor-standing unit. The 5546 is an IBM 3276-compatible, table-top control unit available in 6-port and 12-port versions. Both controllers provide 5¼-inch dual floppy disks for software storage. Users can switch from BSC to SNA/SDLC line protocol by changing disks.

The 5548-22 Display Terminal is an IBM 3278 Model 2 compatible unit containing a 13-inch display and a 1920-character display capacity. The 5548-25 is compatible with the IBM 3278 Model 5; it also contains a 13-inch screen, while providing selectable display capacities of 1920 and 3564 (27 lines by 132 columns) characters. The 5548-12 is AT&T Teletype's version of the IBM 3178, with a smaller (12-inch) display screen and a 1920-character display capacity. The 5549 is a 4-color display that includes a 13-inch screen and selectable 1920- and 2560-character (32 lines by 80 columns) display capacities. All of the 5540 displays can be configured with a choice of available keyboards, including typewriter-style, typewriter with external numeric pad, and data entry styles.

COMPETITIVE POSITION

AT&T Teletype's 5000 Series covers three distinct market areas. The 5400 products are targeted at the low-priced ASCII terminal market, a segment in which Teletype has not traditionally been a major force. The 5400 terminals contain a high degree of functionality, and are priced at levels significantly below the older 40 and 4400 Series terminal that they are designed to replace.

The 5540 family is Teletype's new generation of IBM 3270 replacement products. The new components are also compatible with the existing Teletype 4540 products, a line which boasts a very large installed base and a high degree of user acceptance in the competitive 3270 replacement market. The new 5620 is an intelligent, dot-mapped graphics terminal which places AT&T Teletype in the intelligent terminal market for the first time.

▷ **NUMBER DELIVERED TO DATE:** Information not available.

SERVICED BY: AT&T Teletype Corporation.

MODELS

The 5000 Series consists of two separate families of products: the 5400 asynchronous terminals and the 5540 3270-compatible terminals. (Another member of the 5000 series, the 5620, is an intelligent graphics terminal and thus beyond the scope of this report.) The following paragraphs describe the terminals that comprise the 5400 and 5540 product lines:

5400 Family—

- **5410**—an asynchronous, conversational terminal. The 5410 conforms to the ANSI X3.64 standard. It provides 80/132-column display capability, horizontal split screen, editing capabilities, and five display attributes.
- **5418**—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.
- **5420/2**—an asynchronous, buffered terminal. The 5420/2 provides all of the features of the 5410, plus 78 (80 columns) or 54 (132 columns) lines of display memory, scroll mode, page mode, and windowing. Emulates the older Teletype Models 40/1 and 40/2, and replaces the 5420.
- **5425**—an asynchronous, buffered terminal. The 5425 contains all of the features of the 5420, plus UNIX operating system compatibility and DEC VT102 terminal compatibility.

5540 Family—

The 5540 is a family of IBM 3270-compatible display terminals, controllers, and printers. As with the older Teletype 4540 family, the 5540 products operate under both BSC and SDLC line protocols. Members of the 5540 line include:

- **5544**—a control unit that is compatible with the IBM 3274 and is available in 16- and 32-port configurations;
- **5546**—a control unit that is compatible with the IBM 3276 and is available in 6- and 12-port versions;
- **5548 Model 12**—a monochrome display terminal that is compatible with the IBM 3178; includes a 12-inch display screen with a 1920-character capacity and a detachable keyboard;
- **5548 Model 22**—a monochrome display terminal that is compatible with the IBM 3278 Model 2; includes a 13-inch display screen with a 1920-character capacity and a detachable keyboard;
- **5548 Model 25**—a monochrome display terminal that is compatible with the IBM 3278 Model 5; includes a 13-inch display screen with selectable 1920- and 3564-character capacities and a detachable keyboard;
- **5549**—a 4-color display terminal that is compatible with the IBM 3279 Model S2A; includes a 13-inch display screen with selectable 1920- and 2560-character capacities and a detachable keyboard.

▷ AT&T Teletype also provides a variety of printers for use with the 5540 family, including serial and line printers. ▷

AT&T Teletype 5000 Series Display Terminals

► 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 premise 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 has forced Teletype (now officially AT&T Teletype) to change its strategy in the new, deregulated marketplace. As a result, the company has poured more money into research and development, beefed up marketing, cut manufacturing costs in order to reduce prices, and established new distribution channels. The results to date have been encouraging—AT&T Teletype posted a significant jump in net profits during 1983. AT&T Teletype now sells its products through distributors, OEMs, AT&T Information Systems (under the Dataspeed name), and AT&T International. The company also supplies equipment to the BOCs for internal use; the BOCs, however, are still not permitted to resell third party data processing equipment to their customers.

In the deregulated market for terminals, AT&T Teletype now finds itself competing directly with a myriad of vendors. Its 5400 line of asynchronous terminals competes with product lines from vendors such as TeleVideo Systems, Lear Siegler, Applied Digital Data Systems, Esprit Systems, Visual Technology, and several others. The 5540 product line competes with the IBM 3270 family, as well as with 3270-compatible products from ITT Courier, Telex, Lee Data, Memorex, and a number of others.

ADVANTAGES AND RESTRICTIONS

Teletype's products have gained a reputation for functionality and reliability, as well as for their rather high price tags. The 5000 Series terminals retain the functionality offered by their predecessors, but prices have fallen to reflect the realities of competing in a deregulated market. The AT&T Teletype terminals feature a variety of attractive features. The 5400 asynchronous terminals have been imbued with 80/132-column display capability, windowing (on the buffered models), and ANSI X3.64 compatibility. UNIX operating system compatibility and DEC VT102 compatibility have been implemented on the new 5425. An optional integral modem/dialer has also been added to the line. The 5540 synchronous terminals are interchangeable with existing Teletype 4540 components. All AT&T Teletype terminals include a tiltable display and a detachable, low-profile keyboard.

AT&T Teletype has fallen somewhat behind in the competitive 3270 replacement market, however. Although the

► TRANSMISSION SPECIFICATIONS

For the 5400 terminals, transmission is asynchronous, in half- or full-duplex, at speeds up to 19,200 bits per second. Isochronous transmission is selectable on the 5420/2 and 5425. Multipoint operation is available on all models except the 5410. 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 with the 5410, 5418, and 5425. The integral modem is compatible with 212A-type modems for operation at 1200 or 300 bps.

For the 5540 family, transmission is synchronous, in half- or full-duplex, at speeds up to 9600 bits per second. Both BSC and SNA/SDLC protocols are supported. The 5544 is compatible with the IBM 3274 "C" models, while the 5546 is compatible with the IBM 3276 remote controllers. The following SNA descriptors are supported: Physical Unit (PU) Type 2, Logical Units (LU) Types 1, 2, and 3, and Format Identification (FID) Type 2. Displays and printers connect to the control unit via twisted pair or coaxial cable, at distances up to 5,000 feet (up to 2,000 feet only for the line printer models). Over nonswitched transmission facilities, half-duplex terminal operation is supported. Two EIA RS-232-C interfaces are standard.

DEVICE CONTROL

The 5410 and 5418 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 5410, 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 5418 contains 24 function keys. When used with a protocol converter, the 5418 emulates the IBM 3278 for both local and remote communications. The 5418 features single-key access to all 3278-like keystrokes.

Visual display attributes available on the 5410 and 5418 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 5410 and 5418 conform to the ANSI X3.64 standard.

The 5420/2 and 5425 buffered displays 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 5420/2 and 5425 contain all of the basic operating features of the 5410 and 5418 (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 5425 differs from the 5420/2 in that it is compatible with the UNIX operating system and with the DEC VT 102 display terminal. The 5420/2 is compatible with the older Teletype 40/1 and 40/2 display terminals.

The 5420/2 and 5425 provide 3 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 5410 and 5418, with 1 scrolling region and 2 static regions. With windowing, the 5420/2 and 5425 memory can be divided into a maxi-

AT&T Teletype 5000 Series Display Terminals

➤ company has recently added a color display to the 5540 product line, it does not offer the wide range of product choices now available from such independent 3270-compatible vendors such as ITT Courier, Lee Data, Telex, and Memorex; nor does it possess the product choices offered by IBM itself. Look for AT&T Teletype to significantly enhance the 5540 family in the near future, possibly with attachment capability for the AT&T Personal Computer Model 6300. These enhancements are necessary to protect the company's installed base and possibly carve out a larger share of the lucrative 3270-replacement market. □

▶ mum of 4 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 5410, 5418, and 5425 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. Screen labels are available to simplify dialing, and call progress status and prompts are displayed on the screen's 25th display line.

The 5540 family of components are compatible with the corresponding members of the IBM 3270 Information Display System. The 5540 is also compatible with the Teletype 4540 family, the company's previous line of IBM 3270-compatible equipment.

The 5540 terminals feature a separate user information/status line, block or underline cursor with selectable blink, and self-test diagnostics. A selector light pen is optional. The displays connect to a cluster controller via twisted pair or coaxial cable at distances up to 5,000 feet.

All software for the 5540 controllers is stored on dual 5¼-inch floppy disks; a user can switch from BSC to SDLC protocol by switching disks. The first port on the controller is reserved for the controller console, for communicating with the host and for setting options such as station addresses, configurations, and printer authorization matrix.

COMPONENTS

5400 Family

5410/5418/5420/5425 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). Green, 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.

5410/5420/5425 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 5425 provides 11 additional function keys, shiftable to provide 22 functions.

5418 KEYBOARD: Features a layout similar to that found on the IBM 3278, including 24 function keys. Otherwise, the 5418 keyboard contains the same features found on the 5410, 5420/2, and 5425 keyboards, including a low-profile design, tilt adjustments, and detachability.

5540 Family

5544 CONTROLLER: A floor-standing control unit that is compatible with the IBM 3274 Control Unit. The 5544 is based on a 16-bit microprocessor; software is stored on 5¼-inch dual floppy disks. The 5544 is available in two models, featuring 16 and 32 device attachment ports. Both models support BSC and SNA/SDLC line protocols by changing diskettes. Built-in local and remote test features are included.

5546 CONTROLLER: A tabletop control unit that is compatible with the IBM 3276 Control Unit (it does not include an integral display like the 3276). The 5546 is based on a 16-bit microprocessor; software is stored on 5¼-inch dual floppy disks. The 5546 is available in two models, featuring 6 and 12 device attachment ports. Both models support BSC and SNA/SDLC line protocols by changing diskettes. Built-in local and remote test features are included.

5548-12 DISPLAY TERMINAL: Includes a 12-inch (diagonal) display screen with a 1920-character capacity arranged in a 24-line by 80-column format. A user status line is also available. The 5548 Model 12 is designed to replace the IBM 3178 Display Station. Characters are formed utilizing a 9-by-14 dot matrix, and are displayed in white on a dark background. The EBCDIC character set is displayable. The screen features a nonglare finish, brightness control, and is tiltable.

5548-22 DISPLAY TERMINAL: Includes a 13-inch (diagonal) screen with a display capacity of 1920 characters, arranged in 24 lines of 80 characters each. A user status line is also available. The 5548 Model 22 is compatible with the IBM 3278 Model 2 Display Station. Characters are formed via a 9-by-14 dot matrix, and are displayed in white on a dark background. The EBCDIC character set is displayable. The display screen features a nonglare finish, brightness control, and is tiltable.

5548-25 DISPLAY TERMINAL: Includes a 13-inch (diagonal) screen with selectable display capacities of 1920 (24 lines by 80 columns) or 3564 (27 lines by 132 columns) characters. A user status line is also available. The 5548 Model 25 is compatible with the IBM 3278 Model 5 Display Station. Display formats are operator- or program-selectable. Characters are formed via a 9-by-14 dot matrix, and are displayed in white on a dark background. The EBCDIC character set is displayable. The screen features a nonglare finish, brightness control, and is tiltable.

5549 COLOR DISPLAY TERMINAL: Includes a 13-inch (diagonal) screen with selectable display capacities of 1920 (24 lines by 80 columns) or 2560 (32 lines by 80 columns) characters. A user status line is also available. The 5549 is compatible with the IBM 3279 Model S2A, as well as the basic versions of the IBM 3279 Models 3X. Characters are formed using a 9-by-14 dot matrix. Four colors are displayable: blue, green, red, and white. The EBCDIC character set is displayable. The screen features a nonglare finish, brightness control, and is tiltable. ▶

AT&T Teletype 5000 Series Display Terminals

► **5540 KEYBOARDS:** Keyboards are available with the following layouts: typewriter-style, typewriter-style with external numeric pad, and data entry. All keyboards are detached, plug-compatible with each other, and feature a 3270-like layout. All keyboard styles feature 24 programmable function keys; up to 12 of the keys (PF1 through PF12) can be executed via a single keystroke. The keyboards are detached and feature a low-profile design that meets the 30mm DIN height standard, and feature tilt adjustments of 5, 8, or 12 degrees. All alphanumeric keys repeat, and audible key click is selectable; tactile feedback is standard. The keyboard is connected to the display monitor via a coiled cord. When not in use, the keyboard stores on a shelf underneath the display.

5540 PRINTERS: A variety of printers are available for use with the 5540 controllers. Three matrix character printers are offered, featuring maximum print speeds of 30 (dot matrix), 55 (full character), and 340 (dot matrix) cps. All three printer models provide 132-column print capability. Two line printers are offered, in either tabletop or floor-standing versions. Both line printers operate at 300 lpm and are available in an 80-column friction feed version, or in an 80/132-column tractor feed version. Also offered is an 80-column forms access printer. The printers use the AT&T Teletype Standard Serial Interface (SSI) signalling method for communications with the 5544 and 5546 controllers, and operate with data streams in the 3270 Data Stream Compatibility (DSC) format, Logical Unit Type 3, or the SNA Character String (SCS) format, Logical Unit Type 1.

PRICING

The AT&T Teletype 5000 Series components are available for purchase only. In accordance with Computer Inquiry II, AT&T Teletype is not permitted to sell new customer-premise equipment to end-users. AT&T Teletype products

are available to end-users only through third-party resellers (OEMs) and distributors, as well as through AT&T Information Systems and AT&T International.

Maintenance service for the 5000 Series terminals is available from AT&T Teletype's product service organization; there are over 100 service centers located throughout the United States.

Models	Purchase Price (\$)
5400 Family—	
5410 Conversational Display	902
5418 Conversational Display	1,080
5420/2 Buffered Display	1,492
5425 Buffered Display	1,265-1,720
5540 Family—	
5544 Controller (16-port)	6,176
5544 Controller (32-port)	8,038
5546 Controller (6-port)	3,518
5546 Controller (12-port)	3,727
5548-12 Display (w/Data Entry Keyboard)	1,411
5548-22 Display (w/Data Entry Keyboard)	1,785
5548-25 Display (w/Data Entry Keyboard)	2,095
5549 Color Display (w/Data Entry Keyboard)	2,573■