# Lear Siegler Display Terminals

## MANAGEMENT SUMMARY

**UPDATE:** *Lear Siegler recently introduced the ADM 1000 and ADM 2000 video display terminals, and the Model 7105 and Model 7107 Color Graphics Terminals. Discontinued models include the ADM5 and ADM 22. Pricing information and specifications on the new models are included in this report. As of this writing, it is reported that Lear Siegler plans to pull out of the terminal market and sell its business and certain assets of the Data Products Division to Zentec Corp. However, the current product line will continue to be manufactured either under the Lear Siegler name or Zentec.*

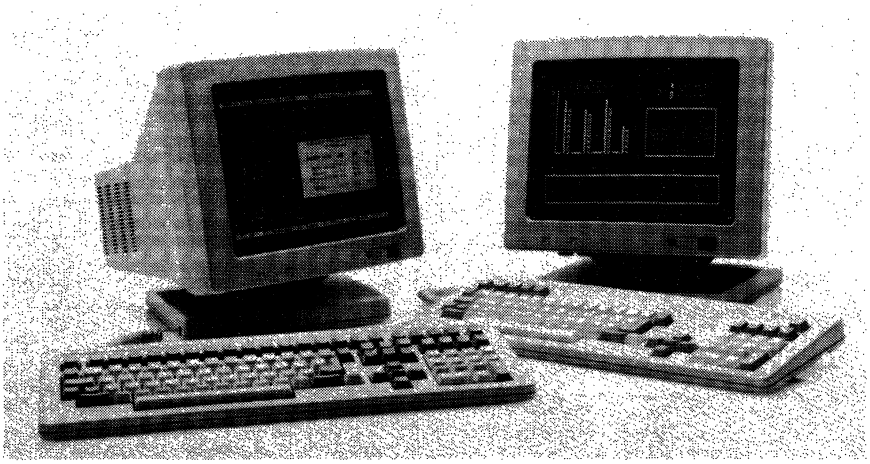
Lear Siegler, the originator of the "dumb terminal," is a traditional leader in the ASCII terminal market. Their first video display, the ADM 3A, introduced in 1975, has been most successful and has sold in excess of 204,000 units. Lear Siegler was also the first company to introduce a display terminal selling for less than $1,000. This move helped to initiate the trend of low-price, high-function terminals, a trend that has proven to be a detriment to more than a few terminal vendors. Each Lear Siegler product is designed with special features such as full tilt and swivel monitors, non-glare screens, and detached, low-profile DIN standard keyboards (the keyboard on the ADM 3A is attached).

The ADM (American Dream Machine) Series currently consists of 8 models: the ADM 3A, the ADM 3E, the ADM 11, ADM 12plus, ADM 220, ADM 1178, ADM 1000, and ADM 2000. Models no longer manufactured are the ADM 5 and ADM 22. Also offered are the Model 7105 and Model 7107 color graphics terminals.

One of the newest of Lear Siegler's offerings is the ADM 1000. This model, priced at $399, offers low-end price and performance with high-end styling and ergonomics. The ADM 1000 provides 7 programmable function keys, shiftable to 14, all of which use dynamically allocated nonvola-

**Lear Siegler has been a major supplier of general purpose video display terminals since 1972. The company's ADM Series now consists of 8 models, ranging from the traditional dumb models to fully featured smart units. The most recent additions to the ADM Series are the ADM 1000 and the ADM 2000. Lear Siegler has also introduced 2 color graphics terminals, the Model 7105 and Model 7107.**

**MODELS: ADM 3A, ADM 3E, ADM 11, ADM 12plus, ADM 220, ADM 1178, ADM 1000, and ADM 2000; Model 7105 Color Graphics Terminal and Model 7107 Color Graphics Terminal.**
**DISPLAY: All models, except the ADM 3E, ADM 1000, and ADM 2000, feature a 12-inch (diagonal) display as standard; a 14-inch display is available on those models. White, green, or amber characters are available, depending on the model selected. A tilt/swivel monitor is standard on all models.**
**KEYBOARD: The ADM 3A features an attached keyboard; all other models feature detachable keyboards with a low-profile design. A typewriter-style layout is standard; the ADM 1178 features IBM 3278 keyboard compatibility, while the ADM 220 features Digital Equipment Corporation VT220 keyboard compatibility.**
**COMPETITION: TeleVideo Systems, Applied Digital Data Systems (ADDS), Esprit Systems, Visual Technology, Wyse Technology, Liberty Electronics, ITT Qume, and several others.**
**PRICE: Purchase prices range from $399 to $729.**



*Lear Siegler's Models ADM 1000 and ADM 2000 offer low-end prices and performance with high-end styling and ergonomics. A 14-inch, tilt/swivel monitor is standard with either green or amber phosphor. An optional height adjustment mechanism is also available. More display versatility is offered on the Model 2000 with either 80 or 132 colums and up to 26 lines for data.*

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tile memory. The 14-inch monitor is available in either green or amber. Serviceability is extremely easy with a logic board that slide-mounts into a single edge connector and can be replaced in seconds without opening the housing. The ADM 1000 is compatible with the Lear Siegler ADM 3A, ADM 5, and ADM 3E. It is also compatible with the ADDS Viewpoint A2 and 3A+, and the Esprit 6110.

Also new is the ADM 2000. This fully featured video display includes 16 dynamically programmable, nonvolatile function keys, shiftable to 32, which provide over 2,000 characters of nonvolatile memory. Over 50 programmable, nonvolatile "soft" keys are also offered on the ADM 2000 keyboard, which can be configured to the user's specific applications. The display format for the ADM 2000 is 26 lines by 80 or 132 columns. This model is compatible with the Wyse WY-50+, TeleVideo 925/950, ADDS Viewpoint A2, Esprit III and 6310, as well as Lear Siegler's own ADM 3A and ADM 12plus.

The highly featured Model 7105 color graphics terminal is designed for general business, process control, engineering, and scientific applications. It features a 13-inch display screen, simultaneous display of up to 16 colors from a pallette of 4,096, 640-by-480 pixel resolution, 16K-by-16K virtual address space, pixel zoom and pan, all popular drawing capabilities, and five visual attributes. It is compatible with Tektronix Models 4105, 4010/4014, and Plot 10, as well as most popular applications packages.

The Model 7107 color graphics terminal provides all the features of the Model 7105, plus Tektronix 4107 compatibility, display list for storage of graphics objects, true zoom and pan, and local 2-D transformations.

Lear Siegler's main business remains in the market for conversational terminals. Interestingly, the ancient (by computer industry standards) ADM 3A is still marketed by LSI. The original ADM 3A is a teletype-compatible, data entry display terminal designed for asynchronous applications. It features a 12-inch diagonal, 24-line CRT screen with a display capacity of 1,920 characters, and is enclosed in Lear Siegler's familiar "clam shell" cabinet.

The ADM 11 was unveiled at the 1983 National Computer Conference in Anaheim. The ADM 11 is a conversational terminal with a full range of visual attributes and business graphics capabilities.

LSI has also entered the IBM 3270-compatible market with its ADM 1178. The ADM 1178 is a conversational ASCII terminal with IBM 3278 keyboard compatibility; it is designed to communicate with an IBM mainframe when used in conjunction with a protocol converter.

The ADM 12plus is an enhanced version of the ADM 12. Key features of the ADM 12plus are: 132-column display capability; TeleVideo 912, 920, 925, and 950 compatibility; Lear Siegler ADM 2, ADM 12, and ADM 31 compatibility; bidirectional printer port with independent transmission rates; and optional 4-page display memory.

## CHARACTERISTICS

**VENDOR: Lear Siegler, Inc., Data Products Division, 901 E. Ball Road, Anaheim, California 92805. Telephone (714) 778-3500.**

**DATE OF ANNOUNCEMENT: ADM 3A—May 1975; ADM 11—May 1983; ADM 1178—December 1983; ADM 220—June 1984; ADM 12plus—February 1985; Model 7105 and Model 7107—June 1985; ADM 3E, ADM 1000, and ADM 2000—July 1986.**

**DATE OF FIRST DELIVERY: ADM 3A—August 1975; ADM 11—June 1983; ADM 1178—February 1984; ADM 220—August 1984; ADM 12plus—May 1985; Model 7105 and Model 7107—July 1985; ADM 3E, ADM 1000, and ADM 2000—3Q 1986;**

**NUMBER DELIVERED TO DATE: Approximately 500,000 (all models).**

**SERVICED BY: Lear Siegler, Inc. and third-party contractors located throughout the USA and Canada.**

### MODELS

**Lear Siegler's ADM Series of display terminals currently consists of eight standalone models. Two color graphics terminals are also offered.**

- **ADM 3A—the original "dumb terminal." The ADM 3A features LSI's "clam shell" cabinet design, with a 12-inch screen and an attached keyboard.**
- **ADM 3E—a video display priced at $399. Standard features include 14-inch display screen available in green or amber phosphor, 7 programmable keys shiftable to 14 nonvolatile functions, and function key memory.**
- **ADM 11—a conversational terminal with LSI's High Touch enclosure style. Standard features include visual attributes, business graphics, and limited editing.**
- **ADM 12plus—an enhanced version of the ADM 12, including 132-column display capability, TeleVideo 912/920/925/950 and LSI ADM 2/ADM 12/ADM 31 emulation, and an optional 4-page display memory.**
- **ADM 220—a Digital VT220-compatible terminal that conforms to the ANSI X3.64 standard.**
- **ADM 1178—a conversational terminal that features keyboard compatibility with the IBM 3278. The ADM 1178 is designed for use on an IBM 3270 network when coupled with a protocol converter. The High Touch enclosure style is standard.**
- **ADM 1000—a video display terminal with 14-inch monitor, available in green or amber phosphor. Monitor offers tilt and swivel capability; optional height adjustment mechanism is available.**
- **ADM 2000—a fully featured, multipurpose, multihost, ASCII video display terminal. This model is compatible with the Wyse WY-50+, TeleVideo 925/950, ADDS Viewpoint A2, Esprit III and 6310, and Lear Siegler's ADM 3A and ADM 12plus.**
- **Model 7105—a highly featured color graphics terminal designed for business, process control, engineering, and scientific applications. Displays up to 16 colors from a pallette of 4,096.**

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## COMPETITIVE POSITION

Lear Siegler is a pioneer in the general-purpose ASCII display terminal market, and has been a leader in the industry for several years. The company has experienced some slippage in its market share in the past few years with the emergence of highly aggressive, new terminal vendors such as Wyse Technology, Visual Technology, Liberty Electronics, and ITT Qume.

The increased competition in the display terminals market has caused Lear Siegler to consider an offer by Zentec Corporation to buy its terminal business and certain assets of the Data Products Division. Should this acquisition take place, the current Lear Siegler line of display terminals will still be manufactured either under the Lear Siegler name or Zentec. At present, however, no agreement has been signed.

## ADVANTAGES AND RESTRICTIONS

While competitors such as TeleVideo, Wyse, and Liberty joined the exodus to offshore production, Lear Siegler continued manufacturing their terminal products in the U.S. Only earlier this year did the company begin transferring production to a plant in Mexicali, Mexico, and subcontracting other duties, such as physical designing and packaging, elsewhere. This decision coincided with Lear Siegler's dwindling market share. It appears that the decision to move their terminal manufacturing offshore was not made in time to save the company from seriously considering a buy out offer. The proposed acquisition of Lear Siegler by Zentec Corporation could prove to be the salvation for a well known and much respected line of low-end terminals.

## USER REACTION

In Datapro's 1985 Terminal Users Survey, conducted in conjunction with *Data Communications* magazine, a total of 19 users of Lear Siegler display terminals responded. These users represented an installed base of 745 units. The users were asked to rate their terminals with respect to seven specific categories. Their responses are summerized in the following table.

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 0 | 18 | 1 | 0 | 2.9 |
| Ease of operation | 3 | 15 | 1 | 0 | 3.1 |
| Display clarity | 5 | 11 | 2 | 1 | 3.1 |
| Keyboard feel & usability | 2 | 12 | 5 | 0 | 2.8 |
| Ergonomic features | 2 | 6 | 6 | 4 | 2.3 |
| Hardware reliability | 4 | 14 | 1 | 0 | 3.2 |
| Maintenance service/ technical support | 1 | 14 | 3 | 1 | 2.8 |

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

When asked whether they would recommend the Lear Siegler terminals to other users, 14 respondents answered yes, while 1 said they would not; the remainder were undecided or did not answer the question. It should be noted that the low scores in the keyboard feel & usability

- **Model 7107—an advanced color graphics terminal which provides all the features of the Model 7105, plus Tektronix 4107 compatibility.**

## TRANSMISSION SPECIFICATIONS

**Transmission is performed asynchronously, in half- or full-duplex mode, at switch-selectable rates of up to 19,200 bits per second for all ADM Series models except the ADM 2000. Rates up to 38.4KB are selectable on the ADM 2000. All models use the 8-level ASCII transmission code including odd or even parity, space, or mark. The X-on/X-off data flow control is standard.**

**An EIA RS-232-C or optional 20 ma current loop interface is provided on all models for communications with the host computer. An RS-422 interface is also optionally available for the ADM 11, ADM 12, ADM 220, ADM 1178, ADM 3E, ADM 1000, and ADM 2000. An RS-232-C serial printer port is standard with all models.**

## DEVICE CONTROL

**Transmission can be performed in Conversational Mode only (character-by-character) on the ADM 3A, ADM 3E, ADM 11, ADM 220, ADM 1178, and the ADM 1000. Block mode transmission is available on the ADM 12plus and ADM 2000. In Block mode, the terminal can transmit up to five data types: line, page, message, special function sequences, and cursor coordinates. All data, or unprotected fields only, can be transmitted in line, page, or message mode.**

**ADM 3A, ADM 3E, and ADM 1000: Full cursor controls (up, down, right, left, home, and return) and cursor addressability are standard features. Upward scrolling moves all lines up by one when the Line Feed function is executed. (The top line is lost as it overflows the top of the display screen.) The switch-selected "automatic new line" function moves the cursor to the beginning of the next line when the 80th character is keyed. A "here is" function transmits an identification message when the terminal is equipped with the Auto Answerback feature. The end-of-line bell function is standard. The repeat key, when executed with any other character key, repeats that character at a rate of 15.5 characters per second (the ADM 3E and ADM 1000 have auto repeat). The break function, a standard teleprinter function, is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The rub-out function transmits a delete code. Data transfer to an attached printer is automatic; all data sent from or received by the terminal is printed. Visual attributes available on the ADM 3E and ADM 1000 include: reverse video, reduced intensity, blink, blank, and underline.**

**ALL OTHERS: Full cursor controls and cursor addressability are standard. Cursor controls include up, down, left, right, home, tab, backtab, return, and new line. Cursor functions can be controlled by the keyboard or host computer. A read cursor function permits the computer to find the cursor anywhere on the screen.**

**Character insertion and deletion and line insertion and deletion are standard features on all models except ADM 11. Insertion and deletion affect all characters to the right of the cursor up to the end of the line, or to the beginning of a protected field when the terminal is operating in Protect Mode. Erase features (screen, end of line/page) are available on the ADM 11.**

**Four visual attributes are available on the ADM 11: reduced intensity (nonembedded), blink, blank, and reverse video (embedded). Five visual attributes are available on the ADM 12plus and ADM 2000, selectable as embedded or nonembedded: reduced intensity, underline, blink, blank,**

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and ergonomic features categories can be greatly attributed to the fact that the majority of the responses covered LSI's older models. □

and reverse video. Five visual attributes are available on the ADM 1178: bold, blink, blank, underline, and reverse video. The ADM 220 includes four nonembedded visual attributes: blink, bold, underline, and reverse video. Nonembedded double-wide/double-high and double-wide line attributes are also available.

Upward scrolling is a standard function on all units and moves all lines up by one when a line advance function is executed, provided that the terminal is not operating in protected format mode. The top line is lost as it overflows the top of the screen. There is no downward scrolling function.

Typewriter-style tabulation is available. Tabs can be set for any position on a line (producing a columnar effect) or for an entire screen (as if the screen were a 1,920-character line) and are available until cleared. In addition, "Modulo" tabulation is also available. This function permits a fixed number of positions to be chosen as a parameter; tabs are then automatically set at regular intervals fixed by the parameter for the remainder of the page. For example, by setting a tab modulo of 25 positions, the tab will stop at the 25th, 50th, and 75th positions of the first line; 20th, 45th, and 70th positions of the next line; 15th, 40th, and 65th positions of the next line; etc.

Two-page paging with page-back and page-forward functions is standard on the ADM 12plus. Page characteristics, including cursor location, are stored in memory when the user changes from one page to another, and restored automatically when the page is recalled. Pages can be used individually, or linked together; when pages are linked, scrolling, editing, and clear functions operate on the entire paging memory as if it were a single page.

Formatting and field protection are available as standard features on all units except the ADM 11, ADM 220, and ADM 1178. Tabbing and backtabbing move the cursor from one unprotected field to another. Protected displayed data is shown in reduced-intensity characters. Display format can be received from the host computer or designed by the terminal operator. Available field designations include dual intensity, blinking and nondisplay, reverse video, and underlining.

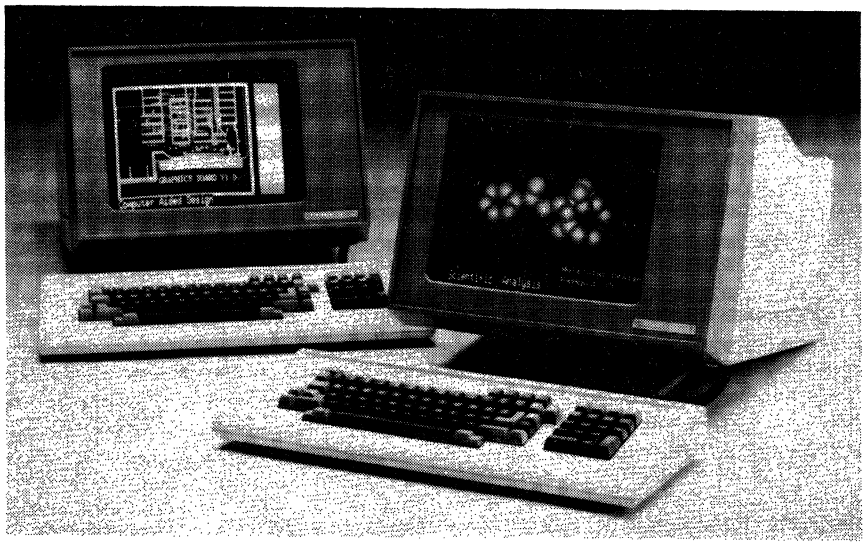
When operating in protected format mode, the units can clear to protected spaces and clear to unprotected nulls; these functions are standard on all units.

The Program Mode works in both block transmission mode and conversational mode, and permits storage, display, and transmission of control characters without executing the function on the display.

## COMPONENTS

ADM 3A CRT DISPLAY UNIT: A 12-inch (diagonal) display screen is standard. The ADM 3A features Lear Siegler's "clam shell" terminal enclosure design, which includes an attached keyboard. Screen capacity is 1,920 characters, arranged in 24 lines of 80 characters each. White (P4 phosphor) or green (P31 phosphor) characters are available. Characters are formed in the following matrix configurations: ADM 3A—5-by-7 dot matrix in a 7-by-9 field (uppercase only; lowercase characters are optional). The ADM 3A can display a 64-character ASCII set.

ADM 11, ADM 12plus, ADM 220, and ADM 1178 CRT DISPLAY UNITS: All models include a 12-inch (diagonal) display screen as standard; a 14-inch screen is optional. The ADM 11, ADM 12plus, ADM 220, and ADM 1178 feature LSI's High Touch enclosure design, which incorporates a tilt (5 degrees forward to 15 degrees back of vertical) and swivel (360 degrees) display mechanism, as well as a small footprint size. Screen capacity for the ADM 11 and ADM 1178 is 1,920 characters, arranged in 24 lines of 80 characters each. Screen capacities for the ADM 220 and ADM 12plus are selectable at 1,920 or 3,168 characters, arranged in 24 lines of 80 or 132 characters each. All models feature a 25th status line. Characters are displayed in green (P31 phosphor); amber phosphor characters are optionally available. The ADM 11, ADM 12plus, and ADM 1178 form characters using a 7-by-10 dot matrix, with descenders, in an 8-by-11 dot matrix field. The ADM 220 uses a 7-by-9 dot matrix (with descenders) in a 10-by-10 dot matrix field in 80-column mode; in 132-column mode, a 7-by-9 dot matrix (with descenders) in a 9-by-10 dot matrix field is used. The ADM 11 and ADM 12plus can display the 128-character ASCII set with control codes. Business graphics characters are standard on both models. The ADM 1178 features 128 displayable ASCII characters, including control codes, plus an IBM extended character set. The ADM 220 features 94 displayable characters for each of the following sets: ASCII, UK National, LSI Special Graphic, and LSI supplemental (multinational). A compose sequence capability for creating special multiple keystroke characters is available.



*Lear Siegler's Models 7105 and 7107 color graphics terminals are designed for general business, process control, engineering, and scientific applications. They feature all popular drawing capabilities and five visual attributes.*

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Optional international character sets are available for the ADM 11, ADM 12plus, and ADM 1178.

ADM 3E, ADM 1000, and ADM 2000 CRT DISPLAY UNITS: Each unit contains a 14-inch (diagonally measured) display screen available in either green or amber phosphor. Tilt and swivel capability and a small footprint design are standard. An optional height adjustment mechanism is available for the ADM 1000 and ADM 2000. Screen capacity for the ADM 3E and ADM 1000 is 1,920 characters arranged in a 24-line by 80-column format with a 25th status line. The characters on the ADM 2000 are arranged in a 26-line by 80-or 132-character format. Characters are formed on the ADM 3E and ADM 1000 using a 7-by-9 dot matrix in a 9-by-12 field. On the ADM 2000, characters are formed using a 7-by-12 dot matrix in a 9-by-14 field. A 128 ASCII set is displayable.

ADM 3A KEYBOARD: The ADM 3A features a 59-key, typewriter-style keyboard layout; the keyboard is attached to the monitor assembly.

ADM 11, ADM 12plus, ADM 220, and ADM 1178 KEYBOARDS: All models feature a detached, low-profile keyboard that conforms to the European DIN specification for ergonomics. The keyboard has an 11 degrees tilt adjustment, and sculptured, autorepeating keys, and is connected to the monitor through a 6-foot coiled cord. Selectable audible keyclick, with 3-key rollover on the ADM 11, ADM 12plus, and ADM 1178, and N-key rollover on the ADM 220, are also standard. A typewriter-style key layout is standard on the ADM 11 and ADM 12plus. The ADM 11 contains 84 keys, including a numeric pad, cursor control keys, and 4 function keys, shiftable to 8. The ADM 12plus contains 107 keys, including a numeric pad, cursor control keys, edit keys, and 16 function keys, shiftable to 32. The ADM 12plus also incorporates a 404-character dynamically allocated function key memory.

The ADM 1178 keyboard contains 87 keys in an IBM 3278-compatible keyboard layout; included are a numeric pad, cursor control keys, 24 program function keys, and 2 program attention keys.

The ADM 220 keyboard contains 105 keys in a Digital VT220-compatible keyboard layout. Included are a numeric keypad, 4 general-purpose nonprogrammable function keys, and 15 function keys for 15 nonprogrammable functions unshifted plus 30 programmable functions with shift or CTRL (dynamically allocated storage). Five LED visual indicators are included: Power On, Hold Screen, Lock, Compose, and Wait.

ADM 3E, ADM 1000, and ADM 2000 KEYBOARDS: All models contain a DIN-standard keyboard with IBM Selectric type layout. Included are 7 programmable function keys, shiftable to 14, and 3 edit keys shiftable to 6, on the ADM 3E and ADM 1000. The ADM 2000 contains 16 dynamically programmable, nonvolatile function keys, shiftable to 32, and over 50 programmable, nonvolatile "soft" keys which can be configured to the user's specific appliications.

The Models 7105 and 7107 contain Digital VT100-compatible keyboard layouts.

## PRICING

The Lear Siegler display terminals are available for purchase only. Quantity discounts are available. Installation charges are on a time-and-materials basis.

Lear Siegler provides service in over 3,000 cities nationwide and in Canada. On-site maintenance is provided on a prime shift basis (8 a.m. through 5 p.m., 5 days per week), excluding holidays. In certain cases, third-party contractors (mainly OEMs and large distributors) are also authorized to perform installation and maintenance services.

Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Defective units are returned to a factory depot for repair. Extended Warranty is available on an annual basis.

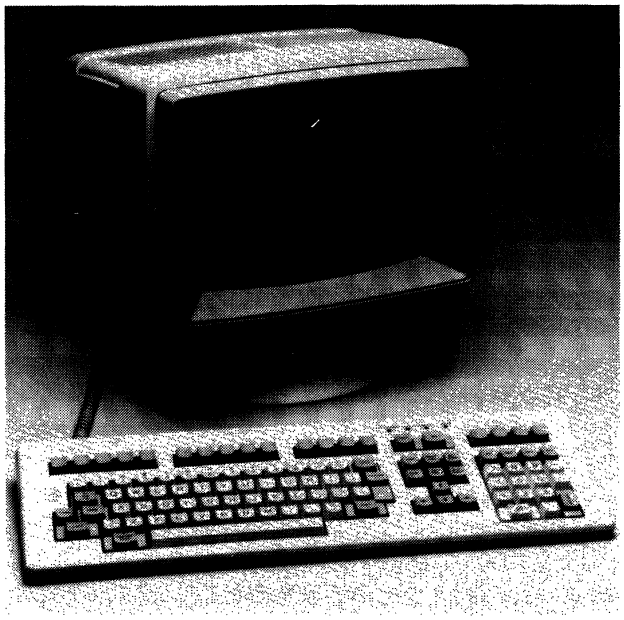
Express Depot service is a walk-in repair service available at repair depots located in 28 major U.S. cities. Service is performed while the customer waits, or within 48 hours at the latest.

On-site maintenance for terminals is limited to less than 50 miles from the service city (25 miles for printers); additional mileage is charged at $10 for each 25-mile increment.

## Equipment Prices

| | Purchase Price ($) | Monthly Maint. ($) |
|---|---|---|
| ADM 3A | $595 | 17 |
| ADM 3E | 399 | 17 |
| ADM 11 | 549 | 17 |
| ADM 12plus | 599 | 17 |
| ADM 220 | 729 | 17 |
| ADM 1178 | 695 | 17 |
| ADM 1000 | 399 | — |
| ADM 2000 | 699 | — |
| Model 7105 | 2,995 | — |
| Model 7107 | 3,995 | — |

# Lear Siegler ADM Series Display Terminals



*Lear Siegler has entered the DEC VT220 emulator market with the introduction of the ADM 220. The ADM 220 boasts Lear Siegler's "High Touch" ergonomic terminal enclosure design, which includes a 12-inch tilt/swivel display (14-inch display available at no extra cost), small footprint size, and detached, low-profile keyboard. Lear Siegler has recently slashed the price of the ADM 220 to $895.*

## MANAGEMENT SUMMARY

Lear Siegler is a traditional leader in the ASCII terminal market. The company was the originator of the "Dumb Terminal" video display, and has shipped in excess of 200,000 ADM 3/3A dumb terminals. Lear Siegler was also the first company to introduce a display terminal selling for less than $1,000. The company has embraced the concept of ergonomics within the past two years, introducing a new ergonomic enclosure style called High Touch; all of the company's recent introductions incorporate this enclosure style, which includes a tilt/swivel display, small footprint size, and a detached, low-profile DIN-standard keyboard.

The ADM (American Dream Machine) Series currently consists of eight models: the ubiquitous ADM 3A and ADM 5, the ADM 22, and the five models with the High Touch design, the ADM 11, ADM 12, ADM 12plus, ADM 220, and ADM 1178. Lear Siegler has recently removed several older models from their product line.

One of the newest of Lear Siegler's offerings is the ADM 220. The ADM 220 is aimed at the rapidly growing market for DEC VT220 emulators. The VT220, replacement for DEC's highly successful VT100, has been overwhelmingly accepted by users, and there are already numerous independent vendors offering VT220 emulators, with hopes of capturing a share of this potentially lucrative market. The ▷

**Lear Siegler, the originator of the "dumb" video display terminal, has been a leader in the general-purpose ASCII display terminal industry since 1972. The company's ADM Series now consists of 8 models, ranging from the traditional dumb models to fully featured smart units. The most recent additions to the ADM Series are the ADM 220, a DEC VT220-compatible unit, and the ADM 12plus, an enhanced version of the ADM 12.**

**MODELS: ADM 3A, ADM 5, ADM 11, ADM 12, ADM 12plus, ADM 22, ADM 220, and ADM 1178.**
**DISPLAY: All models feature a 12-inch (diagonal) display as standard; a 14-inch display is optional on several models. White, green, or amber characters are available, depending on the model selected. A tilt/swivel monitor is standard on those models with the High Touch enclosure.**
**KEYBOARD: The ADM 3A and ADM 5 feature attached keyboards; all other models feature detachable keyboards. A typewriter-style layout is standard; the ADM 1178 features IBM 3278 keyboard compatibility, while the ADM 220 features DEC VT220 keyboard compatibility. All models except the ADM 3A and ADM 5 feature a low-profile keyboard design.**
**COMPETITION: TeleVideo Systems, Applied Digital Data Systems (ADDS), Esprit Systems, Visual Technology, Wyse Technology, Liberty Electronics, Qume, and several others.**
**PRICE: Purchase prices range from $695 to $995.**

## CHARACTERISTICS

**VENDOR: Lear Siegler, Inc., Data Products Division, 901 E. Ball Road, Anaheim, California 92805. Telephone (714) 778-3500.**

**DATE OF ANNOUNCEMENT: ADM 3A—May 1975; ADM 5—June 1980; ADM 22—June 1982; ADM 11—May 1983; ADM 12—October 1983; ADM 1178—December 1983; ADM 220—June 1984; ADM 12plus—February 1985.**

**DATE OF FIRST DELIVERY: ADM 3A—August 1975; ADM 5—December 1980; ADM 22—September 1982; ADM 11—June 1983; ADM 12—November 1983; ADM 1178—February 1984; ADM 220—August 1984; ADM 12plus—April 1985 (scheduled).**

**NUMBER DELIVERED TO DATE: Approximately 500,000 (all models).** ▶

# Lear Siegler ADM Series Display Terminals

ADM 220 includes an 80/132-column display capability and a DEC VT220-compatible keyboard, and conforms to the ANSI X3.64 standard for control code compatibility. The ADM 220 was originally introduced with a price tag of $1,165 (compared to DEC's VT220 price of $1,395). However, the price cutting in this market segment has already grown so fierce that LSI recently dropped the ADM 220's price to $895.

Lear Siegler's main business remains in the market for conversational terminals. Interestingly, the ancient (by computer industry standards) ADM 3A and ADM 5 are still marketed by LSI. The original ADM 3A is a teletype-compatible, data entry display terminal designed for asynchronous applications. It features a 12-inch diagonal, 24-line CRT screen with a display capacity of 1,920 characters, and is enclosed in Lear Siegler's familiar "clam shell" cabinet. The ADM 5 is an expanded version of the ADM 3A and is equipped with the same basic facilities and data transmission features.

The ADM 22 features a compact design and carries the lowest price tag of all of LSI's smart terminals. The terminal design incorporates a detached keyboard, while retaining the same small footprint as the terminals with the clam shell cabinet. Standard smart terminal features include block mode transmission, full editing capabilities, visual attributes, and protected fields. The display screen measures 12 inches diagonally, features the standard 24-line by 80-character screen arrangement (plus 25th status line), and displays green phosphor characters. The detached keyboard contains 92 keys, including a 14-key numeric pad and seven function keys. Business graphics characters are also standard.

The ADM 11 and ADM 12 were unveiled at the 1983 National Computer Conference in Anaheim. These were the first models to incorporate the High Touch design. The ADM 11 is a conversational terminal with a full range of visual attributes and business graphics capabilities. The ADM 12 is a smart editing terminal with all the features found on the ADM 11 plus block mode transmission, split screen capability, two pages of display memory, vertical or horizontal scrolling, and full editing features.

LSI has also entered the IBM 3270-compatible market with its ADM 1178. The ADM 1178 is a conversational ASCII terminal with IBM 3278 keyboard compatibility; it is designed to communicate with an IBM mainframe when used in conjunction with a protocol converter.

As this report was going to press, Lear Siegler announced the ADM 12plus, an enhanced version of the ADM 12. Key features of the ADM 12plus are: 132-column display capability; TeleVideo 912/920/925/950 compatibility; Lear Siegler ADM 2/ADM 12/ADM 31 compatibility; bidirectional printer port with independent transmission rates; and optional 4-page display memory.

**SERVICED BY: Lear Siegler, Inc. and third-party contractors located throughout the USA and Canada.**

## MODELS

**Lear Siegler's ADM Series of display terminals currently consists of eight standalone models.**

- **ADM 3A—the original "dumb terminal." The ADM 3A features LSI's "clam shell" cabinet design, with a 12-inch screen and an attached keyboard.**
- **ADM 5—an expanded version of the ADM 3A. Additional standard features include visual attributes and limited editing capabilities.**
- **ADM 11—a conversational terminal with LSI's High Touch enclosure style. Standard features include visual attributes, business graphics, and limited editing.**
- **ADM 12—contains all the features of the ADM 11, plus enhanced features including block mode transmission, full editing, horizontal split screen, and protected fields.**
- **ADM 12plus—an enhanced version of the ADM 12, including 132-column display capability, TeleVideo 912/920/925/950 and LSI ADM 2/ADM 12/ADM 31 emulation, and an optional 4-page display memory.**
- **ADM 22—an ergonomically designed, low-cost smart terminal. Standard features include character and block mode transmission, some visual attributes, and full editing capabilities. The new ergonomic design includes a detached keyboard but retains the same "footprint" as the clam shell design.**
- **ADM 220—a DEC VT220-compatible terminal that conforms to the ANSI X3.64 standard.**
- **ADM 1178—a conversational terminal that features keyboard compatibility with the IBM 3278. The ADM 1178 is designed for use on an IBM 3270 network when coupled with a protocol converter. The High Touch enclosure style is standard.**

## TRANSMISSION SPECIFICATIONS

**Transmission is performed asynchronously, in half- or full-duplex mode, at switch-selectable rates of up to 19,200 bits per second for all ADM Series models. All models use the 8-level ASCII transmission code including odd or even parity, space, or mark. The X-on/X-off data flow control is standard.**

**An EIA RS-232-C or optional 20 ma current loop interface is provided on all models for communications with the host computer. An RS-422 interface is also optionally available for the ADM 11, ADM 12, ADM 220, and ADM 1178. An RS-232-C serial printer port is standard with all models.**

## DEVICE CONTROL

**Transmission can be performed in Conversational Mode only (character-by-character) on the ADM 3A, ADM 5, ADM 11, ADM 220, and ADM 1178. Block mode transmission is available on the ADM 12, ADM 12plus, and ADM 22. In Block Mode, the terminal can transmit up to five data types: line, page, message, special function sequences, and cursor coordinates. All data, or unprotected fields only, can be transmitted in line, page, or message mode.**

**ADM 3A and ADM 5: Full cursor controls (up, down, right, left, home, and return) and cursor addressability are stan-**

# Lear Siegler ADM Series Display Terminals

## COMPETITIVE POSITION

Lear Siegler is a pioneer in the general-purpose ASCII display terminal market, and has been a leader in the industry for several years. The company has experienced some slippage in its market share in the past few years, beginning with the rise of TeleVideo Systems to the leadership position among the independent vendors, then compounded with the emergence of highly aggressive new terminal vendors such as Wyse Technology, Visual Technology, Liberty Electronics, and Qume. The combination of these factors has led to intense competition and rapidly falling prices (and margins).

Still, Lear Siegler remains one of the top four vendors in this market, along with TeleVideo, Applied Digital Data Systems (ADDS), and Esprit Systems. Display terminal shipment figures for 1983, recently released by Dataquest, a San Jose, CA-based market research firm, show Lear Siegler with an 11 percent share of the unit shipments of conversational terminals (based on total shipments of 364,000 units), and a 5 percent share of shipments of editing terminals (based on total shipments of 500,000 units). Clearly, Lear Siegler continues to be a successful participant in this market despite the increased level of competition.

## ADVANTAGES AND RESTRICTIONS

One of the advantages that Lear Siegler enjoys in this market is the company's long experience with display terminals. The success of Lear Siegler proves that there is still a market for conversational terminals, and this is where Lear Siegler is dominant. At one time, LSI also boasted one of the broadest lines of terminal products in the industry. However, in recent months the company has discontinued several models, including some block mode and graphics models. LSI's product line is now much leaner—but look for the company to introduce several new models in the future (the ADM 12plus, for instance). Lear Siegler was one of the first independent terminal vendors to offer graphics capabilities for their displays, and should at least introduce some new graphics units. Whether or not LSI will enter the color terminal field is unknown; ADDS and Esprit have, but TeleVideo and LSI have not at this time.

The ADM 220 gives Lear Siegler a strong presence in the DEC VT220 emulator market, a market which may prove to be every bit as lucrative as the one for DEC VT100 emulation. Competition in this area is heating up, and LSI has been quick to respond by significantly cutting the price of the ADM 220 to meet levels reached by several competitors.

## USER REACTION

During November and December 1984, Datapro, in conjunction with *Data Communications* magazine, conducted a mail survey of display terminal, voice/data workstation, and cluster controller users. The 1985 Terminal Users Survey was the result. Responding to this survey were a

**dard features. Upward scrolling moves all lines up by one when the Line Feed function is executed. (The top line is lost as it overflows the top of the display screen.) The switch-selected "automatic new line" function moves the cursor to the beginning of the next line when the 80th character is keyed. A "here is" function transmits an identification message when the terminal is equipped with the Auto Answerback feature. The end-of-line bell function is standard. The repeat key, when executed with any other character key, repeats that character at a rate of 15.5 characters per second (the ADM 5 has auto repeat). The break function, a standard teleprinter function, is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The rub-out function transmits a delete code. Data transfer to an attached printer is automatic; all data sent from or received by the terminal is printed. Visual attributes available on the ADM 5 include: reverse video, reduced intensity, and reverse video/reduced intensity combination.**

**ALL OTHERS: Full cursor controls and cursor addressability are standard. Cursor controls include up, down, left, right, home, tab, backtab, return, and new line. Cursor functions can be controlled by the keyboard or host computer. A read cursor function permits the computer to find the cursor anywhere on the screen.**

**Character insertion and deletion and line insertion and deletion are standard features on all models except ADM 11. Insertion and deletion affect all characters to the right of the cursor up to the end of the line, or to the beginning of a protected field when the terminal is operating in Protect Mode. Erase features (screen, end of line/page) are available on the ADM 11.**

**Four visual attributes are available on the ADM 11: reduced intensity (nonembedded), blink, blank, and reverse video (embedded). Five visual attributes are available on the ADM 12 and ADM 12plus, selectable as embedded or nonembedded: reduced intensity, underline, blink, blank, and reverse video. Visual attributes on the ADM 22 include dual intensity, underline, blink, and reverse video (all nonembedded). Five visual attributes are available on the ADM 1178: bold, blink, blank, underline, and reverse video. The ADM 220 includes four nonembedded visual attributes: blink, bold, underline, and reverse video. Nonembedded double-wide/double-high and double-wide line attributes are also available.**

**Upward scrolling is a standard function on all units and moves all lines up by one when a line advance function is executed, provided that the terminal is not operating in protected format mode. The top line is lost as it overflows the top of the screen. There is no downward scrolling function.**

**Typewriter-style tabulation is available. Tabs can be set for any position on a line (producing a columnar effect) or for an entire screen (as if the screen were a 1,920-character line) and are available until cleared. In addition "Modulo" tabulation is also available. This function permits a fixed number of positions to be chosen as a parameter; tabs are then automatically set at regular intervals fixed by the parameter for the remainder of the page. For example, by setting a tab modulo of 25 positions, the tab will stop at the 25th, 50th, and 75th positions of the first line; 20th, 45th, and 70th positions of the next line; 15th, 40th, and 65th positions of the next line; etc.**

**Two-page paging with page-back and page-forward functions is standard on the ADM 12 and ADM 12plus. Page characteristics, including cursor location, are stored in memory when the user changes from one page to another, and restored automatically when the page is recalled. Pages can be used individually, or linked together; when pages are linked, scrolling, editing, and clear functions operate on the entire paging memory as if it were a single page.**

# Lear Siegler ADM Series Display Terminals

total of 46 Lear Siegler display terminal users. These users represented a wide variety of models, the most often mentioned of which were the ADM 3A (12 users), ADM 5 (6 users), and ADM 31 (6 users). The responses represented an installed base of approximately 2,945 units. The users were asked to rate their terminals in seven specific categories. Their ratings are summarized in the following table.

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 18 | 16 | 10 | 2 | 3.1 |
| Ease of operation | 12 | 23 | 7 | 3 | 3.0 |
| Display clarity | 12 | 24 | 7 | 3 | 3.0 |
| Keyboard feel & usability | 8 | 20 | 14 | 4 | 2.7 |
| Ergonomic features | 6 | 10 | 14 | 15 | 2.2 |
| Hardware reliability | 21 | 16 | 5 | 4 | 3.2 |
| Maintenance service/ technical support | 10 | 17 | 8 | 3 | 2.9 |

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

When asked whether they would recommend the Lear Siegler terminals to other users, 23 respondents answered yes, while 10 said they would not; the remainder were undecided or did not answer the question. It should be noted that the low scores in the keyboard feel & usability and ergonomic features categories can be greatly attributed to the fact that the majority of the responses covered LSI's older models.

We also asked the users to state which of the following factors *most* influenced their decision to purchase their Lear Siegler terminals: terminal features/functionality, vendor recognition/loyalty, price, or some other factor. Nearly 60 percent of the respondents cited price as the key factor in their purchase decision. An additional 23 percent of the users mentioned terminal features/functionality as the main purchase decision factor. □

**Formatting and field protection are available as standard features on all units except the ADM 11, ADM 220, and ADM 1178. Tabbing and backtabbing move the cursor from one unprotected field to another. Protected displayed data is shown in reduced-intensity characters. Display format can be received from the host computer or designed by the terminal operator. Available field designations include dual intensity, blinking and nondisplay, reverse video, and underlining.**

**When operating in protected format mode, the units can clear to protected spaces and clear to unprotected nulls; these functions are standard on all units.**

**The Program Mode works in both block transmission mode and conversational mode, and permits storage, display, and transmission of control characters without executing the function on the display.**

## COMPONENTS

**ADM 3A/ADM 5 CRT DISPLAY UNIT: A 12-inch (diagonal) display screen is standard. The ADM 3A and ADM 5 feature Lear Siegler's "clam shell" terminal enclosure design, which includes an attached keyboard. Screen capacity is 1,920 characters, arranged in 24 lines of 80 characters each. White (P4 phosphor) or green (P31 phosphor) characters are available on both the ADM 3A and 5. Characters are formed in the following matrix configurations: ADM 3A—5-by-7 dot matrix in a 7-by-9 field (uppercase only); ADM 5—5-by-9 dot matrix in a 7-by-10 field. (Lowercase characters are optional on the ADM 3A.) The 128-character ASCII set is standard on the ADM 5; the ADM 3A can display a 64-character ASCII set.**

**ADM 22 CRT DISPLAY UNIT: A 12-inch (diagonal) display screen is standard. The ADM 22 contains a variation of the "clam shell" enclosure design, with a detached keyboard. Screen capacity is 1,920 characters, arranged in 24 lines of 80 characters each. A 25th display line is available for status information. Characters are displayed in green (P31 phosphor), and formed using a 7-by-11 dot matrix (with 2 dot descenders) in a 9-by-12 dot matrix field. The 128-character ASCII set is displayable, including upper-/lowercase characters, control characters, and business graphics characters.**

**ADM 11/ADM 12/ADM 12plus/ADM 220/ADM 1178 CRT DISPLAY UNIT: All models include a 12-inch (diagonal) display screen as standard; a 14-inch screen is optional. The ADM 11, ADM 12, ADM 12plus, ADM 220, and ADM 1178 feature LSI's High Touch enclosure design, which incorporates a tilt (5 degrees forward to 15 degrees back of vertical) and swivel (360 degrees) display mechanism, as well as a small footprint size. Screen capacity for the ADM 11, ADM 12, and ADM 1178 is 1,920 characters, arranged in 24 lines of 80 characters each. Screen capacities for the ADM 220 and ADM 12plus are selectable at 1,920 or 3,168 characters, arranged in 24 lines of 80 or 132 characters each. All models feature a 25th status line. Characters are displayed in green (P31 phosphor); amber phosphor characters are optionally available. The ADM 11, ADM 12, ADM 12plus, and ADM 1178 form characters using a 7-by-10 dot matrix, with descenders, in an 8-by-11 dot matrix field. The ADM 220 uses a 7-by-9 dot matrix (with descenders) in a 10-by-10 dot matrix field in 80-column mode; in 132-column mode, a 7-by-9 dot matrix (with descenders) in a 9-by-10 dot matrix field is used. The ADM 11, ADM 12, and ADM 12plus can display the 128-character ASCII set with control codes. Business graphics characters are standard on both models. The ADM 1178 features 128 displayable ASCII characters, including control codes, plus an IBM extended character set. The ADM 220 features 94 displayable characters for each of the following sets: ASCII, UK National, LSI Special Graphic, and LSI supplemental (multinational). A compose sequence capability for creating special multiple keystroke characters is available.**

**Optional international character sets are available for the ADM 11, ADM 12, ADM 12plus, and ADM 1178.**

**ADM 3A/ADM 5 KEYBOARDS: Both models feature typewriter-style keyboard layouts; the keyboards are attached to the monitor assembly. The ADM 3A features 59 keys. The ADM 5 features 83 keys, including a numeric pad, cursor control keys, and edit keys.**

**ADM 22 KEYBOARD: The ADM 22 keyboard features a typewriter-style layout. The keyboard is detached, connected to the monitor via a coiled cord. The ADM 22 has 92 keys, including a numeric pad, cursor control keys, edit keys, function command keys, and 7 function keys. All keys feature auto repeat.**

**ADM 11/ADM 12/ADM 12plus/ADM 220/ADM 1178 KEYBOARDS: All models feature a detached, low-profile keyboard that conforms to the European DIN specification for ergonomics. The keyboard has an 11 degrees tilt adjustment, and sculptured, autorepeating keys, and is connected to the monitor through a 6-foot coiled cord. Selectable audible keyclick, with 3-key rollover on the ADM 11, ADM 12, ADM 12plus, and ADM 1178, and N-key**

# Lear Siegler ADM Series Display Terminals

rollover on the ADM 220, are also standard. A typewriter-style key layout is standard on the ADM 11 ADM 12, and ADM 12plus. The ADM 11 contains 84 keys, including a numeric pad, cursor control keys, and 4 function keys, shiftable to 8. The ADM 12 and ADM 12plus contains 107 keys, including a numeric pad, cursor control keys, edit keys, and 16 function keys, shiftable to 32. The ADM 12plus also incorporates a 404-character dynamically allocated function key memory.

The ADM 1178 keyboard contains 87 keys in an IBM 3278-compatible keyboard layout; included are a numeric pad, cursor control keys, 24 program function keys, and 2 program attention keys.

The ADM 220 keyboard contains 105 keys in a DEC VT220-compatible keyboard layout. Included are a numeric keypad, 4 general-purpose nonprogrammable function keys, and 15 function keys for 15 nonprogrammable functions unshifted plus 30 programmable functions with shift or CTRL (dynamically allocated storage). Five LED visual indicators are included: Power On, Hold Screen, Lock, Compose, and Wait.

## PRICING

The Lear Siegler display terminals are available for purchase only. Quantity discounts are available. Installation charges are on a time and materials basis.

Lear Siegler provides service in over 100 cities nationwide and in Canada. On-site maintenance is provided on a prime shift basis (8 a.m. through 5 p.m., 5 days per week), excluding holidays. In certain cases, third-party contractors (mainly OEMs and large distributors) are also authorized to perform installation and maintenance services.

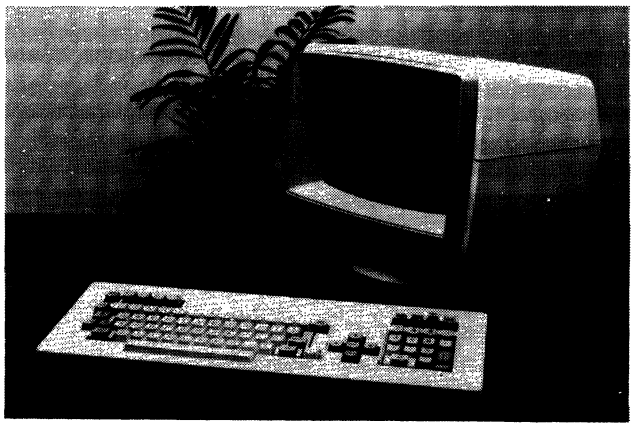
Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Defective units are returned to a factory depot for repair. Extended Warranty is available on an annual basis.

Express Depot service is a walk-in repair service available at repair depots located in 28 major U.S. cities. Service is performed while the customer waits, or within 48 hours at the latest.

On-site maintenance for terminals is limited to less than 50 miles from the service city (25 miles for printers); additional mileage is charged at $10 for each 25-mile increment.

| Models | Purchase Price ($) | Monthly Maint. ($) |
|---|---|---|
| ADM 3A | 695 | 17 |
| ADM 5 | 745 | 17 |
| ADM 11 | 695 | 17 |
| ADM 12 | 895 | 17 |
| ADM 12plus | 895 | 17 |
| ADM 22 | 695 | 19 |
| ADM 220 | 895 | 17 |
| ADM 1178 | 995 | 17 |

# Lear Siegler ADM Series Display Terminals



*Lear Siegler's ADM 11 conversational terminal incorporates the company's new High Touch ergonomic enclosure design. Features include a tilt/swivel monitor, detached low profile keyboard that contains a tilt adjustment and conforms to the DIN standard, and a reduced footprint size. Green or amber phosphor characters may be displayed.*

## MANAGEMENT SUMMARY

Lear Siegler is a traditional leader in the ASCII terminal market. The company was the originator of the "Dumb Terminal" video display, and has shipped in excess of 200,000 ADM 3/3A dumb terminals. Lear Siegler was also the first company to introduce a display terminal selling for less than $1,000. Recent enhancements to the Lear Siegler product line include: a new ergonomic enclosure style, called High Touch; the vendor's first graphics terminals, the ADM 11G and ADM 12G; and the company's first IBM-compatible models, the ADM 1178 and ADM 1278 (designed for use in conjunction with a protocol converter). The remainder of Lear Siegler's current ADM product family includes the ADM 3A, ADM 5, ADM 11, ADM 12, ADM 22, ADM 23, ADM 24, ADM 24E, and ADM 42.

The ADM 3A is a Teletype-compatible, data entry display terminal designed for asynchronous applications. It features a 12-inch diagonal, 24-line CRT screen with a display capacity of 1920 characters, and is enclosed in Lear Siegler's familiar "clam shell" cabinet. The ADM 5 is an expanded version of the ADM 3A and is equipped with the same basic facilities and data transmission features.

The ADM 22 features a compact design and carries the lowest price tag of all of LSI's smart terminals. The terminal design incorporates a detached keyboard, while retaining the same small footprint as the terminals with the clam shell cabinet. Standard smart terminal features include block mode transmission, full editing capabilities, visual attributes, and protected transmission. The display screen measures 12 inches diagonally, features the standard 24-line by 80-character screen arrangement, and displays green phosphor characters. The detached keyboard contains 92

**Lear Siegler has been a leader in the general-purpose ASCII display terminal industry since 1972. The ADM Series consists of 13 models, ranging from traditional dumb terminals to fully featured smart units. Graphics and a new ergonomic enclosure style have recently been added.**

**MODELS: ADM 3A, ADM 5, ADM 11, ADM 11G, ADM 12, ADM 12G, ADM 22, ADM 23, ADM 24, ADM 24E, ADM 42, ADM 1178, and ADM 1278.**
**DISPLAY: The ADM 42 features a 15-inch display; all other models contain a 12-inch display as standard, with a 14-inch display optional on several models. White, green, or amber characters are available, depending on the model selected. A tilt/swivel monitor is standard on those models with the High Touch enclosure.**
**KEYBOARD: The ADM 3A, ADM 5, and ADM 23 feature attached keyboards; all other models feature detachable keyboards. A typewriter-style layout is standard; the ADM 1178 and ADM 1278 feature IBM 3278 keyboard compatibility.**
**COMPETITION: TeleVideo Systems, Applied Digital Data Systems, Esprit Systems, Visual Technology, and several others.**
**PRICE: Purchase prices range from $695 to $2,195.**

## CHARACTERISTICS

**VENDOR: Lear Siegler, Inc., Data Products Division, 901 E. Ball Road, Anaheim, California 92805. Telephone (714) 774-1010.**

**DATE OF ANNOUNCEMENT: ADM 3A—May 1975; ADM 42—June 1978; ADM 5—June 1980; ADM 22 and 24—June 1982; ADM 23—October 1982; ADM 11 and 24E—May 1983; ADM 12—October 1983; ADM 11G, 12G, 1178, and 1278—December 1983.**

**DATE OF FIRST DELIVERY: ADM 3A—August 1975; ADM 42—August 1978; ADM 5—December 1980; ADM 22 and 24—September 1982; ADM 23—December 1982; ADM 11—June 1983; ADM 24E—September 1983; ADM 12, 11G, 12G, 1178, and 1278—March 1984.**

**NUMBER DELIVERED TO DATE: (rounded to nearest thousand): ADM 3A—over 250,000; ADM 42—17,000; ADM 5—24,000; ADM 22—20,000; ADM 23—5000; ADM 24—over 1000; ADM 24E—over 1000.**

**SERVICED BY: Lear Siegler, Inc. and third-party contractors located throughout the U.S.A. and Canada.**

# Lear Siegler ADM Series Display Terminals

keys, including a 14-key numeric pad and seven function keys. Business graphics characters are also standard.

The ADM 23 is a smart terminal that features the same enclosure style as LSI's dumb terminals, with a 12-inch display screen and an attached keyboard. The screen format is a standard 24-line by 80-columns. However, the ADM 23 adds such smart terminal features as block mode transmission, full editing capabilities, a full range of visual attributes (blink, blank, underline, reduced intensity, and reverse video), and a printer port. The ADM 24 is an enhanced version of the ADM 23, and is equipped with a detachable keyboard. The ADM 24E incorporates the High Touch enclosure style, while retaining all the features found on the ADM 24 (and ADM 23).

The ADM 42 is a semi-intelligent video terminal that provides total flexibility of format, editing interface, and transmission. It features a full, four-page display optionally expandable to eight full pages, a 15-inch diagonal display screen that displays up to 2000 characters in 24 lines of 80 characters, plus a 25th line provided exclusively for terminal status indicators and messages from the host of up to 79 characters. The ADM 42 also features a detachable keyboard with upper and lower case, numerics, punctuation, control, numeric keypad, and 16 functions keys shiftable to 32. Like the ADM 31, the ADM 42 is preprogrammed at the factory for compatibility with many standard computer systems. A synchronous communications interface, special character generator, programmable function keys, line drawing set, and serial/parallel printer interfaces are also available as options.

The ADM 11 and ADM 12 were unveiled, along with the ADM 24E, at the 1983 National Computer Conference in Anaheim. These were the first models to incorporate the High Touch design, which includes a small footprint size, a 12-inch (14-inch optional) tilt/swivel display, green or amber phosphor characters, and a low profile, detachable

*The ADM 5 dumb terminal, priced at $745, features Lear Siegler's classic "clam shell" cabinet design.*

## MODELS

**Lear Siegler's ADM Series of display terminals currently consists of 13 standalone models.**

- **ADM 3A—the original "dumb terminal." The ADM 3A features LSI's "clam shell" cabinet design, with a 12-inch screen and an attached keyboard.**
- **ADM 5—an expanded version of the ADM 3A. Additional standard features include visual attributes and limited editing capabilities.**
- **ADM 11—a conversational terminal with LSI's High Touch enclosure style. Standard features include visual attributes, business graphics, and limited editing.**
- **ADM 11G—a graphics version of the ADM 11. The ADM 11G is Tektronix Plot 10 software-compatible, and provides a wide variety of graphics features.**
- **ADM 12—contains all the features of the ADM 11, plus enhanced features including block mode transmission, full editing, horizontal split screen, and protected fields.**
- **ADM 12G—a graphics version of the ADM 12. The ADM 12G combines the alphanumeric features of the ADM 12 with the graphics features found on the ADM 11G.**
- **ADM 22—an ergonomically designed, low-cost smart terminal. Standard features include character and block mode transmission, some visual attributes, and full editing capabilities. The new ergonomic design includes a detached keyboard but retains the same "footprint" as the clam shell design.**
- **ADM 23—a low-cost smart terminal. Standard features include character and block mode transmission, visual attributes, and full editing capabilities. The ADM 23 has the same physical design as the ADM 3A and ADM 5.**
- **ADM 24—an ergonomically designed version of the ADM 23. The ADM 24 is equipped with a detachable keyboard; a 14-inch display screen and a screen tilt mechanism are optionally available.**
- **ADM 24E—combines the features found on the ADM 24 with the High Touch enclosure style.**
- **ADM 42—LSI's top-of-the-line, semi-intelligent model. Features include a detachable keyboard, 15-inch display screen, four- to eight-page memory paging, 16 function keys, and full editing capabilities.**
- **ADM 1178—a conversational terminal that features keyboard compatibility with the IBM 3278. The ADM 1178 is designed for use on an IBM 3270 network when coupled with a protocol converter. The High Touch enclosure style is standard.**
- **ADM 1278—a block mode terminal that features keyboard compatibility with the IBM 3278. Like the ADM 1178, the ADM 1278 can communicate with an IBM mainframe when used with a protocol converter. The High Touch enclosure style is incorporated.**

## TRANSMISSION SPECIFICATIONS

**Transmission is performed in the half- or full-duplex mode at switch-selectable rates of up to 9600 bits per second for the ADM 42, and rates of up to 19,200 bits per second for all other models. All models use the 8-level ASCII transmission code including odd or even parity, space, or mark.**

# Lear Siegler ADM Series Display Terminals

keyboard with adjustable tilt. The ADM 11 is a conversational terminal with a full range of visual attributes and business graphics capabilities. The ADM 12 is a smart editing terminal with all the features found on the ADM 11 plus block mode transmission, split screen capability, two pages of display memory, vertical or horizontal scrolling, and full editing features.

Lear Siegler recently introduced its first graphics offerings, the ADM 11G and ADM 12G. These models contain the alphanumeric features of the ADM 11 and ADM 12, respectively, while adding Tektronix Plot 10 software compatibility. Both the ADM 11G and ADM 12G are compatible with the Tektronix 4010 and Digital Engineering RG512 terminals. Hard copy can be printed on any of LSI's VersaPrint printers.

LSI has recently entered the IBM 3270-compatible market. Its ADM 1178 and ADM 1278 feature IBM 3278 keyboard compatibility and are designed to communicate with an IBM mainframe when used in conjunction with a protocol converter. The ADM 1178 is a conversational terminal, while the ADM 1278 is a block mode unit with expanded editing capabilities and two pages of display memory.

## COMPETITIVE POSITION

Lear Siegler is a pioneer in the general-purpose ASCII display terminal market, and has been a leader in the industry for several years. The company's leadership position has been eroded in the last couple of years with the emergence of the highly successful TeleVideo Systems, as well as the intense competition that has characterized the terminal market. TeleVideo ranks first in number of terminals currently being shipped, with Lear Siegler, Applied Digital Data Systems, and Esprit Systems closely following. Other major competitors in the ASCII terminal market include Visual Technology, Datamedia, Qume, Teleray, Ann Arbor, Liberty Electronics, Wyse Technology, Micro-Term, Soroc, and Falco Data Products. The large number of participants in this market has helped to fuel the intense competition (and price pressure) that has prevailed for the last few years.

## ADVANTAGES AND RESTRICTIONS

Among the advantages that Lear Siegler enjoys in this market are the company's long experience in display terminals, along with what may be the broadest product line available in the industry. With the addition of graphics and IBM keyboard-compatible models, the LSI product line lacks only a color model. (Both ADDS and Esprit offer color models, as do several others.)

## USER REACTION

In Datapro's 1982 Terminal Users Survey, conducted in conjunction with *Data Communications* magazine, a total of 41 responses were received from users of Lear Siegler ADM Series display terminals. These responses represented several models across LSI's product line; the total installed base represented by these users totals some

**On the ADM 3A, send and receive rates can be selected separately with the Split Baud Rate option. Any combination of available rates is acceptable, except that 1800 bits per second cannot be paired with another speed because of the nature of the internal clock.**

**Transmission is asynchronous on all models. Standard operating mode is point-to-point; optional polling and addressing features for multipoint operations are available on all models except ADM 3A, ADM 5, and ADM 23.**

**An EIA RS–232–C or optional 20 mA current loop interface is provided on all models for communications with the host computer. An RS–232–C extension is available on all models for multidropping of multiple terminals on a single communications line. An RS–422 interface is optional on the ADM 11, 11G, 12, 12G, 1178, and 1278.**

**Each unit can also be equipped to support attachment of an asynchronous serial printer. The ADM 3A/5 can support a magnetic tape recorder as an alternative to a serial printer.**

**Transmission can be performed in Conversational Mode (character by character) or in Block Mode on all models except ADM 3A, ADM 5, ADM 11, ADM 11G, and ADM 1178, which transmit by character only. In Block Mode, the terminal can transmit up to five data types: line; page; message; special function sequences; and cursor coordinates. All data, or unprotected fields only, can be transmitted in line, page, or message mode.**

## DEVICE CONTROL

**ADM 3A and ADM 5: Full cursor controls (up, down, right, left, home, and return) and cursor addressability are standard features. Upward scrolling moves all lines up by one when the Line Feed function is executed. (The top line is lost as it overflows the top of the display screen.) The switch-selected "automatic new line" function moves the cursor to the beginning of the next line when the 80th character is keyed. A "here is" function transmits an identification message when the terminal is equipped with the Auto Answerback feature. The end-of-line bell function is standard. The repeat key, when executed with any other character key, repeats that character at a rate of 15.5 characters per second (the ADM 5 has auto repeat). The break function, a standard teleprinter function, is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The rub-out function transmits a delete code. Data transfer to an attached printer is automatic; all data sent from or received by the terminal is printed.**

**ALL OTHERS: Full cursor controls and cursor addressability are standard. Cursor controls include up, down, left, right, home, tab, backtab, return, and new line. Cursor functions can be controlled by the keyboard or host computer. A read cursor function permits the computer to find the cursor anywhere on the screen.**

**Repeat key, break, rubout, upper case lock, line feed, line clear, and screen clear functions are provided on all models.**

**Character insertion and deletion and line insertion and deletion are standard features on all models except ADM 11 and 11G. Insertion and deletion affect all characters to the right of the cursor up to the end of the line, or to the beginning of a protected field when the terminal is operating in Protect Mode. On the ADM 42, insertion and deletion in Page Mode affect all characters to the right of the cursor up to the end of the screen or page. Erase features (screen, end of line/page) are available on the ADM 11 and 11G.**

**Upward scrolling is a standard function on all units and moves all lines up by one when a line advance function is**

# Lear Siegler ADM Series Display Terminals

1670 units. The users were asked to rate their terminals in seven specific categories. Their ratings are summarized in the following table.

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 23 | 14 | 3 | 1 | 3.4 |
| Ease of operation | 8 | 26 | 6 | 1 | 3.0 |
| Display clarity | 8 | 24 | 8 | 1 | 3.0 |
| Keyboard feel & usability | 8 | 19 | 10 | 4 | 2.8 |
| Ergonomics | 1 | 22 | 11 | 7 | 2.4 |
| Hardware reliability | 5 | 17 | 12 | 6 | 2.5 |
| Maintenance service/ technical support | 5 | 27 | 7 | 1 | 2.9 |

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

When asked whether they would recommend the Lear Siegler terminals to other users, 23 respondents answered yes, while seven said they would not; the remainder were undecided or did not answer the question. It should be noted that these responses did not cover LSI's newer models. □

executed, provided that the terminal is not operating in protected format mode. The top line is lost as it overflows the top of the screen. There is no downward scrolling function.

Typewriter-style tabulation is available. Tabs can be set for any position on a line (producing a columnar effect) or for an entire screen (as if the screen were a 1920-character line) and are available until cleared. In addition "Modulo" tabulation is also available. This function permits a fixed number of positions to be chosen as a parameter; tabs are then automatically set at regular intervals fixed by the parameter for the remainder of the page. For example, by setting a tab modulo of 25 positions, the tab will stop at the 25th, 50th, and 75th positions of the first line; 20th, 45th, and 70th positions of the next line; 15th, 40th, and 65th positions of the next line; etc.

Two-page paging with page-back and page-forward functions is standard on all models except the ADM 11, 11G, 1178, and 22 (single page) and ADM 42. Four pages of display memory are standard on the ADM 42 with an additional four pages available optionally. Page characteristics, including cursor location, are stored in memory when the user changes from one page to another, and restored automatically when the page is recalled. Pages can be used individually, or linked together; when pages are linked, scrolling, editing, and clear functions operate on the entire paging memory as if it were a single page.

Formatting and field protection are available as standard features on all units except the ADM 11, 11G, and 1178. Tabbing and backtabbing move the cursor from one unprotected field to another. Protected displayed data is shown in reduced-intensity characters. Display format can be received from the host computer or designed by the terminal operator. Available field designations include dual intensity, blinking and nondisplay, reverse video, and underlining.

When operating in protected format mode, the units can clear to protected spaces and clear to unprotected nulls; these functions are standard on all units.

The Program Mode works in both block transmission mode and Conversational Mode, and permits storage, display, and transmission of control characters without executing the function on the display.

An optional feature only on the ADM 42 allows the control function identification to be expanded to 32 or 64 characters. This adds a broad flexibility to the control functions. For instance, the identification sequence can include pointers, parameters, or identification of other functions to be performed in sequence as a group.

Using the Copy/Print or Print (ADM 42 only) function, the user can select which data is to be transferred to the printer for printing. Data can be transferred in formatted or unformatted mode.

The ADM 11G and ADM 12G provide a range of graphics features in addition to alphanumeric capabilities. Both models feature compatibility with Tektronix Plot 10 software, and emulate the Tektronix 4010 and Digital Engineering RG512 terminals. Four graphics modes are available: Vector Mode, which draws vectors automatically from end point coordinates; Graph Mode, which draws circles and arcs automatically; Point Plot Mode, which addresses one dot on the screen and plots one point; and Block Mode, which draws rectangles with two diagonal end points. Other features include polygon fill, vector variations, and selective erase. Screen graphics can be printed on any of the Versaprint 500 Series printers.

## COMPONENTS

CRT DISPLAY UNIT: All models except the ADM 42 feature a 12-inch (diagonal) display screen as standard. A 15-inch screen is standard on the ADM 42. A 14-inch screen is optional on the ADM 11, 11G, 12, 12G, 24, 24E, 1178, and 1278. Standard screen capacity on all models is 1920 characters, arranged in 24 lines of 80 characters each. A 25th line for the display of terminal status is available on all models except the ADM 3A and 5. White phosphor characters are standard on the ADM 3A and 5; green phosphor characters are standard on all other models, with amber phosphor available as an option. Characters are formed in the following matrix configurations: ADM 3A—5-by-7 dot matrix in a 7-by-9 field (upper case only); ADM 5—5-by-9 dot matrix in a 7-by-10 field; ADM 23 and 24—7-by-8 dot matrix in a 9-by-11 field; ADM 22 and 42—7-by-11 dot matrix in a 10-by-12 field; ADM 24E—7-by-11 dot matrix in a 9-by-12 field; ADM 11, 11G, 12, 12G, 1178, and 1278—7-by-10 dot matrix in an 8-by-11 field. Lower case characters are optional on the ADM 3A. The 128-character ASCII set is standard on all models except the ADM 3A (64-character ASCII standard).

International character sets are available optionally on all models except the ADM 3A and ADM 5. Business graphics is standard on the ADM 11, 12, 22, 24, and 24E. A line drawing character set is standard on the ADM 42.

The ADM 11, 11G, 12, 12G, 24E, 1178, and 1278 feature LSI's High Touch enclosure design, which incorporates a tilt (5° forward to 15° back of vertical) and swivel (360°) display mechanism.

KEYBOARDS: All models feature typewriter-style keyboard layouts. The ADM 3A, ADM 5, and ADM 23 feature attached keyboards; all other models feature detachable keyboards.

The ADM 3A features 59 keys. The ADM 5 features 83 keys, including a numeric pad, cursor control keys, and edit keys. The ADM 23 features 87 keys, including a numeric pad, cursor control keys, edit keys, line/page send keys, and a function mode key. The ADM 24 keyboard contains the same keys as the ADM 23, but is detachable.

The ADM 22 has 92 keys, including a numeric pad, cursor control keys, edit keys, function command keys, and 7 function keys. All keys feature auto repeat.

# Lear Siegler ADM Series Display Terminals

The ADM 42 has a detachable keyboard featuring 118 keys, including a numeric pad, cursor control keys, edit keys, functional command keys, and 16 function keys, shiftable to 32. All keys feature auto repeat.

The ADM 11, 11G, 12, 12G, 24E, 1178, and 1278 feature a detached, low profile keyboard that conforms to the European DIN specification for ergonomics. The keyboard has an 11° tilt adjustment, and sculptured, auto-repeating keys, and is connected to the monitor through a 6-foot coiled cord. The ADM 11 and 11G contain 84 keys, including a numeric pad, cursor control keys, and 4 function keys, shiftable to 8. The ADM 12 and 12G contain 107 keys, including a numeric pad, cursor control keys, edit keys, and 16 function keys, shiftable to 32.

The ADM 24E contains 104 keys, including a numeric pad, cursor control keys, edit keys, and 16 function keys, shiftable to 32. The ADM 1178 and 1278 contain 87 keys in an IBM 3278-compatible keyboard layout; included are a numeric pad, cursor control keys, 24 program function keys, and 2 program attention keys.

PRINTERS: The Versaprint 500 Series printer provides near letter quality printing at 45 cps, as well as draft mode printing at 180 cps. Also provided is a dot addressable graphics mode. The Versaprint 500 accommodates forms from 3 to 16 inches wide, features 9-by-9 and 9-by-12 matrix print heads, and contains six resident character sets: USASCII, UKASCII, German, French, Swedish/Finnish, and Danish/Norwegian. Four models are available: the Versaprint 500, 510 (with cut-sheet feed), 520 (color), and 530 (with cut-sheet feed and color).

## PRICING

The Lear Siegler display terminals are available for purchase only. Quantity discounts are available. Installation charges are on a time and materials basis.

Lear Siegler provides service in over 100 cities nationwide and in Canada. On-site maintenance is provided on a prime shift basis (8 AM through 5 PM, 5 days per week), excluding holidays. In certain cases, third-party contractors (mainly OEMs and large distributors) are also authorized to perform installation and maintenance services.

Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Defective units are returned to a factory depot for repair. Extended Warranty is available on an annual basis.

Express Depot service is a walk-in repair service available at repair depots located in 28 major U.S. cities. Service is performed while the customer waits, or within 48 hours at the latest.

Maintenance pricing for the ADM Series terminals (including some older units no longer available) is as follows:

| | Monthly Maint. | Annual Extended Warranty | Annual Express Depot |
|---|---|---|---|
| ADM 3/3A/3A+ | $17.00 | $ 72.00 | $ 85.00 |
| ADM 5 | 17.00 | 72.00 | 85.00 |
| ADM 23 | 19.00 | 80.00 | 90.00 |
| ADM 22/24/24E | 19.00 | 80.00 | 90.00 |
| ADM 31 | **26.00 | 93.50 | 150.00 |
| ADM 32 | **27.50 | 105.00 | 150.00 |
| ADM 36 | 26.00 | 105.00 | 150.00 |
| ADM 42 | 30.00 | 153.00 | NA |
| 310 Printer | 32.00 | 240.00 | NA |
| Versaprint 500 Series Printer* | 32.00 | 240.00 | NA |

*Maintenance pricing for the ADM 11, ADM 12, ADM 11G, ADM 12G, ADM 1178, and ADM 1278 terminals, and Versaprint 500 printer had not been set as of press time. Please contact vendor.
**Add $2.50 for units equipped with polling option.

Training is charged at the rate of $75 per day per student and a $50 ($75 for ADM 31) one time charge per student. Training is conducted at Lear Siegler headquarters unless the customer negotiates for training at another location.

On-site maintenance for terminals is limited to less than 50 miles from the service city (25 miles for printers); additional mileage is charged at $10 for each 25-mile increment.

| Description | Purchase Price |
|---|---|
| ADM 3A Dumb Terminal | $ 695 |
| Lower Case | 75 |
| Answerback | 115 |
| Numeric Keypad | 80 |
| Extension Port Current Loop | 135 |
| Split Baud Rate | 50 |
| Green Phosphor Screen | NC |
| ADM 5 Dumb Terminal | 745 |
| Speech Recognition Conversion Kit | 2,100 |
| Answerback | 115 |
| Extension Port Current Loop | 135 |
| Green Phosphor Screen | NC |
| ADM 11 Conversational Terminal | 695 |
| ADM 11G Graphics Terminal | 1,995 |
| Current Loop Interface | 70 |
| RS–422 Interface | 60 |
| 14-inch Display | 170 |
| Answerback | 50 |
| International Keycap Set | 90 |
| NVM for Function Keys | 50 |
| ADM 12 Smart Terminal | 895 |
| ADM 12G Graphics Terminal | 2,195 |
| Current Loop Interface | 70 |
| RS–422 Interface | 60 |
| 14-inch Display | 170 |
| International Keycap Set | 90 |
| ADM 22 Smart Terminal | 695 |
| ADM 23 Smart Terminal | 795 |
| Current Loop Interface (ADM 23) | 70 |
| Business Graphics (ADM 23) | 50 |
| Green Phosphor Screen | NC |
| International Character Keycap Set (ADM 23) | 50 |
| Answerback (ADM 23) | 50 |
| Function Key Set (ADM 23) | 20 |
| ADM 24 Smart Terminal | 1,195 |
| ADM 24E Smart Terminal | 1,250 |
| 2K Print Buffer | 30 |
| 4K Print Buffer | 50 |
| 96-line Display Memory | 50 |
| Extension Port | 25 |
| Current Loop Interface | 70 |
| Screen Tilt Mechanism (ADM 24) | 25 |
| 14-inch Display | 170 |
| Green Phosphor Screen (ADM 24) | NC |
| International Character Generator/Keycap Set | 90 |
| ADM 42 Smart Terminal | 2,195 |
| Additional Display Memory (4 pages) | 175 |
| Alternate Character Generator (U.K. or Limited Graphics) | 100 |
| Answerback | 50 |
| Direct Connect Interface | 75 |

# Lear Siegler ADM Series Display Terminals

| Description (Continued) | Purchase Price |
|---|---|
| Board Two (includes Bus Extension to Board #1 programmable function keys, and serial printer) | 300 |
| Programmable Function Keys (w/Board Two only) | 50 |
| Polling and Addressing (w/Board Two only) | 130 |
| Modem Cable | 40 |
| Printer Cable | 40 |
| Green Phosphor Screen | NC |
| ADM 1178 Conversational Terminal | 995 |
| ADM 1278 Block Mode Terminal | 1,075 |
| Current Loop Interface | 70 |
| RS–422 Interface | 60 |
| 14-inch Display | 170 |
| Versaprint 500 Printer | 1,695 |
| Versaprint 510 Printer (w/cut-sheet feed) | 1,995 |
| Versaprint 520 Printer (color) | 2,195 |
| Versaprint 530 Printer (w/cut-sheet feed, color) | 2,495 ■ |

# Lear Siegler ADM Series Display Terminals

*The ADM 36 is Lear Siegler's entry into the DEC VT100-compatible market. Standard features on the ADM 36 include 80/132-column display capability, visual attributes, and business graphics. The unit pictured above features the optional 15-inch display screen.*

**A popular family of dumb and smart video display terminals.**

**The family currently consists of nine members, ranging from the ADM 3A dumb terminal, the senior member, to the ADM 42 top-of-the-line model. Features available, depending on the model selected, include: 12-, 14-, or 15-inch display screens; visual attributes; editing capabilities; multiple pages of display memory; smooth scroll; selectable international character sets; line drawing and business graphics character sets; and block mode transmission. Some of the newer models provide ergonomic features such as detachable keyboards and tilt screen capability.**

**Purchase prices for the ADM Series range from $595 to $2,195. A variety of maintenance programs are available, including extended warranty, on-site maintenance, and express depot maintenance.**

## MANAGEMENT SUMMARY

Lear Siegler is a traditional leader in the ASCII terminal market. The company was the originator of the "Dumb Terminal" video display, and has shipped in excess of 200,000 ADM 3/3A dumb terminals. Lear Siegler was also the first company to introduce a display terminal selling for less than $1,000. Nine display terminal models are currently offered by Lear Siegler. The family consists of two dumb terminals, the ADM 3A and ADM 5, and seven smart units: the ADM 22, ADM 23, ADM 24, ADM 31, ADM 32, ADM 36, and ADM 42.

The ADM 3A is a Teletype-compatible, data entry display terminal designed for asynchronous applications. It features a 12-inch diagonal, 24-line CRT screen with a display capacity of 1920 characters, and is enclosed in Lear Siegler's familiar "clam shell" cabinet. The attached keyboard has 59 data entry keys which generate 64 ASCII characters displayed in upper case, punctutation, and control functions. In addition to the 59 keys, an optional auxiliary keypad is available with 0-9 numerals, punctuation, decimal point, comma, minus sign, and entry keys for rapid entry of tabular data. Optional features include lower case characters, a detached numeric pad, answerback and green phosphor characters.

The ADM 5 is an expanded version of the ADM 3A and is equipped with the same basic facilities and data transmission features. It also includes a built-in numeric keypad with 0-9 numerals, period, comma, tab, minus, and return, and separate cursor control keys for single stroke up, down,

## CHARACTERISTICS

**VENDOR: Lear Siegler, Inc., Data Products Division, 714 N. Brookhurst Street, Anaheim, California 92803. Telephone (714) 774-1010.**

**DATE OF ANNOUNCEMENT: ADM 3A—May 1975; ADM 31 and 42—June 1978; ADM 5—June 1980; ADM 32—October 1980; ADM 36—August 1981; ADM 22 and 24—June 1982; ADM 23—October 1982.**

**DATE OF FIRST DELIVERY: ADM 3A—August 1975; ADM 31 and 42—August 1978; ADM 5—December 1980; ADM 32—May 1981; ADM 36—October 1981; ADM 22 and 24—September 1982; ADM 23—December 1982.**

**NUMBER DELIVERED TO DATE (rounded to nearest thousand): ADM 3A—158,000; ADM 31—30,000; ADM 42—13,000; ADM 5—24,000; ADM 32—2000; ADM 36—3000; ADM 22—1000; ADM 23—1000.**

**SERVICED BY: Lear Siegler, Inc. and third party contractors located throughout the U.S.A. and Canada.**

### MODELS

**Lear Siegler's ADM Series of display terminals currently consists of nine stand-alone models.**

- **ADM 3A—the original "dumb terminal." The ADM 3A features LSI's "clam shell" cabinet design, with a 12-inch screen and an attached keyboard.**
- **ADM 5—an expanded version of the ADM 3A. Additional standard features include visual attributes and limited editing capabilities.**

# Lear Siegler ADM Series Display Terminals

left, right, and home movements of the cursor. Characters are formed by a 5-by-9 dot matrix in a 7-by-10 window with 2 dot positions for lower case descenders. Other features include an unshifted RUB key, a tab key to generate horizontal tab codes, auto repeat keys, and a stepped control key to minimize operator keystroke errors. A program mode key, designed as a programming aid, permits writing into display memory and displaying all control codes in addition to the 86 ASCII character set. All of the optional features of the ADM 3A are available for the ADM 5.

The ADM 22 features a new ergonomic design and carries the lowest price tag of all of LSI's smart terminals. The new design incorporates a detached keyboard, while retaining the same small footprint as the terminals with the clam shell cabinet. Standards smart terminal features include block mode transmission, full editing capabilities, visual attributes, and protected transmission. The display screen measures 12 inches diagonally, features the standard 24-line by 80-character screen arrangement, and displays green phosphor characters. The detached keyboard contains 92 keys, including a 14-key numeric pad and seven function keys. Business graphics characters are also standard.

The ADM 23 is a smart terminal that features the same enclosure style as that of LSI's dumb terminals, with a 12-inch display screen and an attached keyboard. The screen format is a standard 24-line by 80-columns. However, the ADM 21 adds such smart terminal features as block mode transmission, full editing capabilities, a full range of visual attributes (blink, blank, underline, reduced intensity, and reverse video), and a printer port. Options include answer-back, limited graphics, and a selection of international character sets. The ADM 24 is the ergonomically designed version of the ADM 23, and is equipped with a detachable keyboard.

*The ADM 5 dumb terminal, priced at $645, features Lear Siegler's classic "clam shell" cabinet design. The ADM 5 contains some features not found on traditional dumb terminals, including visual attributes and limited editing capabilities.*

- **ADM 22—an ergonomically-designed, low-cost smart terminal. Standard features include character and block mode transmission, some visual attributes, and full editing capabilities. The new ergonomic design includes a detached keyboard but retains the same "footprint" as the clam shell design.**

- **ADM 23—a low-cost smart terminal. Standard features include character and block mode transmission, visual attributes, and full editing capabilities. The ADM 21 has the same physical design as the ADM 3A and ADM 5.**

- **ADM 24—an ergonomically designed version of the ADM 21. The ADM 24 is equipped with a detachable keyboard; a 14-inch display screen and a screen tilt mechanism are optionally available.**

- **ADM 31—the company's Intermediate Terminal (IT), functionally compatible with LSI's older ADM 1A. Features include character and block mode transmission, full editing capabilities, visual attributes, and two-page memory paging. The standard "clam shell" design is featured.**

- **ADM 32—the ergonomically designed version of the ADM 31, featuring a detachable keyboard. Options include a 15-inch display screen, tilt mechanism, and green phosphor characters.**

- **ADM 36—the company's DEC-compatible model, featuring VT100/VT52 compatibility. In addition to the features found on the ADM 31 and ADM 32, the ADM 36 has an 80/132 column capability.**

- **ADM 42—LSI's top-of-the-line, semi-intelligent model. Features include a detachable keyboard, 15-inch display screen, four- to eight-page memory paging, 16 function keys, and full editing capabilities.**

## TRANSMISSION SPECIFICATIONS

**Transmission is performed in the half- or full-duplex mode at switch-selectable rates of up to 9600 bits per second for the ADM 31, ADM 32, and ADM 42, and rates of up to 19,200 bits per second for all other models. All models use the 8-level ASCII transmission code including odd or even parity, space, or mark.**

**On the ADM 3A, send and receive rates can be selected separately via the Split Baud Rate option. Any combination of available rates is acceptable, except that 1800 bits per second cannot be paired with another speed because of the nature of the internal clock.**

**Transmission is asynchronous on all models. Standard operating mode is point-to-point; optional polling and addressing features of multipoint operations are available on all models except ADM 3A, ADM 5, ADM 23, and ADM 36.**

**An EIA RS-232-C and 20mA current loop interface is provided on all models for communications with the host computer. An RS-232-C extension is available on all models for multi-dropping of multiple terminals on a single communications line.**

**Each unit can also be equipped to support attachment of an asynchronous serial printer. The ADM 3A/5 can support a magnetic tape recorder as an alternative to a serial printer.**

**Transmission can be performed in Conversation Mode (character by character) or in Block Mode on all models except ADM 3A, ADM 5, and ADM 36, which transmit by**

# Lear Siegler ADM Series Display Terminals

The ADM 31 Intermediate Terminal (IT) is a desk-top unit with full editing capabilities, visual attributes, formatting, and protective fields. The ADM 31 provides two full 1920-character pages of memory resulting in up to 3840 characters of display memory. The second page can also be used as a print buffer. The ADM 31's 90-key keyboard is integrated with main logic and is capable of generating all 128 ASCII characters. Also included are an integral numeric keypad, a function key to transmit a special function sequence to the host, and a computer or keyboard selectable behavior modification feature for compatibility with a variety of computer systems. Standard video features include lower intensity for identification of protected fields, blinking and reverse video, and blanking. Full editing capabilities allow the user to clear the screen or utilize the cursor for character change. Character or block mode transmission is accommodated. Recent enhancements to the ADM 31 include the addition of a 25th status/message to transform them into programmable function keys. Options available on the ADM 31 include a serial printer port, polling and addressing, answerback, green phosphor characters, a U.K. character set, and an 11-character line drawing set.

The ADM 32 Intermediate Terminal is an ergonomically designed version of the ADM 31. The ADM 32 is equipped with a detachable keyboard and can be optionally equipped with a six-position tilt screen. The standard 12-inch screen can be optionally replaced with a 15-inch screen, and as with the ADM 31, the standard white characters can be optionally replaced by green.

Lear Siegler also competes in the DEC-compatible market with the ADM 36. The ADM 36 is an ANSI-compliant unit featuring DEC VT100/VT52 compatibility. Standard features include a 24-line by 80- or 132-column screen format, visual attributes, split screen, protected fields, and jump for smooth scrolling. The ADM 36 features a detachable keyboard, as well as a 12-inch (standard) or 15-inch (optional) display screen.

The ADM 42 is a semi-intelligent video terminal that provides total flexibility of format, editing, interface, and transmission. It features a full, four-page display optionally expandable to eight full pages, a 15-inch diagonal display screen which displays up to 2000 characters in 24 data lines of 80 characters, plus a 25th line provided exclusively for terminal status indicators and messages from the host of up to 79 characters. The ADM-42 also features a detachable keyboard with upper and lower case, numerics, punctuation, control, numeric keypad, and 16 functions keys shiftable to 32. Like the ADM 31, the ADM 42 is preprogrammed at the factory for compatibility with many standard computer systems. A synchronous communications interface, special character generator, programmable function keys, line drawing set, and serial/parallel printer interfaces are also available as options.

Lear Siegler provides an integral modem as an option for use with the ADM 24, ADM 32, and ADM 36. In addition, two printer models are available for use with the ADM displays: the 310 Printer, and the VersaPrint 500 printer.

**character only. In Block mode, the terminal can transmit up to five data types: line; page; message; special function sequences; and cursor coordinates. All data, or unprotected fields only, can be transmitted in line, page, or message mode.**

**Lear Siegler provides, as an option, an integral modem for use on the ADM 24, ADM 32, and ADM 36. The integral modem is compatible with the Bell 212A, operating at 1200 bps; it is also compatible with the Bell 103 and 113, operating at up to 300 bps.**

## DEVICE CONTROL

**ADM 3A and ADM 5; Full cursor controls (up, down, right, left, home, and return) and cursor addressability are standard features. Upward scrolling moves all lines up by one when the Line Feed function is executed. (The top line is lost as it overflows the top of the display screen.) The switch-selected "automatic new line" function moves the cursor to the beginning of the next line when the 80th character is keyed. A "here is" function transmits an identification message, when the terminal is equipped with the Auto Answerback feature. The end-of-line bell function is standard. The repeat key, when executed with any other character key, repeats that character at a rate of 15.5 characters per second (the ADM 5 has auto repeat). The break function, a standard teleprinter function is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The rub-out function transmits a delete code. Data transfer to an attached printer is automatic; all data sent from or received by the terminal is printed.**

**ALL OTHERS: Full cursor controls and cursor addressability are standard. Cursor controls include up, down, left, right, home, tab, backtab, return, and new line. Cursor functions can be controlled by the keyboard or host computer. A read cursor function permits the computer to find the cursor anywhere on the screen.**

**Repeat key, break, rubout, upper case lock, line feed, line clear, and screen clear functions are provided on all models.**

**Character insertion and deletion and line insertion and deletion are standard features. Insertion and deletion affect all characters to the right of the cursor up to the end of the line, or to the beginning of a protected field when the terminal is operating in Protect Mode. On the ADM 42, insertion and deletion in Page Mode affects all characters to the right of the cursor up to the end of the screen or page.**

**Upward scrolling is a standard function on all units and moves all lines up by one when a line advance function is executed, provided that the terminal is not operating in protected format mode. The top line is lost as it overflows the top of the screen. There is no downward scrolling function.**

**Typewriter-style tabulation is available. Tabs can be set for any position on a line (producing a columnar effect) or for an entire screen (as if the screen were on 1920-character line) and are available until cleared. In addition "Modulo" tabulation is also available. This function permits a fixed number of positions to be chosen as a parameter; tabs are then automatically set at regular intervals fixed by the parameter for the remainder of the page. For example, by setting a tab modulo of 25 positions, the tab will stop at the 25th, 50th, and 75th positions of the first line; 20th, 45th, and 70th positions of the next line; 15th, 40th, and 65th positions of the next line; etc.**

**Two-page paging with page-back and page-forward functions is standard on all models except the ADM 22 (single page) and ADM 42. Four pages of display memory are**

# Lear Siegler ADM Series Display Terminals

Both models utilize Lear Siegler's patented Ballistic Printhead. Another option provided by LSI is vector drawing graphics, which provides the ADM 3A, ADM 5, ADM 24, ADM 31, ADM 32, and ADM 36 with Tektronix Plot 10 software-compatible graphics capability.

Lear Siegler also has entered into a pair of agreements to provide additional capabilities for selected terminals. One agreement, with Interstate Electronics Corporation (Anaheim, CA), provides the ADM 3A and ADM 5 with speech recognition capabilities through the addition of a single printed-circuit board, designated the VRT200. The second agreement, with Interaction Systems, Inc. (Newtonville, MA), provides the ADM 42 with touch-sensitive capability. The ADM 42 can be equipped with these capabilities by adding the TK-242 kit, consisting of a printed-circuit board connected by cables to a heat tempered glass screen with 32 touch-sensitive pads.

## USER REACTION

Datapro, in conjunction with *Data Communications* magazine, conducted the first edition of our Terminal Users Survey during June, July, and August 1982. Detailed questionnaires, designed by Datapro and dealing with all types of terminals, were mailed to a cross-section of *Data Communications'* U.S. end-user subscriber base.

By editorial cut-off date, a total of 38 responses had been received from users of the Lear Siegler ADM Series displays. Breaking the responses down by model, there were responses from 17 users of the ADM 3 and ADM 3A, reporting on a total of 361 installed units; three users of the ADM 5, with five units installed; seven users of the ADM 31, with 268 total terminals; four users of the ADM 42, with 204 units; and seven users reporting on the other ADM Series terminals, with a total of 213 installed units. The overall installed base of these 38 users numbered 1,051 terminals.

The users were asked to rate their Lear Siegler terminals in six different categories. Their ratings are summarized in the following table. For the purpose of this report, the ratings for all of the ADM Series terminals have been combined.

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 17 | 18 | 2 | 1 | 3.3 |
| Ease of operation | 13 | 20 | 4 | 1 | 3.2 |
| Display Clarity | 13 | 18 | 7 | 0 | 3.2 |
| Keyboard feel & usability | 8 | 23 | 6 | 1 | 3.0 |
| Hardware reliability | 9 | 18 | 8 | 3 | 2.9 |
| Maintenance service/ technical support | 4 | 18 | 8 | 7 | 2.5 |

Weighted Average on a scale of 4.0 for Excellent.

In addition to the ratings, the users were asked whether or not they would recommend their Lear Siegler terminals to other users with similar applications. Of the 38 users, 27 answered that they would; four stated that they would not; and the remaining seven were undecided or did not respond to this question.□

**standard on the ADM 42 with an additional four pages optionally available. Page characteristics, including cursor location, are stored in memory when the user changes from one page to another, and automatically restored when the page is recalled. Pages can be used individually, or linked together; when linked, scrolling, editing, and clear functions operate on the entire paging memory as if it were a single page.**

**Formatting and field protection are available as standard features on all units. Tabbing and backtabbing move the cursor from one unprotected field to another. Protected displayed data is shown in reduced-intensity characters. Display format can be sent by the host computer or designed by the terminal operator. Available field designations include dual intensity, blinking and non-display, reverse video, and underlining.**

**Vector drawing graphics capability is available as an option on the ADM 3A, ADM 5, ADM 24, ADM 31, ADM 32, and ADM 36. An LSI graphics-equipped terminal provides Tektronix Plot 10 software compatibility as well as Tektronix 4010 compatibility.**

**When operating in protected format mode, the units can clear to protected spaces and clear to unprotected nulls; these functions are standard on all units.**

**The Program Mode works in both block transmission mode and Conversation Mode, and permits storage, display, and transmission of control characters without executing the function on the display.**

**An optional feature on the ADM 42 only allows the control function identification to be expanded to 32 or 64 characters. This adds a broad flexibility to the control functions. For instance, the identification sequence can include pointers, parameters, or identification of other functions to be performed in sequence as a group.**

**Using the Copy/Print or Print (ADM 42 only) function, the user can select which data is to be transferred to the printer for printing. Data can be transferred in formatted or unformatted mode.**

## COMPONENTS

**CRT DISPLAY: All models except the ADM 42 feature as standard a 12-inch (diagonally measured) display screen. The ADM 42 features as standard a 15-inch (diagonal) display screen. The 15-inch screen is available as an option on the ADM 32 and ADM 36. A 14-inch screen is optional on the ADM 24. The standard screen format on all models is 24 lines by 80 columns; a 24-line by 132-column format is also standard on the ADM 36. A 25th terminal status line is also available on the ADM 31, ADM 32, and ADM 42. White phosphor characters are standard on all models, except the ADM 22, with green phosphor characters available optionally. Green phosphor characters are standard on the ADM 22. Characters are formed via the following: ADM 3A—5-by-7 dot matrix in a 7-by-9 filed (upper case only); ADM 5—5-by-9 dot matrix in a 7-by-10 field; ADM 23 and ADM 24—7 by-8 dot matrix in a 9-by-11 field; ADM 22, ADM 31, ADM 32, ADM 36, and ADM 42—7-by-11 dot matrix in a 10-by-12 field. Lower case characters are optional on the ADM 3A. The 128-character ASCII set is standard on all models except the ADM 3A. The 64-character ASCII set is standard on the ADM 3A, with the 96-character set optionally available.**

**International character sets are optionally available on all models except the ADM 3A and ADM 5. Business graphics is standard on the ADM 22. A line drawing character set is standard on the ADM 42, and optional on the ADM 23, ADM 31, and ADM 32.**

# Lear Siegler ADM Series Display Terminals

KEYBOARDS: All models feature typewriter-style keyboard layouts. The ADM 3A, ADM 5, ADM 23, and ADM 31 feature attached keyboards; all other models feature detachable keyboards.

The ADM 3A features 59 keys. The ADM 5 contains 83 keys, including a numeric pad, cursor control keys, and edit keys. The ADM 23 features 87 keys, including a numeric pad, cursor control keys, edit keys, line/page send keys, and a function mode key. The ADM 24 keyboard contains the same keys as the ADM 23, but is detachable.

The ADM 22 contains 92 keys, including a numeric pad, cursor control keys, edit keys, function command keys, and seven function keys. All keys feature auto repeat.

The ADM 31 and ADM 32 contain 90 keys, including a numeric pad, cursor control keys, and edit keys. In addition, the numeric pad keys can be shifted to a set of programmable function keys.

The ADM 36 has a detachable keyboard featuring four function keys, a numeric pad, and cursor control keys. All keys feature auto repeat. Also included are an on/off line indicator, a keyboard lock indicator, and four user-definable indicator lights.

The ADM 42 has a detachable keyboard featuring 118 keys, including a numeric pad, cursor control keys, edit keys, functional command keys, and 16 function keys, shiftable to 32. All keys feature auto repeat.

INTEGRAL MODEM: Optionally available for use with the ADM 24, ADM 32, and ADM 36. The integral modem is compatible with the Bell 212A at 1200 bps, or with the Bell 103 and 113 at speeds up to 300 bps. It can store up to five 30-digit numbers in its battery backed-up memory for automatic dialing.

PRINTERS: Two models are available. The 310 Printer is a 180-cps, serial dot matrix printer. The printer features 14 switch-selectable forms lengths, bidirectional printing, a 7-by-9 dot matrix print head, and a 128 ASCII character set. The 310 Printer is also available with the factory installed acoustic insulation throughout the enclosure.

The Versaprint 500 printer provides near letter quality printing at 45 cps, as well as draft mode printing at 180 cps. Also provided is a dot addressable graphics mode. The Versaprint 500 accommodates forms from 3 to 16 inches wide, features 9-by-9 and 9-by-12 matrix print heads, and contains six resident character sets: USASCII, UKASCII, German, French, Swedish/Finnish, and Danish/Norwegian.

## PRICING

The Lear Siegler display terminals are available for purchase only. Quantity discounts are available. Installation charges are on a time and materials basis.

Lear Siegler provides service in over 100 cities nationwide and in Canada. On-site maintenance is provided on a prime shift basis (8 AM through 5 PM, 5 days per week), excluding holidays. In certain cases, third party contractors (mainly OEMs and large distributors) are also authorized to perform installation and maintenance services.

Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Defective units are returned to a factory depot for repair. Extended Warranty is available on an annual basis.

Express Depot service is a walk-in repair service available at repair depots located in 28 major U.S. cities. Service is performed while the customer waits, or within 48 hours at the latest.

Maintenance pricing for the ADM Series terminals (including some older units no longer available) is as follows:

| | Monthly Maint. | Annual Extended Warranty | Annual Express Depot |
|---|---|---|---|
| ADM 3/3A/3A+ | $17.00 | $ 72.00 | $ 85.00 |
| ADM 5 | 17.00 | 72.00 | 85.00 |
| ADM 23 | 19.00 | 80.00 | 90.00 |
| ADM 22/24* | — | — | — |
| ADM 31 | **26.00 | 93.50 | 150.00 |
| ADM 32 | **27.50 | 105.00 | 150.00 |
| ADM 36 | 26.00 | 105.00 | 150.00 |
| ADM 42 | 30.00 | 153.00 | NA |
| 310 Printer | 32.00 | 240.00 | NA |
| VersaPrint 500 Printer* | — | — | — |

*Maintenance pricing for the ADM 22 and ADM 24 terminals, and VersaPrint 500 printer had not been set as of press time. Please contact vendor.
**Add $2.50 for units equipped with polling option.
Training is charged at the rate of $75 per day per student and a $50 ($75 for ADM 31) one time charge per student. Training is conducted at Lear Siegler headquarters unless the customer negotiates for training at another location.

On-site maintenance for terminals is limited to less than 50 miles from the service city (25 miles for printers); additional mileage is charged at $10 for each 25-mile increment.

| Description | Purchase Price |
|---|---|
| ADM 3A Dumb Terminal | $ 595 |
| Speech Recognition Conversion Kit | 2,100 |
| Lower Case | 75 |
| Answerback | 115 |
| Numeric Keypad | 80 |
| Extension Port Current Loop | 135 |
| Split Baud Rate | 50 |
| Green Phosphor Screen | NC |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 5 Dumb Terminal | 645 |
| Speech Recognition Conversion Kit | 2,100 |
| Answerback | 115 |
| Extension Port Current Loop | 135 |
| Green Phosphor Screen | NC |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |

# Lear Siegler ADM Series Display Terminals

| Description | Purchase Price |
|---|---|
| ADM 22 Smart Terminal | $ 695 |
| ADM 23 Smart Terminal | 795 |
| Current Loop Interface | 50 |
| Business Graphics | 50 |
| Terminal Emulators | 50 |
| Green Phosphor Screen | NC |
| International Character Keycap Set | 50 |
| Answerback | 50 |
| Function Key Set | 20 |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 24 Smart Terminal | 995 |
| 2K Print Buffer | 25 |
| 4K Print Buffer (48-line display memory) | 75 |
| 4K Print Buffer (96-line display memory) | 150 |
| Polling/Direct Connect | 75 |
| Extension Port | 25 |
| Current Loop Interface | 50 |
| Screen Tilt Mechanism | 25 |
| 14-inch Display | 150 |
| Green Phosphor Screen | NC |
| International Character Keycap Set | 25 |
| Katakana Character Generator/Keyboard Layout | 50 |
| ADM 31 Smart Terminal | 1,095 |
| 4.X (function keys, smooth scroll, X/on-X/off) Firmware | 50 |
| Answerback | 50 |
| Green Phosphor Screen | NC |
| Direct Connect Interface | 75 |
| Alternate Character Generator (U.K.) | 100 |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 32 Smart Terminal | 1,295 |
| 3.X (Polling) Firmware | 50 |
| Direct Connect Interface | 75 |
| Screen Tilt Mechanism | 25 |
| 15-inch Display | 250 |
| Green Phosphor Screen | NC |
| Alternate Character Generator (U.K.) | 100 |
| Output Cable | 40 |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 36 Smart Terminal | 1,195 |
| Block Mode & Half/Full-Duplex | 100 |
| Composite Video | 50 |
| Screen Tilt Mechanism | 25 |
| 15-inch Display | 250 |
| Green Phosphor Screen | NC |
| International Character Keycap Set | 20 |
| Output Cable | 40 |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 42 Smart Terminal | 2,195 |
| Touch-Sensitive Conversion Kit | 995 |
| Additional Display Memory (4 pages) | 175 |
| Alternate Character Generator (U.K. or Limited Graphics) | 100 |
| Answerback | 50 |
| Direct Connect Interface | 75 |
| Board Two (includes Bus Extension to Board #1 programmable function keys, and serial printer) | 300 |
| Programmable Function Keys (w/Board Two only) | 50 |
| Polling and Addressing (w/Board Two only) | 130 |
| Modem Cable | 40 |
| Printer Cable | 40 |
| Monitor Stand | 85 |
| Green Phosphor Screen | NC |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| Vector Drawing Graphics Option | 1,050 |
| 310 Printer | 2,045 |
| 310A Printer | 2,170 |
| VersaPrint 500 Printer | 1,695 |

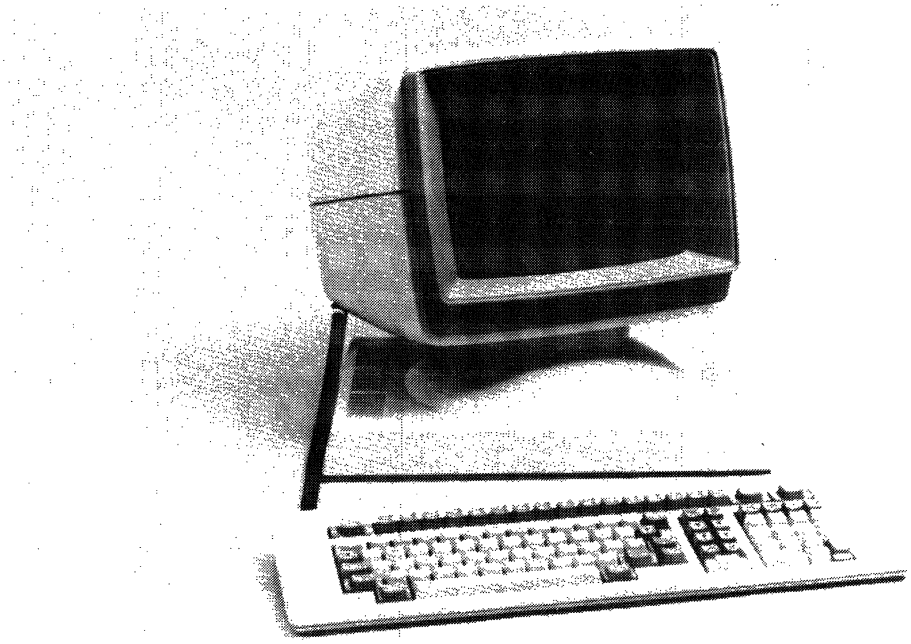
# Lear Siegler ADM Series Display Terminals

## Product Enhancement

On May 16, 1983 Lear Siegler enhanced its popular ADM Series with the addition of two new display terminal models, the ADM 11 and ADM 24E. These displays were shown publicly for the first time at the 1983 National Computer Conference in Anaheim, California June 13-16. The terminals introduced a new ergonomic design for LSI's terminal line. They provide a smaller footprint, a display tilt (5° forward to 10° back of vertical) and swivel (360°) mechanism, and a low-profile detached keyboard with a tilt mechanism. Both models conform with the DIN standard for ergonomics.

The ADM 11 is a conversational-mode "dumb terminal". It includes a 12-inch display, a 1920-character screen capacity arranged in 24 lines of 80 characters each (plus a 25th status line), business graphics (block graphics, wide point graphics, and line drawing character set), and four visual attributes (blink, blank, reduced intensity, and reverse video). The keyboard contains four function keys (shiftable to eight functions), a numeric pad, a cursor control pad, and rib dividers to separate the three keypads. Edit functions include clear screen and erase line/page. The ADM 11 carries an end-user price-tag of $695.

The ADM 24E is an ergonomically-designed version of the ADM 24 smart terminal. The ADM 24E provides the user with the same physical design as the ADM 11 (although the footprint is a little bigger), including the same low-profile keyboard design. Important features of the ADM 24E include a 48-line display memory with a 24-line window to scan memory, horizontal split screen, extended visual attributes, and full editing features. The ADM 24E is priced at $1,250 in single quantities. □



*Lear Siegler's ADM 24E contains the company's new ergonomic styling. The display tilts and swivels; the keyboard is detached, has a low-profile design with a tilt mechanism, and conforms to the DIN standard for ergonomics.*

# Lear Siegler ADM Series Display Terminals

*The ADM 32 features Lear Siegler's new ergonomic design, including a detachable keyboard and a 12-inch non-glare display screen. Options available include a six-position tilt mechanism, a 15-inch display screen, and green phosphor characters.*

**A family of low-cost dumb and smart display terminals.**

**A wide variety of features are offered with the various models, including: visual attributes; editing capabilities; function keys; smooth scroll; split screen; memory paging; printer port; gated extension port; selectable international character sets; and block mode transmission. Lear Siegler has recently added improved ergonomic features with some models, including detachable keyboards, tilt screen adjustments, and 15-inch display screens. Another recent addition is a unit with 132-column capability.**

**Purchase prices for the Lear Siegler terminals range from $595 to $2,195. A variety of maintenance programs are available, including extended warranty, on-site maintenance, and walk-in (express depot) maintenance.**

## MANAGEMENT SUMMARY

Lear Siegler is generally acknowledged to be one of the leaders in the ASCII terminal market. The company was the originator of the "Dumb Terminal" video display, and has shipped in excess of 200,000 ADM 3A dumb terminals. Lear Siegler was also the first company to introduce the first computer terminal selling for less than $1,000. The company has encountered stiff challenges in the past few months from its main competitors, ADDS, Hazeltine, and TeleVideo, who, along with many other vendors, have announced terminals selling for under $700. Lear Siegler's initial response to this challenge was to reduce the prices of it's two low-end models, the ADM 3A and ADM 5. LSI's latest response came in November 1981, when the company introduced three new models, including a smart terminal which sells for $695, the ADM 21.

Eight display terminal models are currently offered by Lear Siegler. The family consists of two dumb terminals, the ADM 3A and ADM 5, and six smart units: the ADM 21, ADM 24, ADM 31, ADM 32, ADM 36, and ADM 42. The ADM 24 and ADM 36 were unveiled along with the ADM 21 in the November announcement.

The ADM 3A is a Teletype-compatible, data entry display terminal designed for asynchronous applications. It features a 12-inch diagonal, 24-line CRT screen with a

## CHARACTERISTICS

**VENDOR: Lear Siegler, Inc., Data Products Division, 714 N. Brookhurst Street, Anaheim, California 92803. Telephone (714) 774-1010.**

**DATE OF FIRST DELIVERY: ADM 3A—June 1975; ADM 31 and 42—October 1978, ADM5—December 1980; ADM 32—April 1981; ADM 21, 24 and 36—December 1981.**

**NUMBER DELIVERED TO DATE: ADM 3A—200,000; ADM 31—12,000; ADM 42—8000; ADM 5—5000; ADM 32—4000; ADM 21—1000; ADM 36—1000.**

**SERVICED BY: Lear Siegler, Inc. and third party contractors located throughout the U.S.A. and Canada.**

### MODELS

**Lear Siegler's ADM Series of display terminals currently consists of eight stand-alone models.**

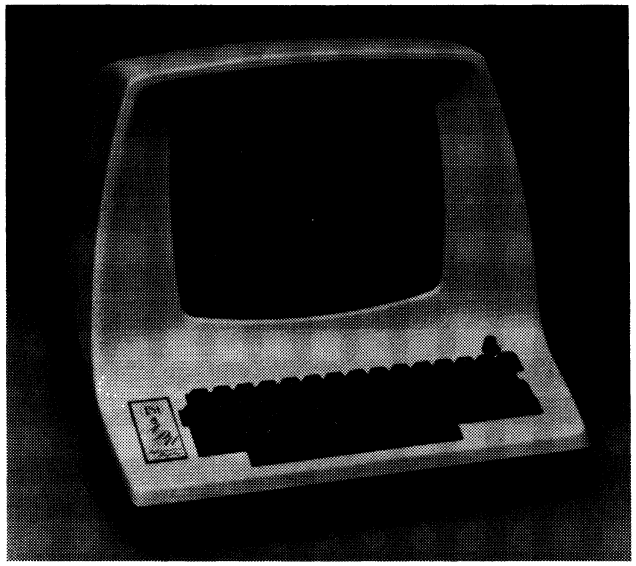
- **ADM 3A—the original "dumb terminal". The ADM 3A features LSI's "clam shell" cabinet design, with a 12-inch screen and an attached keyboard.**
- **ADM 5—an expanded version of the ADM 3A. Additional standard features include visual attributes and limited editing capabilities.**
- **ADM 21—a low-cost smart terminal. Standard features include character and block mode transmission, visual attributes, and full editing capabilities. The ADM 21 has the same physical design as the ADM 3A and ADM 5.**
- **ADM 24—an ergonomically designed version of the ADM 21. The ADM 24 is equipped with a detachable keyboard; a 15-inch display screen and a screen tilt mechanism are optionally available.**

# Lear Siegler ADM Series Display Terminals

display capacity of 1920 characters. The attached keyboard has 59 data entry keys which generate 64 ASCII characters displayed in upper case, punctuation, and control functions. In addition to the 59 keys, an optional auxiliary keypad is available with 0-9 numerals, punctuation, decimal point, comma, minus sign, and entry keys for rapid entry of tabular data. Optional features include lower case characters, a detached numeric pad, answerback and green phosphor characters.

The ADM 5 is an expanded version of the ADM 3A and is equipped with the same basic facilities and data transmission features. It also includes a built-in numeric keypad with 0-9 numerals, period, comma, tab, minus, and return, and separate cursor control keys for single stroke up, down, left, right, and home movements of the cursor. Characters are formed by a 5-by-9 dot matrix in a 7-by-10 window with 2 dot positions for lower case descenders. Other features include an unshifted RUB key, a tab key to generate horizontal tab codes, auto repeat keys, and a stepped control key to minimize operator keystroke errors. A program mode key, designed as a programming aid, permits writing into display memory and displaying all control codes in addition to the 86 ASCII character set. All of the optional features of the ADM 3A are available for the ADMS.

The new ADM 21 is Lear Siegler's lowest priced smart terminal. The ADM 21 features the same enclosure style as that of LSI's dumb terminals, with a 12-inch display screen and an attached keyboard. The screen format is a standard 24-line by 80-columns. However, the ADM 21 adds such smart terminal features as block mode transmission, full editing capabilities, a full range of visual attributes (blink, blank, underline, reduced intensity, and reverse video), and a printer port. Options include answerback, limited graphics, and a selection of international character sets.



*Lear Siegler has shipped over 200,000 of the ADM 3A, the original Dumb Terminal. The ADM 3A features the "clam shell" style enclosure, with an attached keyboard and a 12-inch display screen.*

- **ADM 31—the company's Intermediate Terminal (IT), functionally compatible with LSI's older ADM 1A. Features include character and block mode transmission, full editing capabilities, visual attributes, and two-page memory paging. The standard "clam shell" design is featured.**

- **ADM 32—the ergonomically designed version of the ADM 31, featuring a detachable keyboard. Options include a 15-inch display screen, tilt mechanism, and green phosphor characters.**

- **ADM 36—the company's DEC-compatible model, featuring VT100/VT52 compatibility. In addition to the features found on the ADM 31 and ADM 32, the ADM 36 has a 80/132 column capability.**

- **ADM 42—LSI's top-of-the-line, semi-intelligent model. Features include a detachable keyboard, 15-inch display screen, four- to eight-page memory paging, 16 function keys, and full editing capabilities.**

## TRANSMISSION SPECIFICATIONS

**Transmission is performed in the half- or full-duplex mode at switch-selectable rates of up to 9600 bits per second for the ADM 31, ADM 32, and ADM 42, and rates of up to 19,200 bits per second for all other models. All models use the 8-level ASCII transmission code including odd or even parity, space, or mark.**

**On the ADM 3A, send and receive rates can be selected separately via the Split Baud Rate option. Any combination of available rates is aceptable, except that 1800 bits per second cannot be paired with another speed because of the nature of the internal clock.**

**Transmission is asynchronous on all models. Standard operating mode is point-to-point; optional polling and addressing features for multipoint operations are available on all models except ADM 3A, ADM 5, ADM 21, and ADM 36.**

**An EIA RS-232-C and 20mA current loop interface is provided on all models for communications with the host computer. An RS-232-C extension is available on all models for multi-dropping of multiple terminals on a single communications line.**

**Each unit can also be equipped to support attachment of an asynchronous serial printer. The ADM 3A/5 can support a magnetic tape recorder as an alternative to a serial printer.**

**Transmission can be performed in Conversation Mode (character by character) or in Block Mode on all models except ADM 3A, ADM 5, and ADM 36, which transmit by character only. In Block mode, the terminal can transmit up to five data types: line; page; message; special function sequences; and cursor coordinates. All data, or unprotected fields only, can be transmitted in line, page, or message mode.**

## DEVICE CONTROL

**ADM 3A and ADM 5; Full cursor controls (up, down, right, left, home, and return) and cursor addressability are standard features. Upward scrolling moves all lines up by one when the Line Feed function is executed. (The top line is lost as it overflows the top of the display screen.) The switch-selected "automatic new line" function moves the cursor to the beginning of the next line when the 80th character is keyed. A "here is" function transmits an identification message, when the terminal is equipped with the Auto Answerback feature. The end-of-line bell function is standard. The repeat key, when executed with any other character key, repeats that character at a rate of 15.5 characters per second (the ADM 5 has auto repeat). The break function, a standard teleprinter**

## Lear Siegler ADM Series Display Terminals

The ADM 24 is the ergonomically designed version of the ADM 21, and is equipped with a detachable keyboard. The unit is scheduled for availability in April 1982.

The ADM 31 Intermediate Terminal (IT) is a desk-top unit with full editing capabilities, visual attributes, formatting, and protective fields. The ADM 31 provides two full 1920-character pages of memory resulting in up to 3840 characters of display memory. The second page can also be used as a print buffer. The ADM 31's 90-key keyboard is integrated with main logic and is capable of generating all 128 ASCII characters. Also included are an integral numeric keypad, a function key to transmit a special function sequence to the host, and a computer or keyboard selectable behavior modification feature for compatibility with a variety of computer systems. Standard video features include lower intensity for identification of protected fields, blinking and reverse video, and blanking. Full editing capabilities allow the user to clear the screen or utilize the cursor for character change. Character or block mode transmission is accommodated. Recent enhancements to the ADM 31 include the addition of a 25th status/message line display, and the ability to shift numeric pad keys to transform them into programmable function keys. Options available on the ADM 31 include a serial printer port, polling and addressing, answerback, green phosphor characters, a U.K. character set, and an 11-character line drawing set.

The ADM 32 Intermediate Terminal is an ergonomically designed version of the ADM 31. The ADM 32 is equipped with a detachable keyboard and can be optionally equipped with a six-position tilt screen. The standard 12-inch screen can be optionally replaced with a 15-inch screen, and as with the ADM 31, the standard white characters can be optionally replaced by green.

Lear Siegler has entered the DEC-compatible market with the introduction of the ADM 36. The ADM 36 is an ANSI-compliant unit featuring DEC VT100/VT52 compatibility. Standard features include a 24-line by 80- or 132-column screen format, visual attributes, split screen, protected fields, and jump or smooth scrolling. The ADM 36 features a detachable keyboard, as well as a 12-inch (standard) or 15-inch (optional) display screen.

The ADM 42 is a semi-intelligent video terminal that provides total flexibility of format, editing, interface, and transmission. It features a full, four-page display optionally expandable to eight full pages, a 15-inch diagonal display screen which displays up to 2000 characters in 24 data lines of 80 characters, plus a 25th line provided exclusively for terminal status indicators and messages from the host of up to 79 characters. The ADM-42 also features a detachable keyboard with upper and lower case, numerics, punctuation, control, numeric keypad, and 16 functions keys shiftable to 32. Like the ADM 31, the ADM 42 is preprogrammed at the factory for compatibility with many standard computer systems. A synchronous communications interface, special character generator, programmable function keys, line function, is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The rub-out function transmits a delete code. Data transfer to an attached printer is automatic; all data sent from or received by the terminal is printed.

ALL OTHERS: Full cursor controls and cursor addressability are standard. Cursor controls include up, down, left, right, home, tab, backtab, return, and new line. Cursor functions can be controlled by the keyboard or host computer. A read cursor function permits the computer to find the cursor anywhere on the screen.

Repeat key, break, rubout, upper case lock, line feed, line clear, and screen clear functions are provided on all models.

Character insertion and deletion and line insertion and deletion are standard features. Insertion and deletion affect all characters to the right of the cursor up to the end of the line, or to the beginning of a protected field when the terminal is operating in Protect Mode. On the ADM 42, insertion and deletion in Page Mode affects all characters to the right of the cursor up to the end of the screen or page.

Upward scrolling is a standard function on all units and moves all lines up by one when a line advance function is executed, provided that the terminal is not operating in protected format mode. The top line is lost as it overflows the top of the screen. There is no downward scrolling function.

Typewriter-style tabulation is available. Tabs can be set for any position on a line (producing a columnar effect) or for an entire screen (as if the screen were one 1920-character line) and are available until cleared. In addition "Modulo" tabulation is also available. This function permits a fixed number of positions to be chosen as a parameter; tabs are then automatically set at regular intervals fixed by the parameter for the remainder of the page. For example, by setting a tab modulo of 25 positions, the tab will stop at the 25th, 50th, and 75th positions of the first line; 20th, 45th, and 70th positions of the next line; 15th, 40th, and 65th positions of the next line; etc.

Two-page paging with page-back and page-forward functions is standard on all models except the ADM 21 (single page) and ADM 42. Four pages of display memory is standard on the ADM 42 with an additional four pages optionally available. Page characteristics, including cursor location, are stored in memory when the user changes from one page to another, and automatically restored when the page is recalled. Pages can be used individually, or linked together; when linked, scrolling, editing, and clear functions operate on the entire paging memory as if it were a single page.

Formatting and field protection are available as standard features on all units. Tabbing and backtabbing move the cursor from one unprotected field to another. Protected displayed data is shown in reduced-intensity characters. Display format can be sent by the host computer or designed by the terminal operator. Available field designations include dual intensity, blinking and non-display, reverse video, and underlining. A line drawing set, utilizing a 10-by-12 dot matrix, is available on the AMD 42 (optional on the ADM 21, ADM 24, ADM 31, and ADM 32) to aid in format design. Special line drawing characters include horizontal and vertical lines, corners, and a line intersection.

When operating in protected format mode, the units can clear to protected spaces and clear to unprotected nulls; these functions are standard on all units.

The Program Mode works in both block transmission mode and Conversation Mode, and permits storage, display, and transmission of control characters without executing the function on the display.

# Lear Siegler ADM Series Display Terminals

drawing set, and serial/parallel printer interfaces are also available as options.

Lear Siegler's 310 Ballistic Printer is available for use in conjunction with the company's line of display terminals. The 310 is a receive-only 180 cps serial dot matrix printer. Lear Siegler also announced a pair of agreements to provide additional capabilities for selected terminals at the 1981 NCC show. One agreement, with Interstate Electronics Corporation (Anaheim, CA), provides the ADM 3A and ADM 5 with speech recognition capabilities through the addition of a single printed-circuit board, designated the VRT200. The second agreement, with Interaction Systems, Inc. (Newtonville, MA), provides the ADM 42 with touch-sensitive capability. The ADM 42 can be equipped with these capabilities by adding the TK-242 kit, consisting of a printed-circuit board connected by cables to a heat tempered glass screen with 32 touch-sensitive pads.

## USER REACTION

In Datapro's 1981 survey of alphanumeric display terminal users, responses were received from 10 Lear Siegler ADM Series display users. Seven of the users reported on their experiences with a total of 279 ADM 3As (including one user with 230 units installed). Of the three remaining users, one reported on an installed base of 20 ADM 31 terminals, while the remaining two represented a total of approximately 170 ADM 42s. The combined ratings of these users are presented in the following chart:

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 3 | 7 | 0 | 0 | 3.3 |
| Ease of operation | 5 | 5 | 0 | 0 | 3.5 |
| Display clarity | 3 | 5 | 2 | 0 | 3.1 |
| Keyboard feel & usability | 2 | 5 | 3 | 0 | 2.9 |
| Hardware reliability | 4 | 3 | 2 | 1 | 3.0 |
| Maintenance service | 1 | 4 | 5 | 0 | 2.6 |
| Technical support | 1 | 4 | 5 | 0 | 2.6 |

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

Principal applications reported by the users for their terminals included data entry and interactive inquiry (6 users), program development (6 users), as a system console (5 users), text editing (4 users), and intracompany message traffic (4 users). Three of the users stated that they receive maintenance from LSI, five reported that they obtained maintenance from a third party, and the remaining two users perform maintenance in-house.□

**User-defined control functions can be performed by all units. A special control function sequence must be keyed while the Program Function key is held down to call out a particular function from the host (on all models except the ADM 42). The number of available functions is limited to the number of printable characters on the keyboard. On the ADM 42, a set of 16 Program Function Keys can generate 32 function code sequences; the user needs only to key the appropriate Program Function Key. In either operation, the control function is identified by a single character code.**

**An optional feature on the ADM 42 only allows the control function identification to be expanded to 32 or 64 characters. This adds a broad flexibility to the control functions. For instance, the identification sequence can include pointers, parameters, or identification of other functions to be performed in sequence as a group.**

**Using the Copy/Print or Print (ADM 42 only) function, the user can select which data is to be transferred to the printer for printing. Data can be transferred in formatted or unformatted mode.**

## COMPONENTS

**CRT DISPLAY: All models except the ADM 42 feature as standard a 12-inch (diagonally measured) display screen. The ADM 42 features as standard a 15-inch (diagonal) display screen. The 15-inch screen is available as an option on the ADM 24, ADM 32, and ADM 36. The standard screen format on all models is 24 lines by 80 columns; a 24-line by 132-column format is also standard on the ADM 36. A 25th terminal status line is also available on the ADM 31, ADM 32, and ADM 42. White phosphor characters are standard on all models, with green phosphor characters available optionally. Characters are formed via the following: ADM 3A—5-by-7 dot matrix in a 7-by-9 field (upper case only); ADM 5—5-by-9 dot matrix in a 7-by-10 field; ADM 21 and ADM 24—7-by-8 dot matrix in a 9-by-11 field; ADM 31, ADM 32, ADM 36, and ADM 42—7-by-11 dot matrix in a 10-by-12 field. Lower case characters are optional on the ADM 3A. The 128-character ASCII set is standard on all models except the ADM 3A. The 64-character ASCII set is standard on the ADM 3A, with the 96-charcter set optionally available.**

**KEYBOARDS: All models feature typewriter-style keyboard layouts. The ADM 3A, ADM 5, ADM 21, and ADM 31 feature attached keyboards; all other models feature detachable keyboards.**

**The ADM 3A features 59 keys. The ADM 5 contains 83 keys, including a numeric pad, cursor control keys, and edit keys. The ADM 21 features 87 keys, including a numeric pad, cursor control keys, edit keys, line/page send keys, and a function mode key. The ADM 24 keyboard contains the same keys as the ADM 21, but is detachable.**

**The ADM 31 and ADM 32 contain 90 keys, including a numeric pad, cursor control keys, and edit keys. In addition, the numeric pad keys can be shifted to a set of programmable function keys.**

**The ADM 36 has a detachable keyboard featuring four function keys, a numeric pad, and cursor control keys. All keys feature auto repeat. Also included are an on/off line indicator, a keyboard lock indicator, and four user-definable indicator lights.**

**The ADM 42 has a detachable keyboard featuring 118 keys, including a numeric pad, cursor control keys, edit keys, functional command keys, and 16 function keys, shiftable to 32. All keys feature auto repeat.**

**International character sets are optionally available on all models except the ADM 3A and ADM 5.**

## PRICING

**The Lear Siegler display terminals are available for purchase only. Quantity discounts are available. Installation charges are on a time and materials basis.**

**Lear Siegler provides service in over 100 cities nationwide and in Canada. On-site maintenance is provided on a prime shift**

# Lear Siegler ADM Series Display Terminals

basis (8 AM through 5 PM, 5 days per week), excluding holidays. In certain cases, third party contractors (mainly OEMs and large distributors) are also authorized to perform installation and maintenance services.

Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Defective units are returned to a factory depot for repair. Extended Warranty is available on an annual basis.

Express Depot service is a walk-in repair service available at repair depots located in 28 major U.S. cities. Service is performed while the customer waits, or within 48 hours at the latest.

Maintenance pricing for the ADM Series terminals (including some older units no longer available) is as follows:

| | Monthly Maint. | Annual Extended Warranty | Annual Express Depot |
|---|---|---|---|
| ADM 1 | $30.00 | $103.50 | NA |
| ADM 2 | 32.50 | 150.00 | NA |
| ADM 3A/3A+ | 17.00 | 72.00 | $ 85.00 |
| ADM 5 | 17.00 | 72.00 | 85.00 |
| ADM 21 | 19.00 | 80.00 | 90.00 |
| ADM 24* | — | — | — |
| ADM 31 | 26.00** | 93.50 | 150.00 |
| ADM 32 | 27.50** | 105.00 | 150.00 |
| ADM 36* | — | — | — |
| ADM 42 | 30.00** | 153.00 | NA |

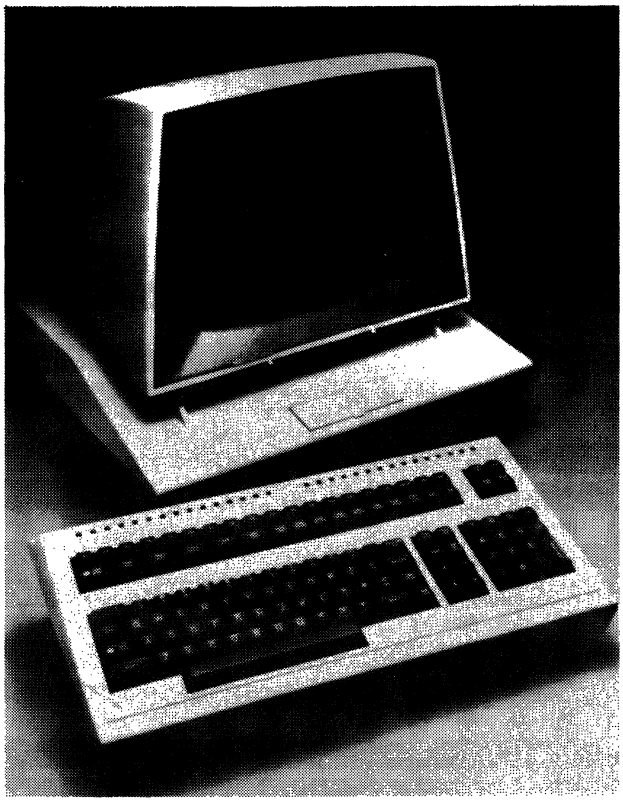
*Maintenance pricing for the new ADM 24 and ADM 36 terminals had not been set as of press time. Please contact vendor.
**Add $2.50 for units equipped with polling option.
Training is charged at the rate of $75 per day per student and a $50 ($75 for ADM 31) one time charge per student. Training is conducted at Lear Siegler headquarters unless the customer negotiates for training at another location.

| Description | Purchase Price |
|---|---|
| ADM 3A Dumb Terminal | $ 595 |
| Speech Recognition Conversion Kit | 2,100 |
| Lower Case | 75 |
| Answerback | 115 |
| Numeric Keypad | 80 |
| Extension Port Current Loop | 135 |
| Split Baud Rate | 50 |
| Output Cable | 40 |
| Green Phosphor Screen | NC |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 5 Dumb Terminal | 645 |
| Speech Recognition Conversion Kit | 2,100 |
| Answerback | 115 |
| Extension Port Current Loop | 135 |
| Green Phosphor Screen | NC |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 21 Smart Terminal | 695 |
| ADM 24 Smart Terminal | 895 |
| Current Loop Interface | 50 |
| Business Graphics | 50 |
| Green Phosphor Screen | NC |
| International Character Keycap Set | 50 |
| Answerback | 50 |
| Function Key Mode Keycap Set | 20 |
| ADM 31 Smart Terminal | 1,095 |
| Answerback | 50 |
| Green Phosphor Screen | NC |
| Direct Connect Interface | 75 |
| Output Cable | 40 |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |

# Lear Siegler ADM Series Display Terminals

| Description | Purchase Price |
|---|---|
| ADM 32 Smart Terminal | $1,295 |
| 3.X (Polling) Firmware | 50 |
| Direct Connect Interface | 75 |
| Screen Tilt Mechanism | 25 |
| 15-inch Display | 250 |
| Green Phosphor Screen | NC |
| Output Cable | 40 |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 36 Smart Terminal | 1,195 |
| Composite Video | 50 |
| Screen Tilt Mechanism | 25 |
| 15-inch Display | 250 |
| Green Phosphor Screen | NC |
| International Character Keycap Set | 20 |
| Output Cable | 40 |
| User's Reference Manual | 25 |
| Maintenance Manual | 50 |
| ADM 42 Smart Terminal | 2,195 |
| Additional Display Memory (4 pages) | 175 |
| Alternate Character Generator | 100 |
| Answerback | 50 |
| Director Connect Interface | 75 |
| Board Two (includes Bus Extension to Board #1, programmable function keys, and serial printer) | 300 |
| Touch-Sensitive Conversion Kit | 995 |
| Programmable Function Keys | 50 |
| Polling and Addressing | 130 |
| Modem Cable | 40 |
| Printer Cable | 40 |
| Monitor Stand | 85 |
| Green Phosphor Screen | NC |
| Users' Reference Manual | 25 |
| Maintenance Manual | 50 |
| Operator's Quick Reference Guide | 10 |
| 310 Ballistic Printer | 2,045 |

# Lear Siegler ADM Series Display Terminals



The top-of-the-line of the ADM series, the ADM-42 is a semi-intelligent video terminal that provides total flexibility of format, editing, interface, and transmission.

## MANAGEMENT SUMMARY

The Lear Siegler ADM family consists of a series of low cost display terminals featuring a broad range of capabilities. The family currently consists of four basic models: the ADM-3A Dumb Terminal for conversational computer interaction; the ADM-3A+ which is an expanded version of the ADM-3A; and the ADM-31 and ADM-42 which replace the ADM-1A and ADM-2, respectively, as smart terminals with substantial off-line editing features.

The ADM-3A is a teletype-compatible, data entry display terminal designed for asynchronous applications. It features a 12-inch diagonal, 24-line CRT screen with a display capacity of 1920 characters. The keyboard has 59 data entry keys which generate 64 ASCII characters displayed in upper case, punctuation, and control functions.

In addition to the 59 keys, an optional auxiliary keypad is available with 0-9 numerals; punctuation; decimal point; comma; minus sign; and entry keys for rapid entry of tabular data.

Data is transmitted in either half- or full-duplex modes at switch-selectable speeds of from 75 to 19,200 bits per second via an RS-232-C/D or 20 mA current loop interface.

**A family of low cost, stand-alone, general purpose CRT display/keyboard terminals.**

**Standard features include Teletype compatibility, extensive editing capabilities, formatting, program function keys, and paging.**

**Half- or full-duplex transmission is switch-selectable at rates of up to 19,200 bits per second in point-to-point or multipoint operations.**

**ADM Series terminals are available for purchase only. The basic ADM-3A costs $895; and the ADM-42 with full features is priced approximately $3,250 depending upon options. Maintenance contracts and quantity discounts are available.**

## CHARACTERISTICS

**VENDOR: Lear Siegler, Inc., Data Products Division, 714 N. Brookhurst Street, Anaheim, California 92803. Telephone (800) 854-3805 or (714) 774-1010.**

**DATE OF ANNOUNCEMENT: Information not available.**

**DATE OF FIRST DELIVERY: ADM-1—August 1973; ADM-2—June 1974; ADM-3A—June 1975, ADM-3A+—June 1980, ADM-31 and -42—October 1978.**

**NUMBER DELIVERED TO DATE: ADM-1—15,000; ADM-2—10,000; ADM-3A—150,000; ADM-31—9,000; ADM-42—6,000.**

**SERVICED BY: Lear Siegler, Inc. and third party contractors located throughout the U.S.A. and Canada.**

### MODELS

**Four models are available as follows:**

- **ADM-3A—a Teletype-compatible "dumb" terminal for data entry applications. Marketed as "glass-window teleprinter", the ADM-3A is a desktop model with an integrated keyboard/display and a single circuit card containing keyboard specifications, I/O connections, and power supply**
- **ADM-3A+—an expanded version of the original ADM-3A dumb terminal, the ADM-3A+ features a 12-inch monitor, upper and lower case display, built-in numeric keypad, RS-232-D/20mA current loop interface, program mode, and individual cursor control keys.**
- **ADM-31—a microcprocessor-based terminal functionally compatible with the ADM-1A. The ADM-31 is a desktop model with an integrated keyboard/display. Features full editing capabilities including two-page paging, keyboard controlled tabulation functions, and full editing capabilities.**
- **ADM-42—a microprocessor-based terminal functionally compatible with the ADM-2. The ADM-42 has detach-**

# Lear Siegler ADM Series Display Terminals

Word format can be selected by the user at standard 9, 10 or 11 bit words, odd, even or no parity, and one or two stop bits. Optional features include lower case, answer back, and split baud rate.

The ADM-3A+ is an expanded version of the ADM-3A and is equipped with the same basic facilities and data transmission features. It also includes a built-in numeric keypad with 0-9 numerals, period, comma, tab, minus, and return, and separate cursor control keys for single stroke up, down, left, right, and home movements of the cursor. Characters are formed by a 5 x 9 dot matrix in a 7 x 10 window with 2 dot positions for lower case descenders.

Other features include an unshifted RUB key, a tab key to generate horizontal tab codes, auto repeat keys, and a stepped control key to minimize operator key stroke errors.

A program mode key, designed as a programming aid, permits writing into display memory and displaying all control codes in addition to the 86 ASCII character set.

The ADM-31 is a desk-top terminal with full editing capabilities, visual attributes, formatting, and protective fields. The ADM-31 provides two full 1920-character pages of memory resulting in up to 3840 characters of display memory. The second page can also be used as a print buffer.

The ADM-31's 90-key keyboard is integrated with main logic and is capable of generating all 128 ASCII characters. An integral numeric keypad, a function key to transmit a special function sequence to the host, and a computer or keyboard selectable behavior modification feature for compatibility with a variety of computer systems. Standard video features include lower intensity for identification of protected fields, blinking and reverse video, and blanking.

Full editing capabilities allow the user to clear the screen or utilize the cursor for character change. The read and load cursor permits sensing of the current address, and direct, absolute addressing to any page and X-Y coordinate. The controls allow the user to skip, backspace, forespace, move up, down, return, home and new line. The control characters can be stored and displayed as a reverse image.

The ADM-42 is a semi-intelligent video terminal that provides total flexibility of format, editing, interface, and transmission. It features a full, four-page display optionally expandable to eight full pages, a 15-inch diagonal display screen which displays up to 2000 characters in 24 data lines of 80 characters, plus a 25th line provided exclusively for terminal status indicators and messages from the host of up to 79 characters. The ADM-42 also features a detachable keyboard with upper and lower case, numerics, punctuation, control, numeric keyboard, and 16 functions keys shiftable to 32.

**able modules for control, keyboard, and display. Features include four to eight page paging, 16 function keys, and full editing capabilities.**

## TRANSMISSION SPECIFICATIONS

**Transmission is performed in the half- or full-duplex mode at switch-selectable rates of up to 9600 bits per second for Models, ADM-31 and ADM-42, and rates of up to 19,200 bits per second for ADM-3A and ADM-3A+. All models use the 8-level ASCII transmission code including odd or even parity, space, or mark. The selectable data rates for the four models are:**

- **ADM-3A and ADM-3A+—75, 110, 150, 300, 600, 1200, 1800, 2400, 4800, 9600 and 19,200 bps.**
- **ADM-31 and ADM-42—50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, and 9600 bps.**

**On the ADM-3A, send and receive rates can be selected separately via the Split Baud Rate option. Any combination of available rates is acceptable, except that 1800 bits per second cannot be paired with another speed because of the nature of the internal clock.**

**Transmission is asynchronous on all models. Standard operating mode is point-to-point; optional polling and addressing features for multipoint operations are available on all models except ADM-3A/3A+.**

**An EIA standard RS-232-C and mA current loop interface is provided on all models for communications with the host computer. An RS-232-C extension is available for multidropping of multiple terminals on a single communications line on all models.**

**Each unit can also be equipped to support attachment of an asynchronous serial printer. The printer port on the ADM-31 and -42 is buffered; the port on other models is unbuffered. The ADM-3A/3A+ can support a magnetic tape recorder as an alternative to a serial printer.**

**Transmission can be performed in Conversation Mode (character by character) or in Block Mode on all models except ADM-3A/3A+, which transmits by character only. In Block mode, the terminal can transmit up to five data types: line; page; message; special function sequences; and cursor coordinates. All data, or unprotected fields only, can be transmitted in line, page, or message mode.**

## DEVICE CONTROL

**ADM-3A and ADM-3A+: Full cursor controls (up, down, right, left, home, and return) and cursor addressability are standard features. Upward scrolling moves all lines up by one when the Line Feed function is executed. (The top line is lost as it overflows the top of the display screen.) The switch-selected "automatic new line" function moves the cursor to the beginning of the next line when the 80th character is keyed. A "here is" function transmits an identification message, when the terminal is equipped with the Auto Answerback feature. The end-of-line bell function is standard. The repeat key, when executed with any other character key, repeats that character at a rate of 15.5 characters per second. The break function, a standard teleprinter function, is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The rub-out function transmits a delete code. Data transfer to an attached printer is automatic; all data sent from or received by the terminal is printed.**

**ADM-31, and ADM-42: Full cursor controls and cursor addressability are standard. Cursor controls include up, down, left, right, home, tab, backtab, return, and new line.**

# Lear Siegler ADM Series Display Terminals

In addition to complete cursor positioning from the keyboard or host computer, the operator may designate fields in blinking/underlining, blinking or reverse video modes to highlight key data. A field protection mode also protects specific areas on the screen. The ADM-42 also has three tab settings: a typewriter mode, a modulo tab, and a protect column tab. Other standard editing capabilities include: clear space, character/line insert, character/line delete, line erase, page erase, and tab-back tab.

Like the ADM-31, the ADM-42 is preprogrammed at the factory for compatibility with many standard computer systems. A synchronous communications interface, special character generator, programmable function keys, line drawing set, and serial/parallel printer interfaces are also available as options.

## USER REACTION

In Datapro's 1980 survey of alphanumeric display terminal users, responses were received from 17 users of Lear Siegler's ADM-3A, ADM-31, and ADM-42 terminals. These users reported on their experiences with a total of 227 ADM-3A's, nine ADM-31's, and five ADM-42's. Their ratings are as follows.

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 7 | 10 | 0 | 0 | 3.4 |
| Ease of operations | 6 | 11 | 0 | 0 | 3.4 |
| Display clarity | 3 | 10 | 4 | 0 | 2.9 |
| Keyboard feel & usability | 4 | 9 | 4 | 0 | 3.0 |
| Hardware reliability | 8 | 7 | 2 | 0 | 3.4 |
| Maintenance service | 4 | 5 | 4 | 1 | 2.9 |
| Technical support | 3 | 5 | 6 | 1 | 2.7 |

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

To obtain additional insight on the Lear Siegler terminals, Datapro contacted three of the respondents by telephone during September, 1980. The first user contacted, an eastern consulting firm with six ADM-3A's installed, cited the price of the units as a major consideration in their purchase. The user stated that in the 2½ years they had been using the equipment, they had experienced "no significant down-time". He added that the units possessed "all the functionality that we require"; in fact, he stated that the firm had discovered additional capabilities of the ADM-3A's that were not mentioned in the operator's manual. The user summed up his feelings about the terminals by stating that they were an "excellent buy for the money".

The second user contacted by Datapro, a large southeastern university with 15 ADM-3A's installed, also mentioned the price of the units as a major reason for their purchase. This user stated that he liked the uncomplicated nature of the Lear Siegler equipment. "The keyboard layout is simple", he said, "I think some people are turned off by terminals with keyboards that bear a vague resemblance to the cockpit of a 747." He added that some improvements that he had felt were needed on the ADM-3A were in fact made on the new ADM-3A+.

**Cursor functions can be controlled by the keyboard or host computer. A read cursor function permits the computer to find the cursor anywhere on the screen.**

**Repeat key, break, rubout, upper case lock, line feed, line clear, and screen clear functions are provided on all models.**

**Character insertion and deletion and line insertion and deletion are standard features on the ADM-31 and ADM-42. Insertion and deletion affect all characters to the right of the cursor up to the end of the line, or to the beginning of a protected field when the terminal is operating in Protect Mode. On the ADM-42, insertion and deletion in Page Mode affects all characters to the right of the cursor up to the end of the screen or page.**

**Upward scrolling is a standard function on all units and moves all lines up by one when a line advance function is executed, provided that the terminal is not operating in protected format mode. The top line is lost as it overflows the top of the screen. There is no downward scrolling function.**

**Typewriter-style tabulation is available. Tabs can be set for any position on a line (producing a columnar effect) or for an entire screen (as if the screen were one 1920-character line) and are available until cleared. In addition "Modulo" tabulation is also available. This function permits a fixed number of positions to be chosen as a parameter; tabs are then automatically set at regular intervals fixed by the parameter for the remainder of the page. For example, by setting a tab module of 25 positions, the tab will stop at the 25th, 50th, and 75th positions of the first line; 20th, 45th, and 70th positions of the next line; 15th, 40th, and 65th positions of the next line; etc.**

**Two-page paging with page-back and page-forward functions is standard on the ADM-31. Four pages of display memory is standard on the ADM-42 with an additional four pages optionally available. Page characteristics, including cursor location, are stored in memory when the user changes from one page to another, and automatically restored when the page is recalled. Pages can be used individually, or linked together; when linked, scrolling, editing, and clear functions operate on the entire paging memory as if it were a single page.**

**Formatting and field protection are available as standard features on all units. Tabbing and backtabbing move the cursor from one unprotected field to another. Protected displayed data is shown in reduced-intensity characters. Display format can be sent by the host computer or designed by the terminal operator. Field tabs can be set by the computer and by the terminal operator. Available field designations include dual intensity, blinking and non-display, reverse video, and underlining (ADM-42 only). A line drawing set, utilizing a 10-by-12 dot matrix, is available on the ADM-42 to aid in format design. Special line drawing characters include horizontal and vertical lines, corners, and a line intersection.**

**When operating in protected format mode, the units can clear to protected spaces and clear to unprotected nulls; these functions are standard on all units.**

**Mode. On the ADM-31 and -42, the Program Mode works in both block transmission mode and Conversation Mode, and permits storage, display, and transmission of control characters without executing the function on the display.**

**User-defined control functions can be performed by all units. On the ADM-31, a special control function sequence must be keyed while the Program Function key is held down to call out a particular function from the host. The number of available functions is limited to the number of printable characters on the keyboard. On the ADM-42, a set of 16 Program Function Keys can generate 32 function code**

# Lear Siegler ADM Series Display Terminals

The final user contacted was a large eastern technical college. This user, with 40 ADM-3A's installed, praised the durability of the terminals. He stated that the units were used by the school's undergraduate students, and called the ADM-3A's performance "...remarkable; they really take a beating." He could recall only three of the 40 terminals going down in the period of about a year. The user also added that the units did not overheat like some other vendors' terminals that the college had used, and attributed that to the design of the Lear Siegler equipment.□

sequences; the user needs only to key the appropriate Program Function Key. In either operation, the control function is identified by a single character code.

An optional feature on the ADM-42 only allows the control function identification to be expanded to 32 or 64 characters. This adds a broad flexibility to the control functions. For instance, the identification sequence can include pointers, parameters, or identification of other functions to be performed in sequence as a group.

Composite Video, an optional feature on all units except ADM-42, on which it is standard, permits hook-up of compatible monitors to the terminal so that data may be viewed on multiple monitors using a single controller and keyboard.

Using the Copy/Print (ADM-31) or Print (ADM-42) function, the user can select which data is to be transferred to the printer for printing. Data can be transferred in formatted or unformatted mode.

## COMPONENTS

CRT DISPLAY UNIT: All models contain a 12-inch (diagonal measurement) CRT with a viewing area 5.5 inches wide by 8-7/16 inches high, except the ADM-42, which has a 15-inch screen with a 6.5-inch by 10-inch viewing area. Each display has a capacity of 1920 characters arranged in 24 rows of 80 characters. The ADM-42 has a 25th display line for status messages. Characters are formed by a 5-by-7 dot matrix on the ADM-3A, by a 5 x 9 dot matrix on the ADM-3A+, and by a 7-by-11 dot matrix on the ADM-31 and ADM-42. Characters are displayed in white against a dark background.

Model ADM-3A displays a set of 64 ASCII characters, or optionally a 96-character ASCII set. A 128-character ASCII set is standard on the ADM-3A+, ADM-31, and ADM-42.

KEYBOARDS: The ADM-3A keyboard is a 59-key, Teletype-style, non-detachable keyboard. Key functions include Line Feed, Home, Carriage Return, Rub Out, Break, Repeat, Here Is, Shift and Control Shift, Clear, and Escape. The keyboard can generate any of 95 ASCII characters. A 10-key numeric pad is optional.

The ADM-3A+ keyboard is an 81-key, teletype-style, non-detachable keyboard. Included are a built-in numeric keypad, separate cursor control keys, a caps lock key, tab key, unshifted RUB key, stepped control key, and a program mode key.

The ADM-31 keyboard is a 90-key Teletype-style non-detachable keyboard. The keygroup contains 75 character and control keys and a 16-key numeric pad. The keyboard can generate any of 128 ASCII characters.

The ADM-42 keyboard is a 118-key Teletype-style detachable keyboard. The keyboard can be located up to 5 feet from the display unit. The main key group contains 56 character and control keys. A set of 8 cursor and control keys plus a set of 15 numeric keys are located to the right of the main keygroup. A double row containing 19 control keys and 16 program function keys are located above the main keygroup. A set of 4 transmit mode and print keys are located above the numeric pad. The keyboard can generate any of 128 ASCII characters. Alternate character sets in foreign language are also available.

## PRICING

The Lear Siegler display terminals are available for purchase only. Quantity discounts are available. Installation charges are on a time and materials basis.

Lear Siegler provides service in over 100 cities nationwide and in Canada. Maintenance is provided on a prime shift basis (8 AM through 5 PM, 5 days per week), excluding holidays. In certain cases, third party contractors (mainly OEM's and large distributors) are also authorized to perform installation and maintenance services.

Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Extended Warranty is available on an annual basis.

Maintenance and Extended Warranty service for the ADM terminals is priced as follows:

| | Monthly Maint.* | Annual Extended Warranty |
|---|---|---|
| ADM-1A | 26.00 | $ 93.50 |
| ADM-2 | 30.00 | 137.50 |
| ADM-3A/3A+ | 180.00** | 72.00 |
| ADM-31 | 24.00 | 93.50 |
| ADM-42 | 30.00 | 153.00 |

*Add $5 to monthly maintenance for units serviced in Canada; add $2.50 for units equipped with polling interfaces.

**Annual Rate; no monthly contract is available; the annual rate for Canada is $240.

Training is charged at the rate of $200 per day and a $50 one time charge per student. Training is conducted at Lear Siegler headquarters unless the customer negotiates for training at another location.

# Lear Siegler ADM Series Display Terminals

| Description | Purchase Price |
|---|---|
| ADM-3A Dumb Terminal | $ 895* |
| **Options** | |
| Lower Case | 75 |
| Answerback | 115 |
| Numeric Keypad | 80 |
| Extension Port Current Loop | 135 |
| Split Baud Rate | 50 |
| Output Cable | 40 |
| Green Phosphor Screen | 75 |
| User's Reference Manual | 5 |
| Maintenance Manual | 35 |
| ADM-3A+ Dumb Terminal | 945* |
| **Options** | |
| Answerback | 115 |
| Extension Port Current Loop | 40 |
| Green Phosphor Screen | 75 |
| User's Reference Manual | 5 |
| Maintenance Manual | 35 |
| ADM-31 Smart Terminal | 1450* |
| **Options** | |
| Serial Print Port | 130 |
| Polling and Addressing | 150 |
| 230 Volt, 50Hz Power Supply | 35 |
| Answerback | 50 |
| Green Phosphor Screen | 75 |
| Alternate Character Generator | 100 |
| Direct Connect Interface | 75 |
| Output Cable | 40 |
| User's Reference Manual | 10 |
| Maintenance Manual | 35 |
| Operator's Quick Reference Guide | 2.50 |
| ADM-42 Smart Terminal | 2045* |
| **Options** | |
| Additonal Display Memory | 175 |
| Alternate Character Generator | 100 |
| Answerback | 50 |
| Director Connect Interface | 75 |
| Board Two (includes Bus Extension to Board #1, programmable function keys, and serial printer) | 300 |
| Programmable Function Keys | 50 |
| Polling and Addressing | 130 |
| Modem Cable | 40 |
| Printer Cable | 40 |
| Monitor Stand | 87 |
| Green Phosphor Screen | 75 |
| Maintenance Manual | 35 |
| Users' Reference Manual | 10 |
| Operator's Quick Reference Guide | 2.50 |

*Based on quantities of 1-10 units.■

# Lear Siegler ADM Series Display Terminals

A family of low-priced, stand-alone, general purpose CRT display/keyboard terminals.

Standard features include Teletype compatibility, extensive editing capabilities, formatting, program function keys, and paging.

Half- or full-duplex transmission is switch-selectable at rates of up to 19,200 bits per second in point-to-point or multipoint operations.

ADM Series terminals are available for purchase only. The basic ADM-3A costs $895; an ADM-42 with full features, about $2,750. Maintenance contracts and quantity discounts are available.

## MANAGEMENT SUMMARY

The Lear Siegler ADM family consists of a series of low-priced display terminals featuring a broad range of capabilities. The family currently consists of five basic models: the ADM-3A, a "dumb" terminal with limited editing capabilities; Models ADM-1A and ADM-31, "smart" terminals with substantial editing features; and Models ADM-2 and ADM-42, "semi-intelligent" terminals with extensive editing capabilities and 16 Program Function keys.

The most popular member of the family is the ADM-3A. Marketed as a "glass-window teleprinter," the ADM-3A is a low-priced replacement for Teletype's Model 33 teleprinter. It offers 11 selectable transmission speeds from 75 to 19,200 bits per second, both RS-232C and 20 mA dc current loop interfaces, full cursor controls, and cursor addressability, and can be daisy-chained. Using the familiar slogan "Dumb Terminal, Smart Buy" as the focus of its successful promotional campaign, Lear Siegler has sold over 50,000 ADM-3A units since June 1975.

But not all of Lear Siegler's terminals are dumb. The two other established members of the ADM family, the ADM-1A and ADM-2, are smart terminals that offer a host of features for operating flexibility in virtually any environment. Execution of the microprogram-implemented features is initiated via commands issued by the host computer or keyed at the terminal. The two models are similar in capability; however, the ADM-2 offers as standard a number of features that are optional on the ADM-1A, plus a few additional features such as keyboard-controlled tabulation, an extended keyboard, ▷

## CHARACTERISTICS

VENDOR: Lear Siegler, Inc., E.I.D./Data Products, 714 N. Brookhurst Street, Anaheim, California 92803. Telephone (714) 774-1010.

DATE OF ANNOUNCEMENT: Information not available.

DATE OF FIRST DELIVERY: ADM-1 — August 1973; ADM-2 — June 1974; ADM-3 — June 1975, ADM-31 and -42 — October 1978.

NUMBER DELIVERED TO DATE: ADM-1 — 12,000; ADM-2 — 8,000; ADM-3 — 50,000.

SERVICED BY: Lear Siegler, Inc. and third party contractors located throughout the U.S.A. and Canada.

### MODELS

Five models are available as follows:

- ADM-3A — a Teletype-compatible "dumb" terminal with limited editing capabilities for data entry applications. Marketed as "glass-window teleprinter", the ADM-3A is a desktop model with an integrated keyboard/display and a single circuit card containing keyboard specifications, I/O connections, and power supply.
- ADM-1A — a general purpose "smart" terminal with substantial editing capabilities. The ADM-1A is a desktop model with an integrated keyboard/display and contains microprogrammed keyboard specifications, control logic, character generation, refresh memory and interface functions.
- ADM-31 — a microprocessor-based terminal upward-compatible with the ADM-1A. The ADM-31 is a desktop model with an integrated keyboard/display. Enhancements over the ADM-1A include two-page paging, keyboard controlled tabulation functions, and an expanded keyboard. Many control functions that are optional on the ADM-1A are standard on the ADM-31.
- ADM-2 — a general purpose "semi-intelligent" terminal with extensive editing capabilities and 16 Program Func- ▶

# Lear Siegler ADM Series Display Terminals

and an optional 9- or 15-inch screen (a 12-inch screen is standard on both units).

The ADM-1A can be thought of as an economy version of the ADM-2. A basic difference between the two models is the method in which commands are keyed. The expanded keyboard of the ADM-2 provides a key for each function. But on the ADM-1A, the same functions are keyed via an escape code or control shift in conjunction with an alphanumeric key.

The ADM-31 and ADM-42 were introduced in June 1978. These newest members of the ADM family feature microprocessor-based controls. Each offers enhancements over its older counterpart (the ADM-1A and ADM-2 respectively) *and* costs less.

The ADM-31 includes as standard features a backtab function, line and page erasure, copy-to-printer, character and line insertion/deletion, protected format clear functions, a program function key, an upper-case lock, a numeric keypad, and 128 printable ASCII characters, all of which are optional features on the ADM-1A. In addition it offers two-page paging; blinking, non-display (blank), and reverse video field designations; and a keyboard-controlled tabulation function; none of these are available on the ADM-1A. Cost for the basic ADM-31 is $1,450 compared to $1,595 for a basic ADM-1A and $2,070 for an ADM-1A that include the ADM-31's standard features.

The ADM-42 offers the following standard and optional features, not available on the ADM-2: underline and reverse video field designations and a line drawing set (optional), all useful in format designing; a 25th line on the display screen for status messages; Modulo Tab Mode; optional synchronous transmission; an additional six pages of memory (optional) and a page numbering function; and 32- or 64-character Program Function keys. (16 one-character Program Function Keys are standard on both models).

A larger 15-inch (diagonal measurement) display screen and a composite video function are standard on the ADM-42 and optional on the ADM-2. The ADM-42 costs $1,795 for the basic unit, or $2,750 with all options; this compares with $2,095 for the basic ADM-2, and $2,420 with the 15-inch screen and composite video options. Unless there is a requirement for Burroughs compatibility or a split band rate, both of which are optionally available on the ADM-2 but not on the -42, the ADM-42 is obviously the better buy.

## USER REACTION

In Datapro's 1978 survey of alphanumeric display terminal users, 24 users reported on their experience with 500 Lear Siegler ADM Series terminals, including 135 ADM-1 or -1A, 35 ADM-2, and 330 ADM-3 or 3A units. Their ratings are presented in the following table:

**tion keys. The ADM-2 has detachable modules for control, keyboard, and display, and comes in standard cabinetry or an "executive" style that includes walnut bases for the keyboard and display. The keyboard can be placed up to five feet from the display. An ADM-2B version provides compatibility with Burroughs TD 802 and TD 822 terminals using standard Burroughs poll and address line discipline.**

- **ADM-42 — a microprocessor-based terminal upward-compatible with the ADM-2. The ADM-42 has detachable modules for control, keyboard, and display. Enhancements over the ADM-2 include paging up to eight pages, optional synchronous transmission, a revised keyboard layout, and many additional control functions and display capabilities.**

## TRANSMISSION SPECIFICATIONS

**Transmission is performed in the half- or full-duplex mode at switch-selectable rates of up to 9600 bits per second for Models ADM-2, ADM-31, and ADM-42, and rates of up to 19,200 bits per second for ADM-1A and ADM-3A. All models use the 8-level ASCII transmission code including odd or even parity, space, or mark. The selectable data rates for the five models are:**

- **ADM-1A — 110, 150, 300, 600, 1200, 1800, 2400, 4800, 9600, and 19,200 bps (standard) plus 75, 3600, and 7,200 bps (optional).**
- **ADM-2 — 110, 150, 300, 600, 1200, 2400, 4800, and 9600 bps.**
- **ADM-3A — 75, 110, 150, 300, 600, 1200, 1800, 2400, 4800, 9600 and 19,200 bps.**
- **ADM-31 and ADM-42 — 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, and 9600 bps.**

**On the ADM-1A, -2, and -3A, send and receive rates can be selected separately via the Split Baud Rate option. Any combination of available rates is acceptable, except that 1800 bits per second cannot be paired with another speed because of the nature of the internal clock.**

**Transmission is asynchronous on all models; on the ADM-42, synchronous transmission is available as an option. Standard operating mode is point-to-point; optional polling and addressing features for multipoint operations are available on all models except ADM-3A.**

**An EIA standard RS-232C interface is provided on all models for communications with the host computer. A 20 mA current loop is optionally available on all units (at additional cost on ADM-1A and -2). An RS-232C extension is available for multidropping of multiple terminals on a single communications line on all models; for an ADM-1A and -2 this option is extra cost.**

**Each unit can also be equipped to support attachment of an asynchronous serial printer. The printer port on the ADM-31 and -42 is buffered; the port on other models is unbuffered. The ADM-42 allows for two printer interfaces, one for a serial printer and one for a parallel printer; the user selects the printer to which data is to be transferred by a switch. The ADM-3A can support a magnetic tape recorder as an alternative to a serial printer.**

**The ADM-2 and ADM-2B mode provides compatibility with Burroughs TD 802 and TD 822 terminals, and utilizes standard Burroughs multipoint protocol.**

**The ADM-2 and ADM-42 can be made transmission-compatible with the ADM-1A via switch selection.**

# Lear Siegler ADM Series Display Terminals

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 9 | 12 | 1 | 0 | 3.4 |
| Ease of operation | 8 | 12 | 2 | 0 | 3.3 |
| Display clarity | 7 | 11 | 4 | 0 | 3.1 |
| Keyboard feel and usability | 3 | 13 | 5 | 1 | 2.8 |
| Hardware reliability | 9 | 7 | 5 | 1 | 3.1 |
| Maintenance service | 5 | 4 | 5 | 3 | 2.6 |
| Technical support | 2 | 7 | 4 | 2 | 2.6 |

*Weighted Average on a scale of 4.0 for Excellent.

These users were unanimous in considering low cost a key advantage of the ADM terminals. Many also cited flexibility, reliability, and compact size as other key advantages.

On the negative side, six users cited poor support as an LSI weakness. Seven users, all reporting experience on ADM-3 or 3A units, felt that the performance limitations of that unit were a disadvantage.□

**Transmission can be performed in Conversation Mode (character by character) or in Block Mode on all models except ADM-3A, which transmits by character only. In Block mode, the terminal can transmit up to five data types: line; page; message (optional on the ADM-1A); special function sequences; and cursor coordinates. All data, or unprotected fields only, can be transmitted in line, page, or message mode.**

## DEVICE CONTROL

**ADM-3A: Full cursor controls (up, down, right, left, home, and return) and cursor addressability are standard features. Upward scrolling moves all lines up by one when the Line Feed function is executed. (The top line is lost as it overflows the top of the display screen.) The switch-selected "automatic new line" function moves the cursor to the beginning of the next line when the 80th character is keyed. A "here is" function transmits an identification message, when the terminal is equipped with the Auto Answerback feature. The end-of-line bell function is standard. The repeat key, when executed with any other character key, repeats that character at a rate of 15.5 characters per second. The break function, a standard teleprinter function, is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The rub-out function transmits a delete code. Data transfer to an attached printer is automatic; all data sent from or received by the terminal is printed.**

**ADM-1A, ADM-2, ADM-31, and ADM-42: Full cursor controls and cursor addressability are standard. Cursor controls include up, down, left, right, home, tab, backtab (optional on ADM-1A), return, and new line. Cursor functions can be controlled by the keyboard or host computer. A read cursor function permits the computer to find the cursor anywhere on the screen.**

**Repeat key, break, rubout, upper case lock (optional on ADM-1A), line feed, line clear, and screen clear functions are provided on all models.**

**Character insertion and deletion and line insertion and deletion are standard features on the ADM-2, ADM-31, and ADM-42, and options on the ADM-1A. Insertion and deletion affect all characters to the right of the cursor up to the end of the line, or to the beginning of a protected field when the terminal is operating in Protect Mode. On the ADM-2 and ADM-42, insertion and deletion in Page Mode affects all characters to the right of the cursor up to the end of the screen or page.**

**Upward scrolling is a standard function on all units and moves all lines up by one when a line advance function is executed, provided that the terminal is not operating in protected format mode. The top line is lost as it overflows the top of the screen. There is no downward scrolling function.**

**Typewriter-style tabulation is available on the ADM-2 and ADM-42. Tabs can be set for any position on a line (producing a columnar effect) or for an entire screen (as if the screen were one 1920-character line) and are available until cleared. In addition "Modulo" tabulation is available on the ADM-42 only. This function permits a fixed number of positions to be chosen as a parameter; tabs are then automatically set at regular intervals fixed by the parameter for the remainder of the page. For example, by setting a tab module of 25 positions, the tab will stop at the 25th, 50th, and 75th positions of the first line; 20th, 45th, and 70th positions of the next line; 15th, 40th, and 65th positions of the next line; etc.**

**Two-page paging with page-back and page-forward functions is standard on the ADM-31 and ADM-42. Additional paging (eight pages total) and a page numbering capability are optional on the ADM-42. Page characteristics, including cursor location, are stored in memory when the user changes from one page to another, and automatically restored when the page is recalled. Pages can be used individually, or linked together; when linked, scrolling, editing, and clear functions operate on the entire paging memory as if it were a single page.**

**Formatting and field protection are available as standard features on all units. Tabbing and backtabbing move the cursor from one unprotected field to another. Protected displayed data is shown in reduced-intensity characters. Display format can be sent by the host computer or designed by the terminal operator. Field tabs can be set by the computer and, except on the ADM-1A, by the terminal operator. Available field designations include dual intensity (all units), blinking and non-display (not available on ADM-1A), reverse video (ADM-31 and -42 only), and underlining (ADM-42 only). A line drawing set, utilizing a 10-by-12 dot matrix, is available on the ADM-42 to aid in format design. Special line drawing characters include horizontal and vertical lines, corners, and a line intersection.**

**When operating in protected format mode, the units can clear to protected spaces and clear to unprotected nulls; these functions are standard on all units except ADM-1A, on which they are optional.**

**On the ADM-1A, control function characters can be stored in memory, recalled for display (in reverse video) on the screen, and transmitted to the host. Using the SEND/ESC/ALT option, escape code sequences can be transmitted character-by-character for direct Teletype compatibility, without performing the function on the display. On the ADM-2, similar functions can be performed using Program Mode and optional ALTernate ESCape Mode. The Program Model operates in block transmission mode only; the user can store and display (but not transmit) control function characters without initiating function performance. Using the ALTernate ESCape Mode, control function characters are stored, displayed, and transmitted, all in Conversation (character-by-character) Mode. On the ADM-31 and -42, the Program Mode works in both block transmission mode and Conversation Mode, and permits storage, display, and transmission of control characters without executing the function on the display.**

**User-defined control functions can be performed by all units. On the ADM-1A and -31, a special control function sequence must be keyed while the Program Function key is held down to call out a particular function from the host. The number of available functions is limited to the number**

# Lear Siegler ADM Series Display Terminals

of printable characters on the keyboard. On the ADM-2 and -42, a set of 16 Program Function Keys can generate 32 function code sequences; the user needs only to key the appropriate Program Function Key. In either operation, the control function is identified by a single character code.

An optional feature on the ADM-42 only allows the control function identification to be expanded to 32 or 64 characters. This adds a broad flexibility to the control functions. For instance, the identification sequence can include pointers, parameters, or identification of other functions to be performed in sequence as a group.

Composite Video, an optional feature on all units except ADM-42, on which it is standard, permits hook-up of compatible monitors to the terminal so that data may be viewed on multiple monitors using a single controller and keyboard.

Using the Copy/Print (ADM-1A and -31) or Print (ADM-2 and -42) function, the user can select which data is to be transferred to the printer for printing. Data can be transferred in formatted or unformatted mode.

Optional device controls on the ADM-1A are packaged into two groups for pricing. The Edit group consists of character and line insertion and deletion, page and line erasure, backtab, and send message functions. The Extended Edit group consists of clear to protected spaces, clear to unprotected nulls, copy/print, and certain Function Key and Control Key functions.

## COMPONENTS

CRT DISPLAY UNIT: All models contain a 12-inch (diagonal measurement) CRT with a viewing area 5.5 inches wide by 8-7/16 inches high, except the ADM-42, which has a 15-inch screen with a 6.5-inch by 10-inch viewing area. Optional 9-inch and 15-inch screens are available on the ADM-2. Each display has a capacity of 1920 characters arranged in 24 rows of 80 characters. The ADM-42 has a 25th display line for status messages. Characters are formed by a 5-by-7 dot matrix on the ADM-1A and ADM-3A, by a 7-by-11 dot matrix on the ADM-31 and ADM-42, and by a 5-by-9 dot matrix in a 7-by-11 dot field on the ADM-2. Characters are displayed in white against a dark background.

Models ADM-1A and ADM-3A display a set of 64 ASCII characters, or optionally a 96-character ASCII set. A 128-character ASCII set is standard on the ADM-2, ADM-31, and ADM-42, and is available on the ADM-1A if the appropriate Extended Keyboard option is selected.

KEYBOARDS: The ADM-3A keyboard is a 59-key, Teletype-style, non-detachable keyboard. Key functions include Line Feed, Home, Carriage Return, Rub Out, Break, Repeat, Here Is, Shift and Control Shift, Clear, and Escape. The keyboard can generate any of 95 ASCII characters. A 10-key numeric pad is optional.

The ADM-1A keyboard is a 60-key, Teletype-style non-detachable keyboard. Key functions include Line Feed, Carriage REturn, New Line, Rub Out, Repeat, Tab, Clear, Break, Send, Escape, Shift, Control Shift, and 5 cursor functions. The keyboard can generate 96 characters (64 printable characters) including upper case alphabetics, numerics, and specials. An optional 81-key Extended Keyboard can generate 128 ASCII characters, and includes a 15-key numeric pad. With the Extended Keyboard, 64, 96, or 128 characters are printable, depending on the option selected.

The ADM-31 keyboard is a 90-key Teletype-style non-detachable keyboard. The keygroup contains 75 character and control keys and a 16-key numeric pad. The keyboard can generate any of 128 ASCII characters.

The ADM-2 keyboard is a 118-key Teletype-style detachable keyboard. The keyboard can be located up to five feet from the display unit. The main keygroup contains 70 character and control keys. A set of 14 cursor and control keys plus a set of 14 numeric keys are located to the right of the main keygroup. And a row of 16 program function keys and four transmit mode and print keys are located over the main keygroup. The keyboard can generate any of 128 ASCII characters.

The ADM-42 keyboard is a 118-key Teletype-style detachable keyboard. The keyboard can be located up to 5 feet from the display unit. The main key group contains 56 character and control keys. A set of 8 cursor and control keys plus a set of 15 numeric keys are located to the right of the main keygroup. A double row containing 19 control keys and 16 program function keys are located above the main keygroup. A set of 4 transmit mode and print keys are located above the numeric pad. The keyboard can generate any of 128 ASCII characters. Alternate character sets in foreign language are also available.

## PRICING

The Lear Siegler display terminals are available for purchase only. Quantity discounts are available. Installation charges are on a time and materials basis.

Lear Siegler provides service in over 100 cities nationwide and in Canada. Maintenance is provided on a prime shift basis (8 AM through 5 PM, 5 days per week), excluding holidays. In certain cases, third party contractors (mainly OEM's and large distributors) are also authorized to perform installation and maintenance services.

Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Extended Warranty is available on an annual basis.

Maintenance and Extended Warranty service for the ADM terminals is priced as follows:

| | Monthly Maint.* | Annual Extended Warranty |
|---|---|---|
| ADM-1A | 26.00 | $ 93.50 |
| ADM-2 | 30.00 | 137.50 |
| ADM-3A | 180.00** | 72.00 |
| ADM-31 | 24.00 | 93.50 |
| ADM-42 | 30.00 | 153.00 |

*Add $5 to monthly maintenance for units serviced in Canada; add $2.50 for units equipped with polling interfaces.

**Annual Rate; no monthly contract is available; the annual rate for Canada is $240.

Training is charged at the rate of $200 per day and a $50 one time charge per student. Training is conducted at Lear Siegler headquarters unless the customer negotiates for training at another location.

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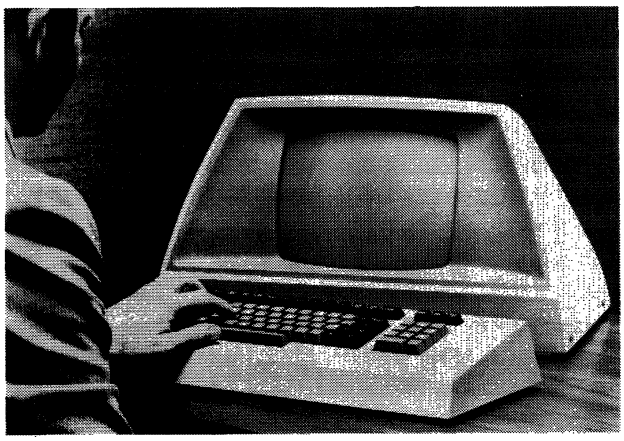
| | Purchase |
|---|---|
| ADM-1A: | $1,595 |
| 20 mA Current Loop | 65 |
| RS-232C Extension | 75 |
| Polling and Addressing | 180 |
| Serial Printer Interface | 130 |
| Split Baud Rate | 60 |
| SEND/ESC/ALT Function | 30 |
| Composite Video | 100 |
| Edit package | 65 |
| Extended Keyboard with Integral Numeric Pad | 80 |
| Extended Keyboard with Upper/Lower Case and Integral Numeric Pad | 135 |
| Extended Keyboard with Extended Edit Functions, Upper/Lower Case, and Integral Numeric Pad | 195 |
| ADM-2: | |
| With Keyboard | 2,095 |
| Without Keyboard | 1,995 |
| 20 mA Current Loop | 65 |
| RS-232C Extension | 75 |
| Polling and Addressing | 130 |
| Serial Printer Interface | 130 |
| Split Baud Rate | 60 |
| ALTernate ESCape Mode | 150 |
| Composite Video | 195 |
| ADM-2B (Burroughs-compatibility) Option | 390 |
| Modular 9" screen (in lieu of standard 12" screen) | N.C. |
| Modular 15" screen (In lieu of standard 12" screen) | 130 |
| Executive Module with 9" screen and walnut case (in lieu of standard 12" screen and case) | 130 |
| ADM-3A: | 895 |
| Extension Port Current Loop | 135 |
| Split Baud Rate | 50 |
| Numeric Pad | 80 |
| Upper/Lower Case | 75 |
| Auto Answerback | 115 |
| ADM-31: | 1,450 |
| Serial Printer Port | 130 |
| Polling and Addressing | 130 |
| Composite Video | 65 |
| | 1,795 |

| | First Option | Additional Option |
|---|---|---|
| ADM-42: | | |
| Polling and Addressing | 190 | 130 |
| Serial Printer Port | 185 | 100 |
| Parallel Printer Port | 185 | 100 |
| Synchronous I/O | 255 | 200 |
| Additional Display Memory (each two-page increment) | 100 | 75 |
| 32-Character Program Function Keys | 185 | 50 |
| 64-Character Program Function Keys | 185 | 50 |
| Line Drawing Set | 185 | 75■ |

# Lear Siegler ADM Series Display Terminals



*The ADM-2, except for its detachable keyboard, appears physically the same as the ADM-1 and ADM-3, but offers more features. All have 1920-character screens and are Teletype compatible.*

**A low cost family of Teletype-compatible CRT keyboard/display terminals.**

**Standard features include formatted operation, extensive editing, program function keys, paging, selectable transmission rates, etc.**

**Configurations are stand-alone and the terminals can support external user-supplied devices via an auxiliary serial interface.**

**Purchase prices range from $995 to $2,895 in unit quantities; quantity discounts are provided. Lear Siegler currently does not provide a leasing program.**

## MANAGEMENT SUMMARY

"Dumb Terminal, Smart Buy." This familiar slogan is used by Lear Siegler to promote sales for its latest terminal, the ADM-3. It has also focused renewed attention on Lear Siegler, which over the last few years has become a prominent vendor of low-priced display terminals in the Teletype replacement market, with over 20,000 units installed. The slogan stresses "dumb" at a time when the industry trend is toward "intelligent." In doing so, Lear Siegler implies that a market exists for dumb terminals. Indeed it does. Many applications are satisfied by basic terminals such as the Teletype Model 33 teleprinter.

And that is just what Lear Siegler's ADM-3 is – a "glass teleprinter." The ADM-3 is a low priced replacement for Teletype's Model 33 teleprinter. It offers 11 selectable speeds from 75 to 19,200 bits per second, both RS-232C and 20 ma dc current loop interfaces, and an optional addressable cursor and can be daisy chained.

But not all of Lear Siegler's terminals are dumb. The two principal members of the ADM family, the ADM-1 and ADM-2, are smart terminals that offer a host of features for operating flexibility in virtually any environment. Execution of the microprogram-implemented features is initiated via commands issued by the host computer or keyed at the terminal. The two models are similar in capability; however, the ADM-2 tops the family with a few additional features, an extended keyboard, and a large display arrangement (optional for the other models). The ADM-1 can be thought of as an economy version of the ADM-2. A basic difference between the two models is the method in which commands are keyed. The expanded keyboard of the ADM-2 provides a key for each function. But on the ADM-1, the same functions are keyed via an escape code or control shift in conjunction with an alphanumeric key.

## CHARACTERISTICS

**VENDOR: Lear Siegler, Inc., E.I.D./Data Products, 714 N. Brookhurst Street, Anaheim, California 92803. Telephone (714) 774-1010.**

**DATE OF ANNOUNCEMENT: Information not available.**

**DATE OF FIRST DELIVERY: ADM-1 – August 1973; ADM-2 – June 1974; ADM-3 – June 1975.**

**NUMBER DELIVERED TO DATE: ADM-1 – 9500; ADM-2 – 2700; ADM-3 – 3800.**

**SERVICED BY: Lear Siegler, Inc.**

### MODELS

**The three models include the ADM-1, ADM-2, and ADM-3. The differences among the models are pointed out in the following paragraphs.**

### TRANSMISSION SPECIFICATIONS

**Transmission is performed in the half- or full-duplex mode at a switch-selectable rate of up to 9600 bits per second for Models ADM-1 and ADM-2 and a rate of up to 19,200 bits per second for ADM-3. All models use the 8-level ASCII transmission code including odd or even parity, space or mark. The selectable data rates for the three models are:**

| | Asynchronous Rates, bps | Synchronous Rates, bps |
|---|---|---|
| ADM-1 | 110, 150, 300, 600, 1200 or 1800 | 2400, 4800, or 9600 |
| ADM-2 | 110, 150, 300, 600, or 1200 | 2400, 4800, or 9600 |
| ADM-3 | 75, 110, 150, 300, 600, 1200, or 1800 | 2400, 4800, 9600, or 19,200 |

# Lear Siegler ADM Series Display Terminals

The salient features of the ADM-1 and ADM-2 terminals include:

- Line and page editing.
- Format protection.
- Tabulation between tab settings or unprotected fields.
- Addressable/readable cursor.
- Character or block transmission.
- Line, message, or page transmission.
- 1920-character screen (optional on ADM-1).
- Dual intensity display.
- Numeric pad (optional on ADM-1).
- Switch selectable transmission rates to 9600 bps.
- Switchable RS-232C and 20 ma dc interface.
- Printer/cassette RS-232C interface.

Polling and addressing is optional for both the ADM-1 and ADM-2.

Other prominent features of the ADM-2 that offset it from the other models include a set of 16 program function keys that can be used to define up to 32 user-applicable functions, the display of upper and lower case alphabetics, and paging.

In August 1976, Lear Siegler became the first vendor to offer a kit version of its ADM-3 "Dumb Terminal" to computer hobbyists – a new and rapidly-growing market. The kit is priced at $875 ($1,280 for the factory version) and will be initially available at the Computer Mart in Orange, California.

## USER REACTION

In Datapro's 1976 survey of alphanumeric display terminal users, 6 users reported on their experience with 45 Lear Siegler display terminals, including 29 ADM-1 and 16 ADM-2 terminals. Their ratings are presented in the following table.

| | Excellent | Good | Fair | Poor | WA* |
|---|---|---|---|---|---|
| Overall performance | 2 | 4 | 0 | 0 | 3.3 |
| Ease of operation | 2 | 3 | 1 | 0 | 3.2 |
| Display clarity | 2 | 4 | 0 | 0 | 3.3 |
| Keyboard feel usability | 2 | 3 | 1 | 0 | 3.2 |
| Hardware reliability | 3 | 2 | 1 | 0 | 3.3 |
| Maintenance service | 1 | 5 | 0 | 0 | 3.2 |
| Software & technical support | 3 | 0 | 2 | 0 | 3.2 |

*Weighted Average on a scale of 4.0 for Excellent.

These satisfied users cited low cost, flexibility, and reliability as the key advantages of the LSI terminals. Non-programmability was cited by two users as the only limitation. □

## DEVICE CONTROL

**ADM-1: Transmission can be performed character by character or by block. A line, page, or partial text (optional) can be transmitted in the block mode. All data, or unprotected fields only, can be transmitted in a line or page mode.**

**The cursor is addressable. Cursor controls include up, down, left, right, home, tab, and new line. Cursor functions can be controlled by the keyboard or host computer. Bell and tab (forward and backward) functions are standard. Optional edit functions include character insert or delete, line insert or delete, clear to end of line, field, or page, and partial send.**

**Format protection is also standard. Inadvertent entry into protected fields is prevented. Tabbing moves the cursor between unprotected fields. Roll, a standard feature, moves all lines up by one when a line advance function is executed, provided that the terminal is not operating in the protected format mode. The first line is lost. Most functions are executed via an Escape code followed by a letter.**

**ADM-2: Transmission can be performed character by character or by block. A line, page, or variable segment of text can be transmitted in the block mode. All data or unprotected fields only can be transmitted in the line or page modes.**

**The cursor is addressable. Cursor controls include up, down, left, right, home, tab, and new line. Cursor functions can be controlled by the keyboard or host computer.**

**Standard edit functions include character insert or delete, line insert or delete, and clear to end of line, field, or page.**

**Format protection is also standard. Inadvertent entry into protected fields is prevented. Tabbing, backward or forward, moves the cursor between unprotected fields. Tabs can be set from the keyboard or computer. Fields can be made to blink for operator attention or blanked for security purposes.**

**Roll, a standard feature, moves all lines up by one line when a line advance function is executed, provided that the terminal is not operating in the protected format mode. The first line is lost.**

**Program mode permits entry of control characters into memory, along with text, without any action.**

**A set of 16 program function keys generates 32 function codes defined by the user program stored at the host computer. The ADM-2 can be made transmission compatible with the ADM-1 via switch selection.**

**ADM-3: Transmission is performed character by character. Cursor movement is provided by space forward, line feed, and carriage return keys. No additional cursor controls are provided. However, full cursor controls and cursor addressability is optional. The cursor can be backspaced via a special control function. A "Here Is" function transmits an identification message, provided the terminal is equipped with the Auto Answerback feature. The bell function is standard. The break function, a standard teleprinter function, is used to interrupt an incoming message. Clear, the only erase function, clears the entire screen. The Rubout function transmits a delete code.**

## COMPONENTS

**CRT DISPLAY UNIT: All models contain a 12 inch (diagonal measurement) CRT with a viewing area 7.5 inches wide by 9.25 inches high. The display arrangement for the three models is as follows:**

# Lear Siegler ADM Series Display Terminals

| | ADM-1 & ADM-3 | ADM-2 |
|---|---|---|
| Characters/display: | 960; 1920 opt. | 1920 |
| Lines/display: | 12; 24 opt. | 24 |
| Characters/line: | 80 | 80 |

Models ADM-1 and ADM-3 display a set of 64 ASCII symbols including upper case alphabetics, numerics, and specials. A set of 128 displayable symbols, including lower case alphabetics, is standard on the ADM-2. A set of 96 displayable symbols is optional on the ADM-1 and ADM-3. Each character is formed via a 5-by-7 dot matrix on the ADM-1 and ADM-3 and via a 5-by-9 dot matrix in a 7-by-11 dot field on the ADM-2. All models display data in white. The ADM-2 features dual intensity, blanking (non display), and blinking.

ADM-1 KEYBOARD: A 60-key, Teletype compatible, nondetachable keyboard. Key functions include Line Feed, Carriage Return, New Line, Rub Out, Repeat, Tab, Clear Send, Escape, Shift, Control Shift, and 5 cursor functions. The keyboard can generate any of 96 characters including upper case alphabetics, numerics, and specials. A 12-key numeric pad is optional.

ADM-2 KEYBOARD: A 70-key, typewriter-style detachable keyboard. The keyboard can be located up to five feet from the display unit. A set of 14 cursor and control keys plus a set of 14 numeric keys are located to the right of the main keygroup. And a row of 16 program function keys and four transmit mode and print keys are located over the main keygroup. The keyboard can generate any of 128 ASCII characters.

ADM-3 KEYBOARD: A 59-key, typewriter-style, nondetachable keyboard. Key functions include Line Feed, Carriage Return, Rub Out, Break, Repeat, Here Is, Shift and Control Shift, Clear, and Escape. The keyboard can generate any of 128 ASCII characters.

## PRICING

The Lear Siegler display terminals are available for purchase only. Quantity discounts are provided. Installation charges are $75 per terminal for one through three terminals at the same location, $60 per terminal for 4 through 10 terminals at the same location, and $40 per terminal for 11 or more terminals at the same location.

Lear Siegler provides service in over 100 cities nationwide and in Canada. Maintenance is provided on a prime shift basis (8 AM through 5 PM, 5 days per week), excluding holidays.

Extended Warranty coverage includes all parts and labor needed to perform remedial maintenance of equipment covered under this warranty. Extended Warranty is available on an annual basis.

Training is charged at the rate of $200 per day and a $50 one time charge per student. Training is conducted at Lear Siegler headquarters unless the customer negotiates for training at another location.

The ADM series display terminals are priced as follows:

| | Purchase | Monthly Maint.* | Extended Warranty |
|---|---|---|---|
| ADM-1 | $1,800 | $22 | $ 93.50 |
| ADM-2: | | | |
| with keyboard | 2,895 | 27.50 | 137.50 |
| without keyboard | 2,495 | | |
| ADM-3 | 995 | 15** | 66 |

*Add $5 to monthly maintenance for units serviced in Canada.
**Also available on a yearly basis for $150 per terminal ($200 in Canada).

### ADM-1 Options

| | |
|---|---|
| 1920-Character Screen | $202 |
| Edit feature | 130 |
| Polling & Addressing | 180 |
| Serial Printer Interface | 130 |
| Numeric Pad | 195 |
| Integral Numeric Pad* | 65 |
| Upper/Lower Case* | 135 |
| Buzzer | 20 |
| Baud Rate Module | 35 |
| RS-232C Extension Interface | 75 |

*For newer models of ADM-1 only (identified as ADM-1A).

### ADM-2 Options

| | |
|---|---|
| Polling & Addressing | $130 |
| Serial Printer Interface | 130 |
| RS-232C Extension Interface | 75 |
| Output Cable | 35 |

### ADM-3 Options

| | |
|---|---|
| Answerback | $115 |
| Addressable Cursor* | 65 |
| Upper/Lower Case* | 135 |
| Numeric Pad | 115 |
| Current Loop Extension Interface | 135 |

*For newer models of ADM-3 only (identified as ADM-3A).■