

CONCEPT AVT Display Terminal

**User friendly. Advanced functionality. Highest quality.
In a word...productivity.**

From Human Designed Systems.

"The video display terminal is the user's window to the world of data processing. In all types of applications and computing environments it is the common tool of information processing. And as a tool in today's world, its value must be measured just as that of any other resource. Productivity is that measure of value."

HDS

human designed
systems, inc.



- ANSI standard conformance
- DEC VT100 compatibility
- 80/132 columns
- Eight pages of memory
- Windowing
- Multiple computer capabilities
- Programmable function keys
- Low price

Human Designed Systems. We're redefining terminal performance.

CONCEPT AVT Display Terminal

Display terminal selection has gone beyond physical dimensions, screen formats, dot matrix arrays, and display colors.

Today, whether it be a data processing professional or terminal operator, a budget-minded manager or performance-minded application developer, there is a single measure of value: productivity.

How does the Human Design Systems' *concept* AVT Display Terminal measure up? Exceedingly well, starting with a base of ANSI standard (X3.64-1979) conformance and DEC VT100 compatibility, it adds ergonomic and user-friendly features such as amber phosphor display, tilt screen, and truly

functional keyboard. Advanced functionality, such as 80/132 columns, windows, multiple pages of memory and 43 programmable function keys. And highest-quality construction that uncompromisingly focuses on long life, reliability, and maximum uptime.

Features that allow terminal operators, interactive users and applications developers to handle their work easily and quickly, to be more flexible, more creative. In a word, the *concept* AVT Display Terminal means productivity. And it's available at a price that makes productivity a practical, cost-effective tool for users in any information processing environment.

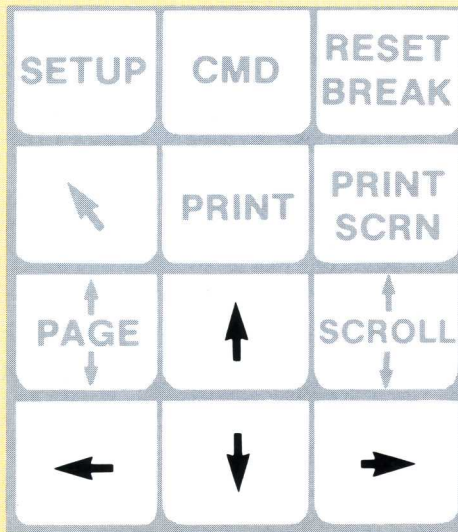
User friendly. Advanced functionality. Highest quality. In a word...productivity.

PRODUCTIVITY FOR THE TERMINAL OPERATOR

Human Designed Systems' *concept* AVT Display Terminal gives productivity a head start by using highest quality components, the best available at any price. That investment provides important returns for you — with a keyboard that is rugged and reliable to give you many more hours of productivity...a "CRT Saver" that automatically reduces the brightness of the terminal when it's on but not in use, so that you can get more hours from your amber phosphor...and a package of electronics with self test and simplified diagnostics to help you quickly and economically troubleshoot the system.

But the key to productivity is working with the *concept* AVT on a daily basis, and everything has been done to optimize that work. Starting with an ergonomically ideal keyboard with click positive touch and matte finish keytops to speed data input, and a layout that puts everything where and how your fingers expect to find them (such as "up, down, right, and left" arrows that are

positioned where your fingers rest)...a high-resolution, high-quality direct etch amber phosphor monitor that optimizes glare reduction, reduces eye fatigue, and allows productive use for hours...a tilt screen that can easily be moved to the best



position for your comfort and readability...a detached keyboard with retractile cable that lets you take the keyboard to where the work is or where working is most comfortable...and a large 10 x 12 dot matrix array with lower case descenders that optimizes display legibility for speed and accuracy, possible because the *concept* AVT didn't skimp on such important details, providing two separate character fonts to give you the best of both worlds — a 7x10 dot matrix for 132 columns, plus an editing quality 10x12 dot matrix for 80

columns.

And that's only the beginning, because Human Designed Systems believes that productivity extends well beyond data input.

PRODUCTIVITY FOR THE INTERACTIVE USER

With productivity as the bottom line, the *concept* AVT provides a unique package beginning with an easy-to-understand Setup Mode that allows quick and convenient terminal configuration from the moment the terminal is plugged in. Non-volatile memory permanently stores the configuration; which means you set it once and forget it...and for quick and easy analysis, status lines display the entire current terminal configuration (without destroying or interfering with the display).

The *concept* AVT builds on that simplicity with powerful user-friendly features directed towards improving productivity every day.

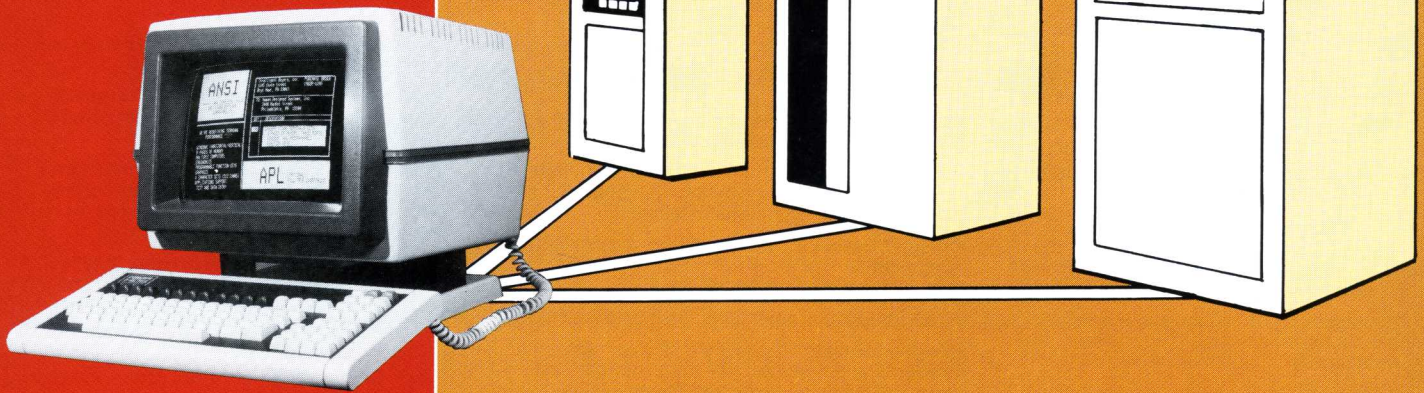
For those users developing full-page-format reports/programs, the 80/132 column switchable display allows you to preview the information before it's printed. The *concept* AVT goes a step further, with a feature not found on most other terminals: memory contents are retained when switching between formats; saving valuable time should you switch in the middle of a session.

Multiple pages of memory (four pages standard, eight pages optional) are another invaluable time-saver for the interactive user. The memory is continuous and allows easy refer back to previous work; no re-run or slow hardcopy printouts as required by one- or two-page terminals. Windows (rectangular memory areas of any size and in any location which are treated as a display within a display) can be defined "permanently" save a portion of the display memory. Use one window to save a copy of the program being developed and a second window to execute that program.

Total hardcopy replacement is not

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A unique capability of the concept terminal allows the interaction of up to three computers and peripherals.



PRODUCTIVITY FOR THE APPLICATIONS DEVELOPER

possible, and the *concept* AVT offers a convenient method for getting what is needed. Two additional communication lines can be used for local peripheral support of printers, tapes, floppy disks, etc. Further, a full set of terminal commands allow the printing of any portion or all of the current display memory or the "slave" printing of all newly displayed data (baud rates can even be different!). Optional Shared Printer Interfaces, which allow multiple *concept* terminals to share a single hardcopy printer, can be added to create a quiet and efficient terminal room environment.

Forty-three programmable function keys are available to store frequently used terminal commands (such as window definitions), typed character sequences (such as your system logon) or both, and further reduce the number of characters which you must type. And the keys are easily programmable from either the display or a computer program.

...The list goes on and on while productivity goes up and up!

ANSI ***** AND COMPLETE ***** DEC/VT100 SOFTWARE COMPATIBILITY	Intelligent Buyers, Inc. PURCHASE ORDER 1245 State Street 19829-1295 Bryn Mawr, PA 19043				
WE'RE REDEFINING TERMINAL PERFORMANCE *****	TO: Human Designed Systems, Inc. 3440 Market Street Philadelphia, PA 19104				
WINDOWS (HORIZONTAL/VERTICAL) 8 PAGES OF MEMORY MULTIPLE COMPUTERS ERGONOMICS PROGRAMMABLE FUNCTION KEYS GRAPHICS 4 CHARACTER SETS (512 CHAR.) APPLICATIONS SUPPORT TEXT AND DATA ENTRY	<table border="1"> <thead> <tr> <th>QTY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>CONCEPT VT100 TERMINALS WITH 8 PAGES OF MEMORY, THREE PORTS, WINDOWS, AND PROGRAMMABLE FUNCTION KEYS.</td> </tr> </tbody> </table>	QTY	DESCRIPTION	100	CONCEPT VT100 TERMINALS WITH 8 PAGES OF MEMORY, THREE PORTS, WINDOWS, AND PROGRAMMABLE FUNCTION KEYS.
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100	CONCEPT VT100 TERMINALS WITH 8 PAGES OF MEMORY, THREE PORTS, WINDOWS, AND PROGRAMMABLE FUNCTION KEYS.				
APL (OPTIONAL) FULL/TRUE OVERSTRIKE					

The concept terminal allows users to create true windows within display memory.

The *concept* AVT is ideal for applications development and implementation — maximizing developer productivity while, at the same time, facilitating the development of productive, user-friendly applications. The key word is productivity, and it's achieved by providing both a comfortable ergonomic working environment and user-friendly applications, making full use of the extended *concept* functionality. Functionality that either provides capabilities not available on other terminals, or is designed to offload work from the host computer to the terminal to increase the effective speed of the applications.

Some typical applications supported by the *concept* AVT functionality:

Slow-Speed Applications (300-1200 baud). The key to productivity here is reducing the number of characters transmitted to the terminal, an objective supported by functionality such as • Change attributes/characters in a rectangular area via transmission of a small number of characters • Use windows to scroll a portion of the display while holding the remainder fixed • Use function keys to offload commands to keys (e.g. window definitions). Host can still be in control as key can be "pressed" by a computer program • Use multiple pages of memory to save time (e.g. store multiple copies of the same form and use windows to switch forms or, in a text application, the page before and after with text preceding and following the current display.

Full Screen Editor Applications. This single application is the reason that many users of full screen editors (e.g. EMACS, FINE, VI) have standardized on the *concept* terminal, and why many editors (full duplex, half duplex, and block mode types) have been developed around its functionality — a reflection of the robustness of such functionality, including • Complete editing command set executable from the keyboard or under program control • Cursor, numeric and function pads can be set to transmit unique sequences for program control-type editors • Multiple character sets (up to 512 characters) allow scientific/foreign language display • Windows and multiple

pages of memory can be used to improve responsiveness.

Multiple Computer Applications. A unique capability of the *concept* terminal allows the interaction between up to three computers, either sequentially or simultaneously, and can be used to transfer data between computers. Different windows or attributes can be used by each computer. The key? The simplicity of the functionality • Any communications line can be treated as the "main" line with respect to keyboard input • The local network between the communications lines, the keyboard, and the display is easily reconfigurable • Communications characteristics (e.g. baud rate, parity, etc.) can be different on each line.

Block Mode/Forms Applications. Functionality for these applications is effective two ways — in creating a user-friendly environment for the operator and improving the effectiveness of the application through increased terminal responsiveness. Forms applications are just one example of many different types of block mode applications. • Block mode means no characters transmitted until desired. Instant corrections can be made • Function keys can be used to alert the computer or transmit data. Once alerted, the computer can perform any actions (e.g. read the screen). Windows are useful for working with different forms quickly, eliminating the need to redraw forms • Multiple pages of memory allow multiple forms (e.g. let the computer read one form in one window while the operator enters data into another copy in a second window) • Forms-drawing characters are standard to make the display like the operator's input — increasing productivity and reducing errors • Data highlighting of course (e.g. reverse video) • Protected areas for field entry. Tabbing between fields for quick input.

These are just a representative sample of applications developed for the *concept* terminal. Mix and match the capabilities you need for your applications; let your imagination lead the way. The end result is the same: high productivity.

CONCEPT AVT Display Terminal

- Concept AVT Four-Page ASCII
- Concept AVT-APL8 Four-Page APL/ASCII

GENERAL

Conforms to ANSI X3.64-1979, software compatibility with DEC VT100/VT52 terminals.

DISPLAY

Physical Dimensions: 15¼" W x 14½" H x 16½" D (38.7 cm x 36.8 cm x 41.9 cm).

Size/Type: 12" diagonal, 9" x 6" display area, high-quality direct-etch amber phosphor, 60Hz. CRT Saver reduces brightness when no characters entered or received for period of time.

Format: 25 lines by 80 or 132 columns, within a 96 x 80 or 56 x 132 memory size (four pages). 25th line displays status information only.

Character Generation: 7 x 11 dot matrix in 10 x 12 dot array (80 columns), 5 x 9 dot matrix in 7 x 10 dot array (132 columns).

Design Features: Tilt adjustment, recessed, hooded screen.

Character Attributes: ASCII, 128 U/L case characters with lower case descenders, blink, reverse video, non-destructive underline, half bright, protection, non-display (security). Block attribute setting for fast generation of attributes for all characters in an area. Block character generation for quickfill of a display area. Standard characters include VT100 graphics, forms, line drawing, curve approximation, mathematical symbols, and control code display characters. One overstrike character set allowed (128 characters).

Screen Attributes: White on black, or reverse, and normal/half-bright protected areas.

Windows: Rectangular areas of display memory of any size and in any location treated as a display within a display. A scrolling region is included for VT100 compatibility; is defined to be a specified group of lines within current window.

Setup Mode: Simple and convenient reconfiguration of many terminal characteristics.

Status Lines: Several lines showing the complete terminal configuration, and either displayed on the 25th line or transmitted in whole or in part to the host computer.

Line Drawing: Basic graphic characters allow easy form and graph generation. Horizontal/vertical line-drawing commands.

Cursor: Flashing underline or flashing reverse video block selectable. Controls — left, right, up, down, home. Absolute address reading and writing. Save and restore cursor and attributes. Wraparound/no wraparound at end of line.

Tabs: Forward/backward typewriter, form, auto.

KEYBOARD

Physical Dimensions: 17½" W x 3" H x 8¾" D (44.4 cm x 7.6 cm x 22.2 cm).

Size/Type: 102 keys with typewriter-style layout — numeric, cursor control, function pads (43 programmable functions standard).

Design Features: Detached with retractile coiled cord, matte finish, click positive touch, N-key rollover, autorepeat on all keys.

Functions: Keyboard lock, bell enable/disable.

Programmable Function Keys: Character sequences generated by all function keys are user modifiable. Function keys can execute terminal commands and/or transmit characters. Memory is allocatable between display pages and function keys. Function keys are executable from communication lines.

Cursor Pad Control: Individual keys can be set to execute commands, transmit character sequences, execute and transmit, or be disabled. Application-mode for DEC compatibility.

Numeric Pad Control: Numeric mode, application mode (DEC compatibility) or programmable (as function keys).

COMMUNICATIONS

General: Asynchronous 10, 11, or 12 bit code, seven data bits, one or two stop bits. EIA RS232C, 15 baud rates (50-9600), even/odd/mark/space/no parity, parity checking of input, half/full duplex.

Buffer Overflow Control: Prevents buffer overflow by sending XOFF/XON characters.

CTS/RTS Protocol Control: Allows use of RS232 control lines for the control of terminal output.

STANDARD CONCEPT CAPABILITIES

General: All terminal commands are executable from the keyboard and communications line(s).

Self Test: RAM, ROM, NVM, and communications.

Text Editing: Insert character in line/window mode, delete character in line/window, erase in line/window, insert/delete line in window.

Form Editing: Insert/delete character in field, erase field/all unprotected fields/window.

Non-Volatile Memory: Permanent storage of terminal configuration. The NVM latent expression allows execution of a set of terminal

commands upon power up or reset. Answerback message can be stored in NVM.

Message Characters: Special terminal control characters are modifiable (including the "escape" command character.)

Multiple Computers: Simple commands for directing data between communications lines and display. Ability to treat any line as the main line with regard to keyboard input.

Multiple Attribute/Window Lists: Allow simple/fast switching between alternate terminal configurations and display areas. Each communication line and keyboard can use its own window and/or attribute list.

Block Mode: When in block mode, no character transmission until transmit performed. Transmit field, any portion of line or window — unprotected or all.

Transparent Mode: Execute control codes or display their character symbols.

OPTIONS

Additional Memory: Eight pages (192 lines x 80 columns or 112 lines x 132 columns).

Video: Direct-etch white (P4), or green (P31).

Shared Printer Interface: Allows multiple CRTs to share one printer (or other peripheral) for hardcopy of the display or terminal I/O.

Multiple Character Sets: Up to four character sets selectable on an individual character basis (512 total characters), including extended graphics, foreign languages, and specials.

Auxiliary Communications: Two additional communications lines for multiple computer connection or local peripherals. Commands to print any portion of display or "slave" print all newly displayed data.

Communications: 20 mA.

Video Output: Class/demo presentations.

Foreign Version: 220/240 VAC, 50 Hz power.

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HDS

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