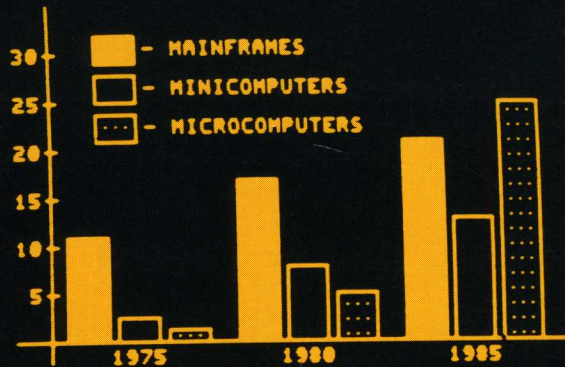


# A Picture's Worth:

U.S. SHIPMENTS (\$ BILLIONS)

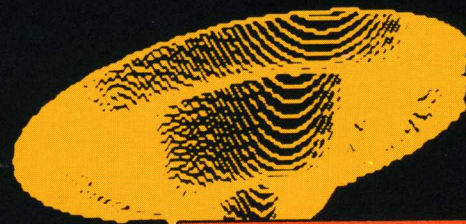


## \*\* GRAPHICS CAPABILITIES \*\*

- ◆ HIGH PERFORMANCE GRAPHICS
- ◆ TEKTRONIX 4010 COMPATIBILITY
- ◆ AUTOMATIC SCALING (1023x1023) WITH 250x512 RESOLUTION
- ◆ ALPHA MODE (35 LINES x 73 COLS)
- ◆ OPTIONAL JOYSTICK
- ◆ CONNECTION TO LOW COST PRINTER FOR GRAPHICS HARDCOPY
- ◆ ASCII AND APL CHARACTER SETS
- ◆ BLOCK FILL, DOTTED/DASHED LINES

## \*\* DISPLAY TERMINAL CAPABILITIES \*\*

- ◆ APL WITH FULL, TRUE OVERSTRIKE
- ◆ ANSI STANDARD, DEC COMPATIBLE
- ◆ 80/132 COLUMNS, WINDOWING
- ◆ 4 PAGES OF MEMORY STANDARD (UP TO 8)
- ◆ 46 PROGRAMMABLE FUNCTIONS
- ◆ 128 CHARACTER U/L CASE ASCII
- ◆ COMPACT ULTRA-THIN KEYBOARD
- ◆ HIGH RESOLUTION AMBER PHOSPHOR
- ◆ SETUP MODE, NVH, PRINTER OUTPUT



**AND APL TOO.**

**CONCEPT GVT-APL+™  
GRAPHICS  
DISPLAY TERMINAL**



human  
designed  
systems,  
inc.

**A PRACTICAL RESOLUTION FOR  
YOUR APL GRAPHICS REQUIREMENTS**

# CONCEPT GVT-APL+ GRAPHICS DISPLAY TERMINAL

*A practical resolution for your APL business and analysis graphics requirements*

The Human Designed Systems *concept* GVT-APL+™ graphics display terminal. Combining high-performance graphics with the industry's "smartest" interactive display terminal. Providing features which extend beyond the capabilities of the Tektronix® 4013...

and at a price that makes it the industry's best APL graphics display terminal buy. And, whether used in video display mode or in its high-performance graphics mode, offering more at its price for all APL users than any other terminal available today.

## In graphics mode...

The *concept* GVT-APL+ graphics display terminal provides software compatibility with the Tektronix 4013 with a full/true overstrike APL character set and its standard vector (780 x 1024), alpha (35 lines by 73 columns) and GIN (graphical input) modes. It provides many capabilities beyond those of the 4013 — including full upper/lower case ASCII character set, vector and character erasure or write-over, block fill, memory dump and load, dotted and dashed lines, hardcopy production via attachment to a low-cost printer, and graphics memory dim. Graphics memory can be accessed by either of the terminal's two standard bidirectional communications interfaces. These capabilities make the *concept* GVT-APL+ ideally suited for a wide range of graphics applications:

- Quick and simple data analysis and presentation of low-resolution business graphics (e.g. bar and pie charts, and curve fitting)
- Low-cost and fast method to preview and print high-resolution complex graphic presentations
- Practical, low-cost solution for low-resolution CAD/CAM applications

## In interactive display mode...

The *concept* GVT-APL+ graphics display terminal offers all of the capabilities of the industry's APL terminal leader — the *concept* AVT-APL+™. In addition to full/true overstrike APL, these capabilities include ANSI X3.64-1979 standard conformance, DEC software compatibility, four pages of memory (eight pages optional), 80/132 columns, compact, ultra-thin, detached 101-key keyboard, windows, easy-to-use setup mode, 46 fully programmable functions, multiple character sets, non-volatile memory for permanent terminal reconfiguration, text editing and data entry applications functionality, two bidirectional communications interfaces for simultaneous connection to multiple computers, block mode and much more — to provide the perfect tool for your APL terminal needs. Please see the *concept* AVT-APL+ product specification (DN 2201-8401-2) for a complete description of these capabilities.

An ASCII-only version (*concept* GVT+™) is offered, which provides software compatibility with the Tektronix 4010.

## GRAPHICS MODE FUNCTIONAL CAPABILITIES

### Vector Mode

Vector draw or block fill  
Resolution: 250 x 512 scaled from 780 x 1024.

Data levels: black, white, opposite (write-over).

Line types: normal, dotted, dot-dashed, short-dashed, long-dashed.

### Alpha Mode

Character sets: 96-character APL with full/true overstrike and 96-character upper/lower case ASCII selectable. Selection can be stored in non-volatile memory (required for compatibility).  
Screen format: 35 lines by 73 columns.  
Character formation: 6 x 6 within a 7 x 7 dot matrix.

Auto wraparound to second column on page full.

Cursor controls: up, down, left, right.

### GIN Mode (Graphical input)

Use of cursor controls (up, down, left, right) or optional joystick.

### Additional Capabilities

Memory dump/load.  
Print graphics memory.  
Transmit status.  
Dim graphics memory.  
Ability to power up in graphics mode (required for true 4013 software compatibility).

### Graphics Options

Joystick: alternate GIN mode input.



**HDS**  
human designed systems, inc.  
3440 Market Street  
Philadelphia, PA 19104  
215-382-5000

## INTERACTIVE DISPLAY MODE FUNCTIONAL CAPABILITIES

Same as *concept* AVT-APL+

See product specification DN 2201-8401-2.

## PHYSICAL CHARACTERISTICS

### General

Dimensions: Monitor — 15¼" W x 15½" H x 16½" D (38.7 cm x 39.4 cm x 41.9 cm).

Keyboard — 16¼" W x 1¾" H x 7¾" D (41.3 cm x 4.4 cm x 19.4 cm)

Power: 115 VAC; 60 Hz; optional: 220/240 VAC, 50 Hz.

Weight: 38 lbs. (17.27 kg).

### Memory

Size: Graphics — one page.

Interactive display — four pages (96 80-column lines) standard; (eight pages optional: 192 80-column lines).

Graphics memory and 24 lines of interactive display memory are displayed simultaneously at all times. Either memory may be set to be non-visible.

### Display

12-inch diagonal high-quality direct-etch amber (ALA) phosphor. No-cost options include direct-etch white (P4) or green (P31).

### Keyboard

Compact, ultra-thin, detached via retractile coiled cord.  
101 keys with typewriter-style layout — numeric, cursor, command and function pads standard. Forty-six programmable functions.

### Communications

Code: ASCII

Type: Two bidirectional RS232C interfaces (20 mA current loop optional), 50-9600 baud (15 rates).

Parity: even, odd, none, mark, space.

Duplex: half/full.

Stop bits: one or two.

Controls: XON/XOFF and EIA CTS/RTS handshake.

### The *concept* Family

Other members of the *concept* display terminal family include:

*concept* AVT+™ Display Terminal

*concept* AVT-APL+™ Display Terminal

*concept* GVT+™ Graphics Display Terminal