

HP 150 Multi-Function Terminal



Features

■ Multifunction Capability

Offers HP 2622A Data Entry Terminal features in data processing mode. Supported by VPLUS/3000 software.

Offers HP 2623A Graphics Terminal features. Supported by HP and third party graphics software.

Easily upgrades to an HP150 Personal Computer.

■ Alphanumeric Mode

The HP 150 Terminal can be used in its native mode as a powerful alphanumeric terminal. Complete display enhancements (inverse video, underline, half bright, blinking, or any combination), two pages of screen memory, and block/forms mode allow the full power of VPLUS/3000 applications.

■ Built-In Graphics

The standard graphics mode provides compatibility with the popular 2623A graphics terminal. Tektronix 4014 emulation is standard, allowing the 150 Terminal to run industry-standard PLOT 10™ software packages.

■ High Performance Datacomm

Speeds up to 19,200 baud can be selected via friendly menus. Either one of the two RS-232 ports can be used to communicate with host computers. With a few keystrokes, the user can switch between two hosts. An RS-232 printer can be used on one of the ports, or an HP-IB printer or plotter can be plugged into the standard HP-IB interface.

■ Human Engineering Features

- Small Footprint Packaging
- High Resolution Green Phosphor Display
- Smooth Vertical Scrolling
- Optional Tilt and Swivel Accessories
- Ergonomically Designed Detached Keyboard
- Brightness and Focus Controls

■ Ease-of-Use Features

- 27th Status Line on Screen
- Integral Printer Accessory (user-installable)
- On-screen Time-of-Day Clock (with Battery Backup)
- Configuration via Friendly Menus (with Battery Backup)

■ The HP TOUCH

Touchscreen is included at no charge. HP TOUCH is easily controlled by the host system, freeing users from depending on the keyboard. Simply point at menus on the screen instead of positioning the cursor from the keyboard to make a selection. Application programs can now be easier and quicker to learn, as well as more friendly and intuitive ("Just point at what you want to do") for more experienced users.

■ Easy Upgrade to a Personal Computer

Just order the HP disc drive of your choice—dual floppy discs or fixed disc with floppy. Everything else you need is included with the HP 150 Terminal.

The HP 150 Terminal

The HP 150 Terminal is the workstation for all reasons—it can function as a very capable alphanumeric terminal, a graphics terminal, and may even be easily upgraded to a personal computer. The HP 150 can grow with you—as you need more capability, the HP 150 can be expanded.



The HP 150 fits easily on any desktop.

Alphanumeric Mode

In alpha mode, the HP 150 offers backwards compatibility with the popular HP 2622A Data Entry Terminal.

Smooth vertical scrolling, selectable through a softkey, allows data to be easily read as it is transmitted from the system to the screen.

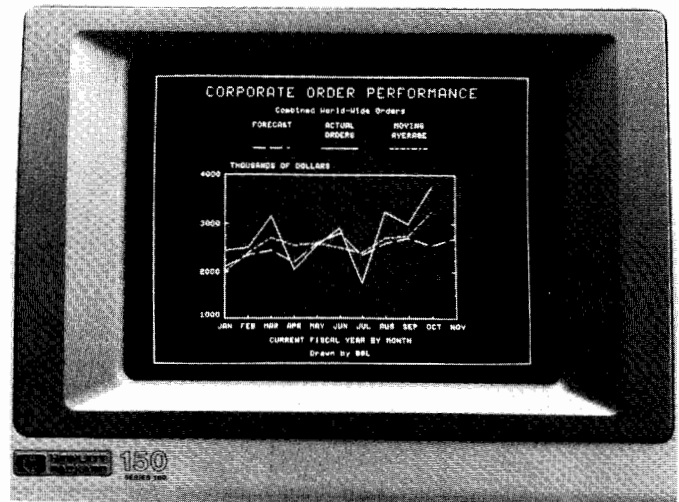
Math and Line Drawing character sets are included as standard features.

Two pages (or screens) of data are stored in display memory. Three edit checks (alpha, numeric, and alphanumeric), transmit-only fields, security fields, complete display enhancements, Data-Modified Tags, together with format mode and block mode transmission, give the HP 150 Terminal a formidable alphanumeric feature set.

Graphics Mode

The graphics mode offers complete backwards compatibility with the HP 2623A graphics terminal and TEKTRONIX 4014 emulation. TEKTRONIX emulation allows the HP 150 to run industry-standard PLOT 10 software. In 2623A mode, the HP 150 Terminal is supported by Precision Visual's DI-3000™ and GRAFMAKER™, ISSCO's DISSPLA™ and TELL-A-GRAPH™, and SAS's SASGRAPH™, as well as HPDRAW and HPEASYCHART.

The graphics resolution is 390 pixels vertically by 512 pixels horizontally. The host simply sends the endpoints of the lines to be drawn, and the HP 150 draws the vector—and even fills complex shapes automatically. This means that the host does not have to tell the HP 150 about every single dot—the HP 150 has the intelligence to figure out how to connect points and fill shapes, resulting in faster drawing time and less load on the system.



High resolution graphics are standard.

Graphics text is included in the HP 150. This allows addition of text to graphics images in eight sizes; slanted or normal; sideways, upside-down, or normal. Rubber Band Line is also included—it adds responsiveness in interactive drawing applications.

High Performance Datacomm

The HP 150 Terminal comes with two RS-232 ports and an HP-IB interface, all standard. A simple menu change switches the "remote" or system port between ports one and two. HP standard command sequences are supported, which allow the system data to be directed to the other RS-232 port, the HP-IB interface, or the optional integral printer.

The datacomm rate on both RS-232 ports is up to 19,200 baud. A completely full screen of characters (24 lines of 80 characters = 1920 characters) can be transmitted and displayed in as little as one second.

National Language Support

Ten national character sets are supported: Danish, Dutch, Finnish, French, German, Italian, Norwegian, Spanish, Swedish, and English. Transmission to the host may be either in 7 bit mode, using ISO replacement character sets, or in 8 bit mode, using HP Extended Roman ASCII.

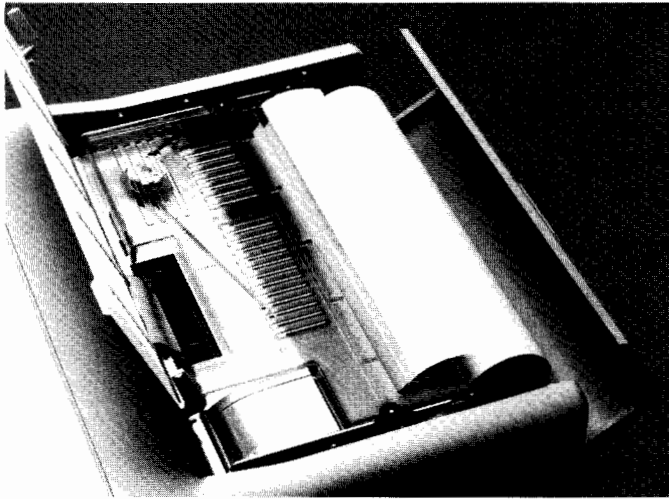
All of the above character sets can be accessed from the standard USACII configuration. The keyboard has the standard USACII character set printed on the keys, but all foreign characters can be typed when Roman Extended mode is selected. A keyboard map (included in the HP 150 Terminal User's Guide) shows how to type the foreign characters.

Fully localized HP 150 products are announced separately from the U.S. version. Contact your local H.P. Sales Office for availability of localized hardware and software.

DI-3000™ and GRAFMAKER™ are trademarks of Precision Visual.

DISSPLA™ and TELL-A-GRAPH™ are trademarks of ISSCO.

Optional Integral Printer



The integral printer accessory can be installed without tools.

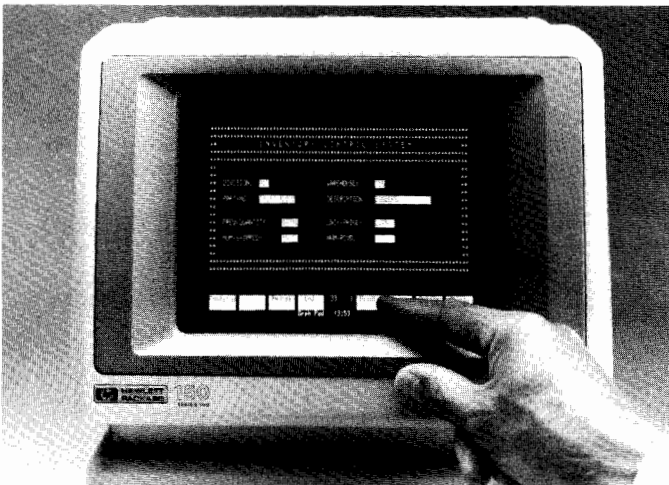
The integral printer is ordered as a separate accessory, which can be installed at any later time. Offering clean, quiet, and flexible performance, the HP 2674A can print:

- 132 column lines (in compressed mode)
 - screen graphics images (just press one key)
 - on roll or fan-fold thermal paper
- without taking any more desk space!

An entire screen of alpha or graphics takes less than 30 seconds to print.

The HP Touch

HP Touch is a standard feature. With existing applications, HP Touch allows the user to touch the screen soft-key labels, and the system will react as though the user had typed that key. New applications can easily utilize the entire screen area through a flexible set of host commands. If the HP 150 Terminal is upgraded to an HP 150 Personal Computer, the user can effortlessly access the large number of programs already written to utilize HP Touch. If desired, HP Touch can be disabled with a keystroke or a simple host command.



HP Touch—a more natural way to communicate with your computer.

HP Touch divides the screen into over 1000 touch areas (27 vertical by 40 horizontal). Applications can then divide the screen into arbitrarily sized rectangles via simple host commands. The screen can further be programmed to send whatever message the host has associated with that portion of the screen, either when the user's finger first contacts the screen, or when (and where) the finger is lifted.

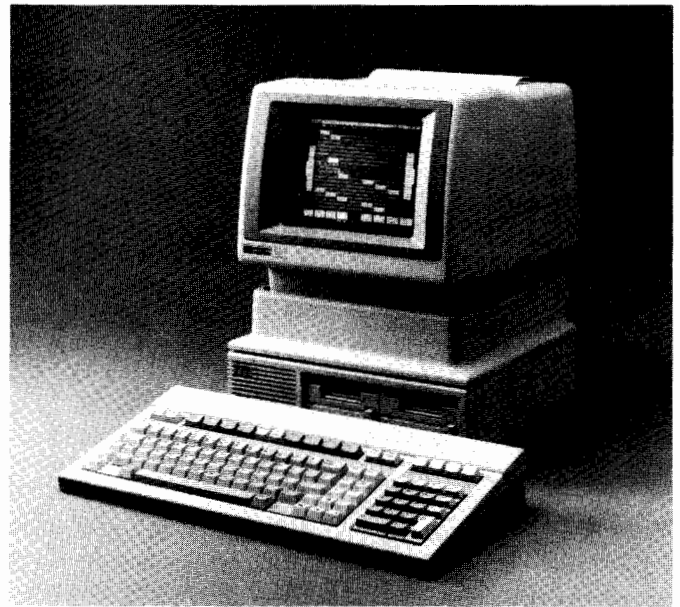
Even if the host does not make special use of HP Touch, but simply loads the softkey definitions and labels, there will be benefits: A touch of the softkey label on the screen will appear to the host as though the user has just hit the softkey on the keyboard.

Many powerful menu-driven applications may not even need to use a keyboard!

Pressure is not required to activate HP Touch—an advanced optical technology is used. The screen is treated with a special non-smudge finish—it stays surprisingly clean.

Upgrade to a Personal Computer

The HP 150 Terminal comes complete with everything that the HP 150 Personal Computer has, except the disc drives. The HP 150 Terminal is an HP 150 Personal Computer without discs; the HP 150 Personal Computer is an HP 150 Terminal with discs. It's really that simple. When you decide to upgrade, simply choose which disc drive is appropriate: dual 3½" floppies, 5 Megabyte fixed disc with 3½" floppy, or 15 Megabyte fixed disc with 3½" floppy.



The HP150 Personal Computer—just a disc drive away!

None of the powerful terminal features will be lost when the unit is upgraded to a personal computer. In fact, the HP 150 Personal Computer will be supporting a number of optional plug-in boards that will further expand the terminal capabilities of the HP 150. For instance, IBM communications will be available. One accessory slot may also be used for expanding the memory of the HP 150 Personal Computer.

See the HP 150 Personal Office Computer Data Book for further information.

HP 150 Product Specifications

DISPLAY

Screen Size:	9 inches measured diagonally.
Image Size:	116mm x 150mm (4.5 in. x 5.9 in.) Alphanumeric 120mm x 160mm (4.7 in. x 6.3 in.) Graphics
Screen Capacity:	24 lines x 80 columns (1920 characters). 25th and 26th lines used for function/softkey screen labels. 27th line used for terminal status.
Character Generation:	7 x 10 enhanced dot matrix with ½ dot shifting; 9 x 14 character cell; non-interlaced raster scan. <i>(Note: Software written for the HP 2623A graphics terminal should be checked for compatibility with the HP 150 Terminal. Both displays superimpose the graphics image over the alpha image on the screen. Since the 150 terminal has 27 lines of alpha total [versus 26 on the HP 2623A], the graphics image does not line up in the same way—especially near the bottom of the screen.</i> <i>Any incompatibility can be worked around by using graphics character sets or recalculating the coordinates of the alpha characters.)</i>
Character Size:	1.3mm (.05 in.) x 2.8mm (.11 in.); 1:2.15 aspect ratio.
Character Sets:	Roman8, Line-drawing, Math standard. Bold and italics are present, but only usable when acting as a personal computer. Total of 896 characters.
Cursor:	Blinking underline or blinking square.
Display Enhancements:	Inverse Video, underline, half-bright, blinking, and non-display (security). All combinations possible.
Refresh Rate:	60 Hz.
Tube Phosphor:	P31 (low persistence green)
Implosion Protection:	Tension band.
Alphanumeric Memory:	2 Pages (48 lines of 80 characters)
Graphics Memory:	512 (H) x 390 (V) (199,680 pixels total)

KEYBOARD

General:	Detached keyboard with 107 sculpted keycaps. Auto-repeat, N-key roll-over. 2.44m (8 ft.) coiled cable. 18 key numeric pad, cursor control keys, 12 soft/function keys, 8 with corresponding screen labels. "Click" sound is softkey controlled.
Included Overlays:	An overlay is included for the numeric pad, which labels the graphics functions active when the graphics pad is enabled. Other overlays are included with the corresponding application.

DATA COMMUNICATIONS

General:	The HP 150 is equipped with two RS-232 ports and an HP-IB port. Either of the RS-232 ports can be used to communicate to the system. Output to the terminal can be directed to the screen, the other RS-232 port, the integral printer, or the HP-IB port.
Data Rate:	110, 150, 300, 600, 1200, 2400, 4800, 9600, and 19,200 baud on both RS-232 ports.
Throughput:	With only one port active, the HP 150 can display up to 1,920 characters of text per second. The rate at which the terminal can process characters is slowed by character enhancements, format information, or other processing tasks. To insure against loss of data, handshaking is advised.
Handshaking:	Enq/Ack and XON/XOFF, selectable thru datacomm menus. At least one should always be used.

POWER REQUIREMENTS

Input Voltage:	115 Volts (+ 10%, - 25%) at 50/60 Hz (± 5%) <i>or</i> 230 Volts (+ 10%, - 25%) at 50/60 Hz (± 5%) Voltage selectable via switch.
Power Consumption:	110 Watts. 130 Watts with HP 2674A internal printer installed.

GRAPHICS

Resolution:	512 Horizontal x 390 Vertical displayable points
Vector Drawing Time:	8 msec. typical, typically processes vectors at a 4800 baud rate (handshaking necessary at higher data rates).
Polygonal Area Fill:	Automatic Fill of Polygons up to 105 sides.
Graphics Characters:	11 fully supported national graphics character sets, using HP 8 bit extended Roman ASCII or ISO character replacement. Eight sizes, slanted or normal, four orientations (upside-down, normal, right, left). Operation is identical to that of the alphanumeric character sets.
Graphics Hardcopy:	Copy to optional internal printer: 30 seconds. Raster dump to external HPIB graphics printer. Plotters may be connected either to the HPIB port, or in eavesdrop mode on the system RS-232C port.

SUPPORTED EXTERNAL DEVICES

Integral Thermal printer: HP 2674A	Does not use RS-232 or HPIB. Alphanumeric or graphics output.
Alphanumeric printers: Connected to the HPIB port: HP 2602A opt. 046 HP 82905B opt. 002	Connected to RS-232C: HP 2601A HP 2602A HP 82905B opt. 240, 340, or 440
Graphics Printers: Connected to the HPIB port: HP 2932A opt. 046 HP 2934A opt. 046 HP 82906A	Connected to RS-232C: HP 2932A HP 2934A
Plotters: Connected to the HPIB port: HP 7470A opt. 002 HP 7475A opt. 002	Connected to the System RS-232 port in eavesdrop mode: HP 7470A opt. 001, opt. 016 HP 7475A opt. 001, opt. 016



ENVIRONMENTAL CONDITIONS

Temperature, free space	
Non-operating:	- 40 to + 75°C (- 40 to + 167°F)
Operating:	0 to + 55°C (+ 32 to + 131°F)
With integral printer:	0 to + 55°C (+ 32 to + 131°F)
Humidity:	5 to 95% (non-condensing)
With integral printer:	5 to 95% (non-condensing)
Altitude:	
Non-operating:	Sea level to 15,240 meters (40,000 ft.)
Operating:	Sea level to 4572 meters (15,000 ft.)
Vibration:*	0.38mm (0.015") pp. 5 to 55 Hz 3 axis.
Shock:*	30 g. 11 msec. ½ sine.

**Type tested to qualify for normal shipping and handling in original shipping container.*

PRODUCT REGULATIONS

The HP 150 meets the standards for EDP or office equipment in the following countries:

Safety:

United States	U.L. Listing.
Canada	CSA Certification.
Finland	FEI approval pending.
International	IEC380/435 Safety of Electrically Energized Office Machines compliance.

RFI:

United States:	FCC CFR 47 Section 15 for Class B equipment.
Germany:	VDE 0871 Level B, approval pending.

Datacomm:

	CCITT V.24 interchange, V.28 Electrical recommendation.
Australia:	Application submitted, approval pending.
Belgium:	Application submitted, approval pending.
Germany:	Application submitted, approval pending.
Sweden:	Application submitted, approval pending.
United Kingdom:	Application submitted, approval pending.
Nordic Network:	Application submitted, approval pending.

Contact local HP Sales Office for current status of datacomm approval in your country.

PHYSICAL SPECIFICATIONS

Display Monitor Weight:	10.1 Kg (22.3 Lbs.)
With Integral Printer:	13 Kg (28.7 Lbs.)
Keyboard Weight:	2.1 Kg (4.7 Lbs.)
Display Monitor Dimensions:	305mm (W) x 305mm (D) x 287mm (H) 12.0 in. (W) x 12.0 in. (D) x 11.3 in. (H)
Keyboard Dimensions:	
Flat:	456mm (W) x 225mm (D) x 35mm (H) 18.0 in. (W) x 8.9 in. (D) x 1.4 in. (H)
Standing:	456mm (W) x 225mm (D) x 63mm (H) 18.0 in. (W) x 8.9 in. (D) x 2.5 in. (H)

PRODUCT SUPPORT

Hardware Supplied:	HP 150 Terminal (Product Number 45610A)
Documentation Supplied:	HP 150 Personal Computer User's Guide (45621A). HP 150 Terminal User's Guide (45623A).
Documentation Available:	HP 150 Service Manual (45611-90002)
HP Systems Support:	Refer to appropriate HP system data sheet for use and support of the HP 150 on systems. When this product is used in customer-assembled system, the overall operational responsibility of the system rests with the customer.
Warranty:	The HP 150 Terminal is warranted against defects in material and workmanship. Contact the local HP Sales Office for terms and conditions.
Maintenance:	HP maintenance agreements are available for HP 150 support after the warranty period. Contact the local HP Sales Office for terms and conditions.

HP 150 Ordering Information

PRODUCT NUMBER	DESCRIPTION
45610A	Multi-Function Terminal
Includes:	-The 150 display terminal and keyboard -Graphics overlay for numeric pad -HP 150 Personal Computer User's Guide -HP 150 Terminal User's Guide -Power cord
	(Included, but used only for upgrade to an HP 150 Personal Computer:)
	-0.3 meter HPIB cable -Power interconnect cable -3½" diskettes: -MS™- DOS Operating System, P.A.M. -Disc Applications -HP 150 Demonstration disc -Computer Aided Instruction disc

Accessories

PRODUCT NUMBER	DESCRIPTION
2674A	Integral printer—user-installable. Includes one roll of thermal paper.
13242N	Cable: RS-232C to U.S. system.
13242M	Cable: RS-232C to European systems (RFI shield)
13242G	Cable: RS-232C to printer
13242X	Cable: RS-232C to HP 3000 ATP
92220R	HP-IB Cable—0.3 meter
45529D	HP-IB Cable—0.5 meter
45529A	HP-IB Cable—1.0 meter
45529B	HP-IB Cable—2.0 meter
92240A	Display Tilt Unit
92240B	Computer Swivel Unit
13269P	Carrying Case (holds HP 150 and 9121 disc drive)
92250F	Dust Cover
Any one of the following disc drives can be ordered to upgrade the HP 150 Terminal to an HP 150 Personal Computer:	
9121D	Dual 3½" floppy disc drives. 500K Total storage.
9133V	5 Megabyte fixed disc with 3½" floppy.
9133XV	15 Megabyte fixed disc with 3½" floppy.

