



Graphics Terminal

Model 2623A



FEATURES

The low cost 2623A is designed for the graphics user with an extensive on-line capability and system based software. The high quality display and fast vector plotting of the 2623A means that it is suitable for most graphics applications, including business, technical and design graphics. An optional integral printer provides fast graphics hardcopy by just pressing a single key.

An ANSI compatibility option allows the 2623A to be used with host computers and application software that support this protocol. This option supports many of the popular features of the 2623A.

The low cost 2623A may be just the graphics solution you have been waiting for.

High Quality Display

- Bright screen
- Selective erase
- 512x390 displayable points
- TEKTRONIX® 4010 compatible

Built-in Graphics Hardcopy (Optional)

- Hardcopy in 30 seconds
- Quiet thermal printing
- Prints 80/132 column reports

Fast Vector Generation

- 9600 baud throughput
- 11 selectable line types
- Rubberband line

Graphics Software Support

- HP DSG/3000, HPDRAW, HPEASY CHART
- HP Graphics 1000/II
- TEKTRONIX® PLOT 10
- Major Industry Graphics Software Packages

Graphics Text

- Normal or slant
- Variable character size, orientation
- U.S. ASCII and six national languages

Rectangular Area Shading

- User defined patterns

Independent Graphics and Alpha Memory

- Local graphics cursor control
- Separate graphics and alpha cursors

Full Alphanumeric Capability

- Block/character mode
- Forms mode
- Editing
- Display enhancements

Ease of Use

- 8 user definable softkeys
- Soft configuration
- RS232 printer port
- Six national character sets
- Detachable keyboard
- Tablet support

Data Communications

- EIA RS232
- 20 mA current loop
- Full duplex, asynchronous

Reliability/Serviceability

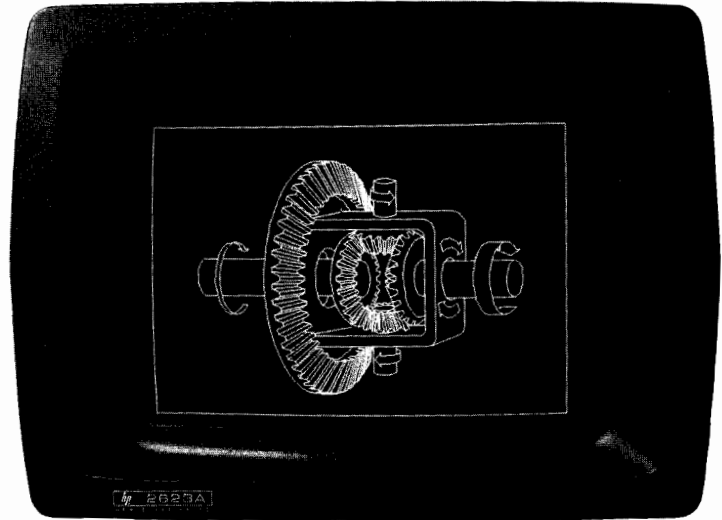
- Self test
- Modular design

High Quality Display

The 2623A can be used in normal office lighting and requires no hoods or shields to enhance visibility. The bright display of the 2623A helps to minimize eye fatigue during extended sessions at the terminal.

Selective erase, the ability to modify selected portions of a picture, is a natural feature of the 2623A. Portions of the picture can be modified at 9600 baud without completely erasing and redrawing the entire display. This minimizes the system software overhead, user wait-time, and communication costs.

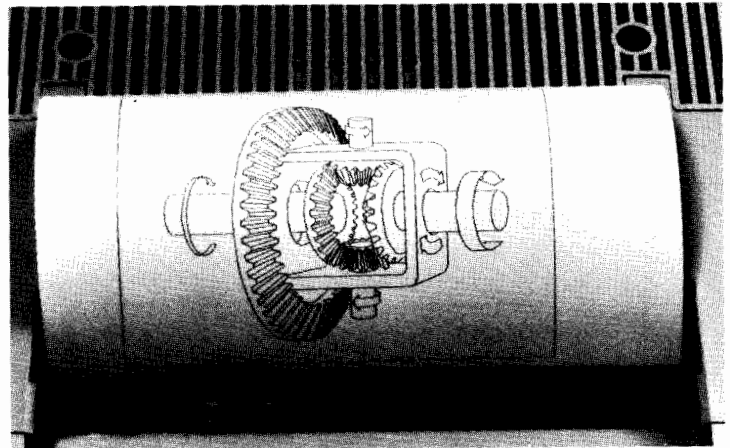
The 2623A provides a displayable resolution of 512 x 390 points. This resolution provides a graphic image which is easy to read and interpret. In Compatibility Mode the 2623A can accept data formatted for terminals with 1024 x 780 displayable points such as the TEKTRONIX® 4010. The 2623A can either display a 512 x 390 subset of the picture or the entire 1024 x 780 formatted picture can be scaled automatically to fit into the 2623A display. The 2:1 aspect ratio provides for a smooth transition.



Graphics Hardcopy/Alphanumeric Printing

The 2623A provides a low cost, built-in thermal printer that is capable of printing either graphics or alphanumeric data. The entire graphics memory can be printed in less than 30 seconds. This capability provides a quick walk-away copy which you can discuss with others or one that can be filed away for future reference.

For non-graphics applications such as data entry and program development, the integral thermal printer is also a convenient solution. Copy at 120 characters per second a line, page, the entire display memory or simply log data as it comes from the computer or rolls out of display memory. The printer has three printing modes: (1) expanded mode 40 characters per line for titles or highlighting error messages, (2) normal mode for 80 characters per line printing and (3) compress mode for printing 132 column reports on 8-1/2" wide paper.



This versatile printer also has a report mode which automatically formats data into pages of 60 lines (64 lines in metric mode).

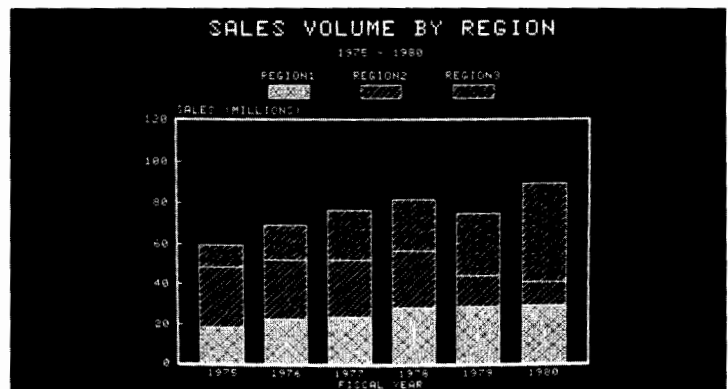
The integral thermal printer is not, of course, suitable for all applications and the 2623A provides an external printer port for connecting your own RS232 printer or other HP hardcopy device.

Rectangular Area Shading

Rectangular area shading adds a new visual dimension to graphics by enhancing the shading of parts and assemblies, and facilitates differentiation of bar graphs. The user can specify unique patterns within an eight bit by eight bit cell, making it easy to use a variety of shading patterns. This terminal resident capability helps to reduce system software overhead and user wait time.

Rubberband Line

The HP 2623A's rubberband line capability allows for the preview of a vector before it is stored in the graphics memory. This interactive feature reduces system overhead while minimizing operator development time.



Graphics Software Support

The HP 2623A is supported by a wide variety of Hewlett-Packard software.

Decision Support Graphics/3000, HPDRAW, and HPEASY-CHART are designed specifically for a wide variety of business applications on HP 3000 computer systems.

Graphics 1000/II is a high level graphics application development tool designed for use on HP 1000 computer systems and can provide a solution to a wide range of technical display graphics.

In addition to Hewlett-Packard software, the HP 2623A is supported under HP PLUS (HP's third-party software supplier program) and will operate with Precision Visual's DI-3000™ and GRAFMAKER™, ISSCO's DISSPLA™ and TELL-A-GRAF™, and SAS's SAS/GRAPH™.

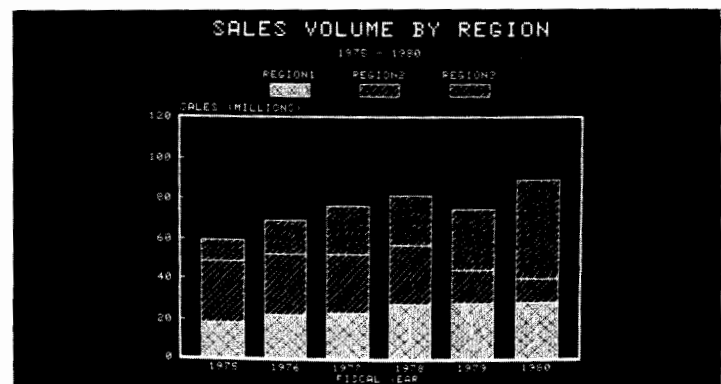
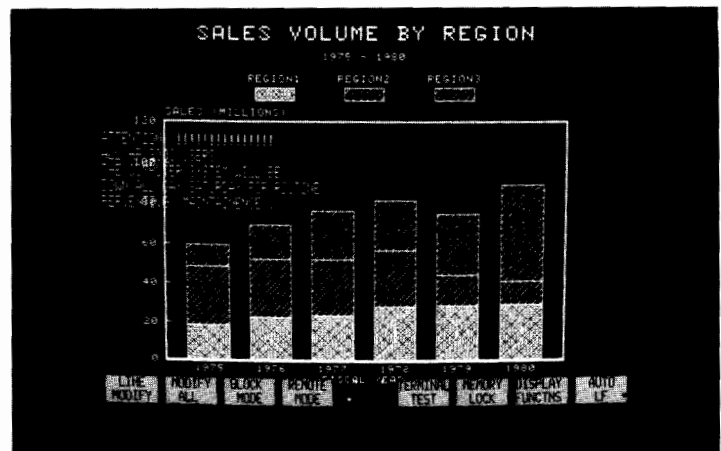
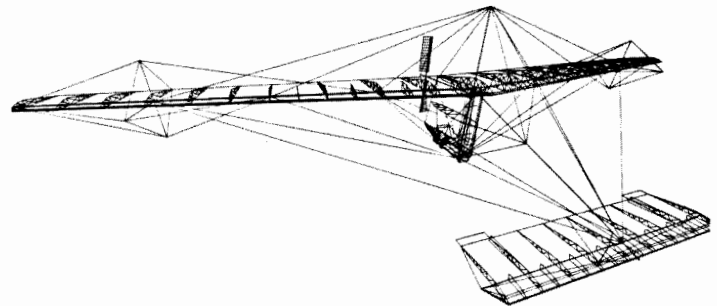
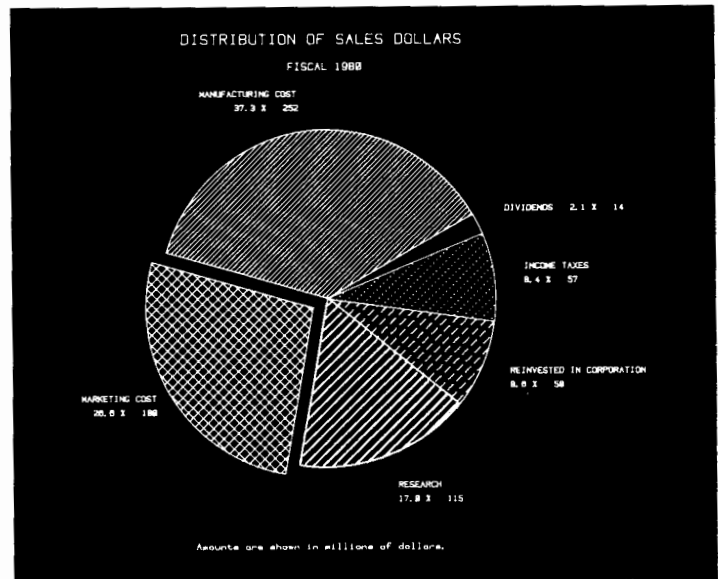
Also, the TEKTRONIX® 4010 compatibility mode allows the HP 2623A to operate with TEKTRONIX Inc.'s PLOT 10®.

Independent Graphic and Alphanumeric Display Memories

The Graphic and Alphanumeric display each have their own independent random access memory (RAM). The alphanumeric display memory can typically contain up to two pages of text (24 lines by 80 characters). The independent graphics memory has 512 by 390 displayable points. Because these two memories are independent, computer transactions or system messages do not have to obscure the graphics picture. Either the graphics or alphanumeric memory display can be suppressed without disturbing the other. This improves the readability of the display. Also, the graphic and alphanumeric displays each have their own separate cursor control keys.

Graphics Text

Characters entered into the graphics display memory can be varied in shape, size and orientation. This feature allows the user to select an incremental character size, orientation (90-degree multiples), and slant (italic). In addition, it lets the user left/right justify or center graphics text automatically. This feature helps the user label axes and makes it easy to add notes or comments to a graph before going to a hardcopy device. Graphics text is resident in the terminal and is available in standard U.S. ASCII code or six national languages.



For Data Analysis or Product Design, the 2623A Graphics Terminal Allows You to Make the Correct Decision Faster.

Business Decisions

You may currently use a number of computer applications, which produce printed reports of tabular numbers of sales; costs; inventory; profits; etc., to manage your business. The 2623A and Decision Support Graphics can turn these numbers into easy to visualize linear, bar and pie charts for faster data analysis and improved decision-making. Data can be entered from the keyboard, a data file or from a sophisticated database system, such as Hewlett-Packard's IMAGE.

Education

Help your students visualize scientific mathematical or engineering problems with the aid of graphics. With a computer aided instruction system, students learn to develop a "feel" for abstract mathematical and physical concepts. The 2623A, as an integral part of your system, can be used in brightly lit classrooms, making it ideal for lecture demonstrations and small group discussions. Also, the 2623A's bright, easy-to-read display, helps to minimize eye fatigue during extended class sessions.

Design and Technical Graphics:

The 2623A can make a cost-effective contribution to your computer aided design system. The 2623A can be used to complement more expensive higher resolution graphics displays. The low cost of the 2623A, its high quality display and local graphics hardcopy means that you may be able to place a graphics display at every designers workstation.

Process Control

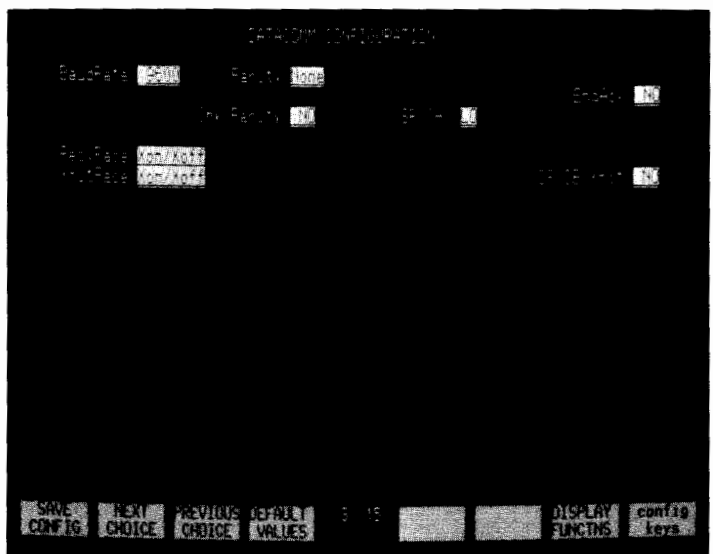
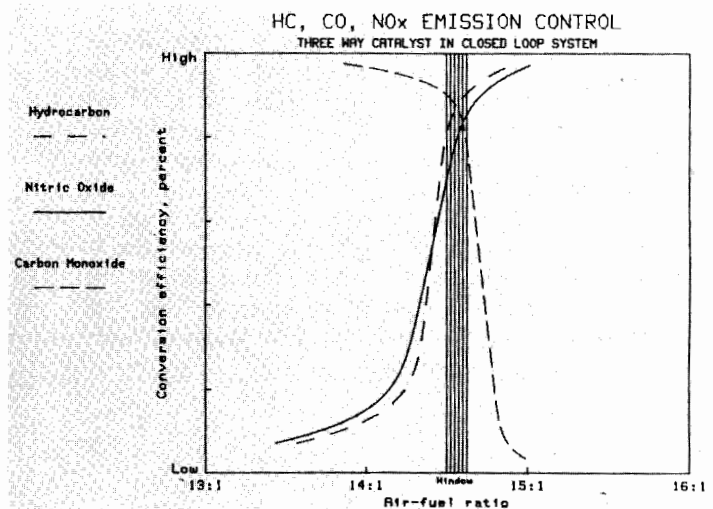
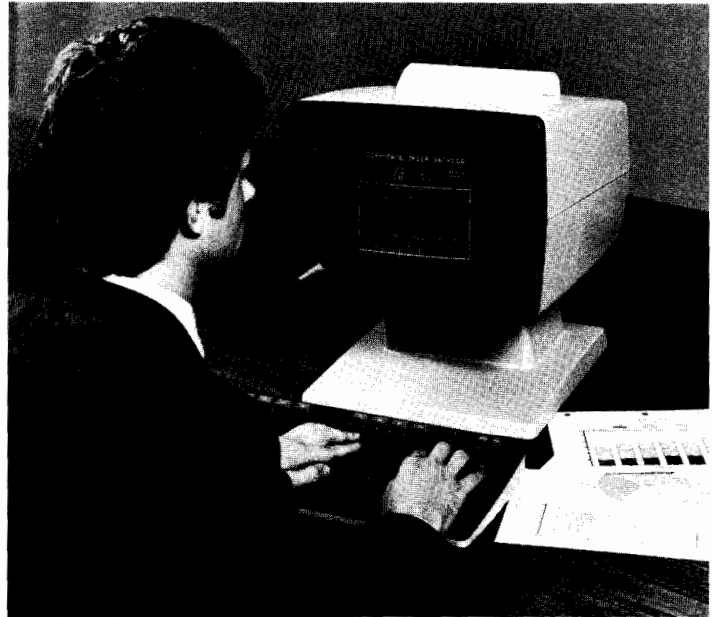
If you have a computer-controlled gas chromatograph/mass spectrometer system and need spectral plots, the 2623A's bright display and graphics text composition can help. For example, during extended computer sessions where spectral plots might be analyzed, the 2623A's bright display will help reduce operator eye fatigue and stress. After analysis, your spectral plots can be readily labeled and various points of interest can be annotated quickly and clearly in any one of seven languages using graphics text mode.

Data Communication

The HP 2623A provides comprehensive point-to-point communications to a computer. Full duplex asynchronous transmission is supported. Flexible handshaking using hardware lines or control characters allows interfacing to a wide range of computers and printers. The 2623A responds to clear-to-send, ENQ/ACK, DC1/DC2 and XON/XOFF. Control of XON/XOFF can be used to manage data transfers from the computer.

Data communications configurations are simplified by a series of configuration menus. Default values provide for the most common choices.

In addition to standard RS232C interfacing, the datacomm port can support the 13266A 20mA Current Loop Interface or the 13265A 300 Baud (U.S. only) Modem.



Alphanumeric Capability

The HP 2623A can also be used to meet your data entry needs. It is completely compatible with the 2622A. The two pages of display memory, the optional line drawing set, and four display enhancements enable the 2623A to be customized to meet data entry form requirements. The display enhancements which include inverse video, half bright, underline and blinking in all combinations, can be used to depict an existing paper form and to facilitate data entry. A familiar and clear form provides ready acceptance by previous users and accelerates training of new operators. A numeric keypad is provided for easy entry of numeric data.

The edit keys, insert/delete character and insert/delete line, can be used to edit the form. When the form looks the way you want it, simply use the block mode capability of the 2623A to transmit the entire form at once.

When the outstanding graphics capabilities of the 2623A are combined with the alphanumeric features, it's like getting two terminals in one!

Character Sets

The 2623A offers 128 displayable ASCII characters and a line drawing character set is optionally available. The 64 character line drawing set provides the ability to make forms on the screen that match existing paper forms.

Six national keyboards and character sets are available on the 2623A. They are: Danish/Norwegian, Finnish/Swedish, French, German, United Kingdom, and Spanish. Each option supports the ISO substitution characters for the particular language plus the remaining ASCII characters. The 2623A is compatible with the 2626A offering both 7 and 8 bit modes with the ability to handle muted and over strike characters.

Ease of Use

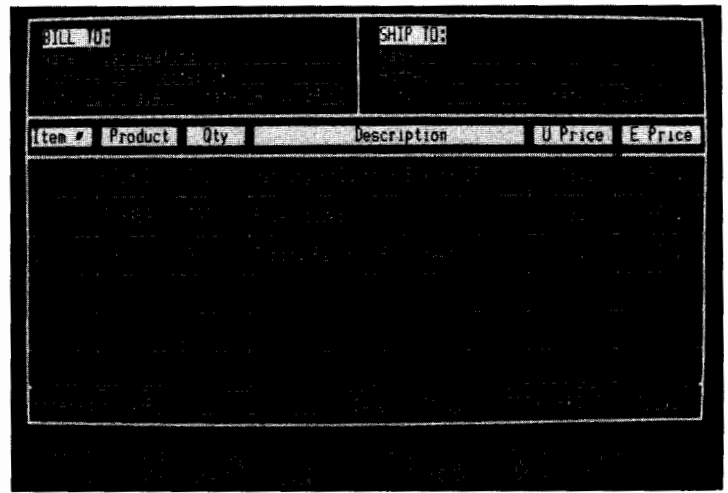
User Definable Softkeys

Screen labeled user definable keys allow an application programmer to customize the typewriter style keyboard to perform several operations with a single key stroke. The eight soft keys can be re-defined and re-labeled as different forms are used. Both local and remote functions can be performed to simplify the user interface. For example, keys could be programmed to perform a local copy, fill in a repetitious field, or move the cursor to a specific location. Typical remote functions which can be controlled by a soft key include calling a new program, selecting the next form, branching within a program to perform a task, or logging-off the computer. The ability to label each softkey with 2 lines of 8 characters each and display enhancements gives extra flexibility and friendliness useful in data entry applications. With the screen labels there is never any confusion as to the functions performed by the keys.

The HP 2623A supports the 17623A graphics tablet. The tablet provides fast, natural cursor movement, menu selection and digitizing capability resulting in increased productivity and reduced operator fatigue.

Reliability/Serviceability

The HP 2623A terminal provides several levels of self test capability including a "power on test" which provides a complete test of the terminal including memory, a terminal test which does not disturb data, a datacomm test, and a printer test. The operator, as a result, can easily troubleshoot any potential terminal problem and expedite any necessary servicing.



LANGUAGE	CHARACTERS
USASCII	3 6 7 - + ~ Q W Y { } A : " Z q w y [] \ a ; ' z
SVENSK/SUOMI	3 6 7 + é ' q w y ä ü > A Ö Å Z ä ö å z
DANSK/NORSK	3 6 7 + ø ' q w y å > A Æ Ø Z ø æ ø z
FRANCAIS azM, az	3 6 7 ' ^ ' E A Z Y ç * > Q è ' W a z y ä & < q é ' w
FRANCAIS qwM, qw	3 6 7 ' ^ ' E Q W Y ç * > A è ' Z q w y ä & < a é ' z
DEUTCH	3 6 7 B ' E Q W Z ü * > A Ö Å Y q w z ü * < a ö å y
UK	3 6 7 + ' / ~ Q W Y { } > A • Z q w y [] < a • \ z
ESPAÑOL M and ESPAÑOL	3 6 7 + ' / ~ Q W Y { } > A Ñ • Z q w y ' < a ñ • z



Specifications

GENERAL

Screen Size:	164 mm (6.5 inches) × 215 mm (8.5 inches); diagonal 262 mm (10.4 inches).
Screen Capacity:	24 lines × 80 columns (1920 characters). 25th and 26th for labeling of function/softkeys or as message/status lines.
Character Generation:	7 × 11 enhanced dot matrix with 1/2 dot shifting; 9 × 15 dot character cell; non-interlaced raster scan.
Character Size:	2.4 mm (.094 inches) × 3.5 mm (.138 inches).
Character Set:	Upper/lower case, displayable control codes. Optional line drawing set, Finnish/Swedish, Danish/Norwegian, French, German, U.K. and Spanish characters (optional).
Cursor:	Blinking-underline.
Display Enhancements:	Inverse video, half bright, underline, blinking.
Refresh Rate:	60 Hz (50 Hz optional).
Tube Phosphor:	P4
Implosion Protection:	Tension band.
Memory:	Alphanumeric: 2 pages of memory with or without enhancements. 128 bytes of non-volatile configuration memory (battery powered). Graphics: 512 dots by 390 dots of displayable points.
Keyboard:	Full ASCII code keyboard, eight screen labeled keys; cursor controls; 14 key numeric pad; (embedded) auto-repeat; N-key roll-over; detached with 1.2M (4 foot) cable. Optional Finnish/Swedish, Danish/Norwegian, French, German, U.K. and Spanish, keycaps. Graphics pad.

DATA COMMUNICATIONS

Data Rate:	110, 134.5, 150, 300, 600, 1200, 1800, 2400, 4800, 9600 baud. Operation with control codes, escape sequences, integral printer, or baud rates above 4800 may require CPU supplied delays or handshakes. Typical printer throughput is 60 cps. Full 24 × 80 line character screen copies in 19 seconds. Graphics in 30 seconds.
Vector Drawing Time:	4 ms full screen vector, 3 ms half screen vector, 9600 baud (runs at 9600 baud without a handshake). Operation in pure graphics text mode above 2400 baud may require CPU supplied delays or handshake.
Asynchronous Datacomm Interface (50 pin):	EIA standard RS232C and CCITT V.24; fully compatible with Bell 103A, 202 C/D/T/212 models. Hardware and XON/XOFF handshaking available. Accessory interfaces provide current loop (HP 13266A), and 300 baud US modem (HP 13265A).
Transmission Modes: Interface (25 pin):	Full asynchronous transmission. RS232C printer port.

POWER REQUIREMENTS

Input Voltage:	2623A 110V (+5%, -10%) at 60 Hz (±5%) -013 240V (+5%, -10%) at 50 Hz (±5%) -014 100V (+5%, -10%) at 60 Hz (±5%) -015 220V (+5%, -10%) at 50 Hz (±5%) -016 100V (+5%, -10%) at 50 Hz (±5%) -050, and -014 or -016 115V (+10%, -25%) at 50/60 Hz -050 and -013 or -015 230V (+10%, -15%) at 50 Hz (±5%)
Power Consumption: with Option -050	120W 170W

ENVIRONMENTAL CONDITIONS

Temperature, Free Space	Non-Operating: -40 to +60°C (-40 to +140°F)
Ambient:	Operating: 0 to +55°C (+32 to +131°F)
with Option -050	Operating: +5 to +40°C (+41 to +104°F)
Humidity:	5 to 95% (non-condensing)
with Option -050	5 to 80% (non-condensing)
Altitude:	Non-Operating: Sea level to 15240 meters (50,000 feet) Operating: Sea level to 4572 meters (15,000 feet)
Vibration and Shock:*	Vibration: 0.38 mm (0.015") pp. 5 to 55 Hz. 3 axis Shock: 20 g. 11 ms. 1/2 sine

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

PRODUCT SAFETY

Products Meets:	U. L. requirements for: EDP equipment, office appliances, teaching equipment CSA requirements for: EDP equipment
with Option -050	Also complies with VDE, SEV, BSI, and FEI.

PHYSICAL SPECIFICATIONS

Display Monitor Weight:	16.8 kg (37 pounds)
with Option -050:	19.0 kg (42 pounds)
Keyboard Weight:	2.0 kg (4.4 pounds)
Display Monitor Dimensions:	380 mmW × 475 mmD × 440 mmH (15.0"W × 18.7"D × 17.3"H); 665 mmD (26.2"D) including keyboard).
Keyboard Dimensions:	430 mmW × 190mmD × 75 mmH (17.0"W × 7.5"D × 3.0"H).

PRODUCT SUPPORT

Hardware Supplied:	HP 2623A Display Terminal Option 050 Integral Printer (includes 2 rolls of paper).
Documentation Supplied:	HP 2623A User's Manual (02623-90001) HP 2623A Reference Manual (02622-90008)
Documentation Available:	HP 2623A Service Manual (02622-90007)
HP Systems Support:	Refer to appropriate HP system data sheet for use and support of the HP 2623A on these systems. When this product is used in a customer-assembled system, the overall operational responsibility of the system rests with the customer.
Warranty:	The HP 2623A is warranted against defects in materials and workmanship. Contact the local HP Sales Office for terms and conditions. NOTE: For warranty coverage on the 2623A, Option 050, HP qualified printer paper must be used (HP 92160A or HP 92160B).
Maintenance:	HP maintenance agreements are available for 2623A support after the warranty period. Contact the local HP Sales Office for terms and conditions.

Ordering Information

Product	Option	Description
2623A		Graphics Terminal with 512 × 390 dot screen resolution; fast vector generation; bright display with selective erase; Tektronix® 4010 compatibility, optional built-in graphics hardcopy.
	-001	Finish/Swedish character set and keyboard, line drawing set
	-002	Danish/Norwegian character set and keyboard, line drawing set
	-003	French character set and keyboard, line drawing set
	-004	German character set and keyboard, line drawing set
	-005	United Kingdom character set and keyboard, line drawing set
	-006	Spanish character set and keyboard, line drawing set
	-013	240V, 50 Hz operation
	-014	100V, 60 Hz operation
	-015	220V, 50 Hz operation
	-016	100V, 50 Hz operation
	-035	Direct Connect RS422 Interface
	-050	Integral Graphics thermal printer, 120 characters-per-second using 8-1/2 inch wide paper
	-061	Green Phosphor CRT (P31)
	-090	Delete pedestal (for use with HP 1000 model 5)
	-202	Line drawing character set
	-301	U.S. Hardwired/Modem Cable (same as 13222N) Male (50 pin)/male (25 pin); 5 meters (16 feet)
	-302	European Modem Cable (same as 13222M) Male (50 pin)/male (25 pin); 5 meters (16 feet)
	-303	RS232C Datacomm Cable (same as 13222C) Male (50 pin)/female (25 pin); 5 meters (16 feet)
	-304	HP Direct Connect Type 232 Cable (same as 13222X) Male (50 pin)/male (3 pin); 5 meters (16 feet).
	-305	EMP Protect Cable (same as 13222Y) Male (50 pin)/male (25 pin); 5 meters (16 feet)
	-306	HP Direct Connect Type 422 Cable (same as 13222P) Male (50 pin)/male (5 pin); 5 meters (16 feet)
	-401	Tilt and Swivel, replaces standard pedestal with tilt and swivel pedestal
	-F17*	ANSI and VT 52® Compatibility (This option does not offer tablet support and rubberband line.)
	Accessories	
	13265A	300 Baud Modem — Bell 103 Compatible
	13266A	Current Loop Interface — 20 mA
	Peripheral Cables	
	13242G	RS232C Printer Cable — Male, Male (25 pin)/male (25 pin). For use on Port 2
	13242H	RS232C Printer Cable — Female, Male (25 pin)/female (25 pin). For use on Port 2

* HEART override required (PL67, SF02, MKT DIV D3, SUP DIV 56) ® VT 52 is a registered trademark of Digital Equipment Corporation

The data contained in this document is subject to change without notice.

For more information about display terminals,
see your local Hewlett-Packard sales representative
or contact the HP office nearest you:

Eastern United States:

Hewlett-Packard
4 Choke Cherry Road
Rockville, MD 20850
Tel: (301) 258-2000

Midwestern United States:

Hewlett-Packard
5201 Tollview Drive
Rolling Meadows, IL 60008
Tel: (312) 255-9800

Southern United States:

Hewlett-Packard
P.O. Box 105005
Atlanta, GA 30348
Tel: (404) 955-1500

Western United States:

Hewlett-Packard
3939 Lankershim Blvd.
North Hollywood, CA 91604
Tel: (213) 877-1282

Canada

Hewlett-Packard (Canada) Ltd.
6877 Goreway Drive
Mississauga, Ontario L4V 1M8
Tel: (416) 678-9430

Northern Europe:

Hewlett-Packard S.A.
Uilenstede 475
P.O. Box 999
NL-1180 AZ Amstelveen
The Netherlands
Tel: 20/437771

Southern Europe:

Hewlett-Packard S.A.
c/o 7, Rue du Bois-du-Lan
P.O. Box
CH-1217 Meyrin 2 (Geneva)
Switzerland
Tel: 22/989651

West Germany

Hewlett-Packard GmbH
Vertriebszentrale Frankfurt
Berner Strasse 117
Postfach 560 140
D-6000 Frankfurt 56
Tel: (611) 50041

France

Hewlett-Packard France
Zone Industrielle De Courtaboeuf
Avenue Des Tropiques
F-91401 Les Ulis Cedex Orsay
Tel: (1) 907 78 25

United Kingdom

Hewlett-Packard Ltd.
Nine Mile Ride
Easthampstead, Wokingham
Berkshire RG11 3LL, England
Tel: 3446/3100

South Africa

Hewlett-Packard
South Africa (Pty.) Ltd.
Private Bag Wendywood
Sandton 2144
Tel: 802-5111, 802-5125

Australia/New Zealand

Hewlett-Packard Australia Pty. Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Tel: 89-6351

Far East Headquarters:

Hewlett-Packard Asia, Ltd.
G.P.O. Box 795
5th Floor, Sun Hung Kai Centre
30 Harbour Road
Hong Kong
Tel: 5-8323211

Japan

Yokogawa-Hewlett-Packard Ltd.
29-21 Takaido-Higashi 3-chome
Suginami-ku Tokyo 16825
Tel: (03) 331-6111

Latin American Headquarters:

Hewlett-Packard Co.
3495 Deer Creek Road
Palo Alto, CA 94304
Tel: (415) 857-1501

Other International Areas:

Hewlett-Packard Intercontinental
3495 Deer Creek Road
Palo Alto, CA 94304
Tel: (415) 857-1501