# HP HARDCOPY GRAPHIC DEVICES

Computer graphics applications have expanded over the last three decades to include most business and technical computer applications. Used primarily for data display graphics (such as line, bar and pie charts) and design graphics (i.e., computer-aided design, computer-aided manufacturing, and image processing) graphics devices are now available for the simplest personal computer as well as the most powerful mainframe.

Computer graphics have become such a significant part of computer systems because it makes it easier to distinguish intricate patterns, helps interpret complex relationships, and contributes contrast and extra color for more dramatic presentations.

Hewlett-Packard has long been considered one of the industry's leaders in computer graphics. HP's computer graphics contributions include graphics software, color graphics terminals, data tablets, and graphic plotters.

This section will concentrate on HP's graphic devices - both input (tablets) and output (plotters). HP offers a complete range of hardcopy graphic devices to match the individual needs of our range of computer systems.

HP's plotters are known for their state-of-the-art technology; they provide outstanding resolution and repeatability along with proven reliability. The plotter product line scans a wide price/performance range from the inexpensive two-pin HP 7470A plotter to the high performance, eight-pen drafting plotters. All these plotters offer a wide choice of media and interface options and an unmatched offering of HP and third-party software for business and technical applications. As always, HP takes the leadership role in providing service and support for their products.

## MEDIA SIZE

Defining which size media you need for output will help determine which plotter best suits your needs. Standard media sizes as defined by the American National Standards Institute (ANSI) and the International Standards Organization (ISO) are supported by HP plotters.

| ANSI | DIMENSIONS INCHES | ISO | DIMENSIONS MILLIMETERS |
|------|-------------------|-----|------------------------|
| A | 8.5" X 11" | A4 | 210 X 297 |
| B | 11" X 17" | A3 | 297 X 420 |
| C | 17" X 22" | A2 | 420 X 594 |
| D | 22" X 34" | A1 | 594 X 841 |
| E | 34" X 44" | A0 | 841 X 1189 |

## INTERFACE OPTIONS

HP plotters are available with the popular RS-232C (CCITT V.24) or the
HP-IB interface, HP's implementation of the IEEE488-1978 standard
commonly used by instruments and HP computers.  A special option for the
HP 7470A provides an HP-IL interface for use with certain HP portable
computers.  You specify the interface option with the HP 7470A and HP
7475A plotters but the HP 7550A, HP 7580B, HP 7585B, and HP 7586B
plotters come with one HP-IB and two RS-232C interfaces.

## PENS

HP offers many different pen types and colors.  This chart shows the
possible pen/media combinations and what applications they're most
useful for.

Business Graphics Applications (i.e., pie, bar, line, and text charts)

| Pen type | Media | Useful for |
|----------|-------|------------|
| fiber tip | paper | everyday graphics use (reports) |
| transparency | transparency film | presentations |
| transparency | glossy paper | presentation quality reports |

CAD/CAM Applications

| Pen type | Media | Useful for |
|----------|-------|------------|
| roller ball | paper | preliminary drawings or check plots |
| roller ball | tracing bond | d.a. preliminary drawings |
| drafting | vellum | d.a. final quality drawings |
| drafting | polyester film | permanent storage of d.a. final quality drawings |

Note:  d.a. means diazo reproducible, a capability needed
for many CAD/CAM applications.

## SOFTWARE

There is a huge selection of business and technical software that supports our industry standard HP-GL (Hewlett-Packard-Graphics Language) plotters on personal, mini, and mainframe computers. These packages cover applications such as graphics presentation, project management, scientific/statistical analysis, design, engineering as well as integrated software packages. The Software Directory for HP's Graphics Plotters (p/n 5957-9466) gives a description of the packages that run on HP and nonHP computers and which plotters they support. Other brochures provide similar information for software packages that run on the IBM PC/XT (p/n 5953-9748D), Apple IIe/c and Apple III (p/n 5953-4199D), and HP-150 (p/n 5953-9717D).

## OUR PLOTTER FAMILY

### HP 7470A

This is the entry level plotter for the business professional. Two pens and a choice of A4/A size paper or transparency media make this an ideal plotter for creating graphs for reports and presentations.

### HP 7475A

The HP 7475A plotter is mainly sold for business applications because of its six pen and A4/A or A3/B size media. The six pen capability is useful since it allows you to put different color and line width combinations in a single carousel. With A3/B size media and drafting pens the HP 7475A plotter can also be used as a low cost drafting plotter.

### HP 7550A

This is a much higher performance plotter designed for high-volume plotting. Besides higher pen speed and acceleration, it offers an automatic sheet feed capability, an eight-pen carousel, multiple interfaces and numerous pen and media combinations. The HP 7550A can be used as a high performance business plotter or an A3/B size drafting plotter when used with drafting media and pens.

### HP 7580B, HP 7585B, and HP 7586B DRAFTING PLOTTERS

These plotters are used by engineers, architects, and other technical professionals for computer-aided design and computer-aided manufacturing applications (CAD/CAM). They provide the high level of accuracy, reproducibility and line quality needed by design professionals. The combination of fast pen speed and acceleration translates into high throughput for these pen plotters.

The HP 7580B accepts A4/A through A1/D media and is the lowest cost plotter in this family. The HP 7585B is like the HP 7580B but adds A0/E size media capability. The HP 7586B accepts both single sheet and roll media for applications requiring high-volume, continuous feed, and long-axis plotting.

GRAPHICS TABLETS

HP offers two input devices to complement its computer graphics line. These graphics tablets are data entry devices that convert a physical location on the tablet's surface into digital values that can be interpreted by a computer.  Essentially, they are supplements to keyboards.

## HP 9111A

The HP9111A is an A4/A size tablet with an HP-IB interface.  This tablet is sold for technical computers as a supplement to keyboard entry.  The tablet either comes as part of a system such as HP's EGS (Engineering Graphics System) or is sold separately.  Utility software is available for both HP's Series 80 and Series 200 line of technical computers so customers can effectively integrate the tablet as part of their system.

## HP 17623A

The HP 17623A tablet is designed specifically for use only with the HP 2623A and the HP 2627A color graphics terminals.  It uses the power supply of the terminal and connects to an interface module that contains the electronics for interfacing the tablet to the terminal.  Adding the tablet to this terminal offers fast, natural cursor movement, menu selection, and digitizing capability.

THE HP 7090A MEASUREMENT PLOTTING SYSTEM

HP offers the HP 7090A as a one-stop measurement graphics solution.  The HP 7090A is actually a hybrid device; it's an analog X-Y recorder, a waveform recorder, a digital plotter, and an automated measurement system.  As an analog X-Y recorder it provides top-quality, real-time recording.  Its output features self-drawn grids, annotated setup conditions, labeled time and date.  As a waveform recorder, the HP 7090A combines important features of storage oscilloscopes and digital voltmeters:  it samples analog signals, digitizes them and stores them in digital memory.  These data can then be plotted from the buffer, displayed on a CRT or stored on disc if connected to a computer.  The HP 7090A also functions as a fast six pen, A3/B size plotter.  In plotter mode, the HP 7090A draws at 75 cm/sec (30 ips) with 2g constant acceleration and a resolution of 0.025 mm (0.001 in.).

The HP 7090A is a versatile system component.  Automated testing is easy with a fully programmable front panel that can be locked out.  The HP 17090A Measurement Graphics Software supports the HP 7090A on the Series 200 line of technical computers (models 216, 226, and 236 using the Basic 2.0 or Basic 3.0 operating system).  This software provides a friendly, softkey interface for the following functions: ·measurement setup, measurement, annotation, data manipulation, display and the storage and retrieval of measurement files.

| FEATURES | 7470A | 7475A | 7550A | 7580B | 7585B | 7586B |
|---|---|---|---|---|---|---|
| COST (U.S. LIST) | $1095 | $1895 | $3900 | $13,900 | $16,900 | $21,900 |
| MEDIA SIZES ISO/ANSI | A4/A | A4/A or A3/B | A4/A or A3/B | A4/A thru A1/D | A4/A, A3/B, and A2/C thru A0/E | Sheets & Rolls: A4/A, A3/B, and A2/C thru A0/E |
| NUMBER OF PENS | 2 in pen stalls | 6 in carousel | 8 in carousel | 8 in carousel | | |
| PEN/MEDIA COMBINATIONS | Fiber-tip pens / paper  Transparency pens/ overhead transparencies & glossy paper | Fiber-tip/paper. Transparency pens/overhead transparencies & glossy paper. Refillable short-body drafting pens/ double-matte polyester film. | Fiber-tip / paper. Transparency pens/ overheads & glossy paper. Roller-ball / paper. Refillable drafting/ vellum & double-matte polyester film Disposable drafting/ vellum & paper. | Fiber-tip pens / paper  Roller-ball pens / paper & tracing bond  Refillable drafting pens / vellum & double-matte polyester film  Disposable drafting pens / vellum & paper | | |
| MEDIA LOAD METHODS | Manual loading  Individual sheets | | Automatic feed of paper & transparencies  Manual feed of all medias | Manual sheet loading for all medias | | Automatic roll feed for paper vellum, and double matte polyester film  Manual sheet loading for all medias |
| INTERFACE AVAILABILITY | RS-232-C (OPT. 001), or HP-IB (OPT. 002), or HP-IL(Opt. 003) | RS-232-C (Opt. 001) or HP-IB (Opt. 002) | RS-232-C and HP-IB | RS-232-C and HP-IB | | |
| SPEED & ACCELERATION | 38.1 cm/s (15 ips)  2 g's | | 80 cm/s (31.5 ips)  6 g's | 60 cm/s (24 ips)  4 g's | | |
| ADDR. RESOLUTION | .025 mm (.001 in.) | | .025 mm (.001 in.) | .025 mm (.000984 in.) | | |
| MECH. RESOLUTION | .025 mm (.001 in.) | | .006 mm(.00025 in.) | .003 mm (.00012 in.) | | |
| REPEATABILITY | .1 mm (.004 in.) | | .1 mm (.004 in.) | .1 mm (.004 in.) | | |
| HP-GL COMMANDS | 45, 42, 41 | 56 | 84 | 77 | | 82 |
| CHARACTER SETS | 5, 1 font | 19, 1 font | 20, 2 fonts | 21, 3 fonts | | |
| SPECIAL FEATURES | | Area fill comands  Chart rotate ability | 12.8 K buffer  Replot capability  Downloadable character sets  Area fill commands | Specified accuracy  18 K buffer  Downloadable character sets  Area fill commands | | Same as 7580/85 plus long axis plotting, unattended operation, and built in accuracy calibration |

| FEATURES | 9111A | 17623A |
|---|---|---|
| ACTIVE AREA | 218.5 X 300.8 mm (8.6 X 11.8 in.) plus 16 softkeys | 295 X 217 mm (11.6 X 8.5 in.) |
| INTERFACE | HP-IB | Special keyboard interface (hangs on back of terminal) for use with 2623 & 2627 terminals only |
| RESOLUTION | 0.100 mm (0.00394 in.) | Fine: 2048 X 1560 Coarse: 512 X 390 (matches CRT) |
| INSTRUCTION SET | HP-GL (27 commands) | Escape sequences |
| SPECIAL NOTES | Supported on HP Series 80, HP 9845, HP 1000, HP 9000 Series 200,500 | Supported on the HP 3000 with HPDRAW, on the HP 1000 by GRAPHICS/1000-II, and on the HP 9000 HP-UX systems |

# HP Computer Museum
## [www.hpmuseum.net](www.hpmuseum.net)

**For research and education purposes only.**