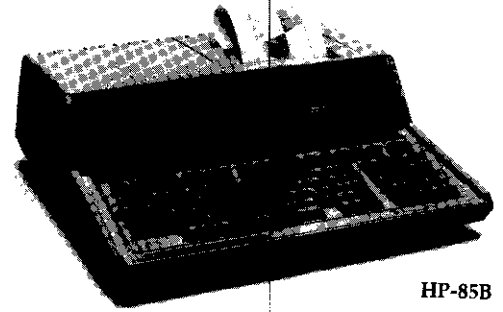


# Hewlett-Packard Series 80 HP-85B Personal Computer



HP-85B

If you need an instrument controller, then Hewlett-Packard's new HP-85B is for you. It's an ideal low-cost computer for data acquisition, computer-aided testing, and technical analysis.

Designed with the needs of the technical professional in mind, the HP-85B integrates a sculpted keyboard and numeric keypad, CRT screen, thermal printer, and tape drive unit into one 20-pound package. Use it in the field, on the assembly line—or wherever you need it.

To optimally serve your needs, features of the HP-85B Personal Computer include built-in Electronic Disc memory and an enhanced operating system with integrated ROM's.

## Electronic Disc

The HP-85B has 32K bytes of directly-addressable user read/write memory. Another 32K bytes, called Electronic Disc memory, is indirectly addressable via built-in mass storage commands. The 32K bytes of Electronic Disc memory that are built in are dramatically expandable to 544K bytes by using any combination of 64K or 128K plug-in memory modules.

Conceptually, Electronic Disc acts as a high-speed disc drive. Because disc space is electronically, rather than mechanically accessed, execution speeds of software such as Graphics Presentations, General Statistics, and Regression Analysis are greatly increased. Once data or programs are stored on Electronic Disc, the speeds of data transfer or program loading and chaining are very fast. For example, Electronic Disc read and print speeds for data are up to 150 times faster than tape, and 15 times faster than flexible disc. Because it resides in volatile RAM and is lost when the power is turned off, you'll need to back up the contents of Electronic Disc.

## Features

- System Integration
- Powerful HP BASIC Programming Language
- Integrated Graphics Capability
- Built-in Electronic Disc
- Built-in Mass Storage and Electronic Disc ROM Set
- Four Expansion Ports
- Eight User-definable Softkeys
- Hard-copy Printer
- Optional Interfacing Systems

## Benefits

*Saves space*—Includes keyboard, mass storage, Electronic Disc, printer, and CRT for alpha and graphics needs, in one 20-lb. package—a total low-cost hardware solution for both technical analysis and instrument control.

*Saves time*—Lets you write programs quickly by using fewer statements.

*Makes graphics programming easier*—Graphics commands are built right into the computer's BASIC language.

*Saves time*—Provides high-speed mass storage performance.

*Adds flexibility*—Gives you a second built-in mass storage medium.

*Enhances the operating system*—Lets you use Electronic Disc memory, as well as flexible and 10M byte Winchester disc drives.

*Saves money*—You don't need to purchase the Series 80 ROM Drawer, Mass Storage ROM, or Electronic Disc ROM.

*Provide expandability*—Let you add on instruments, additional printers, plotters, mass storage units, ROM's, Electronic Disc memory, or even a modem.

*Make it easy to write and understand programs*—Give you more control by letting you define subroutines within program execution.

*Saves money and space*—No extra printer is needed for many applications.

*Gives you on-the-spot hard copies*—Provides hard copy of reports, program listings, data, and graphics.

*Save money and free an expansion port for other uses*—Provide a built-in I/O ROM as well as the interface you need.

## Enhanced Operating System

The HP-85B's ROM-based operating system is enhanced to increase performance by a built-in Mass Storage/Electronic Disc ROM set. Capabilities added by this ROM set include com-

mands such as "GET" and "SAVE", which are designed to improve program transportability. Other commands let you address mass storage devices and the Electronic Disc.

There's even an I/O ROM built into

HP-85B Interfacing Systems (Options 001 through 007). This ROM

provides all the commands necessary to access features of Series 80 inter-

faces, and because it's built in, frees an expansion slot for other uses.

## Specifications

### Unique to the HP-85B

(See Table A)

#### CRT DISPLAY

Size ..... 12.7 cm (5 in.)  
diagonal

#### Capacity:

Alphanumeric ..... 16 lines × 32  
characters  
Graphics ..... 192 × 256 dots  
Scrolling capacity ... 64 lines  
Character set ..... 256 characters; set of  
128 + same set  
underscored  
Character font ..... 5- × 7-dot matrix  
Intensity ..... adjustable  
Cursor ..... underline

#### BASIC LANGUAGE AND OPERATING SYSTEM

Standard ROM ..... 48K bytes  
Maximum add-on ROM ..... 48K bytes  
CRT memory RAM ..... 8K bytes  
Optional built-in I/O ROM .... 8K bytes

#### USER READ/WRITE MEMORY

Standard/Maximum ..... 32K bytes

#### ELECTRONIC DISC MEMORY

Standard ..... 32K bytes  
Maximum ..... 544K bytes

#### Transfer rate:

Program LOAD  
(allocated) ..... 46,000 bytes/sec  
Program LOAD  
(deallocated) ..... 17,000 bytes/sec  
Data file (maximum) ... 13,000 bytes/sec  
Data file (minimum) ..... 540 bytes/sec

#### TOTAL MEMORY

Standard ..... 120K bytes  
Maximum ..... 640K bytes

#### TAPE CARTRIDGE

##### Capacity:

Data ..... 210K bytes  
Programs ..... 195K bytes  
File management ... by name, up to 42 files  
Read/write speed ... 254 mm/sec  
(10 in./sec)  
Search speed ..... 7,800 bytes/sec (1,524  
mm/sec or 60 in./sec)  
Transfer rate:  
Program LOAD ... 610 bytes/sec  
Data file ..... 80 bytes/sec  
Average access  
time ..... 9.3 sec  
Rewind time ..... 29 sec (end to end)  
Tape length ..... 43 m (140 ft)

Cartridge size ..... 61.2 × 80.9 ×  
11.9 mm  
(2.41 × 3.18 ×  
0.47 in.)

Security ..... programmable and  
mechanical

**NOTE:** Tape cartridges are intended for nominal program or data storage; the typical life cycle is 50 to 100 hours of use, depending on the application. Environmental conditions of 25°C (77°F) and 20 to 50% relative humidity are most favorable for a long tape life. Tape life is decreased by a high-duty cycle (percent of time the tape is accessed during the total time the HP-85 is in use) and continuous use for long periods of time (longer than one-half hour). It is suggested that tape transports be regularly cleaned and cartridges removed from drives after use.

#### PRINTER

Imprinting method .. moving head, thermal  
Paper width ..... 108 mm (4.3 in.)  
Speed ..... 120 lines/min  
Character font ..... 5- × 7-dot matrix; 32  
characters/line

#### Graphics

resolution ..... 2.63 dots/mm  
(67 dots/in.)  
Intensity ..... adjustable

#### OPERATING REQUIREMENTS

Line voltage ..... 115 Vac nominal  
(90-127 Vac),  
230 Vac nominal  
(200-254 Vac),  
switch selectable  
Frequency ..... 50-60 Hz  
Power consumption ... 40 watts nominal  
Operating temperature .. 5° to 40°C  
(40° to 105°F)

Storage temperature .... -40° to 65°C  
(-40° to 150°F)  
Humidity ..... 5% to 80% at  
40°C

#### SIZE AND WEIGHT

Height ..... 15.9 cm (6.3 in.)  
Width ..... 41.9 cm (16.5 in.)  
Depth ..... 45.2 cm (17.8 in.)  
Weight:  
Net ..... 9.1 kg (20 lbs)  
Shipping ..... 16.8 kg (37 lbs)

#### BASIC FUNCTIONS AND STATEMENTS

##### General Statements and Programmable Commands

**COPY**—Prints a copy of CRT on the HP-85's printer, in both the alphanumeric and graphics modes.

#### Mass Storage/Electronic Disc Statements

The built-in Mass Storage/Electronic Disc ROM set provides the statements required to control the tape cartridge, Electronic Disc memory, and external flexible and Winchester disc drives. The HP-85B includes the following Mass Storage/Electronic Disc statements (see Table A for additional Mass Storage statements).

**CONFIG**—Enables you to reset or define Electronic Disc space and to specify the volume label, directory length, mass storage unit specifier, and the amount of RAM dedicated to Electronic Disc space.  
**CTAPE**—Conditions the tape by running it to end, then rewinding it to assure smooth operation of the entire tape.

**DISC FREE**—Returns the number of unused records on a disc.

**ERASETAPE**—Initializes a tape by creating a blank directory.

**GET**—Loads and transforms a data file into a BASIC program file.

**MSUS\$**—Returns a string specifying the current default mass storage unit specifier.

**REWIND**—Rewinds tape to its beginning point.

**SAVE**—Stores a BASIC program as a data file of ASCII characters.

**SWAP**—Swaps two BASIC programs; one in main memory, and one in Electronic Disc.

**UNCONFIG**—Returns to system memory all memory stolen by the Electronic Disc.

**VOL\$**—Returns the volume label of the specified MSUS.

#### Optional I/O ROM

An I/O ROM for the HP-85B can be purchased separately and plugged into an expansion port via a ROM Drawer. Or, you can buy the computer with a particular interface and the I/O ROM built in (see HP-85B Interfacing System Options 001-007 under Ordering Information). The latter choice can free an expansion port for other plug-ins. The I/O ROM provides basic input/output capabilities including ENTER/OUTPUT with format control, status testing, and base conversion. The I/O ROM also provides advanced input/output capabilities, including interface control, vectored interrupt, buffered I/O, fast handshake transfer, data conversion and formatting, and keyboard masking. See p. 42 for a list of I/O ROM BASIC statements.



## Customer Support

Services Available:

- HP Dealer Repair Center (check with dealer for availability)
- On-site service at your location
- HP Field Repair Center
- Phone-in support
- User newsletter
- Training

## Ordering Information

HP Part Numbers:

- HP-85B, or  
HP-85B Interfacing System (includes an HP-85B with an I/O ROM built in, plus choice of interface):
  - Opt. 001—Serial Interface, female
  - Opt. 002—Serial Interface, male
  - Opt. 003—Serial Interface, current loop
  - Opt. 004—GPIO Interface
  - Opt. 005—BCD Interface
  - Opt. 006—HP-IL Interface
  - Opt. 007—HP-IB Interface

Product Includes:

- Owner's Manual and Programming Guide
- Pocket Guide
- Standard Pac, including:
  - Instruction Manual
  - Preprogrammed Tape Cartridge
- Registration Card
- Service Card
- Accessory Data Sheet
- Users' Library Flyer
- Roll of Thermal Printer Paper
- Power Cord
- Fuses and Fuse Cap Holders
- Three-Ring Binder and Dividers