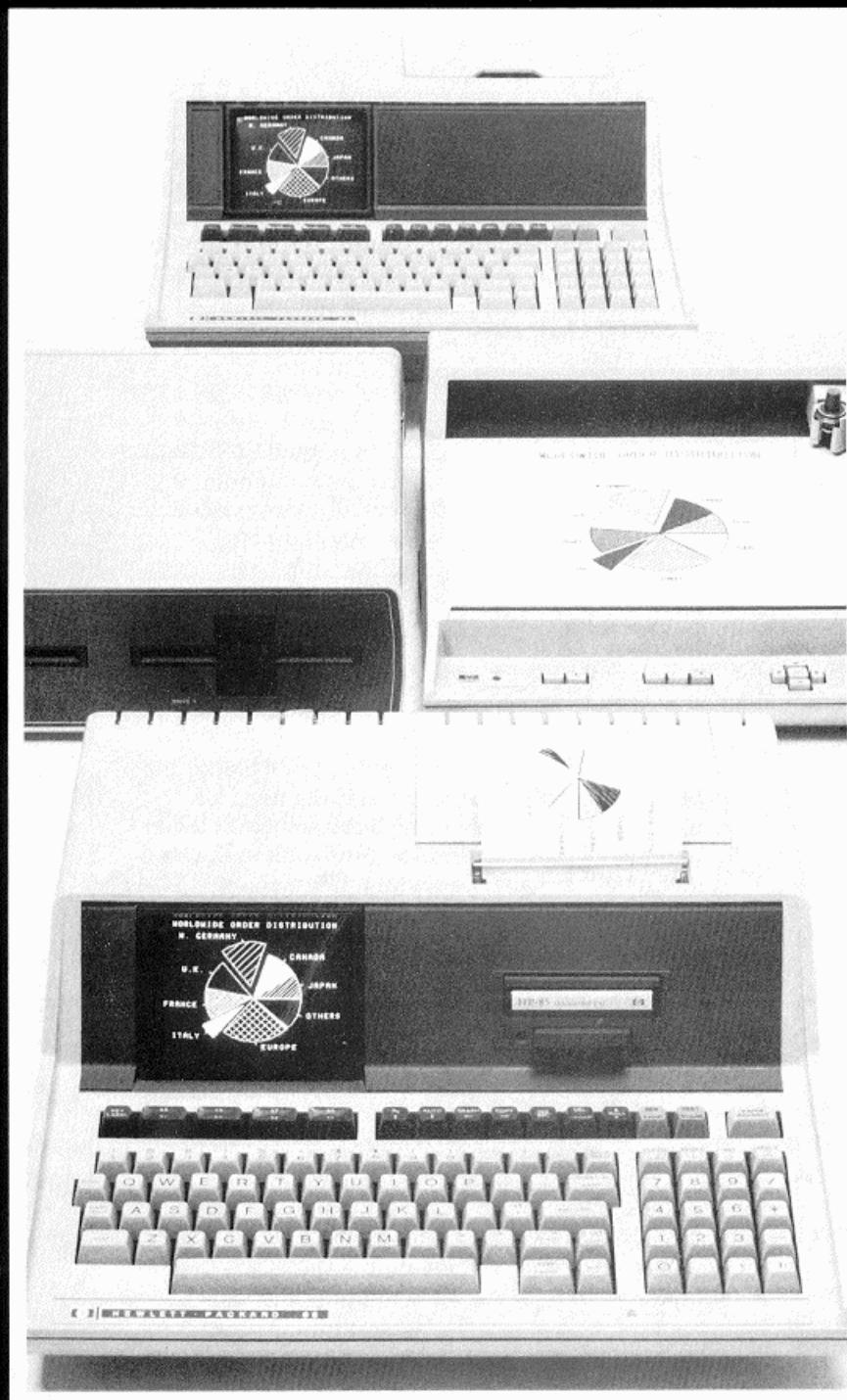
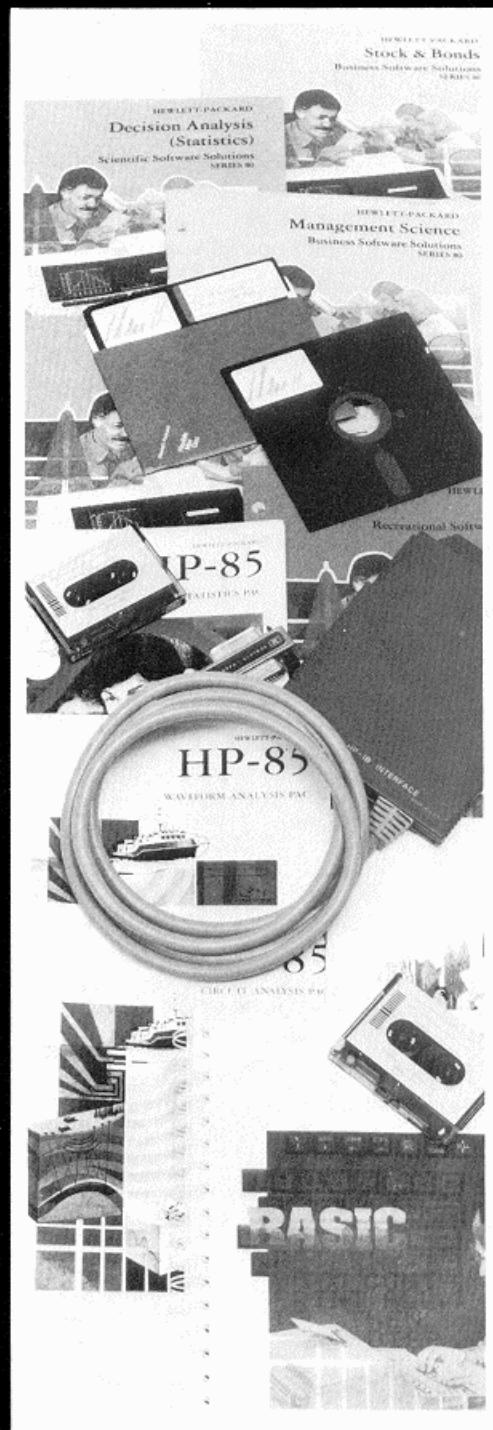
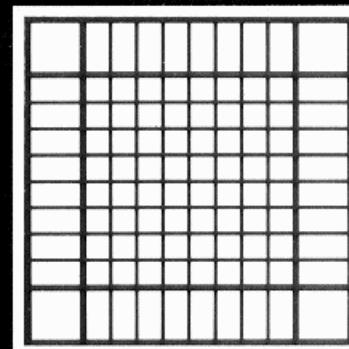


Hewlett-Packard

Series 80 Personal Computers



SERIES 80 CONFIGURATION GUIDE



A SIMPLIFIED APPROACH SERIES 80 PERSONAL COMPUTER SYSTEMS

With Series 80, Hewlett-Packard has stressed the solution of problems for professionals—professionals who are experts in their own fields, not in computers. This emphasis is evident when it comes to configuration:

- You have a broad range of choices that mean solutions for many applications.
- The various elements are designed to work together, and you can connect them quickly without effort.
- The end result is a friendly, yet powerful computing system that you interact with one-on-one.

HOW TO USE THIS GUIDE

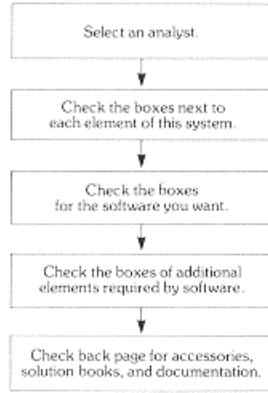
The information in this guide allows you to quickly select the elements of your Series 80 Personal Computing System. There are three ways to use it:

1. Choose one of the typical systems (analysts).
2. Work through each column, noting your hardware and software choices.
3. Select your software.

The inside spread of this guide has been designed to facilitate any of these approaches.

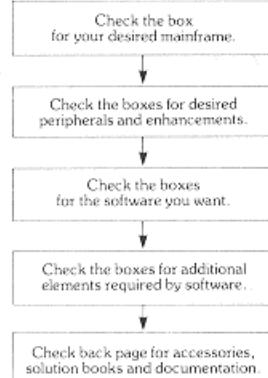
PICK AN ANALYST

The left most column of the next page summarizes four typical systems. They have been designated as various analysts to illustrate the basic capabilities each offers. If one of these systems looks to be a good match for your needs, proceed as follows:



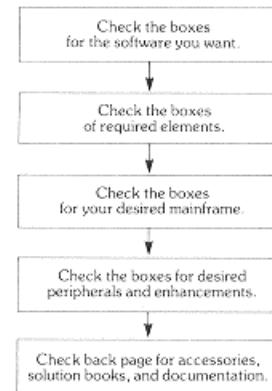
CONFIGURE YOUR SYSTEM

Start with the mainframe column on the next page and work from left to right. For each column, check the boxes of the hardware and software capabilities that you require to solve your particular problem:



CHOOSE YOUR SOFTWARE

If software is the most important factor for you, start there. Begin on the right side of the inside pages and work from right to left:

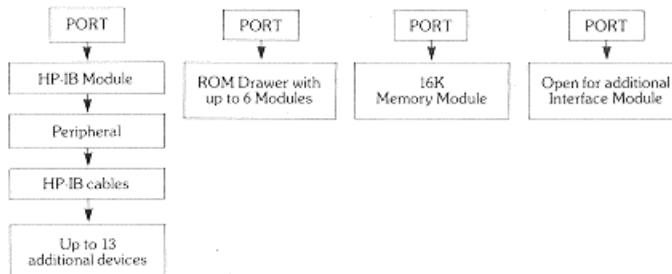


THE BASICS OF INTERFACING

Unless you plan to use the HP-85A fundamentally as a stand-alone, portable computing system (illustrated as a Portable Analyst), you will need some form of interface. Because it is commonly used, HP-IB is illustrated here. In order to talk to other devices such as peripherals and instruments, a computer needs interfacing capability. For Series 80, this has been made as friendly as possible. Each interface consists of a plug-in module with an attached cable.

EXTENDING CAPABILITY

Typically, one or more ROM's will be needed to extend the built-in capability of the computer. The following diagram summarizes some important information about Series 80. There are 4 I/O ports in the back of the mainframe. These ports allow you to easily add memory, ROM's, and interfacing:



NEED MORE INFORMATION

You may need more information before filling out this Configuration Guide. Both of the Series 80 application brochures (technical and business) describe typical systems and some of the problems these systems can solve. A hardware brochure and a software brochure provide in-depth specifications. Finally, a price list is available that allows you to add prices as you go through the guide. If you need further help, ask your dealer or HP sales representative for assistance. To locate the Hewlett-Packard dealer nearest you or any HP sales office, call toll free (800) 547-3400 (except from Alaska and Hawaii). In Oregon call 758-1010.

SYSTEMS

THE BASIC ANALYST

- HP-85A or HP-83A Personal Computer
- HP 82900-Series Flexible Disc Memory or HP 9895A Flexible Disc Memory
- HP 2631B Printer (for commercial applications)
See your HP dealer for other printing options.
- ROM Drawer
- Mass Storage ROM
- Plotter/Printer ROM
- HP-IB Interface
- Interconnect Cable

THE GRAPHICS ANALYST

- HP-85A or HP-83A Personal Computer
- Memory Module
- HP 82900-Series Flexible Disc Memory or HP 9895A Flexible Disc Memory
- HP 2631B Printer (for commercial applications)
See your HP dealer for other printing options.
- HP 7225B Graphics Plotter
- ROM Drawer
- Mass Storage ROM
- Plotter/Printer ROM
- HP-IB Interface
- Interconnect Cable
- Recommended Software: VisiCalc™ PLUS or Graphics Presentations

THE PORTABLE ANALYST

- HP-85A

THE COMMUNICATING ANALYST

- HP-85A or HP-83A Personal Computer
- Memory Module
- ROM Drawer
- I/O ROM
- Serial Interface (RS-232C)
- Modem (Any manufacturer's)
- Required Software: Data Communications

(If You Choose The HP-83 Also Add:)

- HP 82900-Series Flexible Disc Memory or HP 9895A Flexible Disc Memory
- HP 2631B Printer (for commercial applications)
See your HP dealer for other printing options.
- Mass Storage ROM
- Plotter/Printer ROM
- HP-IB Interface
- Interconnect Cable

* VisiCalc is a registered trademark of Personal Software, Inc.

MAINFRAMES

Your Series 80 system can be built around either of two mainframes. If portability is important, the HP-85 is your choice. If you need more mass storage or standard-sized printout, choose the HP-83. For either one, you can double the internal random-access memory.

HP-85A Personal Computer



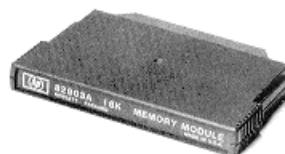
A powerful BASIC language computer complete with built-in keyboard, CRT display, printer, tape unit, and graphics system.

HP-83A Personal Computer



Identical to the HP-85, but without the built-in printer and tape unit. **(Minimum recommended system is as specified for the Basic Analyst.)**

HP 82903A 16K Memory Module



RAM

16K Memory Module increases mainframe user memory from 16K to 32K.

subtotal

MASS STORAGE

LANGUAGE Memory (Rom)

When your application requires extensive on-line data storage or quick access to many large programs, a flexible disc drive is an appropriate peripheral for your Series 80 system. You can choose between a 5 1/4" or an 8" flexible disc system. **(All of the following require an HP-IB Interface, a ROM Drawer, and Mass Storage ROM.)**

HP 82900-Series Flexible Disc Memory



Each removable flexible disc supplies approximately 270K bytes (formatted) of on-line storage. You must start with a master drive. Each master can support one add-on drive for a maximum of 1,080K bytes using a HP 82901M Dual Master and a HP 82901S Dual Add-on Drive.

- HP 82901M 5 1/4" Dual Master Flexible Disc Drive (540K bytes)** _____
- HP 82901S 5 1/4" Dual Add-on Flexible Disc Drive (540K bytes)** _____
- HP 82902M 5 1/4" Single Master Flexible Disc Drive (270K bytes)** _____
- HP 82902S 5 1/4" Single Add-on Flexible Disc Drive (270K bytes)** _____

HP 9895A Flexible Disc Memory



The HP 9895A can store up to 590K bytes of data per disc side for a total of 1,180K bytes of storage per disc. You must start with a master drive. Each master can support one add-on drive for a maximum 4,720K bytes with a HP 9895A Dual Master and an option 012 Dual Add-on Drive.

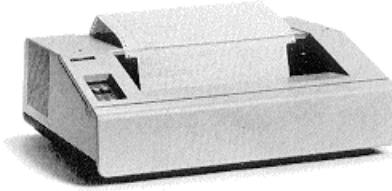
- HP 9895A 8" Dual Master Flexible Disc Drive (2,360K bytes)** _____
- HP 9895A Opt. 012 8" Dual Add-on Flexible Disc Drive (2,360K bytes)** _____
- HP 9895A Opt. 010 8" Single Master Flexible Disc Drive (1,180K bytes)** _____
- HP 9895A Opt. 011 8" Single Add-on Flexible Disc Drive (1,180K bytes)** _____

subtotal

PRINTING/GRAPHICS

Your Series 80 systems may require specialized input or output devices. You can select from the following peripherals to simplify the preparation of such things as forms, graphs, reports, and overhead transparencies. **(All of the following require an interface, typically HP-IB, Plotter/Printer ROM and ROM Drawer.)**

HP 2631B Option 885 Printer



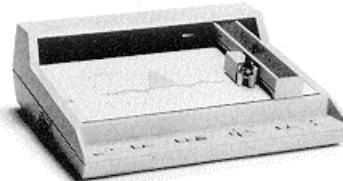
This impact printer which operates bidirectionally at a speed of 180 characters per second is ideal for commercial applications. It has wide paper, compressed type, and multipart forms capability up to 6 parts.

HP 2631B Opt. 020

This option adds USASCII high density print.

Other Printer

HP 7225B Graphics Plotter



This is a compact and efficient graphics plotter that provides a cost-effective solution to the need for professional-quality, hard-copy graphics. With the desktop HP 7225B, publication-quality plots can be drawn on either paper or acetate. **(Requires HP 17601A Personality Module.)** _____

HP 9111A Graphics Tablet



This device is a high-quality graphics tablet that can be used to create or locate graphical data or as a display for interactive graphics applications.

subtotal

FIRMWARE ENHANCEMENTS

These enhancements include ROM's (read-only memories) and a ROM drawer. ROM's are used to integrate peripherals into a Series 80 system or to enhance the capabilities of Series 80 software. ROM modules plug into the computer via the ROM Drawer. **A Series 80 Personal Computer will accept only one ROM Drawer.**

HP 82936A ROM Drawer



A ROM Drawer which holds up to six read-only memory (ROM) modules plugs into one I/O port.

HP 00085-15001 Mass Storage ROM

Adds 30 commands that enable complete control and utilization of Flexible Disc Drives as well as other HP mass storage devices. **(Required with flexible disc drives.)**

HP 00085-15002 Plotter/Printer ROM

Provides a powerful set of operations for control of HP printers and plotters. **(Required with plotter or external printer.)**

HP 00085-15003 Input/Output ROM

Provides a general I/O capability for a variety of instrumentation interfaces.

HP 00085-15004 Matrix ROM

Adds 49 operations for matrix math and matrix manipulation.

HP 00085-15005 Advanced Programming ROM (available Spring 1981)

The Advanced Programming ROM adds functions, statements, and commands that give you extended control over data, programs, and even system operations. You can enhance your programming productivity through flexibility in program design.

HP 00085-15007 Assembler ROM

The Series 80 Assembler ROM provides the user with the capability to write customized Assembly language programs that can be executed from RAM memory.

HP 82928A System Monitor (available Spring 1981)

The System Monitor provides the necessary hardware to debug Assembly language software for Series 80 Personal Computers.

INTERFACES

To allow your Series 80 mainframe to communicate with other devices, you will need at least one of the following interfaces. More than one may be selected, either of the same type or different, subject to the availability of expansion ports. Each mainframe has four ports. (Note, a ROM will typically be required to complete the interfacing system. Where the primary interface is to mass storage devices, select the Mass Storage ROM, and for a plotter or printer, choose the Plotter/Printer ROM. The I/O ROM is most appropriate for other devices.)

HP 82937A HP-IB Interface

The HP-IB interface is the IEEE 488-1978 digital instrument interface. It is an easy-to-use hardware and software interface system that permits bidirectional, asynchronous communication among a wide variety of instruments and peripherals. Up to 14 devices can be connected to one I/O port via a simple one-bus system. **When configuring more than one peripheral you will need one HP-IB interconnect cable for each additional peripheral.** (Refer to Accessories section).

HP 82939A Serial Interface

The serial interface is the RS-232C compatible interface for Series 80. It provides bit-serial asynchronous data communication and is a common means of communicating between a computer and peripherals such as terminals, modems, and printers. The serial interface is also common in applications where two computers are communicating, such as remote data acquisition. **(Specify one: Female Connector HP 82939A, Male Connector Opt. 001, or Current Loop Opt. 002.)**

HP 82940A GPIO Interface (Parallel)

The GPIO interface is a general purpose byte (8-bit) or word (16-bit) oriented interface. It has two output-only 8-bit ports and two bidirectional 8-bit ports. They can be used as separate 8-bit ports or as 16-bit ports. The parallel interface is commonly used with printers, paper tape readers, paper tape punches, card readers, and special instrumentation.

HP 82941A BCD Interface

The BCD interface supports interfacing with BCD instrumentation. A BCD instrument presents digits on a set of parallel lines. Common instruments with BCD interfaces are voltmeters, multimeters, medical equipment, and weighing systems.

HP 82949A Printer Interface (available Spring 1981)

This module is a standard 8-bit parallel printer interface (Centronics type). It allows flexibility in choosing printer options for Series 80 Personal Computers.

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APPLICATION PACS

Following are short descriptions of all current application pacs. Except for Information Management, all pacs come on both disc and tape for use on either Series 80 mainframe.*

- Standard† (00085-13001)** Moving Average, Annuities and Compound Amounts with Amortization, Polynomial Solutions, Simultaneous Equations, Calculus and Roots of $f(x)$, Curve Fitting, Auto Function Plot, Auto Data Plot, Histogram Generator, Arithmetic Teacher, Calendar Functions, Biorhythms, Timer, Music Composer, Ski Game. (Requires 1)
- BASIC Training (00085-13002)** A self-teaching course for novice users. Interacts closely with prerecorded media to provide an easy-paced guide to the mainframe and to programming in BASIC. Prepares users for more advanced operation. (Requires 1)
- General Statistics (00085-13003)** One Sample Analysis, Paired Sample Analysis, Test Statistics, Distributions, Multiple Linear Regression. (Requires 1)
- Financial Decisions (00085-13004)** Compound Interest and Loan Amortization, Discounted Cash Flow Analysis, Depreciation, Simple Interest and Interest Conversions, Bonds, Notes, Break-Even Analysis, Odd Days Interest. (Requires 1)
- Math (00085-13005)** Simultaneous Equations, Solution to $f(x)=0$ on an Interval, Integration with Equally-Spaced and Unequally-Spaced Data Points, Ordinary Differential Equations, Chebyshev Polynomial, Fourier Series for Equally-Spaced and Unequally-Spaced Points, Fast Fourier Transform, Hyperbolic Functions, Complex Operations, Triangle Solutions. (Requires 1)
- AC Circuit Analysis (00085-13006)** Determines steady-state ac behavior of electrical networks consisting of resistors, capacitors, inductors, voltage-controlled current sources and independent current sources. (Requires 1)
- Games (00085-13010)** Blackjack, Slot Machine, Poker Solitaire, Reversi, Gomoku, Cribbage, Wari, Sea Skirmish, Blockade, Race Track, Lander, Race, Hangman, Hunt the Wumpus, King, Nim, Maze Generator, Like, Birthday Plot. (Requires 1)
- Linear Programming (00085-13011)** Solves a wide variety of optimization problems using a modified simplex method that incorporates variable bounds. Example applications include chemical blending, feed mix, production scheduling, investment portfolio selection and marketing media selection. (Requires 1)
- Text Editing (00085-13034)** Provides variable input and output of text files and enables you to specify a tab as well as add, delete, replace, renumber, and move lines. Also enables you to do matched string search and replace. (Requires 1; 3 recommended with HP-83)
- Basic Statistics and Data Manipulation (00085-13036)** Provides common data base for statistics pacs (excluding General Statistics). Data entry, editing, output, sorting, transformation. Computes many basic statistics. (Requires 1)

subtotal

- Waveform Analysis (00085-13035)** Performs Fast Fourier transform on time domain data and inverse transform on frequency domain data. Computes the correlation function and power spectrum. Provides double data block entry for cross correlation, cross power spectrum, and convolution. Computes Fourier series coefficients. Results are plotted or printed. (Requires 1)

- Regression Analysis (00085-13037)** Polynomial Regression, Multiple Linear Regression, Multiple Linear Regression with four variable-selection procedures. Data entry using Basic Statistics and Data Manipulation Pac. (Requires 1 and 5)

- VisiCalc PLUS (00085-13042)** Analyzes and solves complex business and scientific problems. Provides an electronic worksheet with rows and columns. 16 special function commands facilitate the manipulation of data. (Requires 1 and 4; 2 and 3 recommended)

- Graphics Presentations (00085-13038)** Creates professional quality illustrations, reports, and overhead transparencies. Uses either paper or acetate as a medium. Provides three different character styles. Quickly generates and labels pie, bar, and line charts. (Requires 1, 2 and 4) **(available Spring 1981)**

- Information Management (00085-13045)** (Available on disc only.) Provides a powerful and flexible system for data base management. Includes complete tools for creating and maintaining data files. Offers extended graphics capability. (Requires 4 and 7; 2 and 3 recommended) **(available Spring 1981)**

- Surveying (00085-13046)** Enables the manipulation of up to 150 traverse points. Allows entering, editing and recall of these points. Facilitates fast and accurate calculations of problems performed by surveyors. (Requires 1) **(available Spring 1981)**

- Data Communications (00085-13044)** Transforms a Series 80 computer into an intelligent, remote terminal. Allows asynchronous communication with computer or terminal at speeds from 50 to 9600 bits per second in full duplex. (Requires 1 and 6) **(available Spring 1981)**

KEY:

HARDWARE REQUIREMENTS ARE AS FOLLOWS:

1. HP-85A or HP-83A, HP-IB, Disc Mass Storage, ROM Drawer, and Mass Storage ROM
2. Graphics Plotter
3. Optional Printer
4. 16K Memory Module
5. Basic Statistics and Data Manipulation Pac
6. Serial Interface, Modem, I/O ROM, ROM Drawer
7. Mass Storage, ROM Drawer, Mass Storage ROM, HP-IB are required with either mainframe for this application.

† The Standard Applications Pac is included as a standard accessory with HP-85.

* Contact your local dealer or sales representative for information about new application pacs not listed here.

subtotal

SOLUTION BOOKS

Name	Product No.	Price
Business Series		
□ Stocks & Bonds	00085-90336	_____
□ Securities & Investment Analysis	00085-90337	_____
□ Budgeting & Finance I	00085-90338	_____
□ Budgeting & Finance II	00085-90339	_____
□ Management Science	00085-90340	_____
□ Real Estate	00085-90341	_____
Educational Series		
□ Math Learning	00085-90346	_____
□ Science Learning I	00085-90347	_____
□ Science Learning II	00085-90363	_____
□ Electrical Engineer Learning	00085-90352	_____
Engineering Series		
□ Electrical Engineering	00085-90351	_____
Scientific Series		
□ Math	00085-90342	_____
□ Numerical Analysis	00085-90343	_____
□ General Probability	00085-90344	_____
□ Decision Analysis	00085-90345	_____
Recreational Series		
□ Games	00085-90350	_____

DOCUMENTATION

Name	Product No.	Price
□ 3-Ring System Literature Binder	82935A	_____
□ HP-83 Owner's Manual	00083-90002	_____
□ HP-83 Pocket Guide	00083-90001	_____
□ HP-85 Owner's Manual	00085-90002	_____
□ HP-85 Pocket Guide	00085-90040	_____
□ Mass Storage ROM Handbook	00085-90138	_____
□ Input/Output ROM Handbook	00085-90142	_____
□ Plotter/Printer ROM Handbook	00085-90140	_____
□ Matrix ROM Handbook	00085-90144	_____
□ Advanced Programming ROM Handbook	00085-90146	_____
□ Assembler ROM Handbook	00085-90444	_____
□ HP-IB Interface Manual	82937-90007	_____
□ Serial Interface Manual	82939-90001	_____
□ GPIO Interface Manual	82940-90001	_____
□ BCD Interface Manual	82941-90001	_____
□ Printer Interface Manual	82949-90001	_____
□ 5 1/4" Disc Operators Manual	82901-90001	_____
□ 8" Disc Operators Manual	09895-90000	_____
□ 2631B Printer Operators Manual	02631-90917	_____
□ 2631B Printer Family Reference Manual	02631-90918	_____
□ 7225B Plotter Operators Manual	17601-90000	_____
□ 7225B Plotter Beginners Guide with HP-85A	07225-90000	_____
□ 7225B Plotter Operators Note	07225-90005	_____
□ 9111A Graphics Tablet Operators Manual	09111-90000	_____

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SUPPLIES AND CONSUMABLES

Name	Product No.	Price
Mainframes		
□ HP-85 Tape Cartridges	98200A	_____
□ HP-85 Thermal Paper	82931A	_____
Mass Storage		
□ 10 Pack 5 1/4" Discs	92190A	_____
□ 10 Pack 8" Discs	92195A	_____
Printing/Graphics		
□ HP 2631B Printer Ribbon Cartridges, Pkg. of 3	92155A	_____
□ HP 7225B 15 Pads 8 1/2" X 11" Paper, Pens, and Pen Holder	17013A	_____
□ Pen Holder	07225-40054	_____
HP 7225B Plotter Pens (For Paper)		
□ 4 Color Pen Pack (Red, Blue, Green, Black)	5060-6810	_____
□ 5 Red Pens	5060-6784	_____
□ 5 Blue Pens	5060-6785	_____
□ 5 Green Pens	5060-6786	_____
□ 5 Black Pens	5060-6787	_____
HP 7225B Transparency Supplies		
□ Transparency Sheets (100)	9270-0639	_____
□ Transparency Solvent	5060-6828	_____
□ Transparency Pens (Black, Red, Blue, Green)	5060-6818	_____
□ Transparency Pens (Black, Orange, Brown, Violet)	5060-6834	_____
□ Transparency Pens, Wide Tip (Black, Red, Blue, Green)	5060-6819	_____
□ Transparency Pens, Wide Tip (Black, Orange, Brown, Violet)	5060-6835	_____
HP 7225B Plotter Paper		
□ 8 1/2" X 11", std. grid, English, 100 sheets	9270-1006	_____
□ 216 X 280 mm, std. grid, Metric, 100 sheets	9270-1023	_____
□ 8 1/2" X 11", blank, 50 sheets	9280-0475	_____
□ A4 Blank, 50 sheets	9280-0476	_____

ACCESSORIES

Name	Product No.	Price
Mainframes		
□ HP-85/83 Carrying Case	82933A	_____
□ HP-85/83 Dust Cover	82948A	_____
□ Cartridge/Manual Holder	82932A	_____
Printing/Graphics		
□ HP 2631B Printer Stand	26097A	_____
□ HP 2631B Paper Rack	Opt. 002	_____
□ HP 7225B adds Vinyl Carrying Case to HP 7225B	Opt. 010	_____
□ HP 7225B Overhead Transparency Kit	17055A	_____
□ HP 7225B Digitizing Sight	09872-60066	_____
Interfaces		
HP-IB Interconnect Cables		
□ 1/2 Meter	10833D	_____
□ 1 Meter	10833A	_____
□ 2 Meters	10833B	_____
□ 4 Meters	10833C	_____

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