

Software and Accessories for the HP 48 Family



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AC Adapters for the HP 82240A and HP 82240B Infrared Printers

HP 82241A Opt. ABA

U.S. and Canada 110 V, 50-60 Hz

HP 82241A Opt. ABB

Europe 220 V, 50 Hz

HP 82241A Opt. ABG

Australia 240 V, 50 Hz

HP 82241A Opt. ABJ

Japan 100 V, 50 Hz

HP 82241A Opt. ABU

United Kingdom 240 V, 50 Hz

HP 82175A

**Thermal Paper for the HP 82240A and HP 82240B
Infrared Printers**

6 rolls - Black

Independently Developed Software and Accessories

The products included in this section are produced by companies independent of HP. We have reviewed these products for inclusion in this brochure but have not tested them. The inclusion of third party products in this catalog does not constitute an endorsement by Hewlett-Packard.

To purchase products in this section, visit your nearest HP retailer or order directly from the manufacturer at the address listed under "Manufacturers Addresses" on page 41.

Note that not all products in this section of the catalog are available everywhere in the world.

What's New in This Edition!

From Addison-Wesley Publishing

- *HP 48 Programming Examples* is a programming tutorial that provides over 150 example programs with explanations and tips for better programming. See page 27.

From Armstrong Publishing

- *The HP 48 Database* is a compact, powerful, and easy to use database program for the HP 48. Comes on an MS-DOS format disk. See page 18.

What's New, continued

From Educalc

- The *4×4 Cable* connects the serial ports of two HP 48's for fast transfer of data. See page 17.
- The *Experimenter's Serial Cable* lets you connect your HP 48 to anything you want. See page 16.
- Introduction to RPL* is an introduction to RPL programming on the HP 48 and includes many example programs. See page 30.
- HP 48 Goodies Disks* contain software from the HP 48 bulletin board and is made available at very low cost. See page 29.
- Mastering Your HP 48, Vol. 2: Programming and Applications* is a book of ready-to-run math programs for the HP 48. See page 24.

From Larken Publications

- HP 48 Insights, Part II: Problem Solving Resources* is the second of the two part *Insights* series by Dr. William Wickes on the operation and application of the HP 48. See page 33.

From Field Designs

- The *Universal Rotating Bracket* will hold the HP 48 and is designed to fit between the instrument and a surveying tripod head. See page 34.
- The *Hanging Tripod Bracket* hangs from the leg of a surveying tripod and holds the HP 48. See page 34.

From LearnKey, Inc.

- Learning About the HP 48* provides a different way to learn how to use your HP 48. Over 1½ hours of video lets you see the HP 48 in action solving many sample problems. See page 33.

What's New, continued

From SMI

- The *Construction 1.0* card works with manual or automatic total stations to perform such functions as slope staking, cross section, and stake out. See page 37.
- Construction V* includes all of the capabilities of the SMI Data Collection Card plus additional functions to automate road layout. See page 38.
- The *E.Z. Algebra* card is a basic algebra course designed to make it easy for students to build a solid algebra foundation. See page 22
- The *E.Z. Arithmetic* card is a comprehensive basic arithmetic course designed to reinforce basic computational skills. See page 23.
- Group Matrix I* provides programs for analysis and manipulation of finite groups. See page 23.
- 48SPC State Plane and UTM Coordinate Systems plus Geodetic Forward and Inverse Card* facilitates and reduces computing time in State Plane and UTM coordinate problems. The Geodetic Forward and Inverse programs compute geodetic distance and azimuth anywhere in the world. See page 39.
- Zephyr Games Pak I* is a collection of action, mind, and real time response games on a plug-in card for the HP 48SX. See page 21.

From Sparcom

- The *Spice48 Pac* is a circuit analysis tool used to calculate, view, and plot the complete response of linear circuits. See page 20.
- The *Solid State Electronics Pac* provides over 250 equations and common reference data used by solid state engineers. See page 20.

Cases

Bolen Leather Products:

Hard Leather Case

To protect the HP 48 outdoors and indoors.

Cusack:

Hard Leather Case

To protect the HP 48 outdoors and indoors.

Sparcom Corporation:

Leather Carrying Case

Black leather, snap-closure carrying case with room for the HP 48 plus 12 application or memory cards. Includes pen or pencil holder and zippered pocket for documents.

Tripod Data Systems:

TDS-480 Environmental Case

This rugged, durable, environmental case for the HP 48 is dust-proof, shock-resistant, and highly water-resistant. It contains a built-in, rechargeable battery pack that replaces the standard alkaline batteries. Case comes complete with a recharger. An optional cloth carrying case is available.

Chemistry and Chemical Engineering

Sparcom Corporation: General Chemistry Application Pac

A plug-in application card containing over 150 equations and common reference data used by chemists, chemical engineers, and students. Solve, plot, and analyze equations in the built-in library of equations that covers atoms and molecules; solids and liquids; gases, acids and bases; thermo and electrochemistry; precipitation; and kinetics. The built-in periodic table provides access to 14 properties of the elements. The stoichiometry function automatically checks chemical equations for mass and charge balance and computes molecular weights, coefficients, theoretical yields, and limiting reagents. The constants library and reference library provide access to commonly used constants and reference data.

Classroom Displays

IDEC: Classroom Display for HP 48SX

This classroom display plugs into either of the two card slots in the HP 48SX. It provides an auxiliary display that can be placed on an overhead projector to project a large image on a screen. Includes a magnifier to increase the size of the projected image.

Communications and I/O

Armstrong Publishing Company: HP 48 File Manager

Convenient file exchange program that eases data transfer between the HP 48 and your PC. The File Manager lets you browse through your HP 48 files or PC files right on the HP 48 display and select files to transfer, rename, or purge. Easily archive the HP 48 to your PC and create directories on the HP 48 or PC. Works with IBM compatible PC's.

Digital Press: *Using MS-DOS® Kermit*

This step-by-step guide and reference shows you how to use Kermit Version 3.0 to connect your PC to the world. It is of particular value to HP 48 users wishing to understand, explore, and customize the link between the HP 48 and a PC. A Kermit Version 3.0 program diskette is included with the book. Soft cover, 244 pages.

EduCalc: Dual-Purpose HP 48 Serial Cable

The unique connector on this cable utilizes a switch to select the appropriate configuration for connection to either a computer or a printer. This cable eliminates the need for a separate adapter and NULL modem.

New!

EduCalc: Experimenter's Serial Cable

This six foot cable has an HP 48 4-pin serial cable molded onto one end with the other end unterminated so you can install your own connector or wire directly into a device.

Communications and I/O, continued

New!

Educalc:

4 × 4 Cable

A two foot cable with an HP 48 4-pin serial connector on each end. Allows direct transfer between two HP 48's at four times infrared speed. The cable is small enough to fit into the calculator case.

Sparcom Corporation:

FD-1000 Portable Disk Drive

A compact, rugged, battery-operated disk drive that uses standard 3 1/2-inch disks in either 720 Kbyte or 1.44 Mbyte densities. Designed for use with disks formatted for MS-DOS[®] compatible computers. The drive connects to the HP 48 via the serial link and transfers data using the Kermit protocol at 9600 baud. It also has a built-in cache memory to reduce the amount of disk access required. The rechargeable batteries will last approximately 20 hours before needing a recharge. The drive comes with battery recharger and a disk containing a file manager program for the HP 48 that facilitates use of the disk drive.

Communications and I/O, continued

Travtech:

ADCM-48 Computer Interface (A to D converter)

Low cost, portable analog to digital converter and I/O controller. Battery operated unit uses infrared interface for true electrical isolation of HP 48 from input. Provides four 0-5 volt 8-bit analog input channels, four TTL/CMOS compatible digital inputs, and four half-amp outputs. Creative use of ADCM-48 sleep mode and HP 48 alarms provides several months stand-alone operation on one internal 9 volt battery for remote data logging or instrument control. Includes software disk containing HP 48 programs for common instrument set-ups and low-level control routines.

Databases

New!

Armstrong Publishing: The HP 48 Database

This is a compact, powerful "flat-file" database program for the HP 48. The database supports eight field types including a remote database lookup field to provide pseudo-relational capability, calculated fields, and option fields that let you select from predefined options to fill in a field. Field, record, and database size are limited only by available memory. Searching, selecting, sorting, reporting, and data import / export functions are provided. Includes a set of programmable commands that enable you to access database information from within your program.

Electronics and Electrical Engineering

Sparcom Corporation: Electrical Engineering Reference Pac

A plug-in application card containing an electronic "handbook" of over 3000 entries in core areas for electrical and electronic engineers and students. Areas covered include: selected universal, physical, magnetic, mechanical, and thermal constants; electronic and electrical properties; semiconductor and laser properties; dielectric and magnetic properties; and mechanical and thermal properties. Values, indices, and tables are available at the touch of a button. A hexadecimal, decimal, octal, and binary table of ASCII codes is also included.

Sparcom Corporation: Electrical Engineering Pac

A plug-in application card containing over 350 equations in core areas of electrical and electronic engineering. Electrical fundamentals provides the foundation for advanced topics and covers: circuit elements; simple AC and DC circuits; RL, RC, and RLC circuits; electronic resonance; transformers; transmission lines; and motors and generators. Network analysis equations apply analytical techniques to Star-Delta transforms and ladder networks. Includes digital signal processing equations for Fourier analysis and digital filter design and analysis. Electromagnetic field equations include transmission lines and propagation formula for: ideal transmission lines, Smith chart analysis, VSWR, and propagation delay.

HP Application and Memory Cards for the HP 48SX

Use over 300 equations to solve science and engineering problems

Over 300 science and engineering equations and reference tools extend the capability of the HP 48SX. This card lets you find the right equation, right away. Use the HP 48SX cursor keys to browse through equation topics such as columns and beams, electricity, and fluid flow. Then, with the touch of a key, you'll see a set of related equations. Choose your equation; the HP 48SX displays it, gives you a picture of the physical system (if appropriate), lists the descriptions of each variable in the equation, and then enables you to solve for any variable in the equation using HP's unique HP Solve application.

Physical Constants Library. Work with equations that require physical constants, like gravity and speed of light, without having to use cumbersome reference tables. The HP 48SX places constants in equations where you want them.

Periodic Table of Elements. Press a key to view the periodic table of atomic weights, numbers, and densities (over 25 properties in all). You may never need to use tables in a book again.

HP 82211A

HP Solve Equation Library Application Card

In the box: Application card and owner's manual.

Electronics and Electrical Engineering, Continued

New!

Sparcom Corporation: Solid State Electronics Pac

A plug-in application card for doing solid state electronic design computations. The pac contains over 250 equations in such areas as: Fermi level, PN junctions, MOS design, Hall effect, Jn transistors, microwave design, IC technology, and Franz-Keldysh effect. In all, there are 59 topics covered by the equations in this pac. In addition, there is a reference information section containing such data as: Si properties, GaAs properties, Si donor and acceptor levels, and Colors of SiO_2 and Si_3N_4 films.

New!

Sparcom Corporation: Spice48 Pac

A plug-in application card that enables you to solve linear circuit analysis problems in the time it takes to look them up. Create circuits using the menu driven Circuit, Element, and Node Managers. Display the schematic of circuits with the Graphics Manager. Then analyze quiescent operating points, steady state signal response, and transfer functions. Plot circuit response and frequency sweep or transient pulses. Use the Output manager to view, plot, and save analysis data.

Games

Preston Brown Labs: Casino 48 Card

Provides all your favorite casino games with great graphics and animation:

- Beat your HP 48SX at Blackjack.
- Break your HP 48SX at Roulette.
- Make your HP 48SX pay off at Slots.
- Luck out with your HP 48SX at Video Poker.

As an added bonus, you can create your own card games with commands for drawing cards on the screen.

New!

Surveyor's Module Inc.: Zephyr Game Pak I

This card includes action, mind, and real-time response games. Games include: The Tower of Bramah, Stock Market simulator, Peg Solitaire, Mastermind, Concentration, Klondike Solitaire, and three others. Each game is fully implemented with user friendly menu options and key assignments, no memorizing of keystrokes or manual search is necessary.

Finance

Tripod Data Systems: Financial Functions Library Card

This card provides financial computations in the areas of: time value of money including amortization; markup; grouped and ungrouped cash flows; interest rate conversions; and depreciation. Easy access to all functions is provided through menus and prompts for all data.

Math

Sparcom Corporation: Mathematics Pac

A plug-in application card containing over 1,000 equations used by mathematicians, engineers, and science students in algebra, geometry, trigonometry, hyperbolics, calculus, linear algebra, and transforms. It is a calculator and "textbook" combined. Integrate and solve a function in two easy steps. Select from over 350 built-in integrals or simply enter your own. Compare, solve, plot, or analyze equations without programming. Functions include: polynomial root finder; formulas for geometric shapes; trigonometric relations and definitions; integrals, derivatives and series; matrices, eigenvalues, and determinants; and Fourier, Laplace, and Z transforms.

New!

Surveyor's Module Inc.: E.Z. Algebra

This basic algebra course makes it easy to build a solid algebra foundation. An easy-to-use, menu driven interface guides you through this self-study course. Topics include: sets, number sets, operations on number sets, open phrases, and open sentences. Terminology, definitions, and examples are provided for each topic.

Math, Continued

New!

Surveyor's Module Inc.:

E.Z. Arithmetic

This basic arithmetic course helps to reinforce basic computational skills. An easy-to-use, menu driven interface guides you through this self-study course. Topics covered include: whole numbers, fractions, decimals, percents, and integers. A computational skills section provides user controlled drills in basic arithmetic computation.

New!

Surveyor's Module Inc.:

48GM Group Matrix 1.0 Card

This plug-in application card provides tools for manipulating and analyzing finite groups in either matrix or permutation form. The programs enable you to compute: group order; orbit, order, and inverse of each group element; conjugacy classes of the group; any subgroup of the main group (as well as order and conjugacy class of each subgroup element); any normal subgroup of the main group; left and right cosets of a group and any factor of the main group; commutator subgroup of the main group and any subgroup; center of the group; normalizer of any group element; whether the group is simple, solvable, or nilpotent; and the multiplication table of a group or subgroup. The programs will handle groups up to order 1000 within the built-in memory of the calculator.

Math, Continued

Surveyor's Module Inc.:

E.Z. Math Card

This plug-in application card provides easy graphical analysis of nearly 200 families of equations covering high school algebra through college calculus. Functions covered include: polynomials, inequalities, hyperbolics, rational functions, parametric equations, systems of equations, conics, polar equations, log and exponential functions, and trig functions. The card also includes loan and savings calculations, number calculations like GCD and prime factorization, a game, and electronic music generation.

New!

D3I (distributed by Educalc):

Mastering Your HP 48,

Volume 2: Programming and Applications

This book is translated from a best selling French book containing dozens of ready-to-run math programs for the HP 48. Each program includes a description, stack diagram, listing, definitions, and an example. Program topics covered include: arithmetic, real and complex numbers, polynomials, rational fractions, matrix calculations, analysis techniques, finite series, Euclidean geometry, differential geometry, graphs, large integers, probability, simple statistics, two variable statistics, and databases. Paperback, 282 pages.

Mechanical Engineering

Sparcom Corporation: Mechanical Engineering Reference Pac

A plug-in application card containing an electronic "handbook" of over 3000 entries in core areas for mechanical engineers and students. Areas covered include: selected universal, magnetic, mechanical, and thermal constants; mechanical and elastic properties of solids; composition of metals; properties of liquids; properties of gases and vapors; thermal properties; fuel and combustion properties; refrigerants; environmental control properties; moment of inertia formulas; and standard number formulas.

Sparcom Corporation: Mechanical Engineering Pac

A plug-in application card containing over 300 equations in core areas for mechanical engineering: beams, fluid mechanics, heat transfer, mechanics, and stress analysis. Reference information is provided in the areas of: machine design, vibrations, gas laws, steam tables, and thermocouples. Over 20 constants in three categories are also provided. Complex problems are solved quickly using the menu-driven equation solver.

Personal Information Management

Sparcom Corporation:

Personal Information Manager Card

Now the HP 48SX you rely on for your technical needs can handle your personal and business information needs too. The Personal Information Manager stores your appointment schedule, account list, phone numbers, and expenses in an easy-access format. Features include: enter and view daily schedule using multi-year calendar, set reminder alarms, enter notes, sort phone directory information by any of nine data fields, store financial or time log data under separate accounts, record business or personal expenses, and print appointment lists, phone lists, notes, financial or time log data, or expense reports.

Programming and Programming Services

New!

D3I (distributed by Educalc):

Mastering Your HP 48,

Volume 2: Programming and Applications

See description under: "Math."

New!

Addison Wesley Publishing Company

Hewlett-Packard Press Series:

HP 48 Programming Examples

This book provides owners of any model HP 48 with more than 150 usable example programs, each accompanied by a detailed explanation.

These programs begin with simple problem statements, and each is followed by a sample solution to show exactly how it works.

Featuring structured programming techniques, the programs are drawn from the areas of business, statistics, calculus, and graphics.

Paperback, 368 pages.

Programming and Programming Services, continued

Armstrong Publishing Company: The HP 48 Programmer's Tool Kit

A collection of software tools designed for programmers that improve program performance by using internal system languages. Features include: a Character Set Catalog that displays all three HP 48 character sets and shows I/O translation forms, a Menu Label Builder for creating custom menu labels, a Flag Catalog that displays the states and description of all flags, a Data Browser and Title Browser are screen-oriented user interface utilities that may be used to enhance applications, and a Tool Library that includes 74 new commands for object manipulation capabilities beyond those built into the HP 48. The HP 48 Programmers Tool Kit may be ordered with a disk for either IBM-compatible or Macintosh Computers.

Armstrong Publishing Company: *HP 48 Handbook*

See description under: "Reference and Tutorials."

EduCalc: HP 48 Application Card Programming Services

Send your HP 48 application on a RAM card and EduCalc will duplicate it onto an OTP (one time programmable) ROM card. Both 32-Kbyte and 128-Kbyte OTP's are available. Price varies with ROM size and quantity. Production time is approximately two weeks.

Programming and Programming Services, continued

New!

Educalc:

HP 48 Goodies Disks

High density MS-DOS® format disks containing hundreds of programs, graphics, and information pulled from the HP 48 bulletin board and other public domain sources by end users and made available by Educalc at very low cost. As of the publication date of this catalog, six disks are available. A set of descriptive notes is available for each disk—ask for Technical Notes #28 through #33. Programs range from games, math programs, utilities, programming hints, and graphic animation through descriptions of the HP 48 system internals and system level programming tools. Neither HP, nor Educalc, nor the compilers warrant any of the materials on these disks in any way.

Larken Publications:

HP 48 Insights, Part I: Principles and Programming

See description under: "Reference and Tutorials."

New!

Larken Publications:

HP 48 Insights, Part II: Problem Solving Resources

See description under: "Reference and Tutorials."

Load and run HP 41CV programs in your HP 48SX

Use HP 41CV programs on the breakthrough HP 48SX. Move up to the power and breakthrough capabilities of the HP 48SX calculator and take your HP 41CV programs along using the HP 41CV Emulator application card. It emulates all HP 41CV commands and most non-graphics commands of the HP 82240A or HP 82240B Infrared Printers.

Flexible data and program access. Share data between the HP 48SX and HP 41CV emulation environments. In emulation mode, the HP 48SX keyboard is reassigned to HP 41 functions. A keyboard overlay serves as a guide to HP 41CV commands. Or make your own key assignments; they are active in the emulator's USER mode.

Familiar display. The default display shows all four HP 41 stack registers and annunciators. Or configure the HP 48SX display to show only the familiar single line HP 41 display.

HP 82210A

HP 41CV Emulator Application Card

In the box: Application card, owner's manual, and keyboard overlay.

Reference and Tutorials

New!

Addison Wesley Publishing Company
Hewlett-Packard Press Series:
HP 48 Programming Examples

See description under: "Programming and Programming Services."

Armstrong Publishing Company:
HP 48 Handbook

An additional reference manual for the HP 48 calculator and the HP Solve Equation Library Application Card. Contains all aspects of object manipulation, custom menus, graphics, system operations, and programming structures with examples. Reference tables are included for rapid look-up for built-in commands, units, messages, menu numbers, the character set, object types, and flags. Soft cover, 195 pages, spiral bound.

New!

Educalc
Introduction to RPL

This book is an introduction to the built-in programming language of the HP 48. Chapters cover: the stack; data types; directories, variables, and programs; interactive input and output; operators and expressions; decision making structures, loop structures, special and non-numerical arrays, and strings. Contains over 80 sample programs, including a set of string functions that can be used in other programs. Soft cover, 216 pages, comb binding.

Reference and Tutorials, continued

Grapevine Publication, Inc.:

An Easy Course in Using the HP 48

The fastest, easiest way to get up to speed on the incredible HP 48! This jargon-free, hands-on course gives you practical lessons on objects, tools, menus, the stack, writing, solving, and plotting equations, using matrices and statistics, programming, using directories and much more. Each lesson shows working examples of the commands and concepts you need to learn. There are plenty of review points that summarize what you've learned—and a quiz at the end of each chapter. Soft cover, 384 pages, lay-flat binding.

Grapevine Publication, Inc.:

HP 48 Graphics

A fascinating look at the potential of that big display on the HP 48. This book shows you how to build graphics objects ("grobs") and use them to customize displays with diagrams, pictures, labels, titles, multiple plots, games, and menu icons. The book begins with an in-depth review of the HP 48 EquationWriter, HP Solve, and Plot applications. Next it describes the location and use of the built-in graphic commands. Then you learn to build grobs and combine them into extensive application programs. There is also a chapter on transferring HP 48 graphics to other computers or printers. Soft cover, 304 pages, lay-flat binding.

Reference and Tutorials, continued

Larken Publications:

HP 41/48 Transitions

The HP 48 calculator is the heir-apparent of the HP 41. The HP 48 combines the flexibility and customizability of the HP 41 with the revolutionary computational capabilities of the HP 28S. This book describes the logical evolution from the HP 41 to the HP 48 and shows that HP 48 actions are natural extensions and enhancements of familiar HP 41 operations. The book also shows how your HP 41 procedures and methods can be adapted to the HP 48, including stack manipulations, storing and retrieving data, programming, and program conversions. Soft cover, 149 pages, spiral bound.

Larken Publications:

HP 48 Insights, Part I: Principles and Programming

This is the first part of a two-volume work by Dr. William Wickes on the operation and programming of the HP 48 family. The first half concentrates on the underlying principles of HP 48 operation. Attention is given to understanding RPN, objects and execution, the HP 48 stack, storing objects, operational methods, customization, and problem solving. The remainder of the book focuses on tools and techniques of programming. Programming chapters cover programming basics, display operation and graphics, arrays and lists, and program development. All concepts are illustrated with over 100 practical example programs. Spiral bound, 381 pages.

Reference and Tutorials, continued

New!

Larken Publications:

HP 48 Insights, Part II: Problem Solving Resources

The second of a 2-volume work on the operation and programming of the HP 48. This volume focuses on six application areas built into the HP 48: the HP Solve application, plotting, symbolic algebra, time management, statistics, and unit management. There are discussions of design motivations, "how-to" descriptions and examples for interactive operation, and methods for extending the built-in functionality for custom applications. More than 60 programs are included. *Part I* is not a prerequisite for *Part II*, but is a recommended preliminary, since many of its principles and methods are applied in *Part II*. Together, the two volumes constitute the most comprehensive and effective exposition available for the principles and methods of the HP 48. Soft cover, 328 pages, spiral bound.

New!

LearnKey, Inc.:

Learning About the HP 48

Practical, hands-on introductory training for the HP 48 in video form. See the HP 48 in action solving problems in such areas as: numeric and symbolic math, the HP Solve application, the plot application, user defined functions, programming, unit management, time and alarms, and more. Find out how to use these powerful HP 48 features by watching the demonstrations and doing the sample problems on your own HP 48. VHS format, 100 minutes.

Stands

New!

Field Designs:

Universal Rotating Bracket

This bracket fits between the instrument and tripod and comes with a brass adapter to compensate for the thickness of the bracket. It will fit any tripod with standard $\frac{5}{8} \times 11$ threads. The bracket rotates 360° and holds the HP 48 at a comfortable working and viewing angle.

New!

Field Designs:

Hanging Tripod Bracket

This durable, black aluminum bracket will hang from the leg of most tripods and holds the HP 48 at a comfortable working and viewing angle.

Sparcom Corporation:

Angle View Calculator Stand

This stand is designed to fit the HP calculators. This stand fits in a briefcase, purse or pocket and has angle adjustments that make the calculator display easier to see and the keys easier to use. Non-skid rubber feet prevent sliding on all surfaces. Molded from rigid plastic for durability.

Surveying and Civil Engineering

D'Zign:

HP 48 Surveying Packet #1

This is a disk-based surveying software package. Once downloaded to your calculator, the following application areas are available: coordinate geometry, geometric solutions (triangle solutions, circular curves, vertical curves, and vertical intersections), layout programs, leveling routines, and file management routines. In addition, a PC program is included for converting coordinate files from the format used by the calculator to formats used by PC surveying and engineering programs.

D'Zign:

HP 48 Student Pak

This is a disk-based surveying software package that fits in the 32-Kbyte internal memory of the HP 48. It contains all the coordinate geometry programs of Surveying Packet #1, plus triangle, circular curve, quick input, and file printout functions.

D'Zign:

HP 48 Route Pak

This disk-based software package fits in the 32-Kbyte internal memory of the HP 48 and has all of the programs needed for route location and design, either in the field or in the office. It contains an alignment/offset package similar to the one in the D'Zign Surveying Packet #1 (described above) but also includes spiral curve alignment. Route Pak also includes vertical alignment, slope staking, and profile routines.

Surveying and Civil Engineering, continued

New!

**Field Designs:
Universal Rotating Bracket**

See description under "Stands."

New!

**Field Designs:
Hanging Tripod Bracket**

See description under "Stands."

**Surveyor's Module Inc.:
48BC Basic Coordinate Geometry
Surveying Card**

This card allows storage of hundreds of points by point number in internal memory. It provides easy field book entry of points; computes curves and intersections; translates, rotates, and scales sets of points; and computes perpendicular offsets from a line. It also does compass rule adjustment and computes acres, square feet, and perimeter by point number.

**Surveyor's Module Inc.:
48SC Standard Coordinate Geometry
Surveying Card**

Contains all features of the SMI Basic Card plus: built-in sunshot program that develops its own ephemeris, the ability to store elevations as well as coordinates; and a stake program that will give GO and COME values and, if elevations are included, CUT and FILL. Includes predetermined area by hinge and slide method.

Surveying and Civil Engineering, continued

Surveyor's Module Inc.:

48AC Advanced COGO Surveying Card

Contains all features of the SMI Standard COGO Card plus: notes and/or codes; angle adjustments including side shots; compass rule adjustment including sideshots; mean reciprocal leveling from both ends of a line; an offset program for road centerline offsets; and the ability to stake a line from a remote point.

Surveyor's Module Inc.:

48CE Civil Engineering Card

Includes vertical curves, horizontal curve layout, earthworks, hydrology programs for designing various open channel ditches, and pipe sizes for storm and sanitary sewer.

New!

Surveyor's Module Inc.:

Construction 1.0 Card

Performs field construction operations with manual or electronic total stations. Does slope staking, cross sectioning, and stake out based on station and offset. Can be used for highways, dams, pipelines, topographic surveys, and much more. All field operations are based on radial stakeout methods.

Surveying and Civil Engineering, continued

New!

Surveyor's Module Inc.: Construction V Card

This card contains all SMI cogo programs plus data collection. Use station and offset or point numbers to set grade stakes, slope stakes, bluetops, center lines, side lines, and boundary points. Permits work with tangents, simple curves, spiral curves, vertical curves, etc. Automatically interpolates super elevations and changes in road width; may contain data for road sections many miles long. Press only one key to obtain slope stake or bluetop data. Comprehensive, yet unbelievably easy to use.

Surveyor's Module Inc.: 48DC Data Collection Pack

A complete manual and electronic data collection package containing all of the functions of the advanced COGO card plus: an HP 48SX calculator, training video, tripod mount, environmental case, PC cable, and instrument cable. Electronically collects data from Lietz, Nikon Top Gun, Topcon, Wild, or Zeiss Electronic total Stations.

Surveying and Civil Engineering, continued

New!

Surveyor's Module Inc.: 48SPC State Plane & UTM Coordinate System Card

This card reduces computing time in problems involving State Plane and UTM coordinates, distance, and azimuth. It covers both NAD27 and NAD83 and is valid for all of the U.S. plus Puerto Rico, the Virgin Islands, and Guam. Conversion from state plane to geodetic coordinates and vice versa are provided as well as inverse using either geodetic or state plane coordinates. The UTM coordinates system covers all 60 zones of the world and allows conversion from geodetic to grid coordinates and vice versa as well as inverse to obtain both grid and geodetic distances and azimuths. Geodetic forward and inverse programs cover eight reference ellipsoids, plus additional functions.

Tripod Data Systems: Survey Card

A plug-in software card for data collection, stakeout, COGO, and curves. Displays curves graphically. This survey card uses full HP 48SX capability—you move around the screen with cursor keys and use menus and softkeys for quick access to surveying functions. With the 128K RAM card installed, you can collect field data for up to 3000 points, including: Northing, Easting, elevation, and 16 character point descriptors. The infrared interface sends data to printers or to another HP 48SX. The Survey Card provides for direct communications with a variety of RS-232 serial port total stations.

Battery-backed RAM Cards

Take advantage of additional RAM. Develop large programs and store more data in your HP 48SX.

Choose the memory configuration you need. Add to the main memory of the HP 48SX or use it as an electronic disk.

Save your information, even when you unplug the RAM card from the HP 48SX. It's powered by its own long-lasting battery.

HP 82214A

32-Kbyte Battery-backed RAM Card for the HP 48SX

In the box: 32-Kbyte battery-backed RAM card, CR2016 battery, installation card.

HP 82215A

128-Kbyte Battery-backed RAM Card for the HP 48SX

In the box: 128-Kbyte battery-backed RAM card, CR2016 battery, installation card.

Surveying and Civil Engineering, continued

Tripod Data Systems: Coordinate Geometry Card

A lower cost alternative to the survey card. This card contains all of the functions of the survey card except: instrument control, raw data input from an instrument, and stakeout routines. Additional software in this card provides triangle solutions and earthwork calculations.

Manufacturer's Addresses

New Vendor!

Addison-Wesley Publishing Company
Corporate & Professional Publishing Group
HP Press Series
1 Jacob Way
Reading, MA 01867
(800) 333 0088

Armstrong Publishing Company
3135 NW Ashwood Drive
Corvallis, OR 97330

Bolen Leather Products
903 South Main Street
Springfield, TN 37172
(615) 384 5858

Cusack
PO Box 222, 1100 13th Street
Golden, CO 80402
(303) 279 1279

Digital Press
Digital Equipment Corporation
12 Crosby Drive
Bedford, MA 01730
(800) 344 4825

D'Zign
P.O. Box 9790
Fresno, CA 93794
(209) 276 3460

Manufacturer's Addresses, continued

EduCalc

27953 Cabot Road
Laguna Niguel, CA 92677
(714) 582 2637
(800) 677 7001 (customer support)
(800) 535 9650, ext. 9151 (credit card orders)
FAX (714) 582 1445

New Vendor!

Field Designs

5013 Mozart Drive
Richmond, CA 94803
(510) 222 9999
FAX: (510) 222 0770

Grapevine Publication, Inc.

PO Box 2449, 626 NW 4th Street
Corvallis, OR 97339
(800) 338 4331
(503) 754 0583
FAX (503) 754 6508

IDEC (formerly Zengrange, Inc.)

541A Wake Robin Avenue
Corvallis, OR 97333
(503) 753 9403
FAX (503) 753 4308

Larken Publications

4517 NW Queens Avenue
Corvallis, OR 97330
(503) 754 0117

Manufacturer's Addresses, continued

New Vendor!

LearnKey, Inc.

93 South Mountain Way Drive
Orem, UT 84058
(801) 224 8210
FAX (801) 224 8211

Preston Brown Labs

2597 Pierce
Eugene, OR 97405
(503) 345 3767

Sparcom Corporation

897 NW Grant Avenue
Corvallis, OR 97330
(503) 757 8416
FAX (503) 753 7821

Surveyor's Module Inc. (SMD)

250 West New Street
Kingsport, TN 37660
(615) 246 3790
(800) 234 0123
FAX (615) 245 8982

Travtech

10959 Barbados Way
San Diego, CA 92126
(619) 566 7861

Tripod Data Systems

1854 SW Airport Road
Corvallis, OR 97333
(503) 753 9322
(800) 426 8026
FAX (503) 757 7439

HP Data Communications Accessories for the HP 48 Family

Easy HP 48 program development and data transfer using an IBM-compatible computer

Transfer and archive HP 48 data and programs. Easily transfer variables and files between the PC and HP 48 using the menu-based flexible transfer features.

Save program development time by turning your PC into an HP 48 program development system. Use the mouse compatible, menu-driven editor to create and format programs with comments and perform standard edit functions. Write complete applications in the editor and transfer them to the HP 48 with a single keystroke.

Immediate execution window. Enter HP 48 commands in this window, execute them on the HP 48, and see the resulting stack displayed on your PC.

On-line reference manual and context-sensitive help. Click the mouse on any HP 48 command in the editor window and see the corresponding page of the *HP 48 Programmer's Reference Manual*. Hot links speed access to related commands and information. The complete on-line help system for the development link program provides one-key access to assist development link operation.

HP 82208B

Program Development Link for HP 48 to IBM and IBM-compatible Computers

In the box: 1.5-meter serial cable, 9-pin to 25-pin adapter, 5 ¼-inch and 3 ½-inch disks with PC software, *HP 48 Programmer's Reference Manual*, *Getting Started with the Program Development Link*.

Requires: MS-DOS® 3.0 or above, hard disk, 640 Kbytes user memory, and an open PC serial port (9- or 25-pin).

Serial Communications with IBM-compatible Computers

Share your computer's peripherals with your HP 48. Protect your HP 48 data and programs by storing them to your computer disk drive.

Access the power of your HP 48 using the large keyboard and display of your computer. HP 48 commands are easy to enter on your computer keyboard. The Serial Interface software sends commands to the HP 48 and returns results to your computer screen for easy viewing.

Use your favorite computer text editor with the HP 48. Write and edit HP 48 programs; enter large matrices and statistical data in a familiar way.

HP 82208A

Serial Interface Kit for HP 48SX to IBM and IBM-compatible Computers

In the box: 1.5-meter serial cable, 9-pin to 25-pin adapter, 5 ¼ and 3 ½-inch disks with computer software, installation instructions.

Requires: Open PC serial port (9- or 25-pin).

HP 82222A

Serial Interface Cable for IBM and IBM-compatible PC's

Includes: 1.5-meter serial cable only.

HP 82224A

Serial Cable Adapter Kit for Using the IBM-compatible Serial Cable with Modems and Printers

Includes: 9-pin to 25-pin serial modem adapter and 9-pin to 25-pin serial printer adapter.

Requires: HP 82222A Serial Interface Cable for IBM and IBM-compatible PC's.

Serial Communications with Apple Macintosh Computers

Share your computer's peripherals with your HP 48. Protect your HP 48 data and programs by storing them to your computer disk drive.

Access the power of your HP 48 using the large keyboard and display of your computer. HP 48 commands are easy to enter on your computer keyboard. The Serial Interface software sends commands to the HP 48 and returns results to your computer screen for easy viewing.

Use your favorite computer text editor with the HP 48. Write and edit HP 48 programs; enter large matrices and statistical data in a familiar way.

HP 82209A

Serial Interface Kit for HP 48 to Apple Macintosh Computers

In the box: 1.5-meter serial cable, 3 ½-inch disk with computer software, installation instructions.

Requires: Open serial port (9-pin Mini-DIN).

HP 82223A

Serial Interface Cable for Apple Macintosh Computers

In the box: 1.5-meter serial cable only.

Other Accessories

Reference Information for Programmers

Concise reference information for the HP 48. The *HP 48 Programmer's Reference Manual* has all the reference information needed to use the powerful programming language in the HP 48. Contents include: an alphabetical Command Dictionary that provides complete syntax and usage information for every programmable command in the HP 48; a Table of Error and Status Messages; a complete Table of Units that gives definitions for all the unit types in the HP 48; a Table of System Flags that defines the usage of all predefined flags in the HP 48; and a Table of Reserved Variables that defines all the reserved variables in the HP 48.

00048-90054

HP 48 Programmer's Reference Manual

504 pages.

Miscellaneous

HP 82221A

Soft Case

Includes: replacement case for the HP 48.

HP 82220A

Overlay Kit for HP 48

Includes: one alpha, three clear, and three blank overlays.

HP Infrared Printer and Printing Accessories

The battery-powered infrared printer is a revolutionary companion for your new calculator. Because it operates with an invisible infrared beam, no cord is necessary to connect it to the calculator. Producing hard copies—in the field or in your office—couldn't be easier. And this improved version offers easier-to-read output and automatic shutoff for extended battery life.

Operation of the infrared printer is easy, too. Simply aim your calculator at the printer (from up to 18 inches away), send print instructions, and you get a neat, clean copy of your calculations. You can print a complete record of your work, or select and print only what you need.

Just four AA alkaline batteries give the infrared printer go-anywhere portability. Or to extend battery life, plug in the optional ac adapter.

HP 82240B

HP Infrared Printer

In the box: Infrared printer, four AA alkaline batteries, one roll of printer paper, and owner's manual.

Hewlett-Packard Company

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1000 NE Circle Boulevard
Corvallis, OR 97330, USA
(503) 752 7736

Hewlett-Packard Ltd.

6877 Goreway Drive
Mississauga, Ontario L4V 1M8
Canada
(800) 378 3867

Hewlett-Packard Asia, Ltd.

22/F Bond Centre, West Tower
89 Queensway
Central, Hong Kong
(852) 848 7777

Yokogawa-Hewlett-Packard Ltd.

3-29-21 Takaido-Higashi
Suginami-Ku
Tokyo 168, Japan
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Note: Product availability and
technical information subject to
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