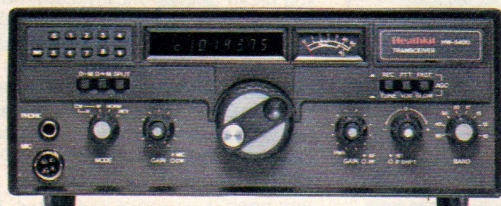
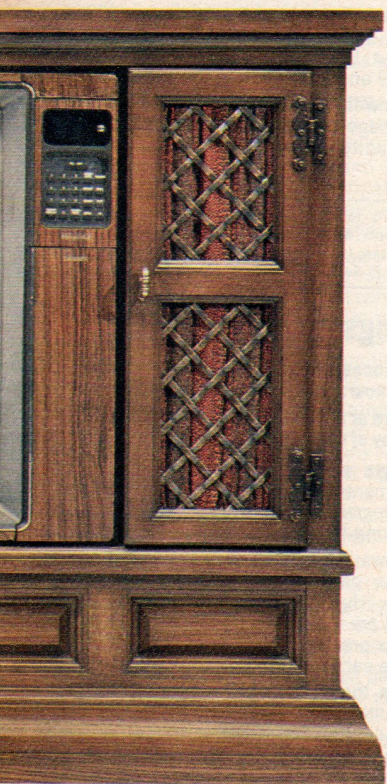


# Heathkit

MAIL ORDER CATALOG NO. 860  
WINTER • 1983



## More technological advances for you!

See the new HW-5400 HF SSB Amateur Radio Transceiver – and the new SS-9000 Computerized Multi-Band Transceiver – on pages 8-11!

Meet HERO 1, the world's first sophisticated teaching robot, and the accompanying Heathkit/Zenith Robotics Course on pages 30-31!

The new, powerful H/Z-100 16-bit/8-bit Computer is now available in low-cost kit form! See pages 66-67.

Introducing the new GR-3000 Deluxe 25" Television Computer System Kit on pages 92-93!



**ORDER TOLL-FREE! CALL  
800-253-0570**

In Alaska, Hawaii and Michigan call  
616-982-3411.

Helping you make things better





# Introducing Heath/Zenith's newest, most powerful computer — The H/Z-100 Series — now

As low as

**\$2199<sup>00</sup>**  
Kit

for low-profile model

This complete 16-bit/8-bit desktop computer includes two sophisticated microprocessors, super-high memory capacity, industry-standard S-100 expansion bus, a 320 KB disk drive, easy-touch keyboard and low-maintenance design — all in a durable earthtone-color cabinet!

Look at everything the H/Z-100 Series offers:

- Runs both 16-bit software and 8-bit software, at very fast speeds
- Expanded memory capacity — up to an incredible 768K bytes of RAM!
- Both serial and parallel I/O ports for telecommunications extendability
- Color, monochrome video capabilities
- Add optional 8" floppy disk drives — or an internal Winchester disk drive (to be available in early 1983)
- A soft-sectored 5.25" floppy disk drive, with 320 KB capacity, built-in
- High-efficiency power supply saves energy, helps computer run cooler for added life

**Offers outstanding performance for everyone:** Those with little or no computer experience will appreciate the H/Z-100's ease of operation and the time-saving, money-saving advantages it provides. Those with programming experience and the need to use more advanced languages will enjoy our newest, most capable computer's power and versatility.

**Dual microprocessors to run more advanced software:** To run today's higher-speed, higher-performance 16-bit software programs, you need an H/Z-100 Series computer. Its advanced 8088 microprocessor makes a significant difference by processing information in great detail with astonishing speed.

**Most existing programs won't become obsolete, either,** because the H/Z-100 also handles 8-bit software programs with an 8085 microprocessor — including many current Heath/Zenith software programs.

**Many software programs now available from Heath/Zenith:** You can obtain both 16-bit and 8-bit software programs to run on your H/Z-100 Series Computer. The 16-bit programs, including the Z-DOS Operating System, Z-BASIC Color Language and Microsoft Multiplan Electron Spreadsheet, are shown on page 67. Software for the H/Z-100's 8-bit side is described on pages 67 and 74-77.

**Has 128K bytes of Random Access Memory to handle larger software programs:** With the H/Z-100 Series Computers, you get real power to answer those bigger, more comprehensive questions. Its standard 128K RAM complement is expandable to over three-fourths of a megabyte (768K bytes) — compared to a 64K RAM standard for many desktop computers.

**Supports video graphics for beautiful presentations:** The H/Z-100 gives you everything needed to support the high-impact graphics capability that many business presentations demand. On the H/Z-100's 640 x 225 pixel video screen you can create extensive charts, graphs and symbols for reports and other documents.

**Designed to grow as your computing needs grow:** There are card slots available internally in the H/Z-100, allowing the system to support memory expansion and additional peripheral devices as your needs change. This allows your investment to grow, decreases the chance of obsolescence and increases future upgradability of the system.

**Three input/output ports for total communications flexibility:** The H/Z-100 lets you access a world of information. Two RS-232C Serial ports and one parallel interface port provide almost limitless communications capabilities. You can plug in dot matrix and letter-quality printers; using a modem and a tele-



1 ZF-120-22, shown with two disk drives

phone, you can communicate with other computers, word processors, bulletin boards, data banks, printers and other data communications devices.

**High-capacity disk drive:** A 5.25" floppy disk drive with 320K bytes of data storage capacity, eliminates the need for an external disk drive. You get faster access speed and real portability.

**Add most any optional 8-inch floppy disk drive:** The H/Z-100 Series Computers' standard disk controller can also address 8" floppy disk drives using softsectored disks in the IBM 3740 format.

**Optional Winchester disk drive (available early 1983) provides built-in big job capacity:** Replacing one of the H/Z-100's 5.25" floppy disk drives, the optional Winchester drive provides the multi-megabyte data storage capacity needed for large accounting, inventory or technical jobs that used to require an expensive minicomputer system.

**High-efficiency power supply saves energy, provides quieter operation:** Lower power usage allows you to add more accessories to the H/Z-100.

**New kit versions are easy to build!** Step-by-step Heathkit manuals show you the way. And many components are pre-assembled for faster kitbuilding.

1 **All-In-One H/Z-100 Series Computer:** Features 16-bit (8088) and 8-bit (8085) microprocessors to run both new 16-bit and most existing 8-bit Heath/Zenith software programs, a five-slot IEEE-696 (S-100) expansion chassis (disk controller occupies one slot), built-in soft-sectored 5.25" disk drive, built-in high-resolution 12" diagonal monochrome video display, monochrome graphics with 144,000 dots, and professional typewriter-style keyboard — in a single housing!

Add Z-219-1 Color Video RAM (p. 67) and ZVM-134 Color Monitor (p. 72) for color graphics. 120/240 VAC. 13½" H x 19½" W x 19½" D.

Heathkit	<b>NEW! Kit HSA-120-21, non-glare amber CRT, 125 lbs. ...</b>	<b>2349.00</b>
Heathkit	<b>NEW! Kit HSG-120-21, non-glare green CRT, 125 lbs. ...</b>	<b>2349.00</b>
Heathkit	<b>NEW! Kit HSW-120-21, non-glare white CRT, 125 lbs. ...</b>	<b>2349.00</b>
Zenith data systems	<b>ZF-120-22, Assembled and tested All-In-One Z-100 Computer with non-glare green CRT and two 5.25" disk drives, Shpg. wt. 68 lbs. ....</b>	<b>4099.00</b>

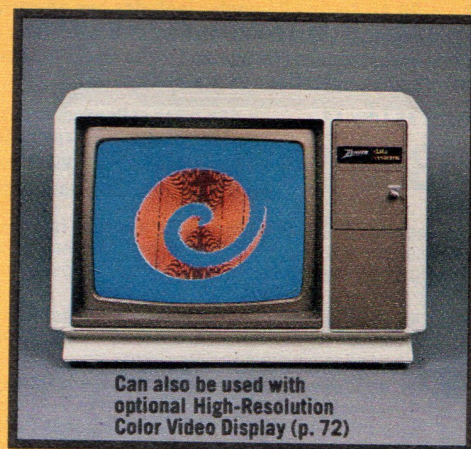




available in both easy-to-build kit and assembled form!



2 (Shown with optional ZVM-121 High-Resolution Monochrome Video Display)



Can also be used with optional High-Resolution Color Video Display (p. 72)



3

## Low-profile H/Z-100 Series Computer

**Compact (under 8" high), yet powerful:** Add the optional ZVM-121 Monochrome Video Display (p. 72) – or for exciting color graphics, add the optional ZVM-134 Color Video Display (p. 72; requires Z-219-1 Color Video RAM on some models). For 120/240 VAC, 50/60 Hz power. 7 $\frac{1}{8}$ " H x 19" W x 19 $\frac{1}{2}$ " D.

2 **ZF-110-22**, Assembled Low-Profile Computer with color graphics capability (has two Z-219-1 Video RAM Sets below), 128K RAM and two 5.25" floppy disk drives for 640K bytes of on-line storage, 62 lbs. .... **\$3999.00**

**NEW! ZF-100-21**, Assembled Low Profile Computer with monochrome graphics capability, 128K RAM and one 5.25" disk drive, 49 lbs. .... **\$3249.00**

**NEW! Kit HS-100-21**, Low-Profile Computer Kit with monochrome graphics capability, 128K RAM and one 5.25" disk drive, 91 lbs. .... **\$2199.00**

**Z-205-1**, Memory Upgrade Kit (upgrades H/Z-100 Series Computers from 128K bytes to 192K bytes of RAM, Shpg. wt. 1 lb. .... **\$180.00**

**Z-219-1**, Color Video RAM Chip Set (two sets needed to provide HS/ZF-100 and HS/ZF-120 computers with color capability), 1 lb. .... **\$160.00**

**NEW! Z-207-3**, Second Disk Drive for kits and ZF-100-21, 5 lbs. .... **\$395.00**

**SAVE \$95!** When purchased with computer .... **\$300.00**

**H/Z-100 SERIES SPECIFICATIONS:** **DATA STORAGE:** Disk Controller: Standard Z-207 Controller, supporting both 5.25" and 8" drives simultaneously. Two 320 KB 5.25" floppy disk drives standard; 8" floppy disk drives optional; optional 5 megabyte Winchester disk drive available in early 1983. **EXPANSION:** Five IEEE-696 (S-100) standard card slots available for expansion. Disk controller occupies one S-100 slot. **DISPLAY: Display Format:** 24 lines x 80 characters, plus 25th line for user information. 225 lines of 640 dots in graphics mode. **Character Set:** 128-character ASCII set, upper and lower case. **Character Type:** 8 x 9 dot character block (0.2" H x 0.1" W), definable to other values using software. **Color:** Red, green, blue, white, black, cyan, magenta and yellow. Color memory RAM standard in Z-110, optional in H/Z-120. **Cursor:** Blinking, underline or reverse video. **Cursor Addressing:** Relative and direct. **Tab:** Eight columns, software-addressable. **Video:** Normal or reverse video, by character. **Video Output:** Z-110, RGB; H/Z-120, monochrome std. **KEYBOARD: General:** Sculptured, typewriter-style keyboard with 108 keys. **Numeric Keypad:** 18 keys (including cursor control keys). **Special Function Keys:** 13. **INPUT/OUTPUT PORTS:** Serial I/O: Two EIA RS-232C serial interface ports, at 110 to 38,400 baud. **Parallel I/O:** Centronics-compatible printer port with a 25-pin D connector.

## 3 Software for the H/Z-100 Series Computers

H/Z-100 software is supplied in soft-sectored 5.25" floppy diskette form, with operating manual included.

**H/Z-100 16-Bit and 8-Bit Starter Package:** Z-DOS and CP/M-85 Operating Systems, Microsoft BASIC/Z-BASIC Languages and Multiplan Spreadsheet.

**ZSS-100-1**, 26 lbs. .... **\$900.00 separately, ONLY 500.00**

**Z-100 16-Bit Starter Package:** Includes Z-DOS 16-Bit Disk Operating System, Z-BASIC Language and Multiplan Electronic Spreadsheet.

**ZSS-100-2**, 18 lbs. .... **\$575.00 separately, ONLY 350.00**

**Z-DOS 16-Bit Operating System:** Z-DOS (also known as Microsoft MS-DOS and IBM PC-DOS) lets you run advanced programs (like Multiplan, Microsoft BASIC and Z-BASIC) – and many IBM PC programs – on the H/Z-100. Has device-independent I/O, advanced error recovery, variable-length records, full program relocatability.

**OS-63-4**, Shpg. wt. 5 lbs. .... **\$150.00**

**CP/M-85 8-Bit Operating System:** Use of CP/M-85 on the H/Z-100 makes use of many current 8-bit software programs possible. Has capabilities of CP/M-80 (page 20), and features fast running speed.

**OS-53-2**, Shpg. wt. 5 lbs. .... **\$150.00**

**Microsoft BASIC Interpreter:** See page 76 for full details on this powerful programming language. Requires CP/M-85 Operating System above.

**MS-253-1**, Shpg. wt. 3 lbs. .... **\$175.00**

**Z-BASIC Color Language:** An extended version of the Microsoft BASIC Language Interpreter above, fully utilizing the color capabilities of the H/Z-100 Series Computers. Requires Z-DOS Operating System above.

**MS-463-1**, Shpg. wt. 5 lbs. .... **\$175.00**

**See many more H/Z-100-compatible software programs, including the Microsoft Multiplan 16-bit Electronic Spreadsheet, on pages 74-77.**

**H-100 Computers are FCC Class B Certified for home and business use. Z-100 Computers are Class A Certified for commercial use. Z-100 use in residential areas may require correction of radio/TV interference.**



Alaska, Hawaii and Michigan Residents: Call 616-982-3411



# Choose an H-89 All-In-One Computer to fit your needs — and save \$300!

A complete microcomputer system in one convenient package, the H-89 All-In-One Computer includes two powerful microprocessors, a professional video terminal, a built-in 5.25-inch floppy disk drive for convenient data storage and three RS-232C Serial Interface Ports for telecommunications extendability!

NOW AS LOW AS

**\$1399<sup>00</sup>**  
Kit

- 48K bytes of Random Access Memory (RAM) power standard — expandable to 64K bytes
- CP/M-capable — without modifications
- Choose from anti-glare or standard CRT screens

**Two separate Z-80 microprocessors are built into the H-89:** Separate microprocessors for the computer and video terminal mean they never have to share processing power — enabling the computer to process information at higher speeds.

**Three RS-232C Serial Interface Ports are standard:** The built-in EIA Standard Three-Port Serial Interface lets you add more peripherals (such as printers and modems) to your All-In-One Computer.

**Optional disk controller increases storage capacity:** The H-89's built-in 5.25-inch floppy disk drive can store up to 100K bytes of data on a single disk. With the optional Z-89-37 Soft-Sector Disk Controller Board (page 69), you can expand the built-in storage capacity to 160K bytes per disk.

**If you need more storage, buy the external disk system that fits your needs:**

The H-77/Z-87 Floppy Disk System (shown on page 69) can provide up to 200K bytes of on-line data storage, using the H-89's standard hard-sectored disk controller board (up to 320K bytes, using the Z-89-37 Disk Controller Board). Depending on the controller board used, the H-77/Z-87 can use hard- or soft-sectored disks.

The H-37 Floppy Disk System (also shown on page 69), which uses the Z-89-37 Disk Controller Board and soft-sectored disks, can provide significantly more data storage — up to 1.28 megabytes (640K bytes per drive — using one standard H-17-4 Drive and one optional drive).

**Use the All-In-One as a professional video terminal (with appropriate software):** It has all display functions of the H-19 Smart Video Terminal (shown on page 72). Up to twenty-four 80-character lines can be displayed on the 12" diagonal CRT screen, as well as a software-controlled 25th line.

**Typewriter-format professional keyboard:** Controls all terminal functions. The keyboard can display the entire ASCII character set, both upper and lower case — along with 33 graphics symbols.

**Select baud rates up to 9600 through the keyboard:** Control 32 functions from keyboard or computer. Direct cursor addressing lets you insert or delete characters anywhere. Use reverse video to add emphasis by reversing white on black.

**H-89A SPECIFICATIONS: CPU AND MEMORY:** Clock: 2.048 MHz. **Memory:** 8K bytes used by system for ROM and RAM; 8K reserved. **VIDEO TERMINAL: CRT: Display Size:** 6½" H x 8½" W (16.51 x 21.59 cm). **Character Size:** Approximately ⅛" H x ⅛" W (0.51 x 0.25 cm). **Character Type:** Upper case and lower case without descenders, 5 x 7 dot matrix; Lower case with descenders, 5 x 9 dot matrix; Graphics, 8 x 10 dot matrix. **Keyboard:** 84 keys (60 alphanumeric keys and 12 function/control keys) — plus a 12-key numeric/control pad. **Cursor:** Blinking, non-destructive underline or block. **Cursor Controls:** Up, down, left, right, home, CR, LF, back space and tab. **Cursor Addressing:** Relative and direct. **Tab:** Standard eight-column tab. **Refresh Rate:** 60 Hz at 60 Hz line frequency, 50 Hz at 50 Hz line frequency. **Edit Functions:** Insert and delete character or line. **Erase Functions:** Erase line or page, from beginning of line or page, to end of line or page. **Bell:** Audible alarm on receipt of ASCII BEL. **Video:** Normal and reverse, by character. **ACCESSORIES: Interfacing:** Three EIA Standard RS-232C Serial Interface Ports are provided. **GENERAL: Operating Temperature Range:** 50-95° F (10-35° C). **Power Requirement:** 120/240 VAC, 50/60 Hz, 90 Watts. **Dimensions:** 13" H x 17" W x 20" D (33.02 x 43.18 x 50.8 cm).

## Kit and assembled products are available

**Heathkit** computer

Kit computer products are sold under the Heathkit name, and meet Federal Communications Commission requirements for use in residential areas.

**ZENITH** data systems

Most of the fully assembled and tested computer products shown in the pages of this catalog are offered to you under the Zenith Data Systems name.



**Calculator-format 12-key numeric pad:** Makes entering arithmetic programs faster. Shifted functions give you control to make insertions or deletions.

**Save when you buy the H-89 All-In-One Computer:** And if you plan to use the computer for business purposes, ask your tax advisor about possible tax credits which could provide additional savings.

**SAVE \$496 on H-89 Computer Kits:** With 48K RAM, 100 KB disk drive, single-density disk controller and up to \$985 in software at no extra charge (see below).

<b>Heathkit</b>	<b>Kit HS-89-2</b> , with anti-glare green CRT, Shpg. wt. 96 lbs. ....	<b>Was \$1925.00, NOW ONLY 1429.00</b>
<b>Heathkit</b>	<b>Kit HS-89-3</b> , with standard white CRT, Shpg. wt. 96 lbs. ....	<b>Was \$1895.00, NOW ONLY 1399.00</b>

## Get software at no extra charge!

Choose three of these programs when you buy an H-89: HDOS or CP/M; Microsoft BASIC Interpreter, Compiler; FORTRAN; COBOL; Magic Wand; SuperCalc. (Applies only to single-quantity purchases.)

## Accessories for H/Z-89 and Z-90 Computers

<b>Assembled 64K RAM Expansion Kit:</b> Expands 48K H/Z-89s to 64K.	
<b>WH-88-16</b> , Assembled, Shpg. wt. 1 lb. ....	<b>115.00</b>
<b>16K RAM Expansion Kit:</b> Expand converted H-19 Terminals, older H/Z-89 Computers in 16K increments — up to 48K bytes of RAM.	
<b>H-88-2</b> , Shpg. wt. 1 lb. ....	<b>29.00</b>
<b>Three-Port RS-232C Serial Interface:</b> For older H/Z-89s.	
<b>HA-88-3</b> , Shpg. wt. 2 lbs. ....	<b>150.00</b>
<b>H-88-5</b> , Cassette Interface, 2 lbs. ....	<b>49.00</b>
<b>Wire Wrapping Board w/bus connectors:</b> Make custom circuits. Takes 48# 16-pin sockets (54# 14-pin, others). Uses HCA-6, HCA-7 below.	
<b>Kit H-88-10</b> , Shpg. wt. 1 lb. ....	<b>30.00</b>
<b>Wire Wrapping Kit:</b> Wire wrapping tool, 50' wire, 200 pre-cut, pre-stripped wires (50 each in 1", 2", 3" and 4" lengths).	
<b>Kit HCA-6</b> , Shpg. wt. 1 lb. ....	<b>13.95</b>
<b>Wire Wrapping Socket Kit:</b> 36# 3-level sockets (14- to 40-pin).	
<b>Kit HCA-7</b> , Shpg. wt. 1 lb. ....	<b>29.95</b>
<b>Dust Cover:</b> Protects H/Z-89s, H/Z-19s from airborne contaminants.	
<b>HCA-5-89</b> , Shpg. wt. 1 lb. ....	<b>14.00</b>





# Increase the disk storage capacity of your H/Z-89 or Z-90 Computer

**Add up to 1.28 megabytes of on-line disk storage:** Designed especially for use with the H/Z-89 and Z-90 Computers, these external floppy disk systems give you even more flexibility in configuring the amount of disk storage you need for your computer system applications.

**Your choice of data storage capacity:** The H-37 provides up to 1.28 megabytes of additional data storage — while the H-77/Z-87 provides up to 320K bytes.

**Use up to three drives in your system:** When you use one of these systems with your H/Z-89 or Z-90, you have room for up to three 5.25-inch disk drives on a single controller board. With multiple drives, you can mount operating system and program disks at the same time. And because these peripherals work with the H/Z-89 and Z-90, your system will work harmoniously.

**Space-saving design:** Each 5.25" floppy disk drive installs vertically into the durable metal cabinet, so the H-37 and H-77/Z-87 systems take up less space than units with horizontally-mounted disk drives.

**The H-37 features high-capacity disk drives:** Its double-sided 96 tpi disk drives provide up to 6.4 times the storage capacity of our single-sided 5.25-inch drive. Store up to 640K bytes per drive — for a total capacity of up to 1.28 megabytes! For easier kitbuilding, the disk drives are assembled and tested.

**Enhanced software capabilities:** With the double-sided H-37's greater data storage ability (double the capacity of single-sided 5.25-inch disk drives), you can more fully utilize most of our software programs. Many software packages are available on soft-sectored 5.25-inch floppy disks, compatible with the H-37. See pages 74-77 for more details.

**Field-proven H-77/Z-87 available:** Using single-sided 5.25" disk drives, this reliable data storage system is available with one or two drives — to provide up to 200K bytes of data storage (up to 320K bytes of data storage when the Z-89-37 Soft-Sectored Disk Controller Board is used).

**Compatible disk controller boards:** The H-77/Z-87 Floppy Disk System can run from either the H-88-1 Single-Density Disk Controller Board (standard with H/Z-89 Computers) or the Z-89-37 Double-Density Disk Controller Board (standard with Z-90 Computers; with H/Z-89s, see below). The H-37 Floppy Disk System requires the Z-89-37 Controller Board.

**Easy ordering method:** Use the configuration and ordering charts (below, right) to order the H-37 or H-77/Z-87 Floppy Disk System that's right for you.

## Disk storage accessories

**Soft-Sectored Disk Controller Board for H/Z-89 Computers:** Increases data storage capacity of disk drives below.

**Z-89-37, Assem., 4 lbs. .... 299.00**

**Hard-Sectored Disk Controller Board for H/Z-89 Computers:** Use only with H-17-1 Single-Sided Floppy Disk Drives below.

**H-88-1, Assem., 3 lbs. .... 150.00**

**Double-Sided Floppy Disk Drive for H/Z-37 Disk Systems:** Stores up to 640K bytes on a compatible disk. Requires Z-89-37 above.

**H-17-4, Assem., 5 lbs. .... 550.00**

**Single-Sided Floppy Disk Drive for H-77/Z-87 Disk Systems:** Stores up to 160K bytes per disk when used with Z-89-37, 100K when used with H-88-1 Controller Board. Also for H-88, H/Z-89 and Z-90 Computers.

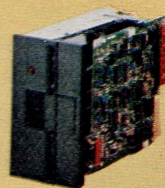
**H-17-1, Assem., 5 lbs. .... 295.00**

**Dust Cover:** Protects H/Z-37 and H-77/Z-87 Disk Systems from airborne contaminants.

**HCA-5-77, Shpg. wt. 1 lb. .... 14.00**

## Software compatibility:

Heath/Zenith software programs are available in 5.25-inch hard-sectored, 5.25-inch soft-sectored floppy disk or 8-inch soft-sectored floppy disk formats — for use with most Heath/Zenith disk systems.



Uses higher-capacity double-sided drives



Or single-sided 5.25" disk drives



Designed to complement the H/Z-89, Z-90 Computers

Designed for 120/240 VAC, 50/60 Hz power, the H-77/Z-87 and H-37 Floppy Disk Systems are housed in a structural foam cabinet matching the decor of the H/Z-89 and Z-90, measuring 8 7/8" H x 8 7/8" W x 15" D (21.92 x 22.56 x 38.1 cm).

The Heath H-37, H-77 and Zenith Data Systems Z-87 Floppy Disk Systems are FCC Class B Certified for normal use in homes or businesses.

## H/Z-89 Computer/5.25" Disk System Configuration Chart

System Components	Hard-Sectored Disk Storage	Soft-Sectored Disk Storage	Total Disk Storage Capacity
H/Z-89 (Note 1)	One 100 KB internal drive	—	100 KB
H/Z-89 (Note 1) H-77/Z-87 (Note 2)	One 100 KB internal drive, one or two 100 KB external drives	—	200 or 300 KB
H/Z-89 (Note 1) Z-89-37	—	One 160 KB, single-density internal drive	160 KB
H/Z-89 (Note 1) Z-89-37 H-77/Z-87 (Notes 2, 3)	One 100 KB or 160 KB internal drive	One (or two) 160 KB, single-density external drive	260 or 420 KB
H/Z-89 (Note 1) Z-89-37 H-37 (Notes 2, 3)	One 100 KB internal drive	One (or two) 640 KB, double-density external drives	740 KB or 1.38 MB

**NOTES:** (1) When ordering an HS-89, use -2 or -3 for desired CRT. (2) When ordering an HS-77 or HS-37, use -1 or -2 for desired number of drives. (3) H-37s require Z-89-37 Disk Controller.

## How to order external 5.25" disk storage for H/Z-89s, Z-90s

Drives	Storage Capacity		Order Model		Shpg. wt.	Price
	With H-88-1	With Z-89-37				
One H-17-1 (Single-Sided)	100K bytes	160K bytes	Kit HS-77-1	—	34 lbs.	525.00
Two H-17-1 (Single-Sided)	200K bytes	320K bytes	Kit HS-77-2	—	47 lbs.	795.00
			—	Z-87-89, Assem., for H/Z-89	28 lbs.	999.00
			—	Z-87-90, Assem., for Z-90	28 lbs.	999.00
One H-17-4 (Double-Sided)	—	640K bytes	Kit HS-37-1	—	34 lbs.	795.00
Two H-17-4 (Double-Sided)	—	1.28 megabytes	Kit HS-37-2	—	47 lbs.	1295.00



Alaska, Hawaii and Michigan Residents: Call 616-982-3411



# 1 H-8 Computer: Immediate plug-in flexibility at a budget-pleasing price

- 8080A CPU standard – powerful Z-80 CPU available separately
- Fully-buffered bus with seven plug-in positions, heavy-duty power supply
- Large software selection available

**Meets today's needs – and tomorrow's, too:** Put together almost any combination of plug-in memory, interfacing and accessory modules in the H-8's seven module positions. And choose from an expanding selection of peripherals and software for exceptional flexibility.

**8080A CPU Card is pre-assembled for faster and easier kitbuilding:** Includes 8080A microprocessor, clock, systems controller and ROM monitor. Exclusive fifty-pin fully-buffered bus provides room for memory and interfacing. Front panel keyboard for octal data entry. Nine-digit front panel readout monitors activity. Built-in speaker provides audible feedback and special effects. Effective convection cooling system allows the H-8 to operate quieter and cooler.

Requires 16K RAM and operating system software for normal operation.

**Heathkit Kit H-8, Shpg. wt. 30 lbs. .... NO LONGER AVAILABLE**

**Z-80 CPU Card:** Includes a powerful H/Z-89-type Z-80 Central Processing Unit and all features of HA-8-8 Extended Configuration Option below. NOTE: Not exchangeable with 8080A CPU Card; trade-in not accepted.

**HA-8-6, Assembled, Shpg. wt. 5 lbs. .... 199.00**

**HA-8-8, Extended Configuration Option with single-button boot-up** (enables the H-8 to use the industry standard CP/M-80 Operating System and the high-capacity H/Z-47 8-Inch Floppy Disk System), Assembled, Shpg. wt. 1 lb. .... **29.00**

**H-8 SPECIFICATIONS:** Microprocessor: 8080A. Monitor: In on-board 1K x 8 ROM. Octal addresses, data input and display from the front panel. Interrupts: Seven, priority-vectored. Chassis Capacity: Seven locations on the mother circuit board for memory and interfacing cards. Four memory cards, one bus expansion maximum. Power Requirement: 120/240 VAC, 50/60 Hz, 150 Watts. Overall Dimensions: 6.5" H x 16 1/4" W x 17" D (16.51 x 41.28 x 43.18 cm).

**2 Get high data storage capacity with H-17 5.25" Floppy Disk System:** Take advantage of the hundreds of disk-based software programs available for the H-8 Computer. It stores dozens of programs on a single disk. And you can rapidly access any of those programs, whenever you need it.

**The H-17 can provide up to 300K bytes** of on-line data storage (using additional drives and modification kit). Data is stored on 5.25-inch, floppy disks – easier to handle and load than paper tapes or cassettes.

**Includes** one 100 KB disk drive, an interface/controller circuit board which plugs directly into the H-8's mainframe, a built-in power supply and one blank hard-sectored 5.25-inch floppy disk.

Requires H-8 with 48K RAM and operating system software (page 75). For 120/240 VAC, 50/60 Hz power. Draws 75 Watts. Measures 6 1/4" H x 13 1/2" W x 13 1/2" D (15.89 x 34.29 x 34.29 cm).

**Kit H-17, with one drive, Shpg. wt. 28 lbs. .... NO LONGER AVAILABLE**

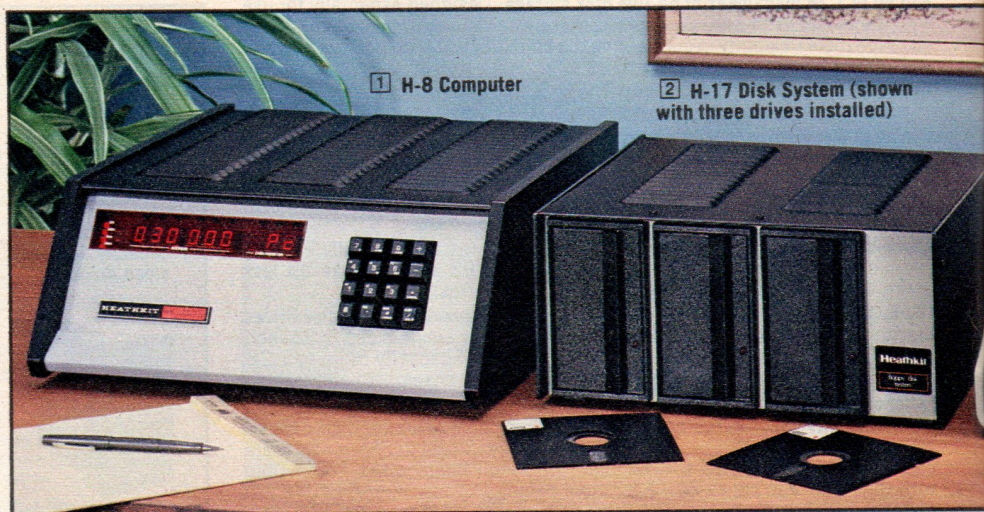
**Three-Drive Modification Kit for H-17:** More programming versatility – increases capacity to three 5.25-inch floppy disk drives, instead of two. Includes new sheet metal and three-drive cable, fan and power supply components. Requires H/WH-17 and operating system software to operate. Drives not included.

**Kit H-17-3, Shpg. wt. 10 lbs. .... 49.00**

**Kit H-17-1, Optional Second or Third 100 KB Disk Drive, 5 lbs. .... 295.00**

## UP TO \$985 OF SOFTWARE AT NO EXTRA CHARGE!

Choose three programs when you buy a computer system: HDOS or CP/M, Microsoft BASIC Interpreter or Compiler, FORTRAN, COBOL, Magic Wand, SuperCalc. (Applies only to single-quantity purchases.)



1 H-8 Computer

2 H-17 Disk System (shown with three drives installed)

## H-8 memory, interfacing and accessories

**64K Wired Random Access Memory (RAM) Board:** Expand to the H-8's full 64K-byte RAM capacity on a single board. Uses less room and power than previous memory boards – so you can add more interfacing and accessories. Comes with 32K RAM standard; expand to 48K or 64K bytes with one or two WH-8-16 Expansion Sets below.

**WH-8-64, Assembled, Shpg. wt. 2 lbs. .... 398.00**

**16K Byte RAM Chip Expansion Set for WH-8-64 Memory Board:** Use one or two sets to expand the WH-8-64 to 48K or 64K bytes.

**HA-8-16, Shpg. wt. 1 lb. .... 55.00**

**NEW! Soft-Sectored Floppy Disk Controller Board:** Greatly expand disk storage capacity. Allows the H-8 to use the H-37 Soft-Sectored Floppy Disk System (p. 69), with up to 640 of storage per disk. Can also be used with the H-17, increasing the capacity of a single-sided, single-density 5.25" disk to 160KB. Requires HA-8-6 above.

**WH-8-37, Assembled, Shpg. wt. 4 lbs. .... 395.00**

**NEW! H-8-19, Z-80 Replacement ROM and Front Panel Keycaps** allow access to all Z-80 registers without adding WH-8-37 Board, 2 lbs. **20.00**

**H-8-9, PAMGO ROM for 1- or 3-button boot-up** instead of 10, 1 lb. **7.00**

**H-8-5, 1200 Baud Serial/Cassette Interface** with one serial port for console terminal (not to connect H-8 to H/WH-14), 3 lbs. .... **69.00**

**Music Synthesizer System:** Uses two shielded cables (included) to connect to stereo. True D/A converter for 27.5-3300 Hz. freq. response, nine harmonics, four-part stereo harmony. Enter songs from sheet music – even if you don't read music. Requires H-8 with 24K RAM, H-17 and video terminal like H/Z-19.

**HA-8-2, Assembled, Shpg. wt. 3 lbs. .... NO LONGER AVAILABLE**

**Wire Wrapping Board:** Accepts eighty 16-pin sockets, three 50-pin flat cable connectors. Includes bus connectors, heat sink, 5V regulator and miscellaneous hardware. Uses HCA-6 and HCA-7 on p. 68.

**Kit H-8-10, Shpg. wt. 1 lb. .... NO LONGER AVAILABLE**

## H-8 Hobbyist/Word Processing System

**48K RAM, 100KB disk storage, four serial interface ports.** Has H-8, WH-8-64 64K Memory Board with 32K RAM, HA-8-16, H-8-4 Interface, HA-8-8, 100K-byte H-17 Disk System, H-19 Video Terminal.

**SAVE UP TO \$985!** Select three programs at no extra charge, from the list at left. Specify model numbers when ordering.

**HKS-85, Shpg. wt. 140 lbs. .... NO LONGER AVAILABLE**



## Choose standard or anti-glare CRTs with the H-19A Smart Video Terminal

**\$595<sup>00</sup>**  
Kit  
with standard  
white CRT

- Available with anti-glare green or standard white CRT screens
- Z-80 microprocessor for fast data handling
- Heavy-duty typewriter-style keyboard with separate 12-key numeric pad
- Interfaces with most standard systems; also DEC VT-52 software-compatible

**Exceptional capabilities for its price:** Compatible with systems using the DEC VT-52 Terminal and with other systems using an RS-232C Serial Interface, the H-19A Professional Video Terminal gives you outstanding performance. It has microprocessor intelligence for complete screen control — and it's filled with features to operate at optimum speed and efficiency.

**Configure the H-19A from the keyboard — from an outside computer — or from special interior switches:** 32 functions can be controlled from keyboard or computer. A 12-key numeric pad, in calculator format, makes math program entry faster and easier. Displays the entire ASCII character set, upper and lower case. Thirty-three graphics characters and eight user-function keys are also available for extra flexibility.

**High-resolution video display screen:** The H-19A shows 24 80-character lines (plus software-controlled 25th line). Make corrections or edit — anywhere on the screen — using direct or relative cursor addressing.

**The H-19's ROM listing is available below:** It helps you understand how this powerful, versatile video terminal operates — or to help you alter its personality and cursor control protocols to match those of other terminals.

**Using only 45 watts of 120/240 VAC, 50/60 Hz power,** the H-19A Professional Video Terminal measures 13"H x 17"W x 20"D (33.02 x 43.18 x 50.80 cm).

**Professional Video Terminal with anti-glare green CRT.**

Kit HS-19-2, Shpg. wt. 52 lbs. .... **625.00**

**Professional Video Terminal with standard white CRT.**

Kit HS-19-3, Shpg. wt. 52 lbs. .... **595.00**

**Source Listings for ROM of H-19 and H-19A Video Terminals.**

H-19-1, Shpg. wt. 1 lb. .... **25.00**

HCA-4, Black Fabric Anti-Glare CRT Filter for H-19/H-19A, 1 lb. .... **19.95**

HCA-5-89, Dust Cover for H-19 and H-19A, Shpg. wt. 1 lb. .... **14.00**



**H-19A SPECIFICATIONS:** Microprocessor: Zilog Z-80. Display Size: 6.5"H x 8.5"W (16.51 x 21.59 cm). Character Size: Approximately 0.2"H x 0.1"W (0.508 x 0.254 cm). Character Set: 128 (95 ASCII, 33 graphic). Character Type: 5 x 7 dot matrix (upper and lower case) and 5 x 9 dot matrix (lower case with descenders). Keyboard: 84 keys (60 alphanumeric, 12 function), 12-key numeric pad. Cursor Controls: Up, down, left, right, home, CR, LF, back space and tab. Cursor Addressing: Relative and direct. Tab: Standard eight-column tab. Refresh Rate: Same as AC line frequency. Edit Functions: Insert and delete character or line. Erase: Page or line — or to end of line, end of page, beginning of line or beginning of page. Scroll: Automatic scrolling, line/page freeze. Video Modes: Normal and reverse, by character. Bell: On receipt of control G. Communications: Interfacing: EIA Standard RS-232C Serial Interfacing. Baud Rate: 110 to 9600. Communications Mode: Full- or half-duplex. Parity: Even, odd and none. Compatibility: ANSI and DEC VT-52. Handshaking: Software, control S-control Q; all RS-232 Serial Lines tied high internally. Buffered terminal is capable of keeping up with most operations and normal scrolling text output, at 9600 baud or less.

**An assembled commercial product of this type is also available. For a full description of the Zenith Data Systems Z-19 Video Terminal, send for the new Heath/Zenith Computer Catalog (see page 74 for coupon).**

## Low-Cost Personal Terminal for instant information in home or office

**Easy to use with many no-cost features,** the ZT-1 Personal Information Terminal from Zenith Data Systems let you "talk" with time-sharing services and other devices over standard telephone lines.

- Has Bell 103-compatible modem, monochrome video display
- Can also be used as an electronic typewriter — or get data printouts — with optional printer (at extra cost)

**Access a world of information:** Use the ZT-1 to communicate with information services or data banks, another ZT-1 or any data terminal that has a Bell 103-compatible modem. Choose from news, sports, weather, business and financial news, to catalog shopping, education and career planning, science, technology and access to powerful mainframe computer systems, such as CompuServe and the Source (at possible extra cost).

**Easy to use:** Built-in cues and prompts make it easy to communicate, even for a person without typing skills or computer training.

**Direct-connect modem built-in:** The ZT-1's Bell 103-compatible modem can automatically dial telephone numbers or answer the phone line in data mode. In voice mode, it can also act as your personal automatic telephone dialer. Its directory can store up to 26 frequently-used telephone numbers, each of which can be dialed with a single keystroke.

**A 24-hour clock runs when the ZT-1 is turned on:** Keep track of real time, or the elapsed time of calls to time-sharing services and/or long-distance numbers.

**High-resolution Monochrome Video Display also included:** The ZVM-121 displays 25 80-character lines on a bright, easy-on-the-eyes 12" diagonal green CRT.

**Typewriter-style, 73-key data entry keyboard:** The ZT-1's keyboard allows simple, positive entry of commands. Types a 108-character ASCII set. 120 VAC, 60 Hz. 11.75"H x 16.25"W x 12"D, not including monitor.

**Order No. ZT-1, with one-button access to CompuServe, 32 lbs. .... 699.00**



**Order No. ZT-1A, with one-button access to the Source, 32 lbs. .... 699.00**

**ZTA-1-1, Parallel Cable to connect ZT-1 Series Terminals to Centronics-style printers (like the MX-80A), Shpg. wt. 2 lbs. .... 25.00**

**The assembled and tested ZT-1 Information Terminal meets FCC Class B radio-frequency interference (RFI) requirements for use in homes or businesses.**



Alaska, Hawaii and Michigan Residents: Call 616-982-3411

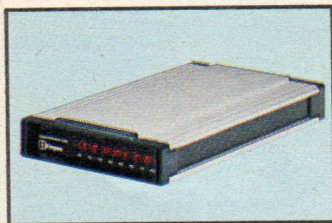


## Use one of these high-quality modems to communicate with other computers

### Hayes Smartmodem 1200 speeds calls



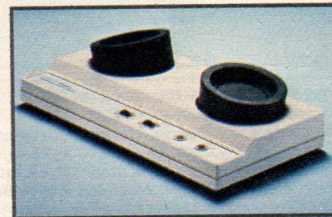
**Our fastest, most versatile modem:** Communicate with other computer systems at up to four times the speed of most modems — up to 1200 baud! Reduce communications time, phone charges. Half- or full-duplex operation. Automatically dials, answers calls. Accepts commands from a terminal keyboard — or under program control. Compatible with Bell 103 modems. Includes phone-modem cable. Requires HCA-11, single-line telephone for use with terminals; for computers, serial I/O and CPS (p. 77) also required. 120 VAC. 2" H x 5.46" W x 9.53" L.



**WH-53**, Assembled and tested, Shpg. wt. 4 lbs. .... **695.00**  
**HCA-11**, RS-232 Computer-Modem Cable, 1 lb. .... **20.00**

### Versatile Acoustic Modem is ideal for any phone

**Many practical and useful applications:** The economical, fully assembled Lexicon Lex-11 Acoustic Modem lets your computer talk to other computers over standard telephone lines. This stand-alone FSK (frequency shift keying) modem has selectable originate and answer modes. Operates in half-duplex or full-duplex modes. Compatible with Bell 103 modems. Two self-testing modes verify the Lex-11's capabilities. RS-232C Serial Interface included. Powered from 120 VAC, 60 Hz line by UL- and CSA-listed AC Adapter (included). Measures 2.4" H x 10" W x 5.5" W (6.90 x 25.4 x 13.95 cm).



**WH-23**, Assembled and tested, Shpg. wt. 3 lbs. .... **159.00**

### Auto-dial/auto-answer Hayes Smartmodem 300

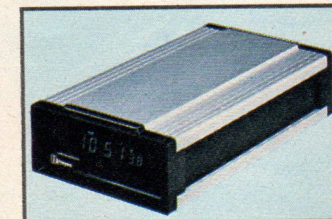
**Low-cost auto-dial, auto-answer versatility:** Automatically dial and communicate with other computer systems — or automatically answer incoming calls. Program-controlled in any language by ASCII strings. Accepts commands issued from a terminal keyboard — or under program control. Half- or full-duplex operation to 300 baud. Compatible with Bell 103 modems. Includes phone-to-modem cable. Requires HCA-11 Cable (above) and a single-line telephone for use with terminals; for computers, serial I/O and CPS (p. 77) also required. For 120 VAC, 60 Hz power; AC adapter included. 2" H x 5.46" W x 9.53" L (5.08 x 13.86 x 24.2 cm).



**WH-43**, Assembled and tested, Shpg. wt. 3 lbs. .... **279.00**

### Hayes Chronograph for time-keeping

**Perfect for time-sharing, electronic mail and home security applications:** Keep any RS-232C-compatible computer system up-to-date. Provides for timed-access, dated messages and recording elapsed on-line access time. Use with Hayes Stack Smartmodem above to send electronic mail at night, when phone rates are lowest. Quartz crystal control for precise timekeeping. 120 VAC, 60 Hz. Three 1.5 VDC "AA" cells (not included) provide battery backup during power failures. 2.6" H x 5.5" W x 9.6" D. NOTE: Not recommended for novice users; software interfacing not currently available from Heath/Zenith.



**WH-42**, Assembled and tested, Shpg. wt. 4 lbs. .... **249.00**

## Add video, color or sound to your system with these high-quality accessories

### High-resolution ZVM-121 Monochrome Video Display

**Use with Z-100, most popular computers:** Accepts direct EIA monochrome video, gives performance comparable with higher-priced units. Green 25 x 80 CRT display is easy on the eyes, has excellent character definition. Select 40- or 80-character lines. 120 VAC. 11.75" H x 16.25" W x 12" D.



**ZVM-121**, Assembled in Orchard

Tan, Shpg. wt. 18 lbs. .... **139.95**  
**ZVM-121-Z**, Assembled in Z-100 earthtone colors, 18 lbs. .... **139.95**

### Type-'N-Talk Text-to-Speech Synthesizer

**Has many computers talking:** Unlimited vocabulary. Built-in microprocessor has 750-character memory. Has 1-Watt, 8 ohm amplifier; speaker not included. Uses one RS-232 port at 75-9600 baud. 120 VAC. 3.1" H x 7.7" W x 5.2" D. NOTE: Not recommended for novices at this time; requires HCA-13 Cable and a modified print driver routine.



**WH-12**, Assembled and tested, Shpg. wt. 5 lbs. .... **299.00**  
**HCA-13**, Custom RS-232 Cable to connect WH-12 to H-8 and H/Z-89, 1 lb. **20.00**

### High-resolution Color Video Display



**Outstanding 640(H) x 225(V) pixel resolution:** Ideal for most systems needing high-resolution capability, including H/Z-100s. Takes direct RGB video inputs; displays twenty-four 80-character lines. 20 MHz bandwidth, 20 nS rise time for better definition. Use in home or office — has UL, CSA, FCC Class B approvals. 120 VAC, 60 Hz. Measures 13½" H x 20" W x 15" D.



**ZVM-134**, Assembled and tested, Shpg. wt. 38 lbs. .... **699.00**  
**ZVM-134-1**, Cable to connect ZVM-134 to Z-100 Computer, 2 lbs. .... **20.00**  
**ZVM-134-2**, Cable to connect ZVM-134 to IBM Personal Computer, 2 lbs. **20.00**

### Color Video Display for computers, VCRs, cameras

**Accepts direct NTSC composite video:** Modulation interference is eliminated by special Heath/Zenith circuitry. This 13" diagonal display uses fully automatic color processing for a stable picture. An audio amplifier and speaker are built-in. Has 75-ohm RCA-type phone jack for video input, miniature phone jack for Hi-Z audio input. UL and CSA listed; meets requirements of 21 CFR, Subchapter J for X-radiation. For 120 VAC, 60 Hz power. Measures 14" H x 20.25" W x 14.75" D (35.56 x 51.44 x 37.47 cm).



**GDZ-1320**, Assembled and tested, Shpg. wt. 42 lbs. .... **399.95**



Credit Card Orders Call TOLL-FREE: 800-253-0570



## The Heath/Zenith 25 Dot Matrix Line Printer Features uncommon speed and quiet — available in colors to match H/Z-100 Computer

**\$899<sup>00</sup>**  
Kit

- Our fastest printer — over 150 characters/second
- 33 graphics characters — compatible with most Heath/Zenith computers and terminals

**We've packed the latest state-of-the-art features into the 25:** You get faster speed, versatile paper handling facilities, quiet operation and rugged construction — all at an affordable cost. This bi-directional printer can output over 150 characters per second — translating into up to 300 lines per minute (with 10-column lines), or 65 lines per minute (with 132-column lines).

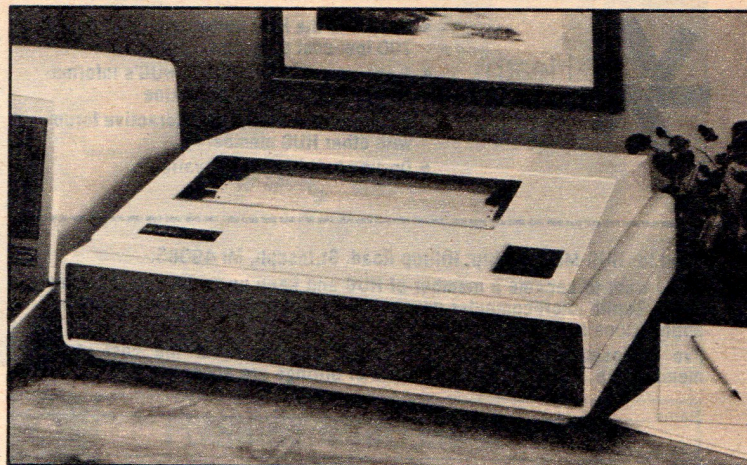
**Quiet printing:** A specially-designed cabinet completely encloses the 25's printing mechanisms, reducing home or office sound levels.

**Full printing capability:** The 25 can print the full 96-character ASCII set (upper and lower case, with descenders and underlining). It can also print the block graphics characters (except reverse video) provided with most Heath/Zenith computers and terminals.

**Has quad tractor feeds with adjustable width:** This allows the printer to handle standard edge-punched, single or multiple forms (up to six parts thick) fan-fold paper. The 25's extended-life ribbon cartridges "plug in" for fast and easy no-mess replacement.

**Features variable pitch (10, 12, 13.2, or 16.5 characters per inch):** This allows the 25 to print up to 222 characters per line (at 16.5 cpi on a 13.5-inch wide line). Six or eight lines per inch vertical spacing is available. Horizontal and vertical tabs are adjustable.

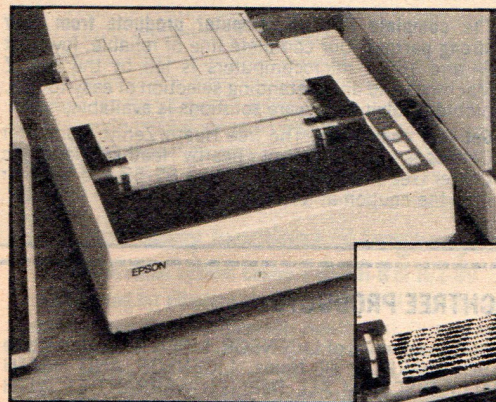
**Interfaces to most computers and terminals:** Communication occurs via an RS-232C Serial Interface or a 20 mA current loop, with handshaking adjustable by reverse channel and busy control signals. Communication speeds are adjustable from 110 to 9600 baud.



**More extra-value features:** A "paper out" indicator, "jammed" indicator and self-testing capabilities are included with the 25 Dot Matrix Line Printer. For 120/240 VAC, 50/60 Hz power. Overall Dimensions, 8¼" H x 26½" W x 18½" D (20.96 x 67.31 x 46.99 cm).

**Kit H-125, Printer in H/Z-100 colors, Shpg. wt. 85 lbs. .... 899.00**

**Z-125, Assembled Printer in H/Z-100 colors, Shpg. wt. 82 lbs. .... 1499.00**



## Affordable MX-80A Dot Matrix Printer with graphics

**Bi-directional printer has advanced features for maximized throughput**

**Now printing an expanded cast of graphics characters:** Including subscripts, superscripts, italics, underlining and 64 other block graphics characters. The MX-80A, which outperforms many printers costing a lot more, can also reproduce the full 96-character ASCII set.

**Throughputs a fast 46 lines per minute (using 80-character lines):** Pick 40-, 66-, 80- or 132-character lines for up to 12 different printing combinations.

**Includes paper tray, one ribbon:** Communicates with Heath/Zenith computers via MX-80-3 Interface below (needs HCA-10 Cable, see computer catalog), or the Z-89-11 I/O Board (p. 69; needs HCA-14 Cable, see computer catalog). Includes Centronics-style 8-bit parallel interface for use with ZT-1 Terminal (HCA-14 needed). 120 VAC. 4.2" H x 14.7" W x 12" D.

**MX-80A, Assembled Printer, Shpg. wt. 17 lbs. .... 499.00**

**MX-80-3, Buffered RS-232C Serial Interface, Shpg. wt. 1 lb. .... 135.00**

**MX-80-4, ROM Set to add extended graphics set to MX-80s (not for use with MX-80-2), Shpg. wt. 2 lbs. .... 60.00**

**HCA-5-80, Dust Cover for MX-80 and MX-80A, Shpg. wt. 1 lb. .... 14.00**

## Diablo Printer for word processing systems

**Ideal for applications requiring letter-quality printing:** The WH-54 combines the latest in microelectronic technology (eliminating most field adjustments) with a field-proven daisy wheel printing mechanism.

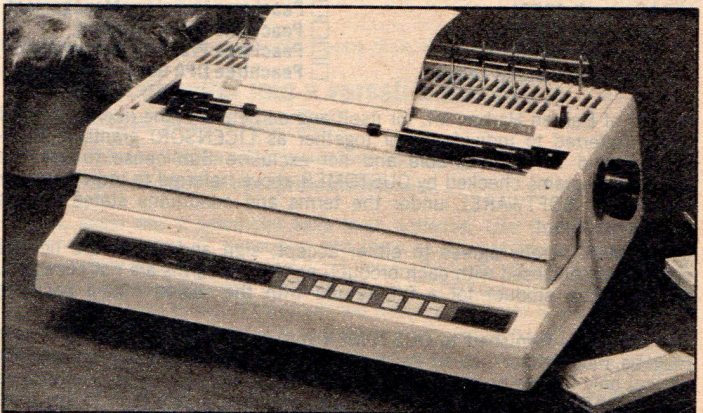
**Uses metal and plastic Diablo print wheels, with complete interchangeability:** This allows use of durable metal print wheels in high-production applications.

**Uses efficient bi-directional printing:** Prints up to 35-40 characters per second. RS-232C Serial interface (compatible with Bell 102, 113, 212 and equivalent modems) and 768-byte print buffer run at 110-1200 baud.

**Versatile:** Prints entire 96-character ASCII set (upper and lower case) on forms up to 15.5 inches (39.3 cm) wide. Forms up to 27/1000 inch (0.0686 cm) thick can be accommodated with a single adjustment.

**Includes:** Friction platen, power supply, operator control panel, HCS-22 Print Wheel (Elite 12 with unslashed zero) and HCS-51 Film Ribbon. For 120/240 VAC, 50/60 Hz power. 9.25" H x 23.5" W x 15.75" D (23.49 x 59.69 x 40 cm).

**WH-54, Assembled Printer, Shpg. wt. 70 lbs., Motor Freight .... 2295.00**



Alaska, Hawaii and Michigan Residents: Call 616-982-3411



# HUG makes your Heath/Zenith computer even more powerful with its 700-program software library



- Access to the HUG Software Library's over 700 low-cost programs
- A one-year subscription to HUG's information-packed REMark magazine
- Participate in REMark's interactive forum with other HUG members
- On-line bulletin board available

Send to: HUG Membership, Hilltop Road, St. Joseph, MI 49085.

Yes, I want to become a member of HUG and keep up to date on the latest Heath/Zenith microcomputer developments, while I increase my utility and applications software library.

I've enclosed \$\_\_\_\_\_ (U.S. Funds only) to cover the cost of my membership. NOTE: No charge orders or billings are accepted.

Name \_\_\_\_\_

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City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

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Signature \_\_\_\_\_

## HEATH/ZENITH COMPUTER CATALOG COUPON!

MAIL TO: Heath Company, Dept. 300-859  
Benton Harbor, MI 49022

**FREE**

Name \_\_\_\_\_

Address \_\_\_\_\_ Apt. No. \_\_\_\_\_

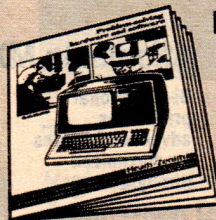
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

- 1. Access to the HUG Software Library:** A constantly updated and expanded collection of programs, subroutines and procedures written by members.
- 2. The HUG Software Library Catalog:** Listing each program by name, description, language, version, hardware and software required.
- 3. A one-year subscription to REMark Magazine (mailed monthly):** This exclusive periodical contains reviews of new Heath/Zenith computer products — and also serves as an open forum, where members of HUG can share new hardware modifications, software enhancements, applications programs and other ideas.
- 4. One of the top users' group bulletin boards in the world:** The HUG Bulletin Board has the latest news on Heath/Zenith computers and HUG activities. All you need is a HUG membership, a modem program and a MicroNet time-sharing membership.
- 5. A vinyl-covered, three-ring HUG binder:** Contains the HUG Handbook, with hints on how to make the most of your membership (some local users' groups have been formed to increase membership benefits). Use this binder to store software documentation, REMark and other materials.
- 6. The official HUG Identification Card:** Your ticket to HUG benefits.

You'll find a HUG application enclosed with each Heath computer; Z-89 computers come with a one-year HUG membership at no extra charge! If you don't own a Heath/Zenith computer, fill out and return the form below.

### HUG Membership Rates (per year, in U.S. Funds)

	U.S.	Canada/Mexico	International
New Members:	\$18	\$20	\$28
Renewal:	\$15	\$17	\$22



36 full-color, full-size pages

## New Heath/Zenith Computer Catalog!

The complete line of computer products from your strong partner: Our complete line of reliable, low-cost 8- and 16-bit microcomputers is led by the new Z Machine! And an outstanding selection of easy-to-use, problem-solving software solutions is available.

**Get your copy today:** The free Heath/Zenith Computer Catalog is available at your nearby Heathkit Electronic Center (see the store list on pages 52-53 and 57) — or mail the coupon at left.

## SOFTWARE SUBLICENSE GRANT FOR MICROSOFT AND PEACHTREE PRODUCTS

(Check all boxes which apply, sign and return to HEATH COMPANY (HEATH). Another Sublicense Grant form must be used with each future SOFTWARE order.)

- ☐ Microsoft BASIC Compiler
- ☐ Microsoft BASIC Interpreter
- ☐ Microsoft COBOL
- ☐ Microsoft FORTRAN
- ☐ Microsoft MACRO-80
- ☐ Peachtree General Ledger

- ☐ Peachtree Accounts Payable
- ☐ Peachtree Accounts Receivable
- ☐ Peachtree Inventory Management
- ☐ Peachtree Sales Invoicing
- ☐ Peachtree Property Management
- ☐ Peachtree CPA General Ledger

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HEATH COMPANY  
BY \_\_\_\_\_

*Jay H. Janett*

ACCEPTED AND AGREED:  
CUSTOMER'S SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_



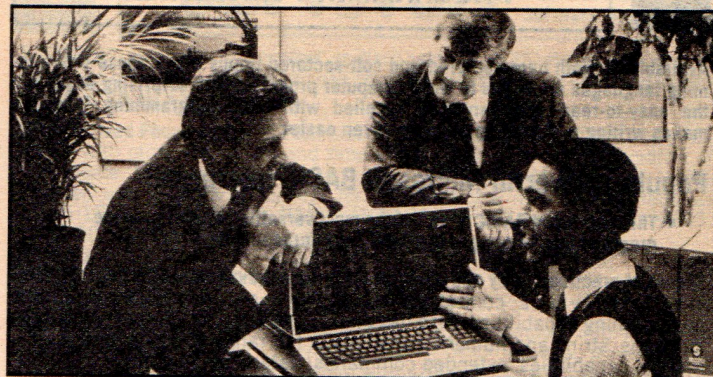


# Heath/Zenith has easy-to-use software solutions for your business and home needs

Heath/Zenith offers quality software: Everyone promises to fill your needs — but you know to be certain things are right, you have to be involved. No one knows your needs as well as you. And no one else truly understands your problems. That's why Heath/Zenith, your strong partner, offers many software packages — versatile, easy-to-use solutions.

For greatest ease of use, many of these solutions are menu-driven — and utilize easy-to-understand English-like commands.

A wide variety of software solutions are listed here — including operating systems, programming languages, utility and applications programs, and the Heath User's Group software library. For an even greater selection of problem-solving, fill out the coupon on page 74 and send for the FREE Heath/Zenith computer catalog.



## OPERATING SYSTEMS SOFTWARE

### Industry standard CP/M-80 Operating System

- Over 200,000 microcomputer owners use CP/M-80
- Provides common hardware interface with flexibility

**Features:** Eight-bit CP/M-80 2.2 opens the door to more languages, utilities and applications software than any other 8-bit disk operating system (DOS).

**File, disk management:** Fully dynamic named-file allocation, program/peripheral output control, random/sequential data access. BIOS accesses disk drives, accesses peripherals. BDOS minimizes head movement, wear, CCP controls input/output of programs.

**Utilities:** Two-pass assembler, general-purpose editor, advanced 8080 debugger, file dump/copy, system generation/relocation, file size/usage displays.

**Requires:** H-8/H-19, H/Z-89 or Z-90 with 48K RAM one disk drive (two recommended). H-8 systems also require HA-8-6 or HA-8-8 Cards (p. 70).

**Related educational course:** EC-1120 CP/M-80 Course on page 78.

**HOS-8917-2**, on hard-sectored 5.25" disk, Shpg. wt. 5 lbs. .... **150.00**

**HOS-8937-2**, on soft-sectored 5.25" disk, Shpg. wt. 5 lbs. .... **150.00**

### HDOS has many functions of larger systems

- Sophisticated system controls your H-8 or H/Z-89
- Designed for efficient use of memory and disk space

**Complete operating environment:** Heath Disk Operating System (HDOS) 2.0 is a sophisticated system allowing program writing, editing and storage.

**Built-in languages:** Extended Benton Harbor BASIC 6.0 Programming Language uses simple English statements, familiar math equations to perform operations, solve problems. ASM 8080 Assembly Language with cross-reference feature assembles source programs into listings/object programs.

**Built-in utilities:** 17 commands manipulate files, select device drivers, debug and run programs, edit text, test disk drives/media and much more.

**Requires:** H-8/H-19 or H/Z-89 with 48K RAM and one disk drive (system supports all Heath/Zenith disk systems except Z-67; two drives recommended, and may be required to use some other software programs).

**HOS-817-1**, on hard-sectored 5.25" disk, Shpg. wt. 9 lbs. .... **150.00**

### Modular UCSD P-System with Pascal, Version II

- Easy-to-use system responds quickly to changing needs
- Runs on any microcomputer with a resident interpreter

**Complete program development/execution environment:** Has Pascal compiler to produce universal P-code, P-code interpreter, screen- and character-oriented program/text editors, macro-assembler and library of frequently-used utilities. Support available from Softech Microsystems, San Diego, CA. Requires H-8/H-19 or H/Z-89 with 48K RAM (64K recommended) and two hard-sectored 5.25" disk drives.

**Related educational course:** EC-1111 Pascal Course on page 79.

**HOS-817-3**, on hard-sectored 5.25" disk, Shpg. wt. 8 lbs. .... **295.00**

## PLANNING/MODELING SOFTWARE

### Outstanding Multiplan 16-Bit Electronic Spreadsheet



- Helps you do corporate budgeting, make product planning and sales decisions, plan investments, formulate a family budget...and more

**An aid for both business and personal needs:** Multiplan is one of the most powerful modeling and planning tools ever invented.

**Easy to learn:** You'll be surprised at how quickly and efficiently you'll accomplish various tasks with Multiplan. The two-volume manual consists of a tutorial, giving an overview of the system's features — and a detailed reference guide to those features. Working together with an on-line "Help" key, they'll teach you Multiplan's concepts and uses.

**Versatile capabilities:** With Multiplan, you can formulate worksheets up to 63 columns wide by 255 rows deep. Cells, rows and columns can be inserted, deleted or moved to another location on the spreadsheet. Enter numbers, formulas or text — numbers from 0.1 x 10<sup>-63</sup> to 9.999999999999 x 10<sup>(+62)</sup>, and text up to 150 characters per cell, with the ability to concatenate and use percentages.

To help answer those "what if?" and "now what?" questions, Multiplan displays proposed responses to commands and formulas you enter — you decide whether to proceed. Data can also be sorted by column or row — handy when you want to arrange figures from highest to lowest, or in alphabetical order.

**You get full file management capabilities:** You can even make one or several spreadsheets dependent on a master spreadsheet — perfect for corporate/departmental budgets. And with Multiplan's unique Symbolic Link File Format, you can exchange information between spreadsheets and other applications programs.

**Minimum hardware and software requirements:** Multiplan requires a H/Z-100 series computer, a video display and the Z-DOS (MS-DOS) Operating System (page 67).

**MS-463-7**, on soft-sectored 5.25" floppy disk, Shpg. wt. 6 lbs. .... **250.00**

### Turn your computer into a versatile electronic spreadsheet with SuperCalc

- Helps planners make better use of time and energy
- Easy-to-read, easy-to-use spreadsheet format

**Pencils, paper and a calculator have been replaced:** Use SuperCalc to help answer those "what if?" questions and "now what?" questions. Examine and alter numbers and text within a 63-column by 254-row matrix. Requires H-8/H-19, H/Z-89 or Z-90 with 48K RAM or H/Z-100, one disk drive and CP/M-80 or -85 (see below). If printouts are desired, a printer is also required.

**HSC-817-1**, HS 5.25" disk for H-8, H/Z-89 or Z-90 with CP/M-80, 2 lbs. **295.00**

**HSC-837-1**, SS 5.25" disk for H-8, H/Z-89 or Z-90 with CP/M-80, 2 lbs. **295.00**

**SuperCalc for H/Z-100 Computers:** Uses exciting color graphics displays.

**SC-463-1**, on soft-sectored 5.25" disk for H/Z-100 with CP/M-85, 2 lbs. **295.00**



Alaska, Hawaii and Michigan Residents: Call 616-982-3411





## PROGRAMMING LANGUAGES

Available on both hard-sectored and soft-sectored floppy disks, these programming languages allow you to write computer programs with surprising ease. And the easy-to-read documentation supplied with each programming language makes writing and running programs even easier.

### Popular, powerful Microsoft BASIC Interpreter

- This enhanced BASIC is one of the most versatile general-purpose programming languages available for microcomputers

**Scores of practical utility and applications program available:** MBASIC features and IF-THEN-ELSE control structure, which provides highly-structured programming capabilities. Also has direct access to CPU ports and memory locations, string and numeric constants, a full range of logical and mathematical capabilities, extended commands/statements and more.

**Extensive program editing facilities:** EDIT command and edit mode subcommands provide for insertion, deletion, character change and more.

**All models require an H-8/H-19 or H/Z-89 system with 48K RAM, one disk drive, HDOS or CP/M (as indicated below) and the Sublicense Grant on page 74.**

H-8-21, Ver. 4.82 on hard-sectored 5.25" disk for HDOS, 4 lbs. ... 150.00  
HMS-817-1, Ver. 5.21 on hard-sectored 5.25" disk for CP/M, 5 lbs. 175.00  
HMS-837-1, Ver. 5.21 on soft-sectored 5.25" disk for CP/M, 4 lbs. 175.00

### Microsoft FORTRAN for science and engineering

- The many extended features of this system make it comparable to FORTRAN compilers used on large mainframes, minicomputers

**Write and execute powerful scientific and engineering programs:** This enhanced programming system includes all features of ANSI FORTRAN X3.9-1966, except for the COMPLEX data type. Compiles up to 1200 lines per minute, in a single pass. Has routines for 32- and 64-bit floating point math, MACRO-80 Assembler to generate relocatable object modules for LINK-80, LINK-80 Linkage Editor, CREF Cross-Reference Generator for MACRO-80, LIB-80 Library Manager (CP/M versions only) to build your own libraries of relocatable modules, and two function libraries.

**All models below require an H-8/H-19 or H/Z-89 system with 48K RAM, two disk drives, HDOS or CP/M (as indicated below) and the Sublicense Grant on page 74.**

H-8-20, Ver. 3.35 on hard-sectored 5.25" disk for HDOS, 4 lbs. ... 175.00  
HMS-817-2, Ver. 3.4 on hard-sectored 5.25" disk for CP/M, 5 lbs. 195.00  
HMS-837-2, Ver. 3.4 on soft-sectored 5.25" disk for CP/M, 4 lbs. ... 195.00

### MBASIC Compiler speeds general programming

**Eliminate time-consuming interpretation:** This single-pass compiler converts the program into machine code, the language your computer understands best — and runs fastest. Includes Microsoft BASIC's run-time library, MACRO-80 Assembler, LINK-80 Editor, CREF Cross-Reference Generator and LIB-80 Library Manager.

**All models below require an H-8/H-19 or H/Z-89 system with 48K RAM, two disk drives, HDOS or CP/M (as indicated below) and the Sublicense Grant on page 74.**

HMS-817-41, Ver. 5.23 on hard-sectored 5.25" disk for HDOS, 5 lbs. 250.00  
HMS-837-41, Ver. 5.23 on soft-sectored 5.25" disk for HDOS, 5 lbs. 250.00  
HMS-817-4, Ver. 5.23 on hard-sectored 5.25" disk for CP/M, 4 lbs. 250.00  
HMS-837-4, Ver. 5.23 on soft-sectored 5.25" disk for CP/M, 4 lbs. 250.00

### Program faster with MACRO-80 Assembly Language

**Designed for use by sophisticated Assembly Language programmers:** You get most "big computer" assembler features without sacrificing speed or memory space. Includes LINK-80 Linkage Editor, CREF Cross-Reference Generator and LIB-80 Library Manager.

**All models below require an H-8/H-19 or H/Z-89 system with 48K RAM, one disk drive (two drives recommended), HDOS or CP/M and the Sublicense Grant on page 74.**

HMS-817-51, on hard-sectored 5.25" disk for HDOS, 2 lbs. .... 65.00  
HMS-837-51, on soft-sectored 5.25" disk for HDOS, 4 lbs. .... 65.00  
HMS-817-52, on hard-sectored 5.25" disk for CP/M, 2 lbs. .... 65.00  
HMS-837-52, on soft-sectored 5.25" disk for CP/M, 3 lbs. .... 65.00

## Run powerful, business-oriented COBOL-80

**Ideal for processing large disk files and data bases:** Exceeds minimum ANSI-74 COBOL specifications, with many advanced features and modules which add power and convenience. Has specially-implemented Nucleus Module — as well as Debugging, Sequential I/O, Relative I/O and Table Handling modules.

**Utility programs:** The MACRO-80 Relocating Assembler, LINK-80 Linkage Editor, LIB-80 Library Manager, a Microsoft COBOL Library with many special routines and useful run-time software are included.

**All models below require an H-8/H-19 or H/Z-89 with 48K RAM, two disk drives, HDOS or CP/M and the Sublicense Grant on page 74.** 64K RM and the H/Z-37 or commercial Z-67 Disk Systems recommended for applications involving large disk files.

HMS-817-31, Ver. 4.0 on hard-sectored 5.25" disk for HDOS, 4 lbs. 395.00  
HMS-837-31, Ver. 4.0 on soft-sectored 5.25" disk for HDOS, 4 lbs. 395.00  
HMS-817-3, Ver. 4.0 on hard-sectored 5.25" disk for CP/M, 5 lbs. 395.00  
HMS-837-3, Ver. 4.0 on soft-sectored 5.25" disk for CP/M, 4 lbs. ... 395.00



## WORD PROCESSING SOFTWARE

Word processing makes creation of documents faster and easier, in your home or at the office. Heath/Zenith offers two word processors — the popular and CP/M-compatible WordStar and Magic Wand packages. An automatic proofreader for Magic Wand is also available. All are now available in versions especially designed for use on the new H/Z-100 Series Computers!

### WordStar Word Processing Software features exceptional power, CP/M compatibility

**A CP/M Compatible, screen-oriented word processor with integrated printing capabilities:** Supports full on-screen text formatting (with automatic margination, justification and centering available on command).

**Helpful hyphenation speeds editing:** WordStar's hyphen-help feature stops when a hyphen is necessary, and lets you choose the hyphenation point — or decide not to hyphenate. Hyphens entered with this feature are "soft" — if not needed in later editing, hyphens will be automatically deleted.

**Advanced capabilities supported:** Automatic page numbering, printing enhancements (underlining, double striking, boldfacing, strikeouts, subscripting and superscripting, 1/aa" line spacing and 1/20" character pitch) and several other operator-chosen options, on capable printers.

**Also features print spooling:** For greater efficiency (in systems with 64K RAM), you can print one file while working on a second file.

**WordStar's unique "Help" system can be used during editing:** Four levels of user-selectable prompting eliminates the need to refer to a manual.

**Includes two versions:** A pre-installed version for immediate, hassle-free use on your Heath/Zenith computer with a Diablo 630 or 1640 printer — and a "plain vanilla" version for most computers and printers. Operating manual included.

**Requires:** H-8/H-19 or H/Z-89 with 48K RAM — or a Z-100 — two disk drives, CP/M or Z-DOS (see below) and printer (WH-54, page 73, recommended).

HMP-817-2, hard-sectored 5.25" disk for H-8, H/Z-89 W/CP/M-80, 2 lbs. 395.00

HMP-837-2, soft-sectored 5.25" disk for H-8, H/Z-89 W/CP/M-80, 4 lbs. 395.00

MP-463-7, soft-sectored 5.25" disk for H/Z-100 with Z-DOS, 5 lbs. ... 399.00

### Add mailing list and file merging capabilities to WordStar with MailMerge software

**More capability:** Combine a names/addresses file with a letter file, inserting text at user-specified places — to create personalized form letters. And you can use the same data file to produce both form letters and mailing labels.

**Features:** Merges data from one file to another — automatically reforming paragraphs, prints multiple copies of the same file, chain-prints several files on the same disk, prints a file "nesting" in another file (up to eight levels of nesting can be accommodated), and prints raw data in an easy-to-read form.

**Requires:** H-8/H-19 or H/Z-89 with 48K RAM — or a Z-100 — two disk drives, CP/M or Z-DOS (see below), WordStar and printer (WH-54, page 73, recommended).

HMP-817-3, HS 5.25" disk for H-8, H/Z-89 with CP/M-80, 4 lbs. ... 135.00

HMP-837-3, SS 5.25" disk for H-8, H/Z-89 with CP/M-80, 4 lbs. ... 135.00

MP-463-8, soft-sectored 5.25" disk for Z-100 with Z-DOS, 4 lbs. ... 139.00





## Magic Wand Word Processing Software combines ease of use, versatility and power

**Now even more powerful and versatile:** When you team Magic Wand Word Processing Software with the Magic Spell Automatic Proofreader, you get the ultimate in word processing convenience and accuracy.

**This powerful word processor has sample learning exercises:** Featuring EDIT and PRINT modes, Magic Wand puts excellent versatility, ease of use, power and CP/M compatibility at your fingertips.

**EDIT mode features** full scrolling, insertion by character or full insertion, full deletion, search/replace commands, block moves and copying of blocks, and the ability to include all or part of any pure ASCII file into the text you're editing (without leaving EDIT or affecting any of the text).

**PRINT mode features** printing in background (print spooling) which lets you print one file while working on another, direct command entry or the ability to imbed commands in a text file, underscoring, boldfacing, subscripting and superscripting, automatic hyphenation, proportional spacing and mail list merging.  $\frac{1}{120}$ " horizontal and  $\frac{1}{48}$ " vertical spacing (on capable printers).

**Minimum hardware and software requirements:** Magic Wand requires and H-8/H-19 or H/Z-89 with 48K RAM or an H/Z-100, one disk drive, CP/M-80 or Z-DOS (see below) and a printer (we recommend the WH-54 Letter-Quality Printer on page 40).

**HRS-817-9**, HS 5.25" disk for H-8 or H/Z-89 with CP/M-80, 3 lbs. **295.00**

**HRS-837-9**, soft-sectored 5.25" disk for H/Z-89 with CP/M-80, 4 lbs. **295.00**

**RS-463-9**, soft-sectored 5.25" disk for H/Z-100 with Z-DOS, 4 lbs. **295.00**

## Magic Spell automatically proofreads your Magic Wand-produced documents

**An automated proofreading system:** Magic Spell helps you isolate spelling and typographical errors in documents produced by Magic Wand. Automated proofreading verifies the correct spelling of words in a document. Magic Spell compares each word to an internal dictionary. Magic Spell takes only seconds to check each page, and inform you of any words that don't match similar words in its dictionary — or of any words not in the dictionary.

**Has distinct advantages over other proofreading system:** Magic Spell is easy to learn — even for the first-time user. Three self-instructional lessons, with many detailed exercises and examples, help you learn how.

**Amazingly fast:** A typical Heath/Zenith microcomputer system using double-density floppy disks can check 20 pages of text in under a minute.

**Extensive dictionary capabilities:** Magic Spell comes with a 20,000 word standard usage English dictionary, to which you may add a number of additional words. In addition, Magic Spell can contain multiple dictionaries. You can add or subtract dictionaries or customize a particular dictionary to meet special needs (data processing, engineering, foreign terms, insurance, legal, medical, proper names, scientific and others).

**Minimum hardware, software requirements:** An H/Z-89 with 32K RAM or an H/Z-100, one or more disk drives, CP/M-80 or Z-DOS (as listed below), Magic Wand and a printer. The H/WH-14, WH-24, H/Z-25, WH-36, WH-44 or WH-54 printers will work with Magic Spell; we recommend the letter-quality WH-54 on page 40.

**HIS-837-1**, soft-sectored 5.25" disk for H/Z-89 with CP/M-80, 4 lbs. **295.00**

**IS-463-1**, soft-sectored 5.25" disk for H/Z-100 with Z-DOS, 4 lbs. **295.00**

## Reliable, high-capacity floppy disks

**HCS-70**, Hard-sectored, single-sided, 100 KB 5.25" Disks for H-17-1 Drives/H-88-1 Controller, Shpg. wt. 1 lb. **Package of ten, 40.00**

**HCS-66**, Soft-sectored, single-sided, double-density, 48 tpi, 160 KB 5.25" Disks for H-17-1 or H-17-4 Drives and Z-89-37 Controller, 1 lb. **Pkg. of ten, 45.00**

**HCS-71**, Soft-sectored, double-sided, double-density, 48 tpi, 320 KB 5.25" Disks for H/Z-100, or H-8, H/Z-89 with H-17-1 or H-17-4 Drives and WH-8-37 or Z-89-37 Controller, 1 lb. **Package of ten, 50.00**

**HCS-68**, Soft-sectored, double-sided, double-density, 96 tpi 640 KB 5.25" Disks for H/Z-100, or H-8, H/Z-89, Z-90 with H-17-1 or H-17-4 Drives and WH-8-37 or Z-89-37 Controller, 1 lb. **Package of ten, 55.00**

**HCS-69**, Soft-sectored, single-sided, single-density, IBM 3740 format, 250 KB 8" Disks for H/WH-27, H/Z-47, Z-67 and others, 2 lbs. **Package of ten, 55.00**

**HCS-64**, Soft-sectored, single-sided, double-density, 500 KB 8" Disks for H/Z-47, Z-67 and others, Shpg. wt. 2 lbs. **Package of ten, 60.00**

**HCS-65**, Soft-sectored, double-sided, double-density, 1 MB 8" Disks for H/Z-47, Z-67 and others, Shpg. wt. 2 lbs. **Package of ten, 70.00**



## SOFTSTUFF

Affordable  
Software Tools

**SOFTSTUFF products are supplied on hard-sectored 5.25" floppy disk (unless otherwise indicated), and are shipped postpaid. Please specify operating system (HDOS or CP/M) when ordering.**

**Computerized Phone System (CPS):** Allows H-8, H/Z-89 and H/Z-100 to communicate with other computers and time-sharing systems such as MicroNet or the Source. On-screen elapsed time clock, automatic MicroNet log-in file transfer, user-programmable keys for functions like mail check. Requires H-8/H-19, H/Z-89 with 48K RAM or H/Z-100 with one disk drive and HDOS, CP/M-80 or CP/M-85 (see below).

**SF-9503**, HS 5.25" disk for H/Z-89 with HDOS/CP/M-80 Postpaid **40.00**

**SFS-9103**, SS 5.25" disk for H/Z-89 with CP/M-80, Postpaid **40.00**

**CB-253-7**, SS 5.25" disk for H/Z-100 with CP/M-85, Postpaid **40.00**

**Full Screen Editor:** Uses H-19 or H/Z-89 CRT as window into file. Type changes anywhere on the screen; use search, block move, scroll functions. Requires H-8/H-19 or H/Z-89 system with 48K bytes of RAM, one disk drive and either HDOS or CP/M.

**SF-9200**, on hard-sectored 5.25" disk for HDOS and CP/M, Postpaid **50.00**

**Text Formatter:** Performs errorless fill and justification (straight right margin) functions on editor-prepared text. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M (as listed below).

**SF-9001**, on hard-sectored 5.25" disk for HDOS, Postpaid **55.00**

**SF-9101**, on hard-sectored 5.25" disk for CP/M, Postpaid **55.00**

**Mailpro Package:** Stores/retrieves mailing lists, other information. Random access files. Sort and retrieve on any field. Needs H-8/H-19 or H/Z-89 with 48K bytes RAM, one disk drive, HDOS or CP/M Operating System (as indicated below) and Microsoft BASIC Language Interpreter, p. 76 (SF-9109 requires 64K bytes of RAM, but not MBASIC Interpreter).

**SF-9009**, on hard-sectored 5.25" disk for HDOS, Postpaid **40.00**

**SF-9109**, on hard-sectored 5.25" disk for CP/M, Postpaid **40.00**

**General Ledger II:** Keeps your books up-to-date. Features custom chart of accounts, comprehensive printouts, automatic entry checking, fast and simple data entry, account verification, facility to open new accounts at any time, instantly updateable balance reporting and audit trail. Requires H-8/H-19 or H/Z-89 with 48K RAM, two disk drives, the HDOS Operating System and Microsoft BASIC Language Interpreter (see page 76).

**SF-9004**, on hard-sectored 5.25" disk for HDOS, Postpaid **125.00**

**Small Business Inventory Package:** Helps facilitate analysis of a business' inventory. Can provide up to 12 items of information on each part. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive, HDOS or CP/M (as listed below) and Microsoft BASIC Interpreter (see page 76).

**SF-9005**, on hard-sectored 5.25" disk for HDOS, Postpaid **90.00**

**SF-9105**, on hard-sectored 5.25" disk for CP/M, Postpaid **90.00**

**Roots-89 Ancestral Genealogy Software:** Helps track your roots. Computes relationships, shows anniversaries. Has genealogy course. Needs H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M (see below).

**SF-9008**, on hard-sectored 5.25" disk for HDOS, Postpaid **125.00**

**SF-9108**, on hard-sectored 5.25" disk for CP/M, Postpaid **125.00**

**Periodic Table:** Helps chemistry students. Teaches the 103 basic chemical elements. Two modes — study each element in detail, or take a quiz. Needs H-8/H-19 or H/Z-89 with 48K RAM and one disk drive.

**SF-9021**, on bootable, hard-sectored 5.25" HDOS disk, Postpaid **40.00**

**Typing Tutor:** Helps you learn fast, efficient touch typing — you practice on the H-19 or H/Z-89's typewriter-styled keyboard. Requires H-8/H-19 or H/Z-89 with 48K bytes of RAM and one disk drive.

**SF-9018**, on bootable, hard-sectored 5.25" HDOS disk, Postpaid **40.00**

**Vocabulary Builder:** Extensive library helps students learn English words in a fast, efficient way. Requires an H-8/H-19 or H/Z-89 system with 48K bytes of RAM and one disk drive.

**SF-9019**, on bootable, hard-sectored 5.25" HDOS disk, Postpaid **40.00**

**MyChess Computer Chess Game:** Provides hours of challenging competition. Consistently beats Sargon. Nine skill levels. Requires H-8/HA-8-6/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M.

**SF-9010**, on hard-sectored 5.25" disk for HDOS, Postpaid **40.00**

**SF-9110**, on hard-sectored 5.25" disk for CP/M, Postpaid **40.00**

**Air Traffic Controller Game:** Control traffic around your own airport. Requires H-8/H-19 or H/Z-89 with 48K RAM, one disk drive and HDOS or CP/M.

**SF-9014**, on hard-sectored 5.25" disk for HDOS, Postpaid **30.00**

**SF-9114**, on hard-sectored 5.25" disk for CP/M, Postpaid **30.00**

**U.S. Presidents' Game:** Learn about the men who have led the U.S. Needs H-8/H-19 or H/Z-89 with 48K RAM and one disk drive.

**SF-9020**, on bootable, hard-sectored 5.25" HDOS disk, Postpaid **40.00**



Alaska, Hawaii and Michigan Residents: Call 616-982-3411



## Learn the industry-standard disk operating system – CP/M-80 – with this course



- Use with an H-8, H/Z-89 or Z-90 – or with any 8080, 8085 or Z-80 microcomputer which runs CP/M-80
- Self-instructional course covers all aspects of the CP/M-80 Operating System in complete detail – no prior background or knowledge of Assembly Language is assumed or required
- Effective audio-visual teaching method
- Earn valuable Continuing Education Units

**CP/M-80 is the industry standard disk operating system:** And now, with the Heathkit/Zenith CP/M-80 Operating System Course, even first-time computer users can quickly and easily learn it.

**With the CP/M-80 Course, you learn at your own pace:** You start with the basics, and then build upon fact-after-fact until you're an expert. You'll think you have your very own tutor, right in the room with you.

**The Heathkit/Zenith CP/M-80 Course consists of a 500-page self-instructional text and five audio cassettes.** In ten units, it covers CP/M-80 2.2 and earlier versions, including built-in and transient commands.

**You begin** with an introduction to the CP/M-80 Operating System, Unit 1. In Unit 2, Typing CP/M Commands, you'll cover the writing of basic CP/M commands – including CP/M's major control functions – and diagnosing problems from CP/M's error messages. In Unit 3 you learn Built-In Commands, while Unit 4 discusses CP/M's Transient Programs, STAT and CON-FIGUR Commands are covered in Unit 5. Other topics include Using PIP, an Introduction to ED, Editing Existing Files, Advanced ED Functions and Submitting Command Files.

**When you're done,** you'll be able to operate CP/M-80 based applications programs and use the CP/M-80 Editor to create and manipulate text files.

## Learn the business language – COBOL



- Learn quickly and easily with Heathkit/Zenith's audio-tutorial method
- Covers both ANS-74 and ANS-68 versions of COBOL

**Cobol is the language of business today and in the future:** Because of its efficiency in manipulating large structural data files and greater productivity, it's widely used in accounting, inventory and other applications.

**With audio-tutorial instructional methods,** you'll learn COBOL quickly. Your self-instructional text is full of diagrams, tables, programs and unit tests. A set of nine audio cassettes reinforces each concept as you learn it. You'll cover the basics of encoding, input characteristics, program hierarchy, identification, environment, data and procedure divisions. Both ANS-74 and ANS-68 versions of COBOL are presented in the course.

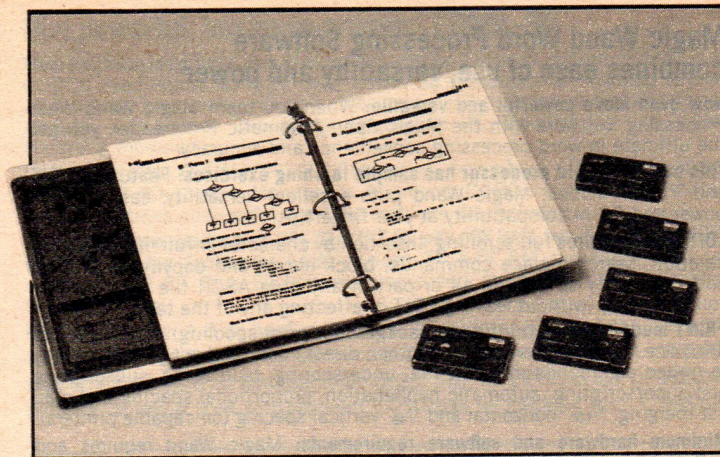
**In addition,** six practice COBOL programs are included in the workbook. You can do them at specified points in the course to help expand your understanding, or wait until you've completed the entire course.

**Your COBOL Course** from Heathkit/Zenith also details program variations, structure and syntax, simple arithmetic statements, comments and diagnostics, advanced arithmetic and control statements, additional data concepts, magnetic tape and disk concepts, and much more.

**Learn the language of business:** To receive the greatest possible benefit from the Heathkit/Zenith COBOL Course, we suggest an H-8 Computer/H-19 Video Terminal System, an H/Z-89 Computer or a Z-90 Computer – equipped with 48K RAM, two disk drives, CP/M-80 and the Microsoft COBOL Programming System.

**Earn 3 CEUs:** Pass the optional final examination with a 70% score.

**EC-1105, Shpg. wt. 7 lbs. .... 149.95**



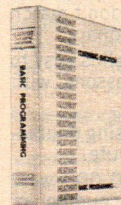
**The course is designed** for use with an H-8/H-19, H/Z-89 or Z-90 computer system with 48K bytes of RAM and the CP/M-80 Operating System. To gain full benefits from the course, we also recommend using a printer.

**Earn 2.5 CEUs:** Pass the optional final examination with a 70% score.

**EC-1120, Shpg. wt. 6 lbs. .... 99.95**

**MONEY-BACK GUARANTEE:** If you're not satisfied with any Heathkit/Zenith Educational Systems Course, return the course materials and your proof of purchase for a refund of the purchase price.

## Learn BASIC – the easy-to-use language



- Learn one of the most popular programming languages for microcomputers – BASIC
- Heathkit/Zenith Self-Instructional Course makes this language easy to learn
- Write your own programs for home or business
- Earn valuable Continuing Education Units

**Because it's so easy to use,** BASIC is one of the most popular programming languages. Now through Heathkit/Zenith, you can learn this popular language.

**As always, you proceed at your own pace,** step-by-step until you're familiar with all aspects of the subject at hand. You'll learn the standardized words and commands of BASIC, along with the tools of the language – numbers, statements, functions, loops, lists, arrays and strings. Learn to define and plan a program, format and write it, and adapt programs to suit your needs. Experiments give you hands-on experience in writing and running BASIC programs – for full benefit, use of a computer is recommended.

**In addition to your programmed-instruction text and workbook,** you'll receive handy reference cards with Benton Harbor BASIC statements, ASCII number codes, BASIC direct command statements and a reference chart for math and Boolean algebra operations. When you're done with the course, you'll be able to write BASIC language programs.

**Earn 3 CEUs:** Pass the optional final examination with a 70% score.

**See the classroom version of this course on page 43.**

**EC-1100, Shpg. wt. 7 lbs. .... 44.95**

**College-Level Examination:** See page 29 for more information.

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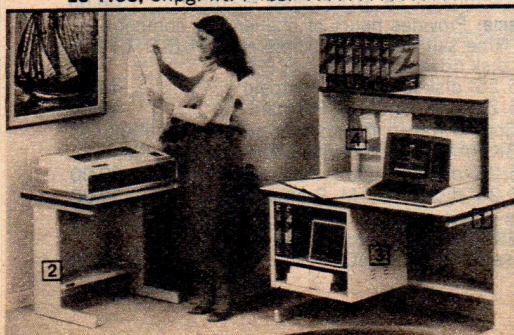
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## Microsoft BASIC Programming Course teaches how to write powerful, effective programs



- Learn to write and modify computer programs, using this popular version of BASIC
- Audio-tutorial course uses experiments to give you hands-on programming experience

Microsoft BASIC is one of the most versatile languages available for microcomputers. If you use MBASIC on your H-8, H/Z-89, TRS-80 or Apple computer, this 800-page course will show you how to get the most from this language.

The 12-unit course covers every aspect of Microsoft BASIC programming:

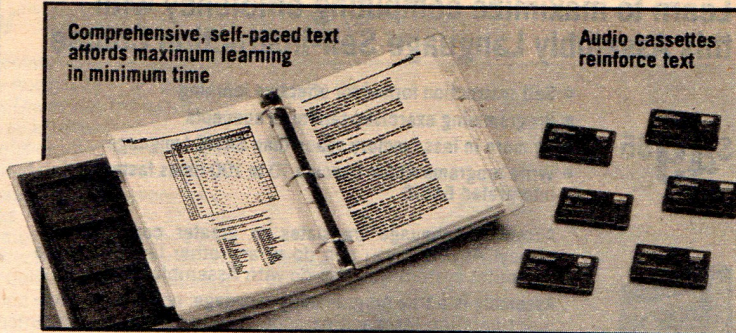
**Unit 1** is an Introduction to Computers and Programming — covering computers, programs, data, the computer system and programming languages. **Immediate Mode, Unit 2**, discusses arithmetic in BASIC, numeric variables, intrinsic functions and strings. Sequences, branching and loops are covered in **Unit 3, Program Structures. Unit 4** has More about Decisions and Loops — including relational operators, counter-driven loops and nested loops.

**Data Structures** — including one-dimensional arrays, N-dimensional loops and strings records — are taught in **Unit 5**. User-defined functions and subroutines are covered in **Unit 6, Subprograms. Unit 7** discusses Complex Structures — such as logical operators, multiple branching and structured programming.

The last five units cover operations and extensions available on disk versions of MBASIC. **Major Language Extensions, Unit 8**, teaches program editing; data type extensions; extended functions, operators and statements. **Sequential Disk Operations, Unit 9**, covers program storage, program retrieval and sequential data files. **Unit 10, Random Access Disk Operation**, covers random access buffers and fields — as well as storage and retrieval of numeric data. **Error Trapping and**

Comprehensive, self-paced text affords maximum learning in minimum time

Audio cassettes reinforce text



**Memory Conservation** are the topics of **Unit 11. Optimization and Machine Interfacing** are covered in the final unit.

This audio-tutorial course utilizes a specially-written text and three audio cassettes, which work together for effective learning and greater retention. Experiments provide extensive hands-on programming practice.

**Self-test reviews** let you check progress at specified points in the course.

The features of the Microsoft BASIC Interpreter (described on page 76) are included, except for the TRON/TROFF debugging utility.

Upon completion, you will be able to write MBASIC programs that instruct a computer to perform specific tasks (sorting, organizing and more).

For full benefit from the course, you must have access to a computer.

To earn 5 CEUs, pass the optional final exam with a 70% or better score.

EC-1110, Shpg. wt. 7 lbs. .... 99.95

## Learn to program in Pascal Language



- Pascal is the ideal language for both beginning and experienced program writers
- Our audio-tutorial format shows you how to program in this powerful, modular language

If you've been around programming languages — or even if you're new to computers — you can learn how to write programs in popular Pascal Language.

The 11-unit self-instruction text completely covers Pascal:

The introduction shows how to identify and write simple Pascal programs. **Unit 2** covers identifying and writing Self-Contained Procedures. **Unit 3, Making Decisions**, teaches how and when to incorporate IF...THEN...ELSE and CASE statements in Pascal programs, and how to use Boolean variables. **Unit 4** covers REPEAT...UNTIL, WHILE...DO and FOR loops.

**Unit 5** discusses Pascal Data Types and teaches you how to declare your own data types. **Unit 6, Arrays and Character Strings**, shows how to use arrays in solving problems. **More About Procedures, Unit 7**, covers the writing of complete Pascal procedures to perform desired tasks. **Records and Sets** are covered in **Unit 8, Unit 9, Pointers**, covers the difference between pointers, linked lists, stacks, queues, binary trees and statements. The last unit covers sequential files and standard Pascal files, showing how to store Pascal data files on floppy diskettes.

This effective audio-tutorial course uses a professionally-written, 500-page self-instruction text and five audio cassettes that work together for an integrated, effective learning experience.

When you complete this course, you'll be able to write modular Pascal programs that instruct a computer to perform specific directed tasks.

Earn 4 CEUs — pass the optional final exam with a 70% or better score.

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## FORTRAN Course teaches science/math language



- Interested in FORTRAN programming? Learn the economical, effective Heathkit/Zenith way
- Audio-tutorial presentation, hands-on programming experiments reinforce learning three ways

FORTRAN Language simplifies complicated scientific and mathematical problem-solving. Using this Heathkit/Zenith course, you'll learn FORTRAN programming fundamentals.

The 11-unit text includes a special Introduction to Computers.

**Unit 1, Getting Started**, shows you how to analyze a FORTRAN program, introduces you to statement types, elements and the character set. **Unit 2** covers Arithmetic Operations. **Elementary Input/Output (I/O)** is discussed in **Unit 3. Unit 4** covers Library Functions. **Other Control Statements** are taught in **Unit 5. Unit 6** introduces you to Arrays. **Programming Practices** are taught in **Unit 7. Unit 8** teaches other Variables. **Unit 9** teaches Advanced Input/Output (I/O). **Unit 10** covers Subprograms. **Special Input/Output (I/O)** is discussed in **Unit 11.**

This course uses the effective audio-tutorial teaching method, with a 500-page text and six cassettes working together to provide more complete learning.

Interactive hands-on experiments give you actual experience in writing FORTRAN programs — coding forms are included. The text also offers extensive practice in writing FORTRAN programs and using the character set. Self-test reviews let you check your progress at specified points throughout the course.

When you complete this course, you'll be able to write FORTRAN programs that instruct a computer to perform specific tasks.

To get the most from the course, we recommend an H-8 or H/Z-89 with 48K RAM and two disk drives. HDOS or Heath/Zenith CP/M (see page 75) and the Microsoft FORTRAN Programming System (page 76) are also recommended.

Earn 5 CEUs — pass the optional final exam with a 70% or better score.

EC-1101, Shpg. wt. 7 lbs. .... 99.95

## Computer Dictionary is a complete reference source of computer terminology

Need a dictionary to understand computer terms? Here's a handy reference book for hobbyists, technicians, engineers, programmers and other professionals who deal with computer-related terms. The EB-1020 Computer Dictionary, from Heathkit/Zenith Educational Systems, is a complete sourcebook of computer terms.

Thousands of definitions: This dictionary contains thousands of com-

puter-related words and phrases, along with complete definitions. Definitions are made clear and explicit throughout the text.

Full of information: Browse through this dictionary and you can learn significant details about the products, procedures, problems and proliferating applications of the microcomputer revolution.

EB-1020, Shpg. wt. 2 lbs. .... 14.95



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## Learn to maximize computing efficiency with this Assembly Language Self-Instruction Course

**\$49<sup>95</sup>**



- Self-instruction format for effective learning
- Programming exercises reinforce concepts
- Do more in less memory space than BASIC Language
- Write programs which execute 10 to 100 times faster than interpreted BASIC

**Assembly Language translates to greater computer efficiency!** Anything you can do in any other language on a computer system, you can do with Assembly Language.

**Assembly is a true programming language**, not just a convenient notation for machine code. The use of labels, computed operands, comments and assembler directives allows the Assembly Language programmer to create a source code that is adaptable to the system and easily read. Assembly Language uses a mnemonic for every machine operation. There's no time wasted in interpreting — so your programs require less memory space and run much faster.

**Assembly Language utilizes your computer system's memory more efficiently.** Shorter, more explicit codes allow you to store more data in less space — and execute programs at speeds 10 to 100 times faster than if the same program were written in interpreted BASIC. Symbolic notation and easy-to-implement documentation methods make program listings easier to understand.

**Objective:** When you complete this unique self-instruction course from Heathkit/Zenith Educational Systems, you'll be able to write Assembly Language programs which instruct your computer to perform specific directed tasks. You'll learn flowcharting, device polling, code conversions, masking, subroutines, 8080 instruction set, I/O routines, precision mathematics and many more essentials.

### "Computer Concepts" aids business decisions

**\$49<sup>95</sup>**



- Learn how to determine data processing requirements for your small business
- Uses field-proven self-instruction techniques
- Audio cassettes let you see and hear each concept

**Thinking of buying a computer for your small business?** This course will help you select the system that fits your needs.

**When you consider making a computer investment** that can run into thousands of dollars, you need to know as much about computers as possible — before making the investment. This course gives you the knowledge you need to evaluate the usefulness of a computer in your business.

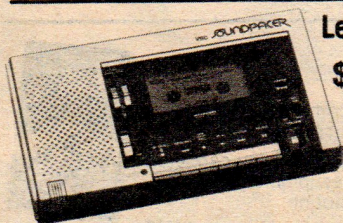
**Proven self-instruction methods** — using an effective text and three audio cassettes — teach you how to evaluate the benefits that a computer offers your business. Three appendices to the text reinforce course material.

**The course is divided into four concise, easy-to-understand parts** — which present computer concepts in business terms. Part 1 introduces you to The Computer and How It Works — covering different types of memory, input/output devices, storage media and applications software.

You'll learn how to organize a data processing department in Part 2, the Data Processing Department and Personnel. The third part covers Alternatives in Computer Services — including owning your own system, time-sharing arrangements and use of a computer service bureau; the final part shows you How To Select A Computer — by defining your data processing requirements.

**Earn 1 Continuing Education Unit (CEU) and a Certificate of Achievement:** Pass the optional final examination with a 70% score.

**EC-1103, Shpg. wt. 5 lbs. .... 49.95**



**\$199<sup>95</sup>**

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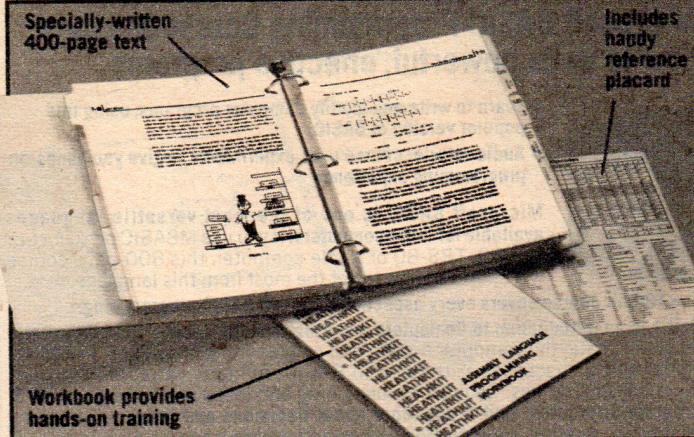
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**Teaching method:** The workbook reinforces the programmed-instruction text with interesting visual illustrations and hands-on programming experience.

**Learning aids:** The workbook provides hands-on programming experience — with optional experiments you can perform on your computer. In addition to the workbook experiments, the course includes a special reference card which lists all 244 Assembly Language instructions — as well as a complete ASCII code chart.

**Hardware recommendations:** Use with 8080/8085-based microcomputers which use standard Intel 8080 mnemonics (including the H-8, H/Z-89, Z-90 and H/Z-100). To perform the experiments, you must have access to a computer.

**Earn 6 CEUs:** Pass the optional final examination with a 70% score.

**EC-1108, Shpg. wt. 7 lbs. .... 49.95**

### Microcomputing Course explains computers

**\$39<sup>95</sup>**



- Learn how a microcomputer can help you
- Explains microcomputers in everyday terms, so little technical knowledge is required
- Self-instruction text, cassettes for effective learning

**Here's your chance to learn the basics of microcomputers and BASIC Language programming** — even if you have no prior technical background. The award-winning Heathkit/Zenith Microcomputing Course shows you how to determine if your particular problem can be solved by a computer. You'll cut through technical terminology and understand what a computer can do — in easy-to-understand terms.

**No extensive math, electronics or computer background**

**needed:** The effective audio-tutorial teaching format — featuring a self-instruction text and two cassettes, lets you see and hear each concept.

**Five easy-to-understand units explain different parts of the computer system:** In the first unit, Computers and Data, you'll find out how to apply the capabilities of a computer to your specific problems. Unit 2, Hardware, shows you how to compare computers — by understanding how each performs.

Systems and Interfacing, the third unit, teaches how to evaluate small computer systems by understanding how different system components work together. You'll learn how to choose software programs that solve your problems in Unit 4, Software. The last unit, BASIC Language Programming, teaches you how to write short computer programs — using popular BASIC.

**Earn 1 CEU:** Pass the optional final examination with a 70% score.

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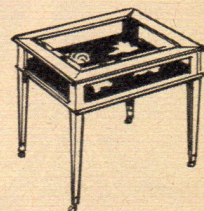
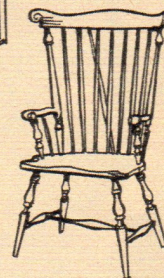
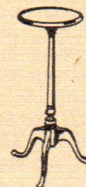
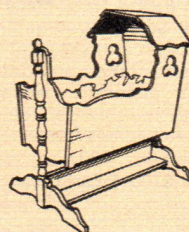
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**AUTOMOTIVE:** cruise control, courses, garage door opener, speedometer, tachometer, tune-up equipment, wiper delay ..... 21-24

**CLOCKS:** digital clocks ..... 6-7

**COMPUTERS:** accessories, courses, hardware, peripherals, software ..... 66-80

**EDUCATION:** amateur radio, 14-15; automotive, 24; classroom courses, 43; computers, 78-80; electronics, 29-43; microprocessors, 35-39; self-instruction courses, 4, 14-15, 24, 29-42, 78-80; test equipment, 34; weather ..... 4

**ENERGY:** log splitter, portable power system, power factor controller, thermostat, solar electricity, solar water heater ..... 25-28

**GENERAL INFORMATION:** Heath Revolving Charge, ordering information, warranties ..... 48-49

**HEATHKIT ELECTRONIC CENTERS\*** ..... 57

**HOME PRODUCTS:** air cleaners, 28; BSR X-10 home controller, 82; digital scale, 45; garage door opener, 23; intercom, 44; light switches, 7; radios, 7; telephone, 81; setback thermostat, 28; solar electricity generation system and solar domestic water heater ..... 26-27

**INSTRUMENTS:** chart recorders, frequency counters, generators, meters, oscilloscopes, probes, supplies, testers ..... 51-65

**MARINE:** power inverter, 25; depth sounders, fish locators, speedometer ..... 46-47

**NAME PLATE** ..... 46

**NEW PRODUCTS:** digital humidity meter, 2; high-frequency single sideband (SSB) and computerized multi-band amateur radio transceivers, 8-11; HERO 1 personal robot and Heathkit/Zenith robotics course, 30-31; 6809 microprocessor self-instruction course, 38; 6809 microprocessor classroom course, 43; magnifier lamp, 50; Z-100 Series 16-bit computers, accessories and software, 66-67; telephone demon dialer, 81; 19" color TV kit, 91; deluxe 25" color TV kit, 92-93; video organizer ..... 94

**ORDERING INFORMATION** ..... 48-49

**PHOTOGRAPHY:** darkroom timer ..... 44

**SATELLITE TV:** earth station ..... 95

**SECURITY:** alarms, timers ..... 82-83

**STARTER KITS:** burglar alarm, 82; ceiling fan, 25; clocks, 6-7; doorbell, 45; freezer alarm, 7; frequency counter, 59; lamp switches, 7; log splitter, 25; portable light, 7; radio, 7; timing lights, 23; ultrasonic cleaner, 44; portable VOM ..... 51

**STEREO HIGH FIDELITY:** amplifiers, receivers, speakers, tuners, turntables ..... 85-90

**TELEVISION:** computerized and portable TVs, projection TV, satellite earth station, video tape recorder ..... 91-95

**TOOLS:** soldering irons, tools ..... 50

**WEATHER:** computerized weather station, barometer, barograph, humidity meter, thermometer, rain gauge, wind computer, weather course ..... 2-5

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HERO 1 robot and robotics course, pgs. 30-31

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Deluxe 26" diagonal color TV kit, pgs. 92-93

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