HEATHKIT
MAIL ORDER CATALOG 840

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Welcome To Personal Computing

A brief introduction to personal computing and the full line of computers and peripherals from Heath

An Exciting New Hobby: Personal computing is the use of low cost microcomputers for hobby and leisure time activities. It's one of the most exciting and interesting new hobbies to come along in some time. And it's an activity that can provide you with challenges that are limited only by the scope of your imagination and are broadened by the technology of tomorrow. Why not give it a try? Computers aren't mysterious, they're simply tools, and you can learn about them much easier than you ever imagined.

The Computer In Your Home: Your personal computer is more than just a piece of hobby equipment. It can also be very practical. It's a device that can not only give you uncounted hours of recreation but can also manage a wide variety of personal data processing, storage and retrieval applications. Program it to maintain your checkbook, keep track of savings, investments, taxes, budget planning, etc. Use it in your home for awhile and you'll find hundreds of practical applications for it!

H8 Floppy Disk System — The one you've been waiting for!

- 102K Bytes of available storage area per disk
- Expandable to dual-drive operation
- Fully Assembled and Factory Tested

Heath's exciting new WH17 floppy is a disk system which offers the H8 owner the ultimate in system sophistication! It stores hundreds of programs on a single disk — loads them in seconds instead of minutes, lets you create and update files virtually instantly, is far faster than paper tape or cassettes, and is priced to be affordable!

Designed exclusively for use with the H8, the WH17 has been "systems" engineered to deliver a fully assembled package including: a disk drive, an interface/disk controller circuit board, and built in power supply. The controller circuit board plugs directly into the H8's mainframe and with the addition of an optional secondary drive you'll have optimum dual-drive versatility!

Storage media for the WH17 is the standard, hard-sectored, 40-track diskette. Just 5.25" in diameter, each disk offers its user access to better than 102K bytes of available program and data storage area! Because accurate high-speed data access was a number one design priority, the selection of WANGCO's model 82 drive, for use in the WH17, was a natural one!

Supplied fully assembled and tested, the model 82's rugged professional appearance is backed by extremely reliable mechanical and electrical operation and underscored by a conservative 30 millisecond track seek specification, and typical random sector access times of less than 250 milliseconds (figures considerably better than those of many equivalent competitive drives).

WH17, Fully Assembled, Shpg. wt. 28 lbs. 675.00
H17-1, Optional Second Drive, Shpg. wt. 4 lbs. 295.00
H17-2, Diskette, Shpg. wt. 1 lb. (Pkg. of 5 Disks) 25.00

The H8-17 is the operating system software for the H8/H17 system. This software includes the Heath Disk operating system (HDOS), with its unique diagnostic for unit evaluation and optimization; the BUG-8 console debugger; TED-8, our powerful text editor; HASL-8 assembly language; and extended Benton Harbor BASIC. With extra diskette.

H8-17, Shpg. wt. 2 lbs. Introductory Price 100.00


DUAL-DRIVE COMBO OFFER — SAVE $95.00! WH17 Floppy Disk, H17-1 Second Drive and H8-17 Operating System. If purchased separately, $1070.00.

WH17, Shpg. wt. 34 lbs. 975.00

SINGLE-DRIVE COMBO OFFER — SAVE $80.00. WH17 Floppy Disk plus H8-17 Operating System. If purchased separately, $775.00.

WH17, Shpg. wt. 30 lbs. 695.00

NOTE: H8 requires 16K of RAM to use WH17 and operating system.

Rugged, fully-assembled, WANGCO model 82 disk drive unit!

Clean, open, interior layout provides maximum cooling for drives and optimum mounting location for the built-in power supply!
THE HEATHKIT H8 COMPUTER

The powerful, easy-to-use personal computer with the "intelligent" front panel featuring octal entry keyboard and digital readout — plus a fully wired and tested 8080A CPU and system software (BASIC, assembler, editor and debug) at no extra cost!

$375.00 Kit

Requires at least one H8 memory board to operate

Memory and I/O Accessories

To round out your H8, you will need both memory and interface accessory cards. The H8 will not operate without at least 4K of optional memory. Neither can it communicate with a terminal or a mass storage device without some interface capability. The type and number of memory and interface accessories that you need for the H8 will be determined by your particular applications.

The memory and I/O accessories are offered separately so that you have complete freedom in configuring the H8 into a system to meet your needs.

Listed below are the available memory and I/O accessories for the H8:

H8-1 Memory Board. 8Kx8 memory card supplied with 4K memory, plugs directly into H8 bus. Features maximum storage capacity of 8192 8-bit words. Uses modern 4Kx1 static memory IC chips for easy assembly and service. Access time, less than 450 nS. With on-board regulators, heat sinks and full buffering. Expandable to 8K memory with H3-5 chip set below.

Kit H8-1, Shpg. wt. 2 lbs. .......................... 125.00

H8-3 Chip Set. Kit of eight 4K static memory IC's. Expands H8-1 to full 8K storage. With sockets. Kit H8-3, Shpg. wt. 1 lb. .................. 65.00

H8-2 Parallel Interface. Connects H8 to any parallel device such as a paper tape reader/punch (required for H10, page 95). Has three independent parallel ports, each with 8 bits input and 8 bits output and universal handshaking capability. Compatible with all Heath software. 390 mS maximum transfer time. Kit H8-2, Shpg. wt. 3 lbs. .......................... 150.00

H8-5 Serial I/O and Cassette Interface. Connects the H8 to serial devices such as the H9 video terminal (page 94) or the H36 DEC Writer II (page 96). Features jumper selectable data rate from 110 to 9600 baud, plus common input/output interfaces including 20 mA current loop and EIA RS-232C compatible levels. The cassette recorder interface permits use with the Heathkit ECP-3801, page 96. Uses the popular Byte/Manchester recording format but runs at 1200 baud. Has control lines for remote start and stop of two cassette units to allow separate record and playback capability, LED test circuit for easy setup servicing. Kit H8-5, Shpg. wt. 3 lbs. .......................... 110.00

NOTE: Proper operation of the H8-5 is assured only if you use the Heath ECP-3801 cassette player/recorder and Heath-recommended recording tape (ECP-3802, page 96). Heath is not responsible for improper operation associated with other cassette units.

Extended Benton Harbor BASIC With Files: An enhanced and more powerful version of the BASIC supplied with the H8 (see next page for description). It provides even faster operation and includes character strings, additional convenience commands and math functions, dynamic storage allocation, access to real time clock, keyboard interrupt processing, expanded error messages and recovery ability, LED display control and key pad support. Complete files capability lets you store and retrieve data records and programs. Minimum of 12K memory is required to run this BASIC. 16K is preferred if full use is to be made of its capabilities.

HCB-13 (1200 baud audio cassette) Shpg. wt. 1 lb. .......................... 20.00

Paper Tape Systems Software: A paper tape version of the systems software supplied with the H8. Four fan fold paper tapes. H8-15, Shpg. wt. 1 lb. 20.00

Extended Benton Harbor BASIC in paper tape form: Similar to HCB-13 above but without files. H8-14, Shpg. wt. 00 lbs. .......................... 10.00

NOTE: See page 98 for more H8 software, reference books and our BASIC programming course.
The H8 software is the “heart” of your computer system

The software supplied with the H8 computer has a number of features that make it easier to use and more practical than other systems. Automatic “command completion” simplifies typing; dynamic syntax checking instantly alerts you to errors and a special user configuration lets you really personalize your system. H8 software is memory efficient to give you more computing power for your memory dollar, has modular design for easy expansion, and is thoroughly documented for easy programming and maximum effectiveness.

How to Configure Your H8 System

Because of the great flexibility of the H8 and its ease of expansion, there are many ways to configure it. You can start with the H8 and a single 4K memory card (H8-1). That will give you the minimum workable system. Or you can purchase your H8 with full expansion capability — complete with four 8K cards (H8-1 with H8-3 chip set) and a variety of I/O interfaces. The choice is up to you. Below are listed the most popular configurations and the ones of most value to you.

8080A Trainer. The simplest H8 computer configuration is the H8 mainframe plus a single 4K memory card H8-1. Because the H8 front panel is in itself the complete input/output device, you can begin using your H8 immediately. This simple configuration makes an ideal microprocessor trainer for schools or self instruction.

Buy a complete computer system and SAVE!

You can choose a complete computer system consisting of the H8 computer, one major peripheral, plus memory and accessories, and deduct 5% from the purchase price (excluding shipping and handling charges). Choose one of the Heath-recommended systems below (which already have the discount calculated for you), or system components you select!

Minimum Complete System. The minimum recommended H8 system includes H8 computer, one H8-1 4K memory, H8-3 4K Chip Set, H8-5 Serial I/O and Cassette Interface, H9 Video Terminal and ECP-3801 Cassette Recorder/Player. This system allows you to use all of the supplied system software. If purchased separately, $1515.00. SPECIAL SYSTEM PRICE . . . . . $1250.75.

Recommended System. A deluxe H8 system, including H8 computer, two H8-1 4K Memories, two H8-3 Chip Sets, H8-5 Serial I/O and Cassette Interface, H9 Video Terminal, ECP-3801 Cassette Player/Recorder and H8-13 Extended BASIC in Cassette Form. If purchased separately, $3050.00. SPECIAL SYSTEM PRICE . . . . . $1350.00.

HM-800 Manual Set. Here’s your chance to LOOK before you buy, and with no risk! Includes complete assembly and operations manuals for the H8, H8-1, H8-2, H8-3, H8-5, H9 and H10. The complete H8 software documentation is also included! All in a handsome 3-ring binder. You can deduct the price of the manual set when you buy your H8.

HM-800, Shpg. wt. 11 lbs. .................. 25.00
THE HEATHKIT/DEC H11 COMPUTER

Two of the finest names in modern electronics, Heath and Digital Equipment Corporation (DEC) combine to bring you one of the world's first 16-bit computers priced within reach of the general public! Equivalent commercial versions of this powerful computer would cost $1000's of dollars more!

The H11 is Heath's top-of-the-line computer, designed for the serious computer hobbyist. It is the world's most powerful hobby computer. It offers the advanced hobbyist the power and potential to implement more sophisticated applications. Most hobbyists discover that their problem solving and programming capabilities grow quickly as they learn more about the computer. Before long, many advanced hobbyists simply run out of computing power. Their small low cost system may be inadequate to produce the performance required by some advanced applications. The H11 is the computer that meets the demand for superior performance in hobby, small business and educational applications. When you buy the H11 you buy virtually unlimited potential.

The Heathkit H11 is virtually identical to DEC's famous PDP-11/03 microcomputer. In addition, complete software is supplied with the H11. This software is worth over $1,000 when purchased separately for the DEC PDP-11/03. The H11 is clearly a spectacular hardware/software value.

The basic H11 computer is supplied with an attractively styled cabinet, a heavy-duty power supply, a backplane incorporating DEC's famous LSI-11 or Q Bus and the powerful KD11F CPU board fully assembled and tested. This board contains the LSI-11 computer and 4K dynamic RAM. Complete systems software is also supplied in paper tape form. To this mainframe you will need to add the various memory and I/O accessories that will configure your H11 to your specifications. The H11 backplane with the KD11F board in place contains 6 plug-in slots for memory and I/O boards (described below). Rugged metal cabinet with high-impact plastic sides measures 19" W x 6½" H x 17½" D. For 110/220 VAC, 50/60 Hz.

Kit H11, Shpg. wt. 34 lbs. .......................... 1295.00
WH11, Assembled version of above. Shpg. wt. 34 lbs. .......................... 1595.00

H11-1 4K Memory Expansion Module: Plugs into H11 backplane, adds 4K x 16-bit word capacity to H11 memory. Use high-reliability 1Kx4 static MOS RAM chips. Access time is less than 500 ns. Has decode circuitry for operation on 4K address boundaries. Handle for easy removal and insertion.

Kit H11-1, Shpg. wt. 2 lbs. .......................... 225.00
WH11-1, Assembled version of above, 2 lbs. .......................... 275.00

NOTE: DEC, DIGITAL, FOCAL AND PDP ARE REGISTERED TRADEMARKS OF DIGITAL EQUIPMENT CORPORATION.

H11-2 Parallel Interface. General-purpose parallel interface featuring 16 diode-clamped latched data input lines, 16 latched output lines, 16-bit word or 8-bit byte data transfers. Has LSI-11 bus interface and control logic for interrupt processing and vectored addressing; control status registers compatible with PDP-11 software routines. Four control lines for output data ready, output data accepted, input data ready and input data accepted logic operations. Maximum data transfer rate, 90K words per second under program control. Maximum drive capability, 25-ft. cable.

The H11-2 is required for interfacing the H11 to the H10 Paper Tape Reader/Punch.

Kit H11-2, Shpg. wt. 2 lbs. .................................. 95.00
WH11-2, Assembled version of above, 2 lbs. .................................. 150.00

H11-5 Serial Interface: Universal asynchronous receiver/transmitter serial interface module for use between LSI-11 bus and serial devices such as the Heathkit H9 video terminal (page 94) or LA36 teleprinter (page 96). Has optically isolated 20 mA current loop and EIA interfaces; selectable baud rates of 50 to 9600. With all mating connectors.

Kit H11-5, Shpg. wt. 2 lbs. .......................... 95.00
WH11-5, Assembled version of above, 2 lbs. .................................. 150.00

H11-6 Extended Arithmetic Chip: Adds powerful arithmetic instructions to the LSI-11, including fixed point multiply, divide and extended shifts plus full floating point add, subtract, multiply and divide. Helps minimize arithmetic sub-routines, speeds up program execution and eases program development. Saves memory space too. 40-pin dual-inline package IC plugs into socket on H11 CPU board.

H11-6, Shpg. wt. 1 lb. .................................. 159.00


HM-1100 Manual Set, Shpg. wt. 12 lbs. .................................. 25.00

NOTE: The price of the manual set can be deducted when you order an H11. Manuals are included with each kit.
Configuring Your H11 System

The basic H11 mainframe contains CPU, 4K of memory and power supply. To use the H11, additional memory and I/O interfaces must be added. The minimum configuration consists of an H11-5 serial interface to an external video or hard copy terminal. The H11-2 parallel interface is required to connect the H11 to the H10 paper tape reader/punch. These two interface cards occupy two of the available 6 slots in the back plane. This leaves four additional slots for memory expansion. Using the H11-1 4K memory card, 16K of memory can be added. Combined with the 4K of memory on the KD11F board, this permits a maximum of 20K of RAM. With 4K of memory you can write simple programs in machine language. The FOCAL interpreter also runs in 4K. To run the other computer software, including BASIC, assembler, editor and others, at least 8K of memory is required. 12K to 16K of memory is recommended depending upon your applications.

H11 software includes:
ED-11. Assists you in the creation and modification of ASCII source tapes, also used to write assembly language programs and for general text editing or word processing.

PAL-11S. Relocatable assembler converts ASCII source tapes into relocatable binary modules. This lets you create programs in small, modular segments for easier coding and debugging.

LINK-11S. Link editor which links the modules created by the PAL-11S into a load module ready for execution on the H-11. The module is loaded into the H-11 via the Absolute Loader.

Absolute Loader. Loads tapes into the H11 memory for execution.

IOX. I/O executive program permits I/O programming without developing device-driving programs. Links to your programs using the LINK-11S. For use with high speed paper tape reader/punch and line printer.

DUMP-AB and DUMP-R. Lets you dump binary contents of memory to the paper tape punch.

BASIC. DEC's powerful version of standard Dartmouth BASIC interpreter uses English-type statements and mathematical symbols to perform operations. Immediately translates, stores and executes the program. Includes string capability.

FOCAL™. DEC's own interpretive computer language which combines simplicity with computing power. Ideal for most scientific, engineering and math applications. FOCAL™ programs can be written and executed easily. Both 4K and 8K versions are included.

Buy a complete H11 system and SAVE! You can choose a complete computer system consisting of the H11 computer, one major peripheral, plus memory and accessories, and deduct 5% from the total price (excluding shipping and handling charges). See the Heath recommended systems below or "roll your own" with components YOU select!

H11 System One: The minimum recommended H11 System. Includes H11 Computer, H11-1 4K Memory (for a total of 8K memory), H11-2 Parallel Interface, H11-6 Serial Interface, H9 Video Terminal and H10 Paper Tape Reader/Punch. If purchased separately, $2590.00. Heath System Price is $2460.00.

H11 SPECIAL SYSTEM OFFER! A deluxe H11 system discounted even MORE than 5% to really save you money! Consists of H11 Computer, H11-1 4K Memory (for a total of 8K memory), H11-2 Parallel Interface, H11-5 Serial Interface, H10 Paper Tape Reader/Punch and H36 LA36 DEC Writer II. If purchased separately, $3555.00. You save $255! Special System Price is $3300.00

HS-11 Computer System, Shpg. wt. 78 lbs. $3300.00

HEATH/DEC Software License Agreement:
This form MUST accompany your H11 computer order

CUSTOMER SUBLICENSE GRANT
HEATH COMPANY (hereinafter referred to as HEATH) pursuant to a license agreement with Digital Equipment Corporation (hereinafter referred to as DIGITAL) does hereby grant to CUSTOMER a non-transferable and non-exclusive sublicense to use the Binary Software Program(s) PTSP-11 Paper Tape System, FOCAL/PTS Language Processor, BASIC/PTS Language Processor (hereinafter singularly and/or collectively referred to as "Software") on the following terms and conditions.

Software is furnished to CUSTOMER for use on a single CPU only and may be modified, or copied (with the inclusion of DIGITAL's copyright notice) only for use on such CPU. The CUSTOMER shall not provide or otherwise make available the Software or any portion thereof in any form to any third party without the prior approval of DIGITAL. Title to the ownership of the Software shall at all times remain with DIGITAL.
THE HEATHKIT H9 VIDEO TERMINAL

$530.00

The H9 video terminal is a general-purpose peripheral designed for use with the Heathkit H8 or H11 computers. It provides keyboard input and a CRT for the convenient entry and display of computer programs and data. It can be used with any computer in dedicated stand-alone applications or in time-sharing systems.

Character format is standard upper case 5x7 dot matrix. The long form display is twelve 80-character lines. The short form display is forty-eight 20-character lines in four 12-line columns. An automatic line carry over feature executes line feed and return when line exceeds character count on both long and short-form displays. A built-in oscillator/speaker generates a 4800 Hz tone and serves as audible end-of-line warning.

Auto-Scrolling is featured in both long and short-form. In the long form, as the line enters at bottom, the top line scrolls off screen; in the short form, as the column enters from the right, the left column scrolls off screen. Auto-scrolling can be defeated with a front panel switch. The cursor mark indicates the next character to be typed for accurate positioning. Cursor controls include up, down, left, right and home. Serial data baud rates are selectable from 110-9600 Baud rate clock output and reader control are available on the rear panel connector.

The erase mode permits automatic full page erase or erase to end of line starting at cursor position. A transmit page function allows a full page to be formatted, edited and modified, then transmitted as a block of continuous data.

The plot mode permits graphs, curves and simple figures to be displayed. Plotting can be accomplished via the front panel keyboard or from external inputs.

The H9 serial interface provides EIA RS-232C levels, a 20 mA current loop and standard TTL levels. Parallel interfacing includes standard TTL levels, 8 bits input and 8 bits output and 4 handshake lines for connection to H10.

Ultra-compact size, only 12½" H x 15½" W x 2½" D, makes the H8 ideal for desktop or console applications. For 110 VAC, 60 Hz or 230 VAC, 50 Hz.

Kit H9, Shpg. wt. 50 lbs. .......... 530.00

Full ASCII 67-Key Keyboard
Function keys are positioned away from keyboard to prevent miskeying.
Typewriter keyboard for easy, more accurate input.
Wide, easy-to-use space bar aids accurate typing.

THE HEATHKIT H10
PAPER TAPE READER/PUNCH

$350.00

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HEATH COMPANY
By

CUSTOMER
By

Customer's Signature
A general-purpose mass storage peripheral designed for use with the H8 and H11 computers plus any other computer. Features a heavy-duty built-in power supply, totally independent punch and reader and a copy mode for fast, easy tape duplication.

- Solid-state reader with stepper motor
- Precise ratchet/solenoid drive for high accuracy and consistent punching
- Totally independent punch and reader
- Copy mode for easy tape duplication
- Heavy-Duty Built-in power supply
- For Heathkit H8 and H11 computers, others too
- Styling matches H8 and H11 computers for total system design
- Includes 24-pin interface connector and mating cable

The H10 paper-tape reader/punch is a general-purpose mass storage peripheral using reliable low-cost paper tape. It's fully compatible and styled to match the H8 and H11 computers, and it works reliably with any other computer through a parallel interface. The H10 uses standard 1" wide roll or fanfold 8-level paper tape. Standard punched paper tape gives you the reliability, durability and trouble-free handling you need for effective mass storage of programs and data.

The reader reads tape up to a maximum rate of 50 characters per second. A full sensitivity adjustment on each channel permits any color, thickness, quality (oiled or unolled) paper tape to be used. Sensitive Darlington photo transistors and an incandescent lamp reader head provide reliable reading. The powerful stepper motor drive insures accurate tape positioning and movement.

The punch operates up to maximum speed of 10 characters per second. Ratchet/solenoid drive and solenoid control of punches provide accurate and consistent punching.

Controls include power on-off, read and punch start. A feed control feeds blank tape through the punch for leader tape, a copy control provides fast, easy tape duplication.

Interfacing is provided by separate 8-bit parallel input and output buses with TTL logic levels and handshaking lines for both reader and punch. A rear panel 24-pin interface connector and mating cable are supplied.

Accessories include holder for roll paper tape, chad collector tray and collector box for fan-fold tape, 8" roll 900 ft. blank paper tape. Cabinet with metal top and steel chassis, 12½" H x 9¾" W x 19½" D. For 110-130 VAC, 60 Hz or 220-240 VAC, 50 Hz.

Kit H10, Shpg. wt. 29 lbs. .......... 350.00
Three Rolls Blank paper tape, each 8" diameter, 900-ft. min.
H10-2, Shpg. wt. 5 lbs. ............. 10.00
Three Boxes Fan-Fold Tape. Approx. 1000 ft. each.
H10-3, Shpg. wt. 5 lbs. .......... 15.00
LA36 DEC Writer II Printer Terminal

SATIONAL LOW MAIL-ORDER PRICE

$1495.00

Fully Assembled!
Prepaid Shipment!

The LA36 is an advanced technology teleprinter offering fast, reliable operation at one of the best price/performance ratios in the industry. It features a 7x7 dot matrix print head for crisp, character formation; switch selectable 10, 15 and 30 cps printing speeds; variable width forms handling from 3" to 14½" wide; adjustable left and right hand tractors for precise margin positioning; half or full duplex operation; ANSI-standard multi-key rollover and a typewriter-like keyboard.

Handles up to 6-part forms with a .020" maximum pack thickness. Print format is 132-column, with 10 characters per inch horizontal spacing and 6 lines per inch vertical spacing. Uses the entire 128 character ASCII upper/lower case set with 96 printable characters. A CAPS-lock key simplifies data entry. A parity check on output prints a replacement character, strappable to odd, even or none with mark or space. Also has last-character visibility feature.

The integral 20 mA current loop interface makes the LA36 compatible with both the H8 and H11 computers, as well as most other hobby and personal computers. With connecting cable and integral stand for easy setup. Overall size, 27½" W x 33¼" H x 24" D.

The H36 (LA36 DEC WRITER II) is shipped Motor Freight, prepaid to your nearest terminal within the Continental U.S. Include your phone number on order for notification of arrival. Arrangements for home delivery may be made at no extra charge in most cases. NO C.O.D. ORDERS ACCEPTED.

H36 DEC Writer II, For 120 VAC, 60 Hz. .......... 1495.00
H36J DEC Writer II, For 220 VAC, 50 Hz. .......... 1495.00

Fully Assembled Cassette Recorder/Player

Mass Storage Peripheral

Heath-recommended cassette recorder for use with H8 computer and H8-5 serial I/O and cassette interface. Provides complete mass storage capability on easy-to-handle standard cassettes. Assembled and tested, not a kit.

ECP-3801, Shpg. wt. 4 lbs. ....................... 60.00

Heath-recommended high output, low noise, premium-grade audio recording tape. Pack of three 30-min. cassettes.

ECP-3802, Shpg. wt. 1 lb. ....................... per pack 6.00

NOTE: Proper operation of the H8-5 and H8 software is assured only with the use of the ECP-3801 cassette recorder/player and ECP-3802 tape. Heath does not assume responsibility for improper operation resulting from the use of other cassette units.

H11 FLOPPY DISK SYSTEM — COMING SOON!


HUG — The Heath User’s Group

Get even more fun and excitement from your personal computer by joining the Heath User’s Group (HUG). The group provides a newsletter, program library and puts you in contact with other Heath computer owners. Details are included with each computer and peripheral. H11 computer owners are also eligible for DECUS, the Digital Equipment Computer User’s Society.
Microprocessor Course and Computer Trainer

If you're involved in scientific or electronic pursuits, microprocessors are becoming a way of life and a dominant factor in your success or failure. The EE-3401/ET-3400 course and accompanying trainer is the way to learn microprocessor operation and application techniques. EE-3401 uses proven self-instructional techniques to teach programming, interfacing and related topics. The ET-3400 Trainer provides the ideal platform for experimentation and later, your own prototyping and design. This is a learn-package you can't afford to miss.

1. Learn Microprocessor Operation, Application and Interfacing

$89.95

Covers microprocessor basics, computer arithmetic, programming, interfacing and much more, requires knowledge of electronics equivalent to Heath's Digital Techniques Course.

Using Heath's proven self-instructional techniques, EE-3401 adopts a three-phase approach to guide you, step-by-step, through the complexities and power of machine language programming, hardware I/O interfacing and microprocessor theory and design applications. The first section, presented in 8 lessons, utilizes concise self-study texts to cover: Number systems and codes, micro-computer basics, computer arithmetic, introduction to programming, the 6800 microprocessor (part I), the 6800 microprocessor (part II), interfacing the microprocessor, (part I), and interfacing the microprocessor (part II). Colorful audio and visual presentations are combined in the second section, six lessons to further enhance your knowledge of such subjects as programming, designing with microprocessors and semiconductor memories. The third section of EE-3401 provides 19 informative experiments through which valuable "hands-on" experience is gained. The ET-3400 Trainer is utilized and experiments are divided into programming and interfacing applications. Experiments cover program branches, address decoding, arithmetic and logic instructions and introduction to the peripheral interface adaptor and much more. EE-3401 comes complete with 62 electronic components including two 2112 256x4 RAM's, 6820 PIA interface chip, 1406 digital-to-analog converter, 741 and 301 op amps, and a variety of other microprocessor oriented devices. No additional components are necessary to carry out the experiments provided with this program. Upon passing the optional final exam (passing grade 70%) you will receive a Certificate of Achievement and 8.0 CEU's.

Course EE-3401, Shpg. wt. 10 lbs. ............................ 89.95

Save $9.95

$269.95

If purchased separately, $279.90

SAVE when you order the Microprocessor Course with the ET-3400 Microprocessor Trainer. ETS-3400, Course and Trainer Together, Shpg. wt. 16 lbs. ............................ 269.95

2. Digital Microprocessor trainer for experimentation and design

$189.95

Use with Course EE-3401 for an up-to-date computer education.

Functioning as a miniature digital computer, the ET-3400 Microprocessor Trainer has been designed to compliment your EE-3401 Microprocessor Course and provide an ideal platform upon which you may easily and enjoyably expand your knowledge of microprocessor programming and interfacing techniques. In addition, the ET-3400 provides you with plenty of breadboarding capability for experimentation, prototyping and system design.

The ET-3400 is based on the popular 6800 microprocessor and key features include: 1. A built-in 1k ROM monitor program for controlling unit operation. 2. 6 digit hexadecimal 7 segment LED display for address and data readout. 3. 17 key hexadecimal keyboard for entering programs, data and control of the unit. 4. 256 bytes of random access memory (RAM), expandable to 512 bytes with RAM's supplied in course. 5. Breadboarding socket for prototyping, interfacing and memory circuits. 6. 8 buffered binary LEDs for display of breadboard logic states. 7. 8 SPST DIP switches for binary input to breadboarded circuits. 8. +5, +12 and -12 VDC power supply outputs. 9. All microprocessor address, data, and control busses buffered and terminated on the front panel for ease of connection to prototyped circuits. 10. Provision for a 40 pin external connector for extending memory and I/O capability.

Trainer Kit ET-3400, Shpg. wt. 6 lbs. ............................ 189.95
HEATHKIT SELF-INSTRUCTIONAL COMPUTER COURSE

This Heathkit self-instructional course is designed to help you get the most from your computer investment, whether you buy your computer hardware from Heath or anywhere else. While many predeveloped software programs are available, the only way to realize the full value of your personal computer is to learn programming yourself. This course uses the PROVEN Heathkit individual learning techniques to give you a thorough understanding of programming, even if you have no prior knowledge or experience. It will show you exactly how to make your personal computer system really personal!

BASIC PROGRAMMING SELF-INSTRUCTIONAL COURSE

This course teaches you how to program your computer using the popular BASIC language. BASIC (Beginner’s All-Purpose Symbolic Instruction Code) is essential for hobby and personal computing; it is also widely used in education and business. The course covers all formats, commands, statements and procedures plus the creative aspects of computer programming, so you can make practical use of it in solving problems and creating your own unique programs. Like other Heathkit self-instructional courses, it uses programmed instructions backed by practical hands-on computer experiments and demonstrations to reinforce and personalize the text material. An optional final exam (passing grade 70%) brings you a Certificate of Achievement and 3.0 Continuing Education Units.* While the BASIC course is keyed to Heathkit computers, it is also equally applicable to any computer system using BASIC.

EC-1100, Shpg. wt. 6 lbs. .............. 29.95

*Continuing Education Units (CEUs) are nationally recognized means of acknowledging participation in non-credit adult education.

COMPLETE COMPUTER LIBRARY

Microcomputer Dictionary and Guide (Matrix), Definitions and basic info on computers and related topics. EDP-218 ........ 17.95

Introduction to Microcomputers Vol. I. (Osborne). EDP-224 ........ 15.00

Introduction to Microcomputers Vol. II. (Osborne). Complete descriptions of all popular microprocessors. EDP-225 ........ 15.00

How to Buy and Use Minicomputers (Same). A fundamental text on operation. EDP-227 ........ 9.95

TV Typewriter Cookbook (Same). Good text explaining I/O terminals, interfacing, etc. EDP-226 ........ 9.95

Bugbook III (EAL). Superior reference source on 8080 interfacing and programming. Includes experiments. EDP-231 ........ 15.00

Bugbook II (EAL). Serial I/O concepts and terminal interfacing. EDP-232 ........ 5.00

6080 Programming for Logic Design (Osborne). EDP-229 ........ 7.50

6800 Software Gourmet and Cookbook (Scelbi). Excellent source for 6800 programs and subroutines. EDP-228 ........ 9.95


6800 Programming for Logic Design (Osborne). EDP-230 ........ 7.50

6800 Software Gourmet and Cookbook (Scelbi). Excellent source of commonly used 6800 programs. EDP-233 ........ 9.95

6800 Microprocessor Applications Manual (Motorola). Comprehensive review of typical 6800 applications. EDP-244 ........ 25.00

M6800 Program Reference Manual (Motorola). EDP-245 ........ 3.00


PDP-11 Programming (Algonquin). A programmed instruction text teaching operation and programming of the PDP-11. EDP-239 ........ 10.00

The Minicomputer in the Laboratory (Wiley). Operation, programming and applications of PDP-11 computers. EDP-246 ........ 19.50

Assembly Level Programming (Lexington). EDP-236 ........ 14.95

101 BASIC Computer Games (DEC). A classic. Have fun with your computer. EDP-237 ........ 7.50

BASIC Software Library, Vol. I. Complete lists of BASIC applications, bookkeeping games, pictures (graphics). EDP-240 ........ 24.95

BASIC Software Library, Vol. II. Math, engineering, plotting and statistical programs in BASIC. EDP-241 ........ 24.95

BASIC Software Library, Vol. III. Advanced business applications programs in BASIC. EDP-242 ........ 39.95

BASIC Software Library, Vol. IV. Games and business applications programs in BASIC. EDP-243 ........ 9.95

BASIC Software Library, Vol. V. Games, graphics, and useful math programs in BASIC. EDP-251 ........ 9.95

Minicomputers: Structure and Programming (Hayden). EDP-260 ........ 13.95

Some Common BASIC Programs (Osborne). EDP-255 ........ 7.50

Your Home Computer (Dymas). EDP-252 ........ 6.00


Vol. II. Software (Diliitium). EDP-254 ........ 6.95

How to Program Microcomputers (Same). EDP-256 ........ 8.95

APPLICATIONS SOFTWARE FOR YOUR H8

The H8 Digital Computer is supplied with complete systems software that provide you with everything you need to develop your own specific applications programs. However, you can make your computer immediately useful by using the programs below. These programs represent the beginning of a complete series of application software packages that will allow you to get immediate value from your computer system without a time consuming software development effort on your part. Described below are a series of game packages that make your computer an excellent source of entertainment and leisure time activities. These games are supplied on H8 compatible 1200 baud audio cassettes.

BIO RHYTHM. This popular applications program computes standard biorhythm information and plots sinusoidal curves of your physical, emotional, and intellectual characteristics over a given time period. The biorhythm program will show you your ups and downs and will tell you your good and bad days. It will help you plan your activities. While this program is not a game, it is an entertaining activity that you and your friends and family will enjoy. The program runs under extended BASIC and requires 16K of RAM.

PA-82, Shpg. wt. 1 lb. .............. 10.00

SPACE WAR. This is perhaps the most popular computer game available. It allows you to guide, control and command the Starship Enterprise in its travels through the galaxy, fighting Klingons and solving a variety of problems. A truly challenging, sophisticated and entertaining computer game. Requires 24K RAM.

PA-83, Shpg. wt. 1 lb. .............. 10.00

GAME SET #1. This software package lets you play 8 popular computer games. These games include Craps, Orbit, Tic Tac Toe, Nim, Hexapawn, Hangman, Hmradio, and Derby. 8K RAM or more is required. These games will provide hours of entertainment for you and your family.

PA-84, Shpg. wt. 1 lb. .............. 10.00