

# Heathkit®

SPRING-1978

## NEW, EXCITING KITS!

- ★ CASABLANCA FAN, pg. 104
- ★ IGNITION ANALYZER, pg. 40
- ★ BI-DIRECTIONAL WATTMETER  
pg. 70
- ★ DELUXE COINTRACKING  
METAL LOCATOR, pg. 2, 47



## PLUS

*nearly 400 fun-to-build, money-saving kits and assembled products*

- POWERFUL, INTEGRATED PERSONAL COMPUTER SYSTEMS • LOW-COST SELF INSTRUCTION ELECTRONICS COURSES
- PROGRAMMABLE COLOR TV • STEREO HI-FI
- QUALITY TEST INSTRUMENTS • AMATEUR RADIO GEAR • MARINE, AUTO AND R/C KITS

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**HEATHKIT MAIL ORDER CATALOG 820**



# Presenting Heathkit Computers—the Hardware/Software Systems you NEED to get up and running right!

The new value standard in personal computing systems featuring two powerful computers with exclusive Heath-designed software plus full documentation and service support

**Heath company** has been interested and involved in personal computing since we first marketed an analog computer system all the way back in 1957. This continuing interest, along with recent technological developments that have made personal computing systems a practical reality to the general public, has resulted in two "total design" computer systems that give you more power, performance and reliability for your computer dollar. The Heathkit computer systems give you everything you need to get up and running fast, with complete peripherals, I/O accessories, memory expansion and easy-to-use systems software, plus documentation that's the finest available anywhere.

**Total System Design!** The Heathkit computer line, both hardware and software, has been designed from the ground up to be a total computing system that meets the needs of both the beginning and advanced computer hobbyist. The two mainframes are based on performance-proven microcomputers, the 8080A and the LSI-11. These CPU's were chosen because of their world-famous performance, reliability and efficiency, and the tremendous amount of existing software, documentation and source materials that are available. The Heath-designed CRT terminal, paper tape reader/punch, and serial and parallel interfaces make total system setup fast and easy, and the Heath-designed software provided assures immediate usefulness and versatility.

**Superior Software!** Each Heathkit computer system is supplied with complete systems software to help you start writing your own programs right away. Software is the "heart" of any computer system, and because the Heathkit software has been designed specifically for the Heathkit hardware, you get a complete computer system of unparalleled efficiency, versatility and effectiveness!

**Superior Documentation!** Heath company is world-famous for the accuracy and clarity of its instruction manuals. The Heath computer line continues this well-deserved reputation. Assembly, operations and software manuals are written with easy-to-understand step-by-step instructions and full illustrations that leave nothing to chance or interpretation. Simply follow the instructions in the manual and you'll be up and running fast.

**Service and Support!** As in all Heathkit products, easy self-service and troubleshooting are definite benefits that can re-

sult in substantial cost-savings over the life of the product. These considerations, along with nationwide service and technical assistance at Heathkit Electronic Centers or the Heathkit factory, mean that you have the most reliable protection for your computer investment available anywhere.

**System Versatility!** Both Heathkit computers offer full expansion potential and adaptability to meet any application. Mass storage capability is available in both audio cassette and paper tape format on the H8 and in paper tape format on the H11. Additional memory expansion boards can be added to either unit, along with an expanding number of I/O devices.

**Continuing Development.** Heath will continue to design and develop new compatible products to make their computer systems even more valuable to you. Coming in the future will be — floppy disk storage, hard copy printer, additional memory and I/O interfaces and self-instructional courses in programming. All Heathkit computer users are eligible for HUG, the Heath User's Group. Heathkit H11 customers are also eligible to join DECUS™, the Digital Equipment Computer User's Society.

We're confident you'll find the Heathkit computer line one of the most intelligent, sensibly developed and complete product lines available today. It offers you total versatility and expansion capability to go wherever your imagination and programming prowess takes you. And, in the Heathkit tradition, it offers the best price/performance and reliability combination you'll find anywhere.

LOW COST TERMINAL WITH FULL 47 KEY ASCII KEYBOARD  
12" CRT DISPLAY USING A 101 DOT MATRIX  
12 FULL LENGTH 80 CHARACTER LINES  
SHORT FORM DISPLAY COVER 40 LINES OF 36 CHARACTERS  
PLOT MODE FOR QUICK AND EASY PLOTTING  
BOTH SERIAL AND PARALLEL INTERFACES  
BOTH TAPE SELECTABLE FROM 1/2 TO 5/8 INCH  
ON AND OFF, 80-4000 OR 750 LINES  
REROLLING, AUTOMATIC LINE FEED, CARTRIDGE RETURN,  
KEYBOARD CURSOR CONTROL, TONE OUTPUT FOR TELL CHARACTER,  
PAPER TRANSMIT PLUS MANY OTHER FEATURES ARE STANDARD.  
CAN BE USED WITH ANY DIGITAL COMPUTER.





# 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!

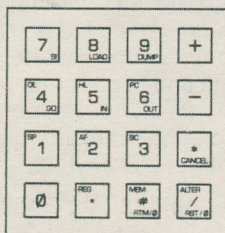
**\$375<sup>00</sup>**  
Kit

Requires at least one H8 memory board to operate

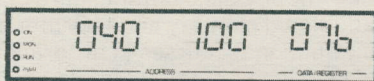
**6 EVENING KIT**  
Fast, Easy Assembly

The Heathkit H8 Computer is a powerful 8-bit machine based on the 8080A CPU. It's combination of unique features and low cost makes it an outstanding value among general purpose computers. Because of its expansion capabilities, it's a computer system you can stay with. Unlike many of the so-called low-priced "all-in-one" packaged systems, the H8 lets you add memory and peripherals to increase its power and versatility as you increase your programming prowess.

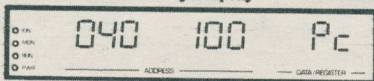
The 16-key front panel keyboard provides octal data entry giving you direct access to registers and memory, one-button program load and dump, and I/O keys for direct communication with any port. Because of this intelligent front panel, the H8 and a simple 4K of memory makes a ideal computer trainer.



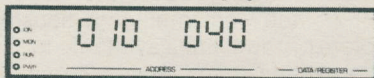
The 9-digit octal readout gives you far more information than conventional computers. Memory, register and I/O port displays are continuously updated even while your programs are executing for direct monitoring of program activity.



Memory Display



Register Display



I/O Port Display

Complete front panel functions include display and alter of memory locations, display and alter of registers, dynamic monitoring of memory locations or registers, program execution control, automatic tape load and store through a built-in routine that permits one-button program loading or dumping, and write or read any I/O port.

The H8 is supplied with complete systems software in 1200 baud audio cassette form to get you up and running fast. Benton Harbor BASIC, HASL-8 2-pass absolute assembler, TED-8 line-oriented text editor, and BUG-8 terminal console debug program let you begin communicating with the H8 right away. See next page for a rundown of this powerful software.



Complete systems software included!

Other features of the H8 include: exclusive Heath-designed 50-pin fully buffered bus; mother board with positions for up to 9 plug-in circuit boards that accept the CPU, front panel memory, I/O and other accessory cards; built-in convection cooled power supply; built-in speaker for audible feedback and special effects; front panel status lights and more. The CPU board is fully wired and tested for easy system setup and kit assembly. The H8 is housed in a heavy-duty metal cabinet with modern, high-impact structural foam side panels. 16 1/4" W x 6 1/2" H x 17" D. Switch-selected 120/240 VAC, 50/60 Hz. **Requires at least one H8-1 memory board to operate.**

Kit H8, Shpg. wt. 30 lbs. .... **375.00**



**SAVE!**

**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 H8-3 chip set below.

Kit H8-1, Shpg. wt. 2 lbs.  
Was 140.00 ..... **Now 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. .... **Was 95.00 Now 85.00**

**H8-2 Parallel Interface.** Connects H8 to any parallel device such as a paper tape reader/punch (required for H10, page 95 or line printer. 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. With diode-clamped inputs, buffered outputs and full interrupt capability.

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 for easy program or file editing. Also has full interrupt capability. LED test circuit for easy board setup and overall system servicing. Fully compatible with all Heath software.

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:** 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. A minimum of 12K memory is required to run this BASIC, 16K is preferred if full use is to be made of its capabilities.

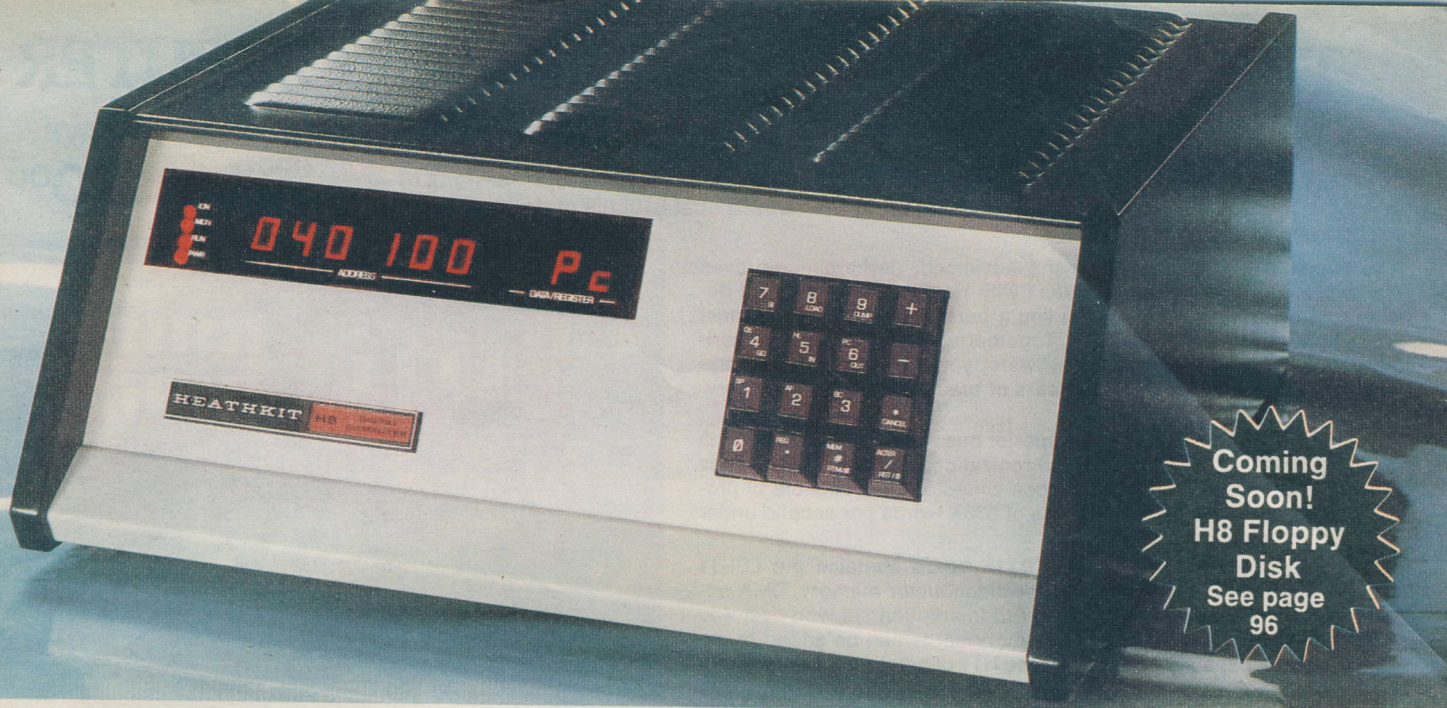
**HC-8-13** (1200 baud audio cassette). Includes file capabilities which allow saving data generated by BASIC programs to permit multiple programs to work on the same data base, or a single program to work on several data bases. Shpg. wt. 1 lb. .... **20.00**

**H8-14** (fan-fold paper tape) No file capability. 1 lb. .... **10.00**

**Paper Tape Systems Software:** A paper tape version of the systems software supplied with the H8 computer. It consists of four fan fold paper tapes, one each for Benton Harbor BASIC, HASL-8 assembler, TED-8 editor, and BUG-8 debug. For use with the H10 paper tape reader/punch or other paper tape I/O equipment. See next page for complete software description.

**H8-15**, Shpg. wt. 1 lb. .... **20.00**





## 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 configura-

### Software supplied with the H8 computer includes:

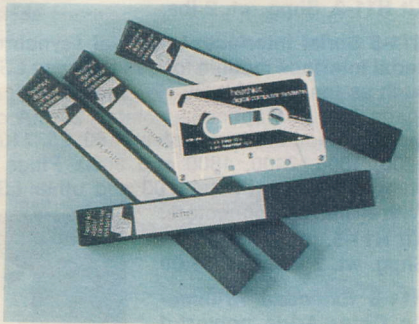
**PANEL MONITOR (PAM-8).** This ROM program monitor controls the front panel and permits you to load, execute and debug programs written in 8080 machine language. It provides memory contents display and alteration, register contents display and alteration, program execution control, self-contained bootstraps for one-button program loading and dumping, and port input and output routines.

**BENTON HARBOR BASIC.** This conversational programming language uses simple English statements and familiar algebraic equations to perform operations and solve problems. It is compact enough to run in the Heathkit H8 with limited memory, yet powerful enough to satisfy most problem-solving requirements. Requires a minimum of 8K memory. Extended Benton Harbor BASIC is also available, order from page 90.

**ASSEMBLY LANGUAGE (HASL-8).** This two-pass absolute assembler lets you create source programs using letters, numbers and symbols to generate efficient machine language code. It assembles the source program into a listing and an object program in binary format executable by the H8. A minimum of 8K memory is required.

**TEXT EDITOR (TED-8).** Converts the H8 computer and terminal into a powerful typewriter for generating text and editing. It prepares the source code for H8 assembly language, BASIC and other languages, and can be used to prepare reports, write letters and edit manuscripts. Requires a minimum of 8K memory.

**CONSOLE DEBUGGER (BUG-8).** This enhanced and extended version of the front panel monitor allows entry and debugging of user machine language programs via an external terminal. It features single or multiple stepping through programs, breakpointing, load and dump from tape storage. It requires 3K memory plus user program.



tion 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.



## 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 "roll your own" with system components you select!

**H8 System One:** 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. If purchased separately, **\$1285.00. Heath System Price is \$1220.75.**

**H8 System Two:** A deluxe H8 System. Includes H8 Computer, Two H8-1 4K Memories, Two H8-3 4K Chip Sets, H8-5 Serial I/O and Cassette Interface, H9 Video Terminal, ECP-3801 Cassette Player/Recorder and HC-8-13 Extended BASIC in Cassette Form. If purchased separately, **\$1515.00. Heath System Price is \$1439.25.**

**HM-800 Manual Set.** Here's your chance to LOOK before you buy, and with no risk! The HM-800 manual set includes the complete assembly and operations manuals for the H8 Digital Computer, H8-1 memory card, H8-2 parallel interface; H8-3 4K Expansion Chip Set; H8-5 Serial I/O and Cassette Interface; H9 Video Terminal and H10 Paper Tape Reader/Punch. The complete H8 software documentation is also included! All in handsome 3-ring binder that's handy for reference and additional information. You can deduct the price of the manual set when you buy your H8.

**HM-800, Shpg. wt. 11 lbs. .... \$25.00**



# THE HEATHKIT/DIGITAL 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!

New lower  
memory  
prices!

SAVE  
\$50<sup>00</sup>

The Heath/DEC H11 combines the advanced, performance-proven hardware and software of the LSI-11 with Heath's expertise in kit design and documentation to bring you a personal computer of almost incredible power and versatility. Together with its total-system peripherals and complete systems software, you have a computing machine that will provide you with years of practical and effective service.

The H11 features an electrically superior bus with 38 high-speed lines for data, address, control and synchronization. Data and control lines are bidirectional, asynchronous, open-collector lines capable of providing a maximum data transfer rate of 833K words per second under direct memory access operation.

The fully assembled and tested KD11F board contains the LSI-11 CPU, a 4096 x 16 read/write MOS semiconductor memory, DMA operation; and it executes the PDP-11/40 instruction set with over 400 powerful instructions. Additional memory cards can be added to expand memory capacity up to 20K in the H11 cabinet (32K words total).

Has single-level, vectored automatic priority interrupt, real-time clock input signal line, ODT/ASCII console routine/bootstrap resident in microcode. The backplane card guide assembly holds the microcomputer and up to six I/O and memory modules. The backplane/card guides are fully compatible with all standard DEC LSI-11 accessories.

The H11 is supplied with versatile PDP-11 software (see next page for full description). This software is supplied in paper tape format and requires a minimum of 8K memory, with 12K to 16K total memory recommended for maximum capability. See software license agreement, next page. Rugged metal cabinet with high-impact plastic sides measures 19" W x 6½" H x 17" D. For 110/220 VAC, 50/60 Hz.

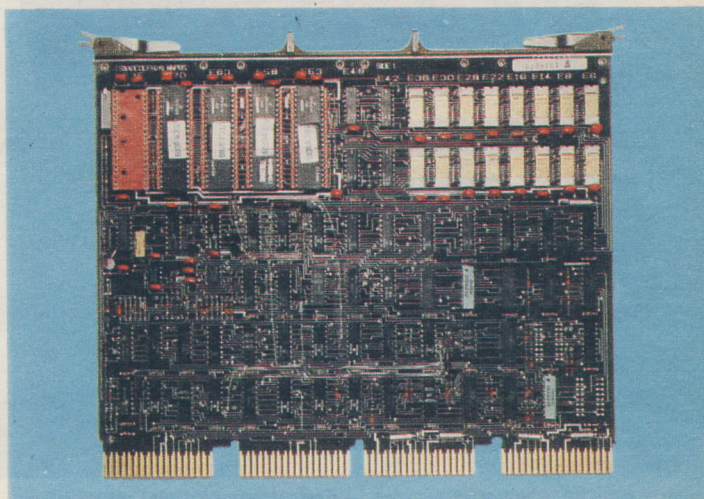
Kit H11, Shpg. wt. 34 lbs. .... 1295.00

**SAVE \$50! H11-1 4K Memory Expansion Module:** Plugs into H11 backplane, adds 4K x 16-bit word capacity to H11 memory. Uses 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. Compatible with PDP 11/03 and other LSI-11 backplane machines.

Kit H11-1, Shpg. wt. 2 lbs. .... Was 275.00 Now 225.00

**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. Plugs into H11 backplane, can be used with DEC PDP-11/03 and other LSI-11



Fully Assembled and tested KD11F board

backplane machines. Also compatible with TTL or DTL logic devices. 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

**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, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800 and 9600. Plugs into H11 backplane, fully compatible with PDP 11/03 and other LSI-11 backplane machines. With all mating connectors.

Kit H11-5, Shpg. wt. 2 lbs. .... 95.00

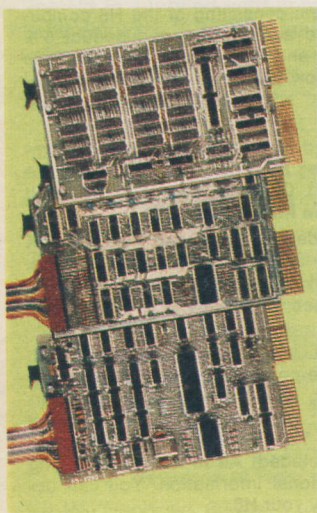
**H11-6 Extended Arithmetic Chip:** Adds powerful arithmetic instructions to the LSI-11, including fixed point multiply, divide and extended shifts plus full floating point add, subtract, multiply and divide. Helps minimize or eliminate arithmetic sub-routines, speeds up program execution and eases program development. Saves memory space too. 40-pin dual-inline package IC plugs into socket on KD11F board.

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

**Manual Set for H11 Computer:** Includes complete assembly and operation manuals for the H11 Digital Computer, H11-1 4K memory board, H11-2 parallel interface, H11-5 serial interface, H9 CRT terminal, and H10 paper tape reader/punch. Also includes complete software documentation — monitor, editor, assembler, linker, BASIC, FOCAL and related software. In handsome 3-ring binder.

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.







**H11 Dual  
Floppy Disk!  
Coming Soon  
See page  
96**

## POWERFUL HEATH/DEC PDP-11 SOFTWARE AT NO EXTRA COST!

The H11 includes a sophisticated software package that lets you get your computer up and running with practical programming capabilities. This paper tape based software would cost over \$1200 if purchased separately. A minimum of 8K memory is required to run the software. The programs include:

**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 functions.

**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. These binary modules serve as inputs to LINK-11S.

**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 absolute binary tapes into the H11 memory for execution.

**ODT-11X.** Lets you debug the programs which you have created. Permits modifying and controlling program execution "on the fly" for quick, efficient debugging.

**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 absolute 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, H11-5 Serial Interface, H9 Video Terminal and H10 Paper Tape Reader/Punch. If purchased separately, \$2590.00. **Heath System Price is \$2460.50.**

**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, \$3575.00.

**YOU SAVE \$275!**

**Special System Price is \$3300<sup>00</sup>**

**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 "Soft-

ware;) 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<sup>00</sup>**

One of the lowest-cost ASCII terminals available anywhere — features a bright 12" CRT display with twelve 80-character lines, 67-key keyboard, all standard serial interfaces, plus a fully wired and tested control board and a wiring harness for simplified assembly.

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.

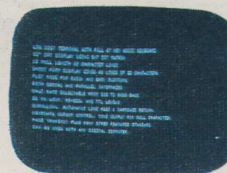
The erase mode permits automatic full page erase or erase to end of line starting at cursor position. A transmit page function allows a full page to be formatted, edited and modified, then transmitted as a block of continuous data.

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 handshaking lines for connection to H10.

**Ultra-compact size**, only 12½" H x 15½" W x 20¾" D, makes the H9 ideal for desktop or console applications. For 110 VAC, 60 Hz or 230 VAC, 50 Hz.

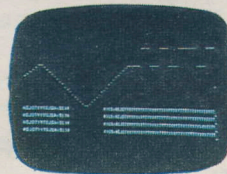
Kit H9, Shpg. wt. 50 lbs. .... **530.00**



**Long-form Display — Twelve 80-character lines**



**Short-Form Display — forty-eight 20-character lines in four columns**



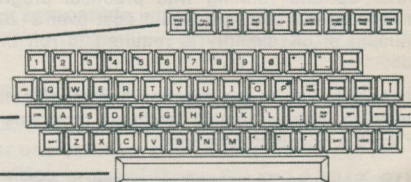
**Plot Mode — Curves, graphs and simple figures**

## 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<sup>00</sup>**

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*William F. Johnson*

**HEATH COMPANY**

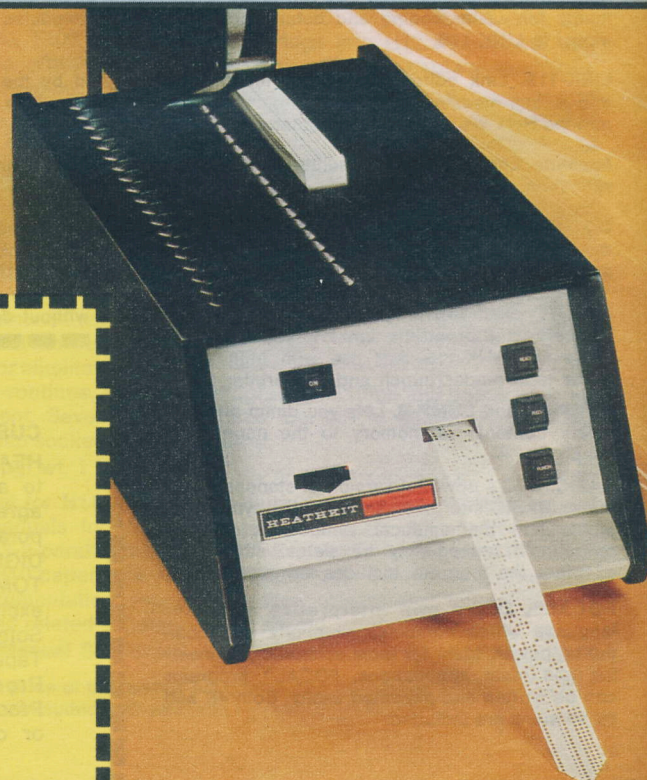
By \_\_\_\_\_

**CUSTOMER**

By \_\_\_\_\_

94

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 fan-fold 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 unoled) 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 high-accuracy 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 standard 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 rugged steel chassis, 12 $\frac{5}{8}$ " H x 9 $\frac{3}{4}$ " W x 19 $\frac{5}{8}$ " 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**





**H36-1 Fan-fold Paper for H36.** Standard 14 $\frac{7}{8}$ " x 11" white and green, single-part, lined paper. 3450 sheets per carton.

**H36-1, Shpg. wt. 50 lbs. ....30.00**

**H36-2 EIA Interface.** Provides EIA RS232-C Interface for LA36. 9-ft. cable with 25-pin data-set type connector is also supplied. (DEC designation, LAXX-KG.) **H36-2, Shpg. wt. 1 lb. ....65.00**

**H36-3 Acoustic Coupler.** Provides hookup to phone lines for time-sharing. Mounts in LA-36 with hardware provided. (DEC designation, LAXX-LM).

**Kit H36-3, Shpg. wt. 10 lbs. ....250.00**

## LA36 DEC Writer II Printer Terminal

**SENSATIONAL LOW  
MAIL-ORDER PRICE**

**\$1495<sup>00</sup>**

**Fully Assembled!  
Prepaid Shipment!**

*The famous LA36 DEC Writer II with true 30-cps throughput, variable-width forms handling, 128-character upper/lower case set, and extra-quiet operation. Fully assembled, factory tested and ready to use!*

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, clear character formation; switch selectable 10, 15 and 30 cps printing speeds; variable width forms handling from 3" to 14 $\frac{7}{8}$ " 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. Operates on 90-132 VAC or 180-264 VAC for reliable performance even under brown-out conditions. With connecting cable and integral stand for easy setup. Overall size, 27 $\frac{1}{2}$ " W x 33 $\frac{1}{4}$ " 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 .....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.

## H8, H11 FLOPPY DISK SYSTEMS — COMING SOON!

The H8 Floppy Disk, (WH17) features both single and dual versions using the popular mini-floppy drive. The storage media is a standard 5.25" diskette, hard-sectored, 40-track with ten sectors per track and 256 bytes per sector for a total storage capacity of 102,400 bytes. Access time is typically less than 350 mS. The operating system includes all present H8 software including extended Benton Harbor BASIC plus the executive. The system has complete file capabilities and device-independent drivers that allow peripheral connection without I/O programming. This completely wired and tested unit will be shipped in June, with a kit version available later.

The H11 Floppy Disk, (WH27) features both single and dual drive versions. The controller/interface card plugs into the H11 backplane and includes ROM boot loader. The H27 is fully compatible with the H11 as well as the DEC PDP 11/03 and other LSI-11 based systems. An operating system will also be available: it includes all present H11 software and including BASIC and FOCAL plus executive with file handling capability. The fully assembled and tested version will be available late in 1978, a kit version will be available later.

## 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.