



These people are
using the smallest
"computer" ever
made ... the

HP-65...

**FULLY PROGRAMMABLE
POCKET CALCULATOR**



The HP-65

...the personal pocket
unique problems in

1

It operates on
pre-recorded program
cards that turn
complex or lengthy
calculations into a
few simple steps
anyone can do quickly...

2

Or you can
actually program
it yourself -
without learning
"computer language"
- to create your
own highly specialized
"answer machine"...

3

And it's also an
advanced scientific
pocket calculator -
with numerous
functions built-in!



Actual Size

et "computer" that solves your own seconds – anywhere!

Only the HP-65 offers
full programmability
in a pocket calculator!

Only the HP-65 offers you *full programmability* in a pocket calculator, because only the HP-65 can permanently store programs via tiny, magnetic program cards.

It's the closest thing yet to a personal, portable computer! Like a computer, the HP-65 accepts and memorizes programs (fed in via the keyboard or program cards)...it executes programs (up to 100 steps long) with just a few keystrokes...and it uses computer logic to solve even extremely complex problems in seconds, with exceptional accuracy.

Once the HP-65 is programmed to solve a problem, you can run the program any number of times with different data. And, since you can feed in a new program card in only two seconds, you can rapidly customize the HP-65 to meet your *specific* needs of the moment.

Yet you don't have to know a thing about computers to operate it!

The HP-65 is as versatile—or as specialized—as you want it to be. And in its spare time, this "pocketful of miracles" serves as a keyboard-controlled advanced scientific pocket calculator.

It's the first and only personal, pocket-sized "computer" that operates *anywhere*—on rechargeable batteries or AC—to give you answers to complex problems *the moment you need them*.

No computer—and certainly no ordinary calculator—can give you the *portable power* you get with the HP-65. Here, in one compact package, is:

1. An "answer machine" that operates on pre-recorded program cards...
2. A personal "computer" you can actually program yourself, without learning "computer language".
3. An advanced scientific pocket calculator, with numerous functions already built-in.

The HP-65 is an extremely *versatile* machine that can become—in just two seconds—as *specialized* as you want it to be, by merely inserting a program card.

Yet it's priced within reach of everyone who should be taking advantage of it.

Hewlett-Packard, designer and manufacturer of the HP-65, invite you to try it.

Discover how astonishingly easy it is to operate. See how it enables you to rapidly and effortlessly handle hundreds of problems that were—up to now—too inconvenient, difficult or time consuming to handle.

Find out how much time it can save *you*... how much old-fashioned drudgery it can eliminate... *and how quickly it can pay for itself!*



For the complete story ...turn the page

1 Pre-recorded program cards quickly transform the HP-65 into a special-purpose calculator... to solve your complex problems at the touch of a few keys!

Here's how easy it is to operate the HP-65 with pre-recorded program cards



Simply insert the card into the HP-65's magnetic card reader, and in less than two seconds...



...the card's entire program is duplicated in the HP-65's program memory. Then the card exits for further use whenever you need it again.

Like a computer, the HP-65 can be programmed so that it goes through a step-by-step routine at just the touch of a few keys—to solve even extremely complex, lengthy or repetitive problems quickly, easily and accurately.

But instead of bulky reels of tape or stacks of keypunch cards, the HP-65 uses tiny, magnetic program cards, less than one-half inch by three inches in size.

Each card contains a program directing the HP-65 to perform a predetermined routine to solve a specific problem or series of problems.

A particular program can be a relatively simple or intricate sequence of steps. Each card stores a program of up to 100 steps. If a program greater than 100 steps is required, it may be stored on two or more program cards.

After loading a program into the HP-65, insert the program card in the window slot directly above the "User Definable Keys" (top row) to identify them.



Key in your known data and run the program as described by the instructions furnished for the program. No additional hardware is necessary...no special training is required. Anyone can do it.



The HP-65 will perform its calculations and give you the answers in seconds, with accuracy up to 10 digits. It couldn't be any faster...or any easier! For new data, simply enter it and re-run the program.

Actual Size

Choose the Application Pac that will solve your problems...

Finance Pac 1	Medical Pac 1
Math Pac 1	Navigation Pac 1
Math Pac 2	Aviation Pac 1
EE Pac 1	*Surveying Pac 1
Stat Pac 1	

Because the program card has all of the steps pre-recorded, you only have to feed in the known data—the HP-65 will do the work!

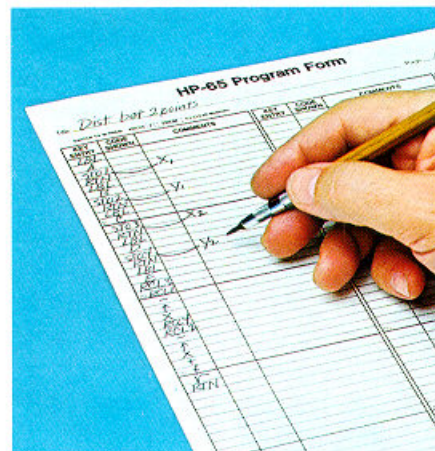
Hundreds of pre-recorded program cards, packaged in Application Packs (shown above), are available from Hewlett-Packard. Each Pac* contains up to 40 pre-recorded programs plus a manual with step-by-step instructions for running each program.

* Locally written Surveying Packs come complete with 40 blank program cards.

2

Create your own time-saving programs, without learning "computer-language"... and store them on blank cards!

No separate keyboard needed... nothing to keypunch



On a piece of paper, or a program form (supplied with the HP-65), make a step-by-step list of the keystrokes needed to solve your problem.

Although the Hewlett-Packard collection of pre-recorded program cards is constantly growing, only you know your specific needs. Since the HP-65 is a *personal* "computer" you can easily create your own program cards—and you don't have to learn "computer language" to do it!

Whatever your field of interest, you can write your own programs, incorporating the specific equations, constants and/or procedures you need, for easy and rapid calculations of all types of numeric problems. You can incorporate any of the HP-65's powerful built-in functions (see next page of this brochure).

Once a program is created, you can store it on one of the blank program cards supplied with each HP-65. Then you—or anyone—can simply insert the card, "customizing" the HP-65 for the job at hand.

Because entire sequences of keystrokes are stored as programs, then executed by merely pressing a few keys, the chance of manual keystroke error is substantially reduced. So in addition to saving time and effort, the HP-65 program cards greatly ensure accuracy—no matter who is using the machine.

And it's easy to develop your own program cards. No separate keyboard is needed... there's nothing to keypunch. The only thing you need is the HP-65 itself and a blank program card.

Then just follow the five simple steps shown on this page.

The HP-65's programming system is based on plain common sense. Its keys are labeled with either recognized symbols (e.g. \sqrt{x}) or abbreviations for words or phrases (e.g. "LBL" means "LABEL" and "GTO" means "GO TO").

The program itself is simply a stored series of keystrokes in operating sequence (up to 100 steps).

It may be easily reviewed, and keystrokes can be added or deleted using the unique editing capabilities of the HP-65.

If a program requires more than 100 steps just store the intermediate data in the HP-65's memory registers and enter the new program cards.

And the program can be simple or complex, depending on your needs. The HP-65 can even make logical decisions, with the aid of one or two flags (described in the panel at right), or make any of the four numeric comparison tests available.

Therefore, if you want to skip certain steps or branch to another part of the program—based on whether or not certain conditions are met—it can be done.

It does take time to write a program, but you need only do it once. And you can create *all types* of programs. The only limit is your imagination.



Then, with the HP-65 set in the "WRITE PROGRAM" mode, press the keys in the proper sequence.



The resulting program is stored in the program memory as long as the HP-65 is left on. It can be permanently recorded by running a program card through the card reader.



Label the program card and insert it in the slot above the User Definable Keys to identify them.



With the HP-65 set in the "RUN PROGRAM" mode, key in the known data for the specific problem you want to solve and run the program.

Only the HP-65 offers you full programmability in a pocket calculator

These keys are the nucleus that provide the HP-65's uniqueness and power... that take this machine out of the realm of a calculator and transform it into a highly sophisticated, truly personal "computer".

They set in motion the HP-65's computer logic, to solve even extremely complex, lengthy or repetitive problems in seconds.

And, to make the HP-65 easy to use, these keys utilize common language abbreviations or recognized symbols, so you don't have to learn "computer language".

For writing or running your program...

W/PRGM RUN

Set this switch to "WRITE PROGRAM" (W/PRGM) to enter or change any steps in the HP-65's program memory, without altering any data already stored in the HP-65's operational stack or 9 addressable registers.

To record your program for future use, simply run a blank program card through the HP-65's card reader.

Set this switch to "RUN" for all other operations of the HP-65.

To define your program's functions...



These User Definable Keys are just what their name implies—you specify their functions depending on the program you've developed or are using. They are used when writing, editing or running your program.

To structure your program...

LBL This "LABEL" key enables you to indicate and identify a series of steps within your program. Up to 15 labels are available by pressing this key and any digit (0-9) or letter (A-E) key.

GTO This "GO TO" key, when used in conjunction with a digit or letter key, sets off a search in the program memory for the label with the same digit or letter.

RTN When this "RETURN" key is pressed it enables you to start at the beginning of your program again. If this key is used as a part of your stored program, it stops execution of the program and returns control to the keyboard for manual operation.

R/S When this "RUN/STOP" key is included in your stored program, it will halt execution of the program and return control to the keyboard for manual operation. When used from the keyboard, it can stop a running program or start a stopped program at the next step.

1 **NOP** If this "NO OPERATION" key is included in your stored program, it will advance the program to the following step. It is often used in conjunction with conditional-skip instructions.

For including conditional functions in your program...

SF1 **SF2** Like a computer, the HP-65 can take alternate computational paths based on the condition of the two flags. With the "SET FLAG 1" and "SET FLAG 2" keys, the flags can be set or cleared manually from the keyboard or automatically by an appropriate program step.

TF1 **TF2** The condition of the flags can be tested manually, or automatically, at any point in your program by using these "TEST FLAG 1" and "TEST FLAG 2" keys to include an appropriate test-flag instruction. Your program will either advance sequentially or skip over the next two steps depending on the condition of the tested flag.

Each of the following keys sets up a logical test of values in the X and Y registers of the operational stack, and allow the HP-65 to perform conditional branches based on the results of the test.



These keys allow you to compare the values in the X and Y registers of the operational stack. If the test condition is not met, the program skips over the next two steps. If the test condition is met, the program continues with the next step.

DSZ The "DECREMENT AND SKIP ON ZERO" key subtracts a "1" from the integer previously stored in addressable register 8, then advances your program depending on the value remaining in the register. If the value in register 8 is not equal to zero, the program advances to the next step; if it does equal zero, the program skips over the next two steps.

To edit your program...

Even on a machine this compact, with the keys shown below you can perform editing operations. Because the HP-65 lets you single-step through your program and add or delete individual steps at will, it's easy to "de-bug" or modify your program.

PRGM **CLX** Using this "PROGRAM" key you clear the entire 100-step program memory so you can begin keying in a new or revised program that you have developed.

CLX **DEL** This "DELETE" key erases a single program step and automatically moves the remaining steps up one place in the program memory to fill the resulting gap. To insert the corrected step just key it in and the remaining steps will move down automatically.

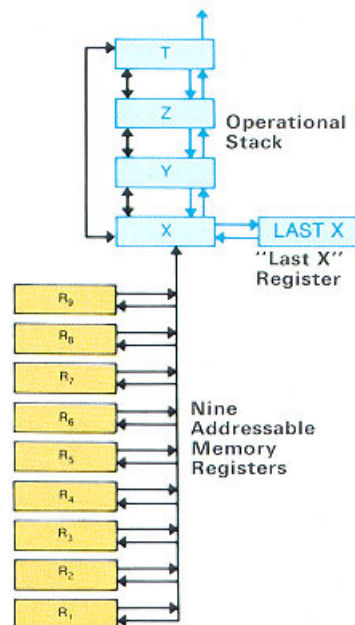
SST This "SINGLE STEP" key, when the HP-65 is in the "WRITE PROGRAM" mode, lets you step through each program instruction stored in the program memory. As this is done, the display shows a number for each step. This number represents the location (row and column) of the key corresponding to that particular instruction (except digit keys which are represented by the numbers 00 to 09). For example, "34" refers to the key in row 3, column 4 (RCL). If the "SST" key is used with the HP-65 in the RUN mode, you can execute a program one step at a time.

3 The HP-65 scientific pocket calculator with numerous features...

Just a few of the many functions and features that can be used independently or as part of your program are...

Exclusive four-register operational stack holds intermediate solutions...

This four-register stack retains as many as four intermediate solutions in sequence, and automatically positions them for use on a last in, first out basis. The stack design also permits X and Y register exchange and roll-up or roll-down of any entry to the display for review or other operation.



"Last X" register permits error correction or multiple operations...

When a function is performed, the last input argument of the calculation is automatically stored in the "Last X" register. By pressing the "g" key, and then this key, you can recall the argument to correct an error, or to perform another operation using the same number.

Nine addressable memory registers make data manipulations easy...

The HP-65's nine memory registers are addressable so you can store data in any register... retrieve data from any register... and even do register arithmetic (+, -, ×, ÷), using or modifying data in any register.

Every Hewlett-Packard pocket calculator features "RPN"

RPN stands for Hewlett-Packard's "computer logic" system. It's the most sensible logic system ever used in a pocket calculator!

RPN—which is made possible by the four-memory stack—lets you handle lengthy, complex or repetitive problems with ease. Chain calculations, for example, are usually faster, because fewer key-strokes may be required, and numbers don't have to be re-entered manually.

RPN can save time and reduce errors when calculating multiple discounts or percentages, or any other chain calculation.

RPN even lets you stop in the middle of a problem—to answer the phone, perhaps—because intermediate answers appear in the display to tell you where you are in a calculation. It's easy to pick up where you left off—another time-saver.

RPN—the most sensible logic system ever used in a pocket calculator!

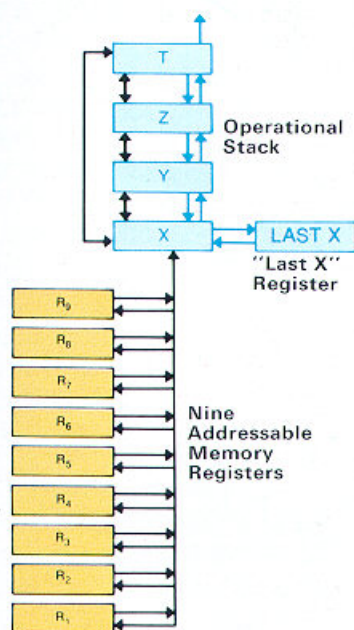
3

The HP-65 is also an advanced scientific pocket calculator, with numerous functions and features built-in!

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DSP

Two display modes offer extreme versatility...

You can specify either scientific notation or fixed notation, and the number of decimal places, merely by pressing the appropriate keys.



Unique "shift keys" multiply the functions of many keys, to save space.

Many of the HP-65's built-in functions are shown on the keyboard as alternate functions, and are labeled either above a key (in gold) or on the underside of a key (in blue). To activate them, you first press the appropriate prefix "shift" key.



Built-in log and trig functions eliminate the need for tables...

Just press the appropriate keys and the HP-65 performs calculations using trig functions (sin, cos, tan, arc sin, arc cos, arc tan) or log functions (log, ln, e^x, 10^x).

The HP-65's built-in function keys, combined with the program keys (in panel at left) give you the capability to handle complex, lengthy and/or repetitive problems that would be inconvenient, difficult or time consuming to handle without using devices many times larger, much more expensive and nowhere near as portable as your personal "computer".



Trigonometric functions may be performed in any of three selectable angular modes...

You can perform trig operations in degrees, radians or grads by first pressing the "g" prefix key and then the appropriate mode key.

R→P



Polar co-ordinates in any of the four quadrants can be converted to rectangular co-ordinates—or vice versa.

To convert from rectangular co-ordinates to polar co-ordinates, press the "f" key and then this key. Or, to convert from polar to rectangular, press the "f-1" key first and then this key.

D.MS+ → D.MS



Convert, add or subtract degrees/minutes/seconds (or hours/minutes/seconds) just by pressing a few keys...

To convert a decimal angle (in degrees, radians or grads) to d/m/s, press the "f" key and then the "→ D.MS" key. To convert from d/m/s to a decimal angle, press the "f-1" key and then the "→ D.MS" key.

By changing angular modes between these steps, you can also convert any decimal angle from one mode to another.

To add degrees/minutes/seconds or hours/minutes/seconds in a calculation, simply press the "f" key and then the "D.MS+" key. To subtract d/m/s or h/m/s, first press the "f-1" key and then the "D.MS+" key.

INT



"X" register contents are easily truncated...

To truncate the contents of the "X" register to an integer, press "f" and then this key. To truncate it to a decimal fraction, first press the "f-1" key. By using the decimal key and this key, you can save memory storage space by retaining two numbers within a single register. It's often used in programs.

→OCT



You can quickly convert to or from octal (base 8)...

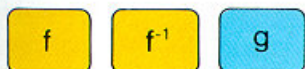
Press the "f" key first, and then this key to convert a decimal integer to octal. Press the "f-1" key first, and then this key to convert an octal integer to decimal.

5 is also an advanced pocket calculator, erous functions and built-in!

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You can quickly convert to or from octal (base 8)...

Press the "f" key list, and then this key to convert a decimal integer to octal. Press the "f-1" key first, and then this key to convert an octal integer to decimal.

No other pocket calculator has so much built-in... to do so much for you!

Pre-programmed Functions:

Trigonometric: $\sin x$ • $\arcsin x$ • $\cos x$ • $\arccos x$ • $\tan x$ • $\arctan x$

Logarithmic: $\log x$ • $\ln x$ • e^x • 10^x

Also: y^x • \sqrt{x} • $1/x$ • π • x^2 • $n!$ • Conversion between Decimal Angle, Degrees/Minutes/Seconds, Radians or Grads • Rectangular/Polar Co-ordinate Conversion • Decimal/Octal Conversion • Degrees (Hours)/Minutes/Seconds Arithmetic • Integer/Fraction Truncation

Other Functions:

Register Arithmetic • Addition, Subtraction, Multiplication or Division in Serial, Mixed Serial, Chain or Mixed Chain Calculations

Features and Specifications:

- Display: Up to 10 significant digits plus 2-digit exponent and appropriate signs
- Dynamic range: $\pm 10^{-99}$ to 10^{99}
- Primary functions activated by single keystroke; alternate functions utilize prefix keys
- Five User Definable Keys
- Four-register operational stack
- Program memory for storage of up to 100 steps
- Single step running and/or inspection of a program
- Unique insert/delete editing features
- Nine addressable memory registers
- "Last X" register for error correction and number re-use
- Two flags for skip or non-skip programming or branching to another part of program
- $x \neq y$, $x \leq y$, $x = y$, $x \geq y$ relational tests
- Magnetic card reader/writer
- Built-in counter
- Automatic decimal point positioning
- Selective round-off; range 0-9 decimal places
- Two display modes: fixed point and scientific
- Indicators for improper operations and low battery condition
- Operates on rechargeable batteries or AC
- Solid state electronics
- Light-emitting diode (LED) display
- Tactile feedback keyboard
- Compact, contoured case



The HP-65 comes complete with everything you need to start solving problems instantly. No extras to buy!

HP-65 fully programmable pocket calculator

- **Rechargeable Battery Pack** under normal use provides approximately three hours of continuous operation. All functions, including the writing or running of programs, may be performed with battery power.
- **115/230 V AC Adapter/Recharger** lets you operate the HP-65 on AC while the battery pack is recharging. An 8-foot lead is attached.
- **Soft Carrying Case**, with belt loop, holds the HP-65, an Application Pac of program cards, and the Quick Reference Guide.
- **Safety Travel Case**, of high-impact plastic, provides further protection against knocks, bumps, etc. It holds the soft case and its contents plus the adapter/recharger, Owner's Handbook and several Pocket Instruction Cards.
- **Owner's Handbook and the Quick Reference Guide** supply complete information on operating and programming the HP-65. The Owner's Handbook fully explains how programs are prepared and stored, how data is entered, how the various functions operate, etc. The Quick Reference Guide is a how-to-do-it summary.
- **Program Forms**, in a pad of 50, are a convenience for those who wish to write their own programs. Additional forms are available from Hewlett-Packard.
- **Standard Pac of pre-recorded program cards** offers a sampling of cards from various Application Pacs, along with two diagnostic cards to check the HP-65's operating condition,

a special card to clean the program-reading head, and 20 blank program cards for do-it-yourself programming. Included, too, is a detailed manual on the Standard Pac, plus a set of 20 two-sided blank Pocket Instruction Cards (each having room for two program cards and their program instructions).

Specifications:

POWER: AC: 115 or 230 V, $\pm 10\%$, 50 to 60 Hz, 5 watts. Battery: 500 mW derived from nickel-cadmium rechargeable battery pack.

(*Calculators delivered to United Kingdom customers are supplied with single voltage [230 V AC] rechargers.)

WEIGHT: HP-65: 11 ounces (312 g) with battery pack. Recharger: 5 ounces (155 g) (U.K. 12 ounces [340 g]). Shipping Weight: approx. 3 lbs. (1.4 kg).

DIMENSIONS: Length: 5.8 inches (14.7 cm). Width: 3.2 inches (8.1 cm). Height: 0.7 to 1.4 inches (1.8 to 3.4 cm).

TEMPERATURE RANGES: Operating: 32°F to 104°F (0°C to 40°C). Card Reader: 50°F to 104°F (10°C to 40°C).

It takes a company like Hewlett-Packard to bring you the remarkable HP-65—the only fully programmable pocket calculator!

36 years of experience—Ever since 1939, Hewlett-Packard has been a leading designer and manufacturer of special-purpose electronic equipment for measurement and computation. Today, there are more than 3,000 different Hewlett-Packard products, ranging in size from near-microscopic components to complete computer systems.

HP pocket calculators have become the standard of excellence in the industry, and more than 500,000 are in daily use throughout the world.

Advanced technology—Hewlett-Packard has always been an innovator, with a policy of introducing products with unique features and benefits. To make this advanced technology possible, Hewlett-Packard maintains an unusually high dedication to research and development. The HP-65 is one result of this philosophy.

Thorough Testing—The HP-65 is manufactured to exceedingly close tolerances, with final assembly in Hewlett-Packard's own facilities. Then every single HP-65 is thoroughly tested not only for mechanical operation, but for accuracy in computation.

Service—Prompt service is available via any Hewlett-Packard Service Centre. These are conveniently located throughout the world.

Warranty—The HP-65 is warranted against defects in materials and workmanship for one (1) year from the date of delivery. During the warranty period, Hewlett-Packard will repair or, at its option, replace components that prove to be defective when the calculator is returned, shipped prepaid, to a Hewlett-Packard Service Centre.

This warranty does not apply if the HP-65 has been damaged by accident or misuse or as a result of service or modification by any person other than at an authorized Hewlett-Packard Service Centre.

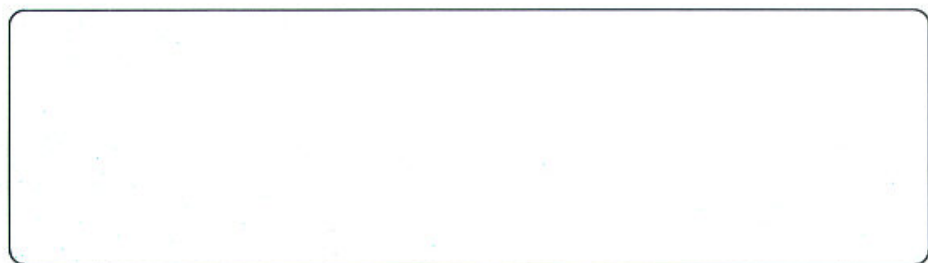
No other warranty is expressed or implied. Hewlett-Packard is not liable for consequential damage.

Hewlett-Packard reserves the right to make changes in materials and specifications without notice.

HEWLETT  PACKARD

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