SHARP PC-1500

Pocket Computer

A New, Handy Pocket Computer with Amazing Memory Capacity for Businessmen, Managers, Engineers, and Hobbyists.

Upgraded Features in a Pock

The PC-1500: An advanced pocket computer with a capacity and BASIC language usage nearly that of a personal computer. In light of its remarkable features, it could serve as an introductory model to a personal computer. It's a must for businessmen in today's office automation age. And it's portable, too, for personal use in technical and hobby fields. Furthermore, its optional equipment splendidly increases its capability.

Mini-graphic Display

The multigraphic display area (7×156 dots) enables almost any display thanks to its mini-graphic functions. A line 26 digits wide can be displayed when using characters and numbers.

```
PC-1500 JAN
MEETING APR 25TH 8-00AM
♣1  ♥7  ♦7  ⟨1  ♠3
```

High-speed Data Processing

C-MOS 8-bit CPU enables swift data processing, while consuming little energy. Complicated technical or business calculations require very little time.

Operational Superiority

A typewriter keyboard, the first in a pocket computer, enhances operational ease. With the optional CE-150 colour graphic printer/cassette interface the PC-1500 can serve as a small personal typewriter.

Six software keys reserve functions and commands, and define programs. This three-level rotary system allows the six keys to actually do the work of eighteen different software keys.

Program-lock function works when you lock the MODE key. The PC-1500 can be locked into RUN mode thereby ensuring continuous carefree operation of the program without the chance of inadvertent erasure.

More BASIC Language Terms

The most simple computer language BASIC is used for programming ease. **Added BASIC language terms** provide variables that can be freely defined using one or two characters, variables in two-dimensional arrays for easier matrix calculations, variable strings, commands for mini-graphic display, and many other

The Pocket Genius at Your Command

For Businessmen

Handle daily business chores swiftly. You can program, calculate, display, and retrieve data regarding estimates, records, charts of sales, salaries, and billings, etc.
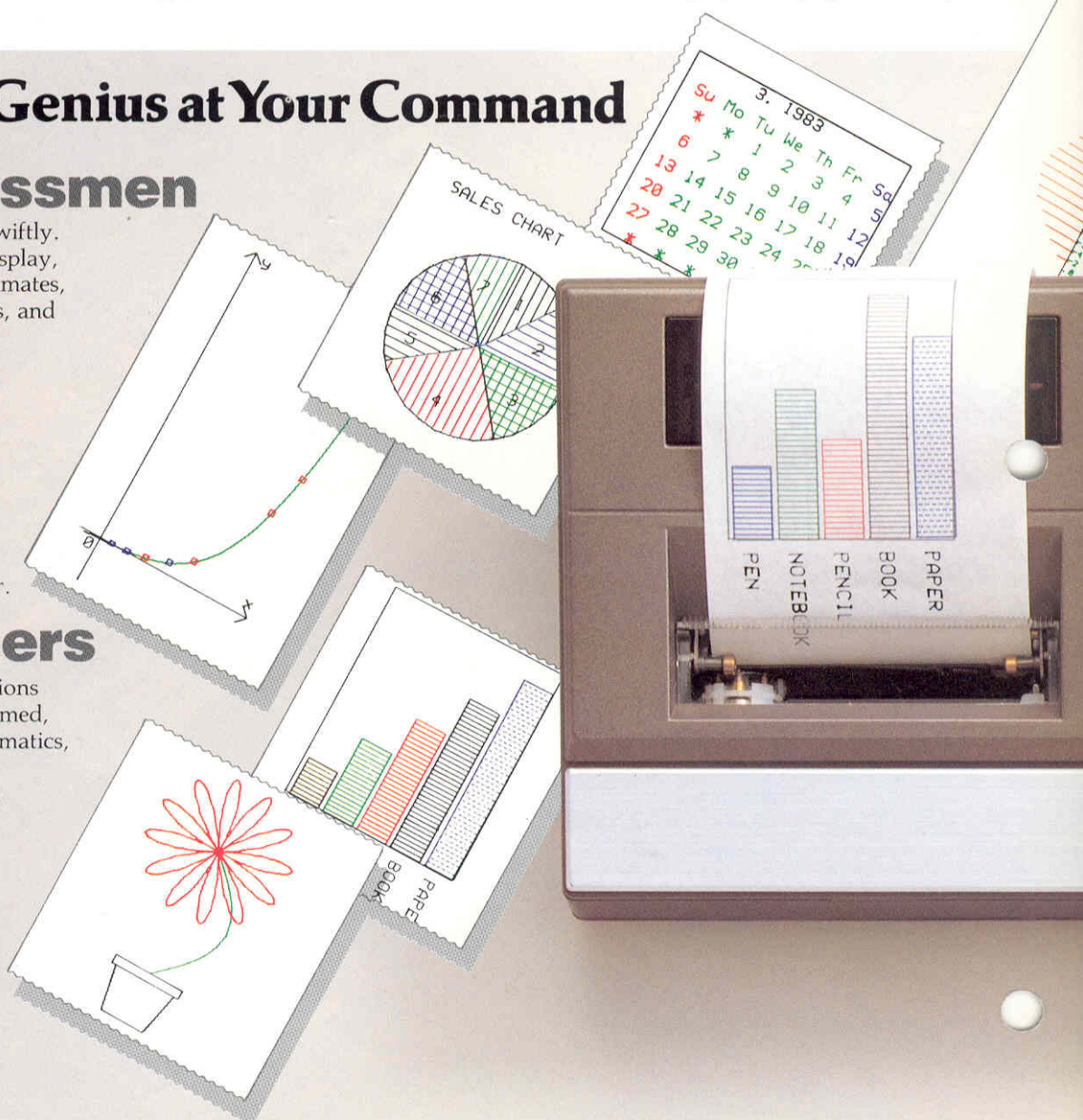
For Managers

Balance sheets and profit calculations are yours. Also, program your personal calendar; the PC-1500 can be used as a schedule reminder.

For Engineers

Complicated technical calculations become simple. Once programmed, technical calculations in mathematics, statistics, measurements, and mechanics are carried out with amazing ease and accuracy.

For Hobbyists

With the PC-1500 you can make up and program new games, or play favourites such as biorhythms, etc. and create drawings.

advanced features. Thus the PC-1500 can be used by virtually everyone.

Clock Function

The PC-1500 has a clock function, indicating month, date, hour, minute and second. It also has a beep function. According to your own presetting, beep sounds will give you warnings and the display will show appropriate messages to remind you of your schedule.

Other Features

- The tone and number of repetitions of the beep can be controlled.
- Random numbers and key input commands can be used to play games.
- Abbreviations and ten one-touch commands make programming simple.
- Auto Power-Off saves power.
- Lower-case letters are available through the use of the SML (small) key.

■ Optional Equipment ■

CE-150 colour graphic printer/cassette interface

- As a printer, the CE-150 offers automatic program, data, and calculation printing. It also offers a four-colour graphic function. From column graphs to various patterns, it prints virtually any drawing in either black, blue, green or red. Characters are printed in nine different sizes, and in lines ranging from 4 to 36 digits per line. You can control the printer completely and direct the printing either up, down, left, or right.
- As a cassette interface, it can be connected with up to two cassette tape recorders, one for storage of data and programs, the other for their recall.

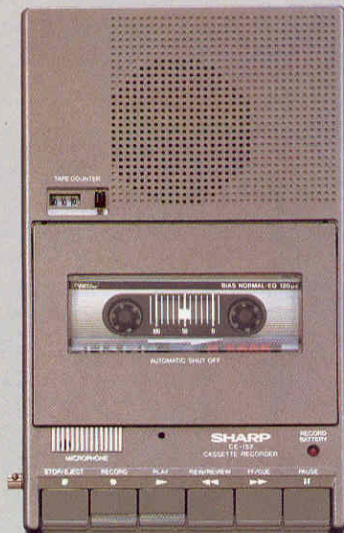CHARACTER SIZE (9 TYPES)

Important programs and data can be safely kept.
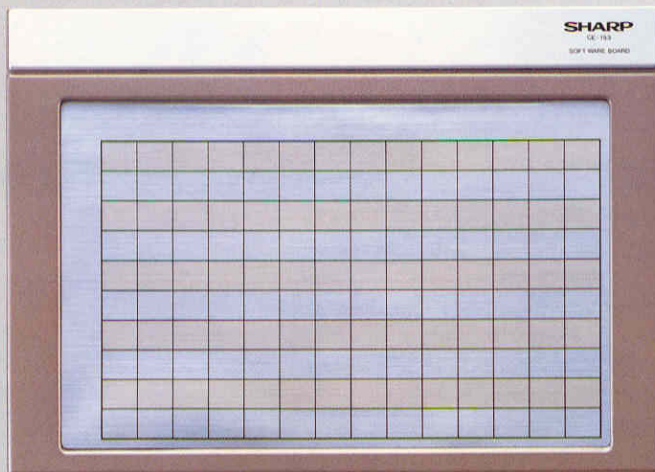
CE-159 8-Kbyte programmable RAM module

CE-155 8-Kbyte RAM module

CE-151 4-Kbyte RAM module

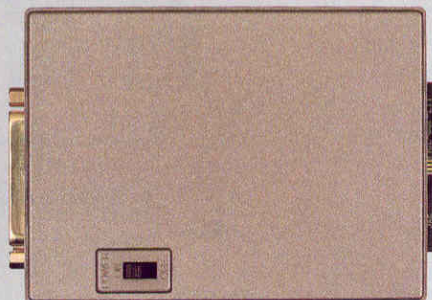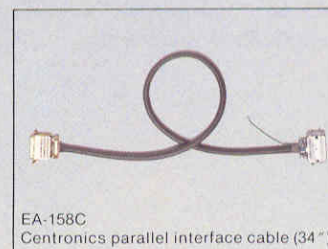CE-153 software board

CE-152 cassette tape recorder

CE-158 RS-232C and parallel interface

EA-158C
Centronics parallel interface cable (34″)

EXPANSION RAM MODULES
CE-151 (4-Kbyte RAM)
CE-155 (8-Kbyte RAM)
Either a 4 or 8-Kbyte memory module can be added to the standard 3.5-Kbyte RAM, increasing the PC-1500's overall memory capacity up to 11.5-Kbytes.

PROGRAMMABLE MEMORY MODULES
CE-159 (8-Kbyte RAM)
The CE-159 RAM module can be used for read-only purposes. The module's ROM section can be specified as either 4, 6, or 8-Kbytes. The module has a built-in battery to protect programs. Programs are protected for five years if the module remains inside the PC-1500 and for two years if removed.

CASSETTE TAPE RECORDER
CE-152
Designed especially to match the PC-1500, the CE-152 records programs or data via the CE-150 cassette interface. Any recorded program can be retrieved and reloaded into the PC-1500, thus eliminating repetitious programming. You may use two CE-152 units: one for recording only, the other for reading only.

SOFTWARE BOARD
CE-153
For greater office efficiency and versatility, the CE-153 software board provides definable keys for program entry. Its 140 easy-to-operate, soft-touch keys upgrade the PC-1500's ability to handle common business chores, such as vertically and horizontally calculating totals and sub-totals.

RS-232C/PARALLEL INTERFACE
CE-158
The multi-use CE-158 interface connects the PC-1500 to other peripherals such as modems, accoustic couplers, bar-code readers, serial printers, etc. In addition, the PC-1500 can be connected to other Sharp computer—or other micros, minis or mainframes. The CE-158 also incorporates a parallel interface which connects the PC-1500 to larger printers like the Sharp CE-332P. EA-158C the Centronics parallel interface cable (34″) is optionally available.

Apllications
(Mathematics)
- Root of an equation
- Mutual conversions between rectangular coordinates and polar coordinates
- Fourier series
- Lagrange's interpolation
- Quadratic and cubic equations
- First order differential equation
- Determinant
- Inverse matrix
- Matrix product

(Statistics)
- Correlation coefficient, linear regression and plot
- Exponential regression and plot
- Modified exponential curve
- Logistic curve
- Modified moving average
- Test of mean value difference and variance ratio
- One-way layout
- Two-way layout (with no repetition)
- Three-way layout (with no repetition)
- X-R control chart

(Electrical)
- $\triangle \leftrightarrow Y$ conversion
- Open and radiate traverse

(Office work)
- Calculation for loan limits and number of installments
- Compound annuity rate calculation
- Estimation addition
- Histogram
- Graph generation I (band of circle graph)
- Graph generation II (bar of broken line graph)
- Working hour proportional processing
- Depreciation
- Allotment calculation
- Volume and weight unit conversion
- Length and area unit conversion
- Calculation of household accounts
- Inventory control
- School record processing
- Pocket computer schedule planner
- Purchase ledger generation
- Billing calculation series

(Games)
- Biorhythm
- Boat race
- Labyrinth escape
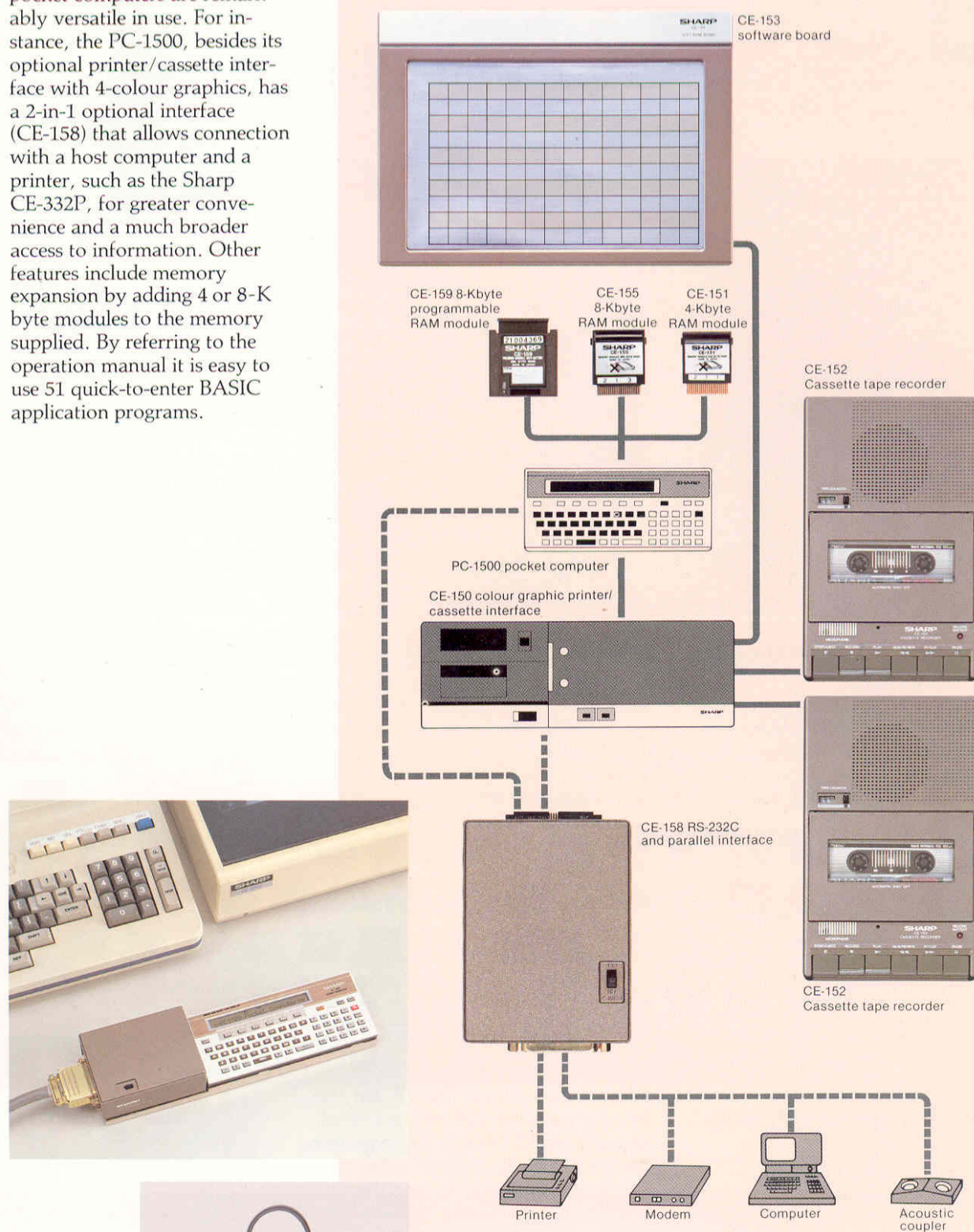- Double rotation
- Mole banging
- Space evader game

(Others)
- Typing exercises
- Stopwatch, timer, and alarm clock
- Computer-designed flower
- Computer graphics
- World clock
- Dot pattern development
- Word exercises

Sharp puts a computer into everyone's pocket. And these pocket computers are remarkably versatile in use. For instance, the PC-1500, besides its optional printer/cassette interface with 4-colour graphics, has a 2-in-1 optional interface (CE-158) that allows connection with a host computer and a printer, such as the Sharp CE-332P, for greater convenience and a much broader access to information. Other features include memory expansion by adding 4 or 8-K byte modules to the memory supplied. By referring to the operation manual it is easy to use 51 quick-to-enter BASIC application programs.

THE PC-1500 ENTIRE SYSTEM

CE-153
software board

CE-159 8-Kbyte
programmable
RAM module

CE-155
8-Kbyte
RAM module

CE-151
4-Kbyte
RAM module

CE-152
Cassette tape recorder

PC-1500 pocket computer

CE-150 colour graphic printer/
cassette interface

CE-158 RS-232C
and parallel interface

CE-152
Cassette tape recorder

Printer   Modem   Computer   Acoustic
coupler

EA-158C
Centronics parallel
interface cable (34")

Specifications

PC-1500

Number of calculation digits	10 digits (mantissa) + 2 digits (exponent)
Calculation system	According to mathematical formula (with priority judging function)
Program system	Stored system
Program language	BASIC
CPU	C-MOS 8-bit CPU
Capacity	ROM: 16K bytes RAM: System area: 0.9K bytes 　　　User area: 2.6K bytes 　　　　　Fixed memory area (A ~ Z, A$ ~ Z$): 624 bytes 　　　　　Basic program/data area: 1850 bytes 　　　　　Reserve area: 188 bytes
Calculations	Four arithmetic calculations, power calculations, trigonometric and inverse trigonometric functions, logarithmic and exponential functions, angular conversion, extraction of square root, sign function, absolutes, integers, and logical calculations
Editing function	Cursor shifting (►, ◄) 　Insertion (INS) 　Deletion (DEL) 　Line up and down (↑, ↓)
Memory protection	C-MOS battery back-up
Display	7 × 156 dots mini-graphic display 26-digit liquid crystal display (English upper-and lower-case letters, numbers, special signs, etc.)
Component	C-MOS LSI, etc.
Keys	65 keys (Alphabet keys, 10 numeric keys, function keys, software keys)
Power source	Dry battery (SUM-3) × 4 Approx. 50 hours
Power consumption	0.13W
Operating temperature	0°C ~ 40°C (32°F ~ 104°F)
Dimensions	195 (W) × 25.5 (H) × 86 (D) mm 7-11/16″ (W) × 1″ (H) × 3-3/8″ (D)
Weight	375 g (0.83 lbs.)
Accessories	Soft case, dry battery (SUM-3) × 4, template × 2, name label, applications manual, instructions manual

CE-150
Colour Graphic Printer/Cassette Interface (option)

Power source	Built-in rechargeable battery
Power consumption	5.2W
Operating temperature	5°C ~ 40°C (41°F ~ 104°F)
Dimensions	330 (W) × 50 (H) × 115 (D) mm 12-31/32″ (W) × 2″ (H) × 4-1/2″ (D)
Weight	900 g (1.98 lbs.)
Accessories	Carrying case, AC adaptor (EA-150), writing pen × 4, cassette cable, roll paper × 3, name label

Colour graphic printer

Printing digits	Standard 18 digits (36, 18, 12, 9, 7, 6, 5, 4 digits selectable)
Printing system	X-Y axis plotter system
Printing mode	Graph/text switchable
Character sizes	9 different sizes from 1.2 × 0.8 mm to 10.8 × 7.2 mm (from 1/16″ ×1/32″ to 7/16″ × 9/32″)
Paper width	58 mm (2-9/32″)
Printing colours	Black, blue, green, red
Printing directions	Right, left, up, down
Minimum step width	0.2 mm (1/64″)
Printing speed	Max. 11 characters/sec.

Cassette interface

Connection	Up to two cassette tape recorders
Remote control	On/Off

CE-151 Memory Module (option)

Capacity	4-Kbyte C-MOS RAM

CE-155 Memory Module (option)

Capacity	8-Kbyte C-MOS RAM

CE-159 Programmable Memory Module (option)

Capacity	A: 8-Kbyte ROM B: 2-Kbyte RAM + 6-Kbyte ROM C: 4-Kbyte RAM + 4-Kbyte ROM
Dimensions	40.9 (W) × 8.5 (H) × 48.2 (D) mm 1-5/8″ (W) × 11/32″ (H) × 1-29/32″ (D)
Weight	12 g (0.03 lbs.)

CE-152 Cassette Tape Recorder (Option)

Type	AC/battery-operated; monaural
Frequency response	200—6,000 Hz
Power source	AC: optional AC adaptor EA-11E DC: 6V (AA or R6 × 4) approx. 4 hours
Dimensions	4-9/16″ (W) × 1-1/4″ (H) × 7-3/8″ (D) 116 (W) × 32 (H) × 187 (D) mm
Weight	610 g (1.3 lbs.) including batteries
Accessories	Batteries, earphones, erase plug, head cleaner, soft case, and instruction manual

CE-153 Software Board (Option)

Keys	140 flat-type matrix keys (14 keys in 10 lines)
Dimensions	240 (W) × 13 (H) × 173.5 (D) mm 9-7/16″ (W) × 1/2″ (H) × 6-27/32″ (D)
Weight	640 g (1.4 lbs.)
Accessories	Program tape (contains the system program and two applications programs), 2 application templates, 4 blank templates, instruction manual (including example programs), soft case

CE-158 RS-232C Interface (option)

RS-232C I/F	
Serial I/O	Start-stop system (asynchronous)
Baud rates	50, 100, 110, 200, 300, 600, 1200, 2400 baud selectable
Character length	5, 6, 7 or 8 bits selectable
Parallel I/F	
Standard	Compatible with Centronics
Power source	Ni-Cd battery (AA × 4)
Operating time	Approx. 2 hours
Dimensions	86 (W) × 50 (H) × 115 (D) mm 3-3/8″ (W) × 1-31/32″ (H) × 4-17/32″ (D)
Weight	435 g (0.96 lbs.)

BASIC language specifications

PC-1500

Commands	RUN, NEW, LIST, CONT, TR ON, TR OFF, LOCK, UNLOCK, STATUS, MEM
Statements	INPUT, PRINT, GPRINT, CURSOR, GCURSOR, PAUSE, USING, WAIT, CLS, IF···· THEN, STOP, GOTO, ON···· GOTO, GO SUB, ON···· GOSUB, RETURN, ON ERROR GOTO, FOR···· TO···· STEP, NEXT, END, DIM, LET, REM, DATA, READ, RESTORE, BEEP, AREAD, ARUN, CLEAR, RANDOM, DEGREE, RADIAN, GRAD, BEEP ON, BEEP OFF
Functions	SIN, COS, TAN, ASN ACS, ATN, LN, LOG, EXP, DEG, DMS, RND, SQR (√), SGN, ABS, INT, PI (π), LEFT$, RIGHT$, MID$, ASC, VAL, LEN, CHR$, STR$, POINT
Variables	A ~ Z, A$ ~ Z$, two-letter variables possible, two-dimensional arrays applicable
Operations	+, −, *, /, (,), >, <, > =, < =, < >, =, ∧ , AND, OR, NOT, &
Others	INKEY$, TIME, , ; : ″

CE-150

Printer

Commands	LLIST, TEST
Statements	LPRINT, TAB, LCURSOR, LF, ROTATE, COLOR, USING, GLCURSOR, SORGN, LINE, RLINE, CSIZE, TEXT, GRAPH

Cassette interface

Commnads	CSAVE, CLOAD, CLOAD?, MERGE
Statements	INPUT #, PRINT #, CHAIN, RMT ON, RMT OFF

Design and specifications subject to change without notice.

SHARP

SHARP CORPORATION OSAKA, JAPAN
CABLE ADDRESS: LABOMET OSAKA
TELEX No. AAB: LABOMETA J63428

Distributed by: