EPSON

HX-20
PORTABLE COMPUTER

The Epson HX-20 is perhaps the most compact portable computer available today. But don't let its size confuse you. HX-20 can do most desk-top personal computers can do.

What other computer this small gives you 16KB of RAM, 32KB of ROM, RS-232C and serial interfaces, a full-size ASCII keyboard, a built-in printer, an LCD screen and a number of powerful options as well?

Read on. We'll tell you all about the Epson HX 20 Portable Computer. The one you can take anywhere and use anytime.

The portable computer that puts you in charge of the facts.

Little computer, big power.

The world has been waiting for the full-function, truly portable computer. One that's a real computer, not a glorified calculator.

Epson's HX-20 is that computer. Its standard 16KB RAM memory is expandable to 32KB. And the standard 32KB ROM memory can be upped to 72KB if you choose.

But this tremendous power is not all there is to HX-20. It also communicates. With RS-232C and serial interfaces for connect to telephone couplers and other devices.

HX-20 is easy to use, too. The full-size ASCII keyboard works just like your favourite typewriter.

Add a built-in printer, LCD screen and music generation via a piezoelectric speaker and you have versatility the likes of which have never before been found in a computer this small.

What's more, the HX-20 works on a full, extended version of Microsoft BASIC. And it has time and date functions.

Optional microcassette and ROM cartridges are available.

Goes wherever you go.

With this computer, you can compute, not just crunch numbers. You can write programs, and you can manipulate them—anywhere. Because the HX-20 utilizes rechargeable nickel-cadmium batteries and low-power, all CMOS (Complementary Metal Oxide Semiconductor) memory to keep the computer up and running for as long as 40 hours at a stretch.

So compute what you need on the road. Then dump it all onto a cartridge, or into your main system when you get back. What could be simpler?

And you don't have to worry when you turn the HX-20 off. It maintains a low-voltage current to keep everything you've put in the memory safe.

Versatile display.

Few people realize that Epson developed the first commercially viable liquid crystal display for calculators.

Decades of know-how and technology now live in HX-20's big LCD virtual screen. This screen is a lot bigger than it looks, too. Because it only shows you part of what is going on.

With the HX-20, you can do programming, word processing and data entry just as if you had a big screen. The screen lets you see any 20-column by four line segment you wish. It's yours to command.

You also get upper and lower case at will, numbers, punctuation and graphics. And the viewing angle can be adjusted to easy reading.

Printer gives hardcopies.

Customers sometimes want the hard

facts and figures before they make a final decision. With HX-20, you can give them what they need. Because the built-in 24-column dot matrix printer puts it out at 42 lines per minute.

It's highly readable too, with a 5×7 matrix. There are even bit addressable graphics so you can hand out small sales charts and other tools.

Complete with cartridge ribbon, full ASCII character set and the international symbols necessary to print most Western languages.

You probable know Epson for its printers. So the versatility of this little marvel will come as no surprise.

System expandability.

What good would a computer be if you couldn't add to its power as your needs changed?

The HX-20 lets you. A cassette interface is standard so you can store you important information and software on regular audio microcassettes. There is also a place to plug in a cassette recorder so can take advantage of the larger capacity of standard audio cassettes.

RS-232C and serial interfaces allow further expansion with such things as acoustic couplers and bar code readers. A system bus lets you add ROM and RAM capabilities, and an optional floppy disk drive gives maximum capacity to this mini-computer.

It's the Epson technology...

How is it that a company known for its peripheral printers can produce a state-of-the-art computer like HX-20?

As a matter of fact, we've been producing desk-top computers in Japan since 1978. And we have built up a reputation for ultra-high quality precision manufacturing for more than two decades.

You know Epson printers are reliable. The same reliability is built into the HX-20. You can virtually take it anywhere. And use it any time. With confidence. Because it's EPSON.

6 ways EPSON HX-20 is different from ordinary computers.

1. It's smaller.
The HX-20 will fit in a briefcase. A suitcase. A large handbag. Or even a back pack. It'll go anywhere.

2. It's got built-in power.
Nickel-cadmium batteries supply power enough for up to 40 hours of typical off-line operation, thanks to all-CMOS memories. And it recharges in less than eight hours.

3. It features automatic programs.
Ten independent program functions are no farther away than the touch of a button. What could be more convenient than that?

4. It's interfaced for peripherals.
Plug in a bar code reader for inventory control. An audio cassette recorder for saving programs and records. MX series EPSON printers for correspondence-quality printouts.

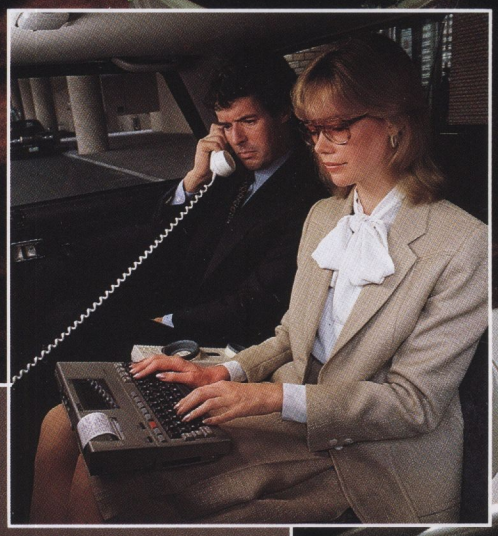
5. It's got MEMORY SAVER.
You can shut the whole thing off and never lose a thing from the RAM memory. Built-in circuitry keeps a trickle of current going through the CMOS memories to make them hold their contents.

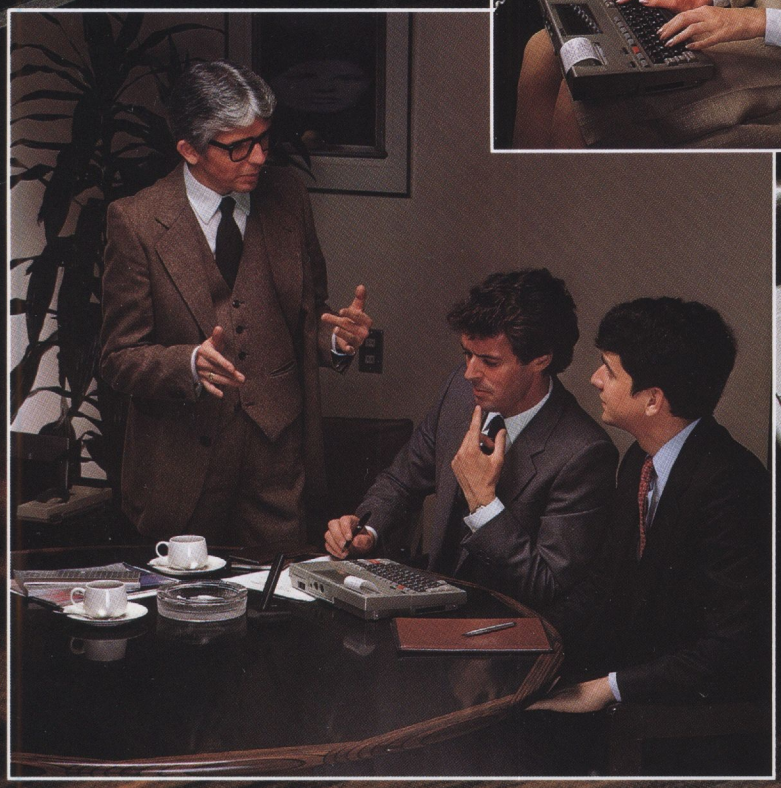
6. It costs less.
For a standard desk-top of roughly the same power as HX-20, you'd pay about twice as much. That's real value for money.

ACTUAL SIZE

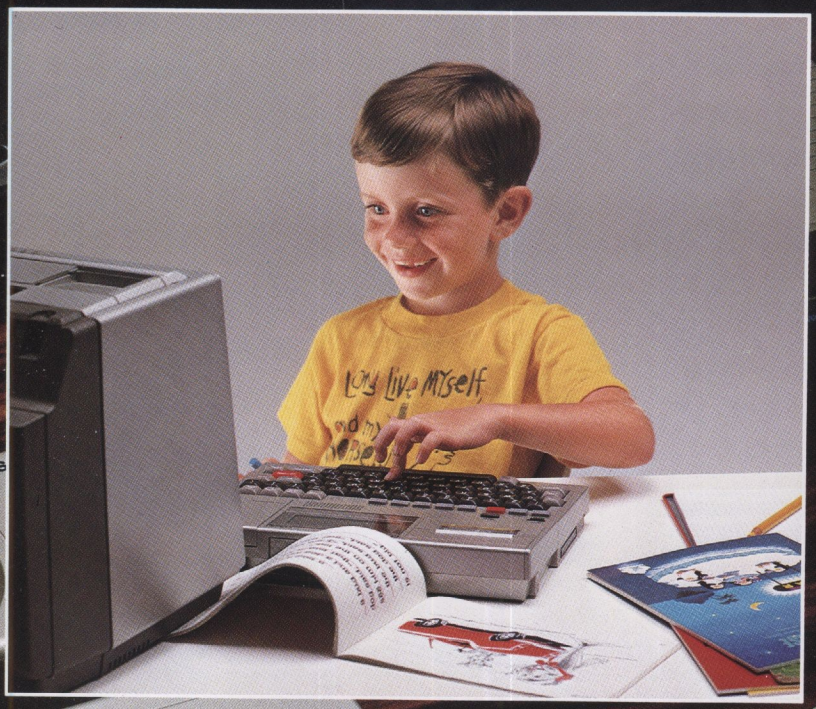
Put a little computer into your life.

Indispensable equipment for the modern executive —a mobile telephone, a good secretary and an Epson HX-20.

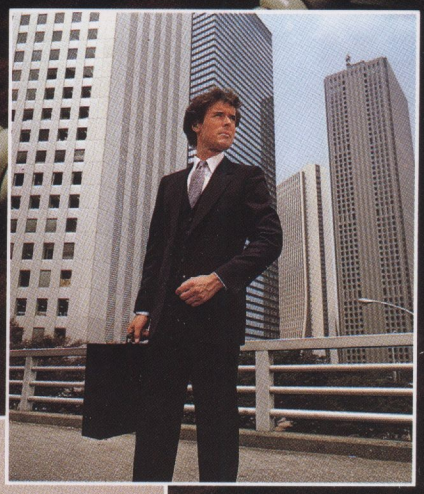


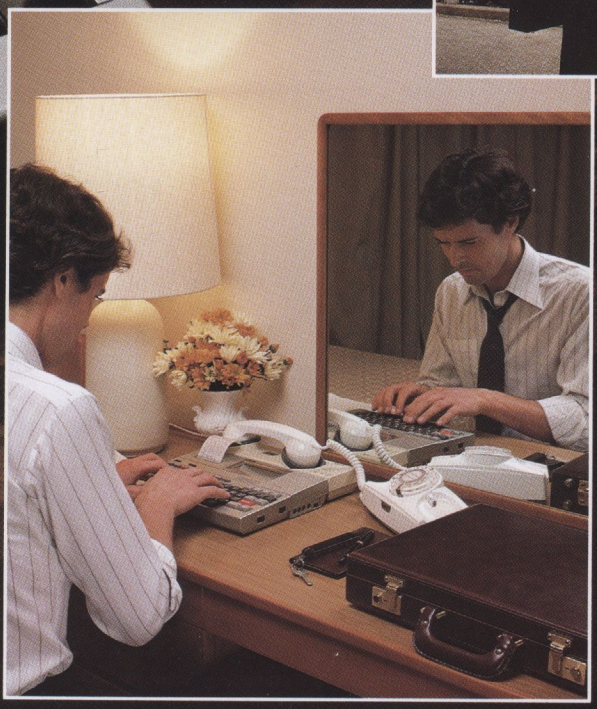


The best argument at conference table is hard statistics from your Epson HX-20.



Learning to use an Epson HX-20 is mere child's play.





On the road, an Epson HX-20 makes short work of those daily reports. Communications with home office are instantaneous, too.

How to turn EPSON HX-20 into a total system

It's amazing how powerful a small computer like HX-20 can be.

In addition to the basic unit, an optional 8KB ROM chip can be added at the time of purchase. Or later.

Another option, the expansion unit, can hold 16KB of ROM and 16KB of RAM. Or you can get it with a full 32KB of ROM only.

Audio microcassette option plugs in for retention of programs and data. Or you can use a cassette tape recorder with regular-size tapes. Add a bar code reader and inventory taking is a simple.

Floppy disk drives give you maximum memory functions in a minimum package. Only Epson technology could make such compact units.

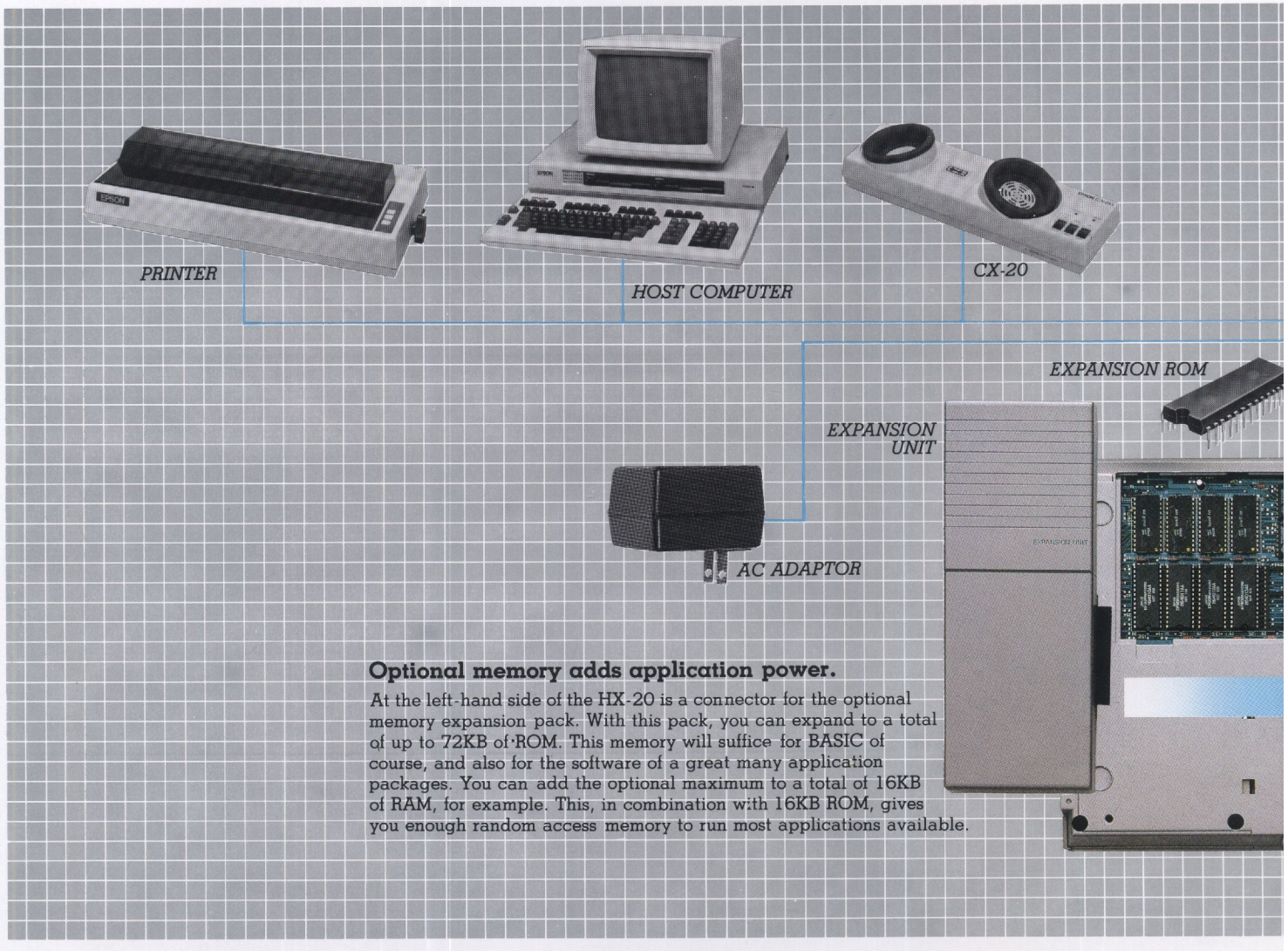
Connect the display controller to use a regular television set as display. Great for games and educational software.

The CX-20 acoustic coupler allows you to communicate with virtually anyone. Especially helpful for retrieving or sending information to your main computer.

Connects to desk top micro-computers to expand computing abilities.

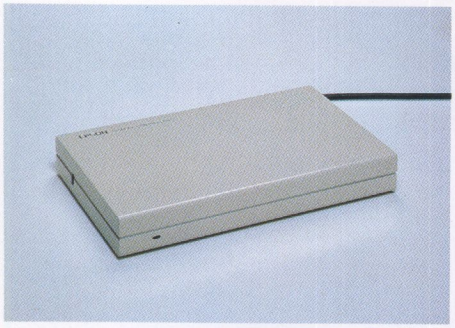
Or finally, you can plug in any EPSON dot matrix printer such as the MX-80 to get high-quality printouts of your information.

You see. Not only is the HX-20 the handiest, go-anywhere computer around, but it is also the most expandable. It can be the heart of your whole computer/communications network.



Optional memory adds application power.

At the left-hand side of the HX-20 is a connector for the optional memory expansion pack. With this pack, you can expand to a total of up to 72KB of ROM. This memory will suffice for BASIC of course, and also for the software of a great many application packages. You can add the optional maximum to a total of 16KB of RAM, for example. This, in combination with 16KB ROM, gives you enough random access memory to run most applications available.



Optional display controller puts HX-20 on TV.

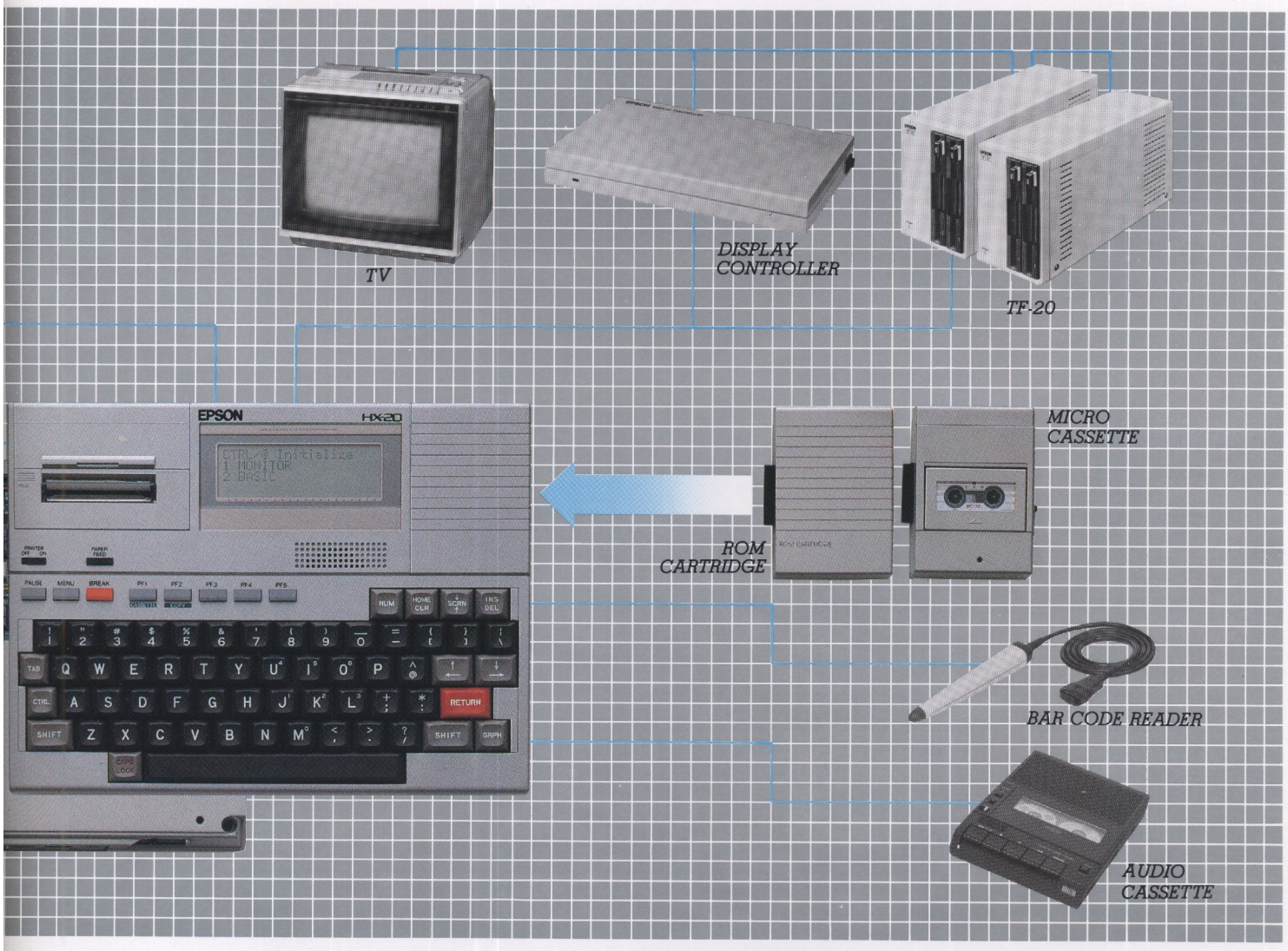
The serial interface of the HX-20 can be used to connect to this optional display controller. With it, any CRT can be used to monitor the computer—even a household television. The display will show 32 characters by 16 lines for a total of 512 characters. For graphic executions, 4-colour graphics can be computed on a 128×64-dot matrix. Monochrome graphics can be done on a 128×96-dot matrix.
The display controller also allows the connection of floppy disk drives simultaneously with the CRT for full computer capabilities.

Optional floppy disks give 640KB additional memory.

TF-20 floppy disk drives are more compact than any other on the market today. One-third the width of the ordinary drive unit and still holding two 5.25-inch disks. Two of these units will connect to the Epson display control bus.

Optional acoustic coupler lets HX-20 talk on the phone.

Speedy information gathering and exchange are the life blood of the modern corporate organization. CX-20, Epson's acoustic coupler, fits the HX-20 to let data be sent from anywhere there is a standard style telephone. Custom-designed CMOS circuits keep current needs to a minimum and nickel-cadmium batteries provide four hours of continuous usage. Self test capability and operation confirmation included.



EPSON

Specifications

CPU and Memory	
Main CPU	CMOS 8-bit microprocessor 6301, 614 KHz clockrate
Slave CPU	CMOS 8-bit microprocessor 6301, 614 KHz clockrate
RAM	16KB (standard) expandable to 32KB with expansion unit
ROM	32KB (standard) expandable to 40KB internally; to 72KB with expansion unit
Built-in Peripherals	
Display	Liquid crystal screen; 120 × 32 dot matrix; 20 × 4 character display; 5 × 7 font; virtual screen ranges 20 to 255 columns and 4 to 255 lines, respectively
Printer	24-column dot matrix impact microprinter; print rate: 42 lines per minute; bit addressable graphics; full ASCII upper and lower case character set; cartridge ribbon
Clock	Time and calender, built in CMOS battery backup
Music Generator	Programmable pulse drive, four octaves with half-tones
Communications	
RS-232C	Full/half duplex, 110 to 4800 b.p.s. 8-pin DIN connector
Serial	Full/half duplex, 38.4K b.p.s. RS-232C level, 5-pin DIN connector
Peripheral Interfaces	
Bar Code Reader	Special connector
External Cassette	Standard audio cassette interface
System Bus	16-bit address bus; 8-bit data bus and control lines, 40 pin connector.
ROM Cartridge/ Microcassette Interface	I/O port with 3 input, 6 output lines
Switches, internal	
4-bit DIP	3 bits for international character set selection; 1 bit programmable
Switches, external	
Main Power Printer On/off Reset	

Power Supply	NiCd batteries, internal; Sub C type, 1200 mA/H capacity; 40-hour capacity running BASIC (less depending on use of RS-232C port, printer or optional microcassette)
Recharge	Full charge within 8 hours
Keyboard and Character Set	
Type	Standard
Function	Interruptable
Total Number of Keys	68
Function Keys	5
Special Keys	13
Ten-key Pad	Function locked in by (NUM) key
Graphic Shift	32 special graphic characters
International Character Set	Selectable by DIP switch
Environmental	
Temperatures	
Operating	5-35°C (41-95°F)
Charge	5-35°C (41-95°F)
Storage	−20-60°C (−5-140°F)
Data Storage	−5-40°C (22-104°F)
Humidity	
Operating/Non-operating	10-80% non-condensing
Physical Characteristics	
Size	29.0 × 21.5 × 4.4 cm (11.4" × 8.5" × 1.7")
Weight	Approx. 1.7 kg (3 lbs. 13 oz.)
Options	
Expansion Unit	8KB RAM plus 24KB ROM or 16KB RAM plus 16KB ROM. Total expansion is 32KB
Microcassette	Uses standard microcassette tapes
ROM Cartridge	Uses 8, 16 or 32KB ROM to load program into RAM
CX-20 Acoustic Coupler	
Communications	Full/half duplex, selectable
Operation Mode	ORIG/ANS mode, selectable
Signaling Speed	Up to 300 b.p.s.
Interface	Standard RS-232C
Power Supply	4 NiCd batteries; AC adaptor (115V ±10%, 60 Hz); Floating charge with AC adaptor

Specifications subject to change without notice.

Products shown in this brochure may differ slightly from those actually available. Also, availability of peripherals will vary from market to market. Ask your Epson dealer for details.

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Printed in Japan 82. 11-23