

New Brain



NewBrain

NewBrain is the modular microcomputer system from Newbury Laboratories. NewBrain has been developed at our computer design offices by a team in constant contact with industrial, professional and academic computer users. NewBrain presents features never before available on a microcomputer, features resulting from advanced design using the best of current technology. Never before has there been a hand held machine with the power of NewBrain.

Never before has there been a machine of its size with a full typewriter keyboard. Most machines lack a self contained display, needing a monitor TV or VDU even when the task in hand does not require it. Entirely self contained NewBrain not only runs from its own internal batteries, but also has its own built in single line display. Modular NewBrain provides interfaces to monitors, printers, televisions and VDU's for when they are needed.

NewBrain software includes compiled BASIC, faster by far than interpreted BASICs used by other machines. It also includes high speed arithmetic accurate to ten significant figures and versatile editors for text processing.

As well as being one of the most compact machines to date and one of the most powerful, NewBrain is the most versatile. Its modular design makes enhancement simple and NewBrain architecture makes indefinite memory expansion feasible for the first time on a small computer. NewBrain is a machine produced to professional standards by an experienced manufacturer of computer equipment. It adds a new dimension to the microcomputer world.

NewBrain is a professional machine. The keyboard has been carefully designed for use by all categories of typists. It is laid out as a standard electric typewriter and the keys used have optimal profile and feel. Clear lettering aids easy location while the colouring is neutral to avoid eyestrain or distraction. The keyboard software includes a special rollover algorithm which accepts the high burst rate keying of the professional touch typist and at the same time allows for the inexperienced beginner, avoiding such problems as double keying. The NewBrain keyboard can

generate up to 224 different characters. These include 96 upper and lower case ASCII/ISO printing characters, and all 32 ASCII/ISO control codes (including ESCAPE, ALTMODE, RUBOUT, GS, RS etc). The graphics key can be used to generate the 64 viewdata graphics symbols for TV or video monitor display. Suitable software enables the keys to be user defined. As well as providing all the standard keyboard functions of a typewriter and of a teletype, NewBrain provides cursor control for screen and line formatting and editing. The cursor control keys enable any part of a line

to be brought into view on the built-in display and for characters to be inserted or deleted. On the TV, monitor or VDU screen the cursor can be moved to any position for full editing and more sophisticated word processing applications.

NewBrain's built-in vacuum fluorescent display has large and easily read letters. The fourteen segment pattern represents letters, numbers and punctuation symbols in a natural and pleasing form. The display is tilted forward; it has a wide viewing angle and the blue-green colour minimises eye fatigue. All the

64 ASCII/ISO printing characters can be displayed and, in addition, lower case letters are displayed as capitals. Displayed characters can be made to flash to draw attention. NewBrain's television and video interfaces enable all the characters generated by the keyboard to be displayed.

There are connectors at the rear of NewBrain for TV, video monitor, VDU, printer, modems (acoustic couplers) and other devices. The user port and analogue interface connectors are for laboratory apparatus, instruments and other equipment. The audio cassette

connectors are for data and program storage on any tape recorder. The NewBrain bus connector is for NewBrain extension boxes which hold memory and software expansions and extra interfaces.

The NewBrain case is in hardwearing ABS.



dual cassette interface connectors for program and data storage.

V24 interface connector for printers, VDU's, modems etc.

user port and analogue connector for user's own equipment.

composite video connector for standard video monitor.

TV connector for NewBrain UHF module and domestic TV sets.

bus connector for memory and other expansions in NewBrain boxes.

on/off switch

power connector

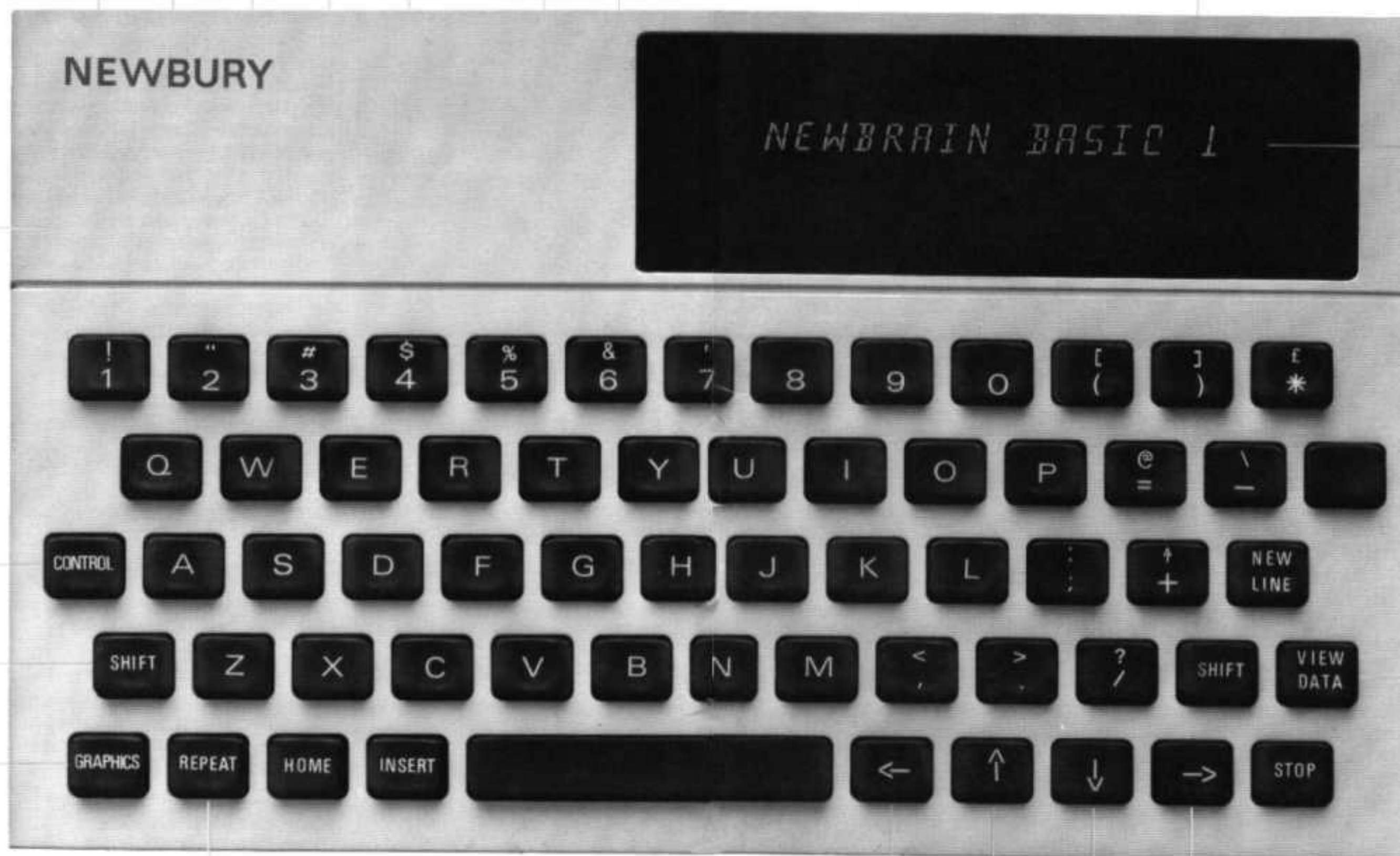
hardwearing ABS case

control key enables all 32 ASCII/ISO control codes to be generated.

shift key operates as standard typewriter shift, allowing the generation of all 96 upper and lower case ASCII/ISO printing characters.

graphics key enables the 64 viewdata graphics symbols to be produced, or other graphics symbols, according to mode of use.

repeat key



16 character blue-green display represents characters in ASCII/ISO 64 character 'teletype shift'.

viewdata key used in conjunction with NewBrain viewdata module.

cursor control keys for line and screen editing. These keys repeat automatically if held down.

Versatility is NewBrain's hallmark; completely self contained it takes input from a keyboard laid out to standard typewriter format and generates output on a one line alphanumeric display, running if necessary off its own internal batteries. Small enough to be held in the hand it slips into the briefcase as easily as a book.

For outdoor use there is no other comparable product; a special version is available with very low current consumption making it invaluable where data collection and processing is required far from any external source of electrical power.

From on-the-spot handicapping and sporting statistics to navigation at sea or in the air, from data collection around site, factory or warehouse to on-the-spot sales and financial calculations while travelling or visiting clients NewBrain has no equal.

Indoors the standard higher current consumption version of NewBrain offers the lowest cost solution to all small scale computing requirements. Yet battery back-up is still available allowing the device to continue working while being taken from office to office, and ensuring immunity from all faults in the mains supply.



Its compactness makes it ideal on the crowded laboratory bench or office desk. Its straightforward and wide ranging interfacing secures its superiority to any other device available for laboratory use. Its standard typewriter keyboard layout specially designed to sustain burst rates from a copy typist and its powerful word processing abilities make it the outstanding choice for office use.

A version of NewBrain can be obtained without self contained display for use where TV sets or monitors are already available, as in schools and colleges. In this way

NewBrain provides the most powerful and lowest cost computing realisable. In the home the same model connected to the television is the basis for a thousand activities from learning about computing to playing TV games.

NewBrain provides compact powerful computing for the first time at an ultra low cost for the benefit of sportsmen, scientists, students, doctors, farmers, teachers, lawyers, technicians and shopkeepers.





NewBrain MB

NewBrain comes in three versions. Model MB is mains powered but contains rechargeable batteries which enable the machine to run while temporarily disconnected from the mains. Model MBS employs very low dissipation components for prolonged use away from the mains supply. Model M is the ultra low cost mains only version; it has no built-in display and is used in conjunction with a TV set or video monitor.

Expansion modules are compatible with all models. These modules are contained in NewBrain extension boxes. Extension boxes are connected by cables and can be clipped on under the base module or built up into separate stacks.

All NewBrain models have a dual audio cassette interface for program and data storage and a serial output for VDU monitor or printer. The audio cassette interface is designed to use any tape recorder; it is highly tolerant of wow, flutter and phase distortion. Either one or two tape recorders can be used; for all purposes one is sufficient, but unlike



NewBrain MBS

many machines NewBrain has the facility to use a second when this makes processing more efficient. All NewBrain models save program and data on tape at 1200 baud which makes the data transfer rate very fast.

NewBrain's software has a full feature screen editor, a powerful line editor, a BASIC compiler and an operating system. It includes a high speed floating point mathematical package (multiply takes less than 2ms) which is accurate to ten significant figures. All trigonometric and inverse trigonometric functions are included and number storage is particularly efficient. The BASIC compiler is to full ANSI specification. The ANSI standard is enhanced by the addition of user-controlled formatting of numeric output, advanced I/O features for cassette tape file-handling and interfacing to other equipment, and string and logical functions. NewBrain models come complete with composite video, user port, bidirectional V24 and analogue interfaces. Additional interfaces and additional memory expansion fit into universal



NewBrain M

extension boxes. The V24 interfaces connect to printers (such as the Newbury 8300), teletypes, modems and VDU's. The composite video output will drive any standard monitor.

The television output requires a NewBrain UHF module which plugs into an ordinary domestic TV set. The analogue interface can be connected to sensors, instruments, gauges, chart recorders and so on. The user port connects to laboratory apparatus, test rigs, burglar alarm systems, pneumatic controls, heating circuits, or in the home, model railways or games devices.

NewBrain software extension modules plug into NewBrain or NewBrain extension boxes and genuinely extend rather than replace the software already present; once plugged in they need never be removed, and up to four megabytes of software can be added in this way. Software modules in development include assembler, COBOL and PASCAL, and utility packages written in BASIC and assembly code.



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