

*Compusense*



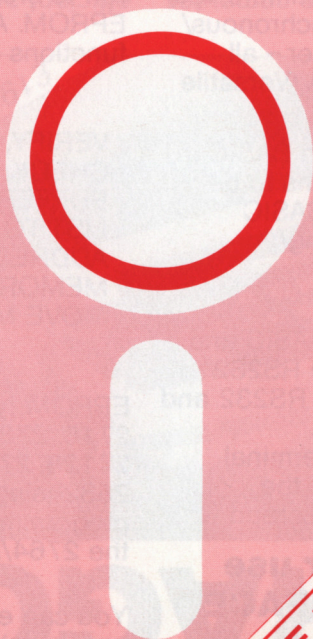
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**DRAGON**

**FLEX**



THE NEWSLETTER/PRICE LIST  
FROM YOUR AUTHORISED  
DRAGON DISTRIBUTOR



# **DRAGON 64**



and FLEX-09 operating systems to be used giving access to a vast range of advanced professional software, freeing you from the restrictions of 'toy computers'.

The heart of the DRAGON – the 6809 microprocessor – is without doubt the best of the 8 bit processors, in fact it has of 16 bit functions. Unlike the 8080, Z80 or 6502 it has a well designed

Much more than just a home computer for playing games. The DRAGON 64 is used by commercial, industrial and educational establishments for a wide range of applications. When used with disks the 64K memory allows the OS-9

efficient and logic instruction set making the DRAGON an IDEAL and REWARDING computer for learning and writing machine code. The standard DRAGON MICROSOFT BASIC is one of the most widely used

BASIC dialects (similar to the Apple, IBM-PC, Tandy Colour) and is ideal as a first language to learn.

Note that the DRAGON 64 has, as standard, interfaces which on other 'home' computers are an optional extra. eg. RS232, joysticks, disks, ROM cartridge.

## Technical Specifications

### Hardware

6809E microprocessor – 64 KBytes RAM memory  
6847 Graphics Controller – 6551 ACIA controller chip for RS232

### Interfaces

Cassette Recorder (with motor control) – TV (video and sound)  
Monitor (composite video) – Sound  
2 Joysticks with 'fire' buttons – programmable RS232  
Expansion for disks, ROM Cartridge, prototype boards, etc . . .

### Software

MICROSOFT BASIC (compatible with DRAGON 32)

### DRAGON DOUBLE DISK DRIVE SYSTEM

£399.00

Single 5 1/4 inch disk drive system comprising – DRAGON DOS controller, DRAGON DOS manual, DRAGON Disk Enclosure with two disk drives (each Single Sided – 40 Tracks – Double Density – storage capacity approx. 180 KBytes formatted), ribbon cable and mains cable.

### DRAGON SINGLE DISK DRIVE SYSTEM

£249.00

as above – but only one drive.

### DRAGON DOS CONTROLLER

£92.00

Now available separately. Supports standard 5 1/4 inch floppy disk drives (and compatible 3 1/2 or 3 inch drives). Drives must have own power supply. Contains DRAGON-DOS software in ROM. Supplied with DRAGON DOS manual.

### DISK DRIVE UPGRADE KIT

£120.00

Full instructions and components to upgrade a single DRAGON disk drive system to a double system. No soldering required – just a screwdriver.

### WABASH 1D DISKETTES

£22.00

Recommended diskettes for the DRAGON Disk system.

Accepts one or two 2732 or 2764 EPROMS. Supplied as bare board.



## DRAGON 64 MODEM CABLE

£13.50

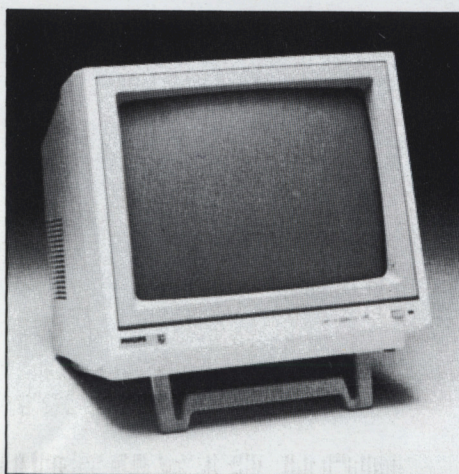
Connects the DRAGON 64 to a modem. 7 pin DIN plug at one end – standard 26 way D connector (male) plug at the other.

## ANSWERCALL MM100/UK MINI MODEM

£75.00

British Telecom (BABT) approved CCITT V21 modem for use at speeds up to 300 bps full duplex with standard RS232-C interface. Ideal for most systems eg. electronic mailbox, bulletin boards, PSS . . . etc. Simple operation – manual dialing and selection of originate or answer mode. Carrier detect and power on indicators. Comes complete with mains power adaptor, new style telephone plug and two way adaptor for new style telephone socket. Excellent value for money.

## PHILIPS MONOCHROME MONITOR



Smart professional appearance. Recommended for the DRAGON but also suitable for computers with composite video output. Has the advantage and convenience of built in audio output. Choice of green or amber phosphor. Supplied with free monitor lead.

Green £99.00

Amber £104.00

## RS232 + I/O INTERFACE

£63.00



High performance expansion for the DRAGON with:

- SERIAL RS232 INTERFACE (using the 6551 chip) with software selectable baud rates from 50 to 19,200 bits per second.
- I/O INTERFACE with two 8 bit input/output ports, two interval timers, four control lines and one synchronous/asynchronous shift register – all provided by the 6522 VIA (Versatile Interface Adaptor).

- With built in extensions to BASIC in ROM to allow the functions to be used conveniently from BASIC programs without PEEKing/POKEing:

Set the BAUD rate  
SAVE/LOAD programs (BASIC and MACHINE CODE) via the RS232 Input/Output Data to the RS232 and VIA Ports  
Run the DRAGON as a terminal  
Use a terminal instead of the DRAGON keyboard and screen

## MODEM CABLE for use with RS232 INTERFACE

£19.50

## EPROM PROGRAMMER

£78.00



Turn your DRAGON into an intelligent EPROM Programmer just by plugging into the expansion port. This Programmer is totally software controlled and allows BASIC functions to be used and BASIC programs to be run to created data to be put into EPROM. All the EPROM Programming functions are selected from a MENU:

VERIFY, LOAD, PROGRAM, EMPTY CHECK, EXAMINE/CHANGE BUFFER, CLEAR, FILL BUFFER, LIST TO SCREEN/PRINTER, SET ADDRESS LIMITS, LOAD FROM MEMORY, SELECT EPROM TYPE, MOVE MEMORY, EXIT TO BASIC

EPROM types supported are: 2708, 2716, 2732, 2732A, 2764, 2764A, 27128, 27128A, 27256, 2508, 2516, 2532 (single rail only). Fast intelligent programming algorithm is available for the 2764/27128/27256.

You can exit to BASIC (eg. to load/save programs) and then return to the menu.

## SIDEWAYS ROM

£45.00



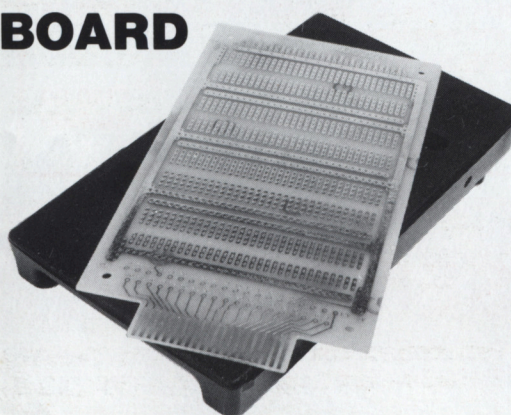
Holds machine code and BASIC programs in FOUR BANKS of EPROM. Eliminates the need for tape cassette or disks for special applications. Three of the banks hold up to 14K Bytes and the fourth holds 16K bytes and is compatible with existing DRAGON software cartridges.

Extra BASIC commands allow you to:

SELECT BANK, LOAD BASIC PROGRAM, RUN MACHINE CODE PROGRAM IN ROM, PREPARE A BASIC PROGRAM FOR BLOWING INTO EPROM (REQUIRES EPROM PROGRAMMER).

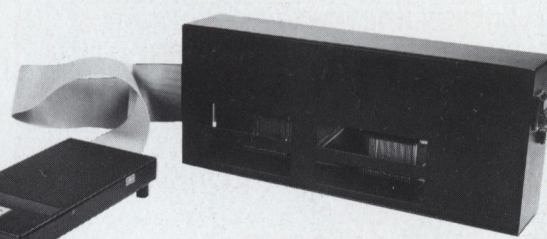
Accepts 2716, 2515, 2732, 2732A, 2532, 2764, 2764A, 27128, 27128A EPROMS (not tri-supply types). EPROMs not included.

## PROTOTYPING BOARD



## EXPANSION SYSTEM

£148.00



Many serious users of the DRAGON have found it inconvenient to have only one expansion port – NOW YOU CAN HAVE FOUR – and select any one by software.

This expansion system supports most commercially available cartridges and contains it's own power supply – so will not overload the DRAGON. Cartridges may be even be changed without having to switch the DRAGON off.

Includes examples and hints on how to use different types of cartridge in combination. For example: copying programs between DRAGON DOS and DELTA DOS, transferring a program from disk to EPROM Programmer for use in the SIDEWAYS ROM CARTRIDGE, loading a program from RS232 and saving to disk or EPROM.

Easy to use with Compusense FLEX. OS-9 users please enquire.

tin edge connector £7.00  
gold edge connector £9.00

Pre-drilled, ready for soldering with convenient power and earth rails.

## PROTOTYPING BOARD PLASTIC CASE

£3.00



## THE FLEX OPERATING SYSTEM

with editor and assembler **£86.25**  
special price with DBASIC **£99.99**

The ideal operating system for the DRAGON - especially when combined with the DBASIC package. Requires 64K and DRAGON/DELTA disk controller. Also available for the TANDY COLOUR 64.

- 48K free user RAM
- 51 by 24 Hi-Res Screen with true lowercase, auto repeat redefinable character sets, windows, etc.
- Supports single and double density disk formats
- Includes over 30 standard utilities
- Powerful Macro Assembler
- Versatile Text Editor

## DBASIC £30.00

Get all the benefits of FLEX without having to throw away your existing DRAGON BASIC programs. Most BASIC and machine code programs can be run with little or no changes.

- Standard 32K DRAGON BASIC
- 32 by 16 screen and 51 by 24 Hi-Res screen
- send commands to FLEX from DBASIC
- use up to 8 sequential/random access files simultaneously
- ERROR GOTO statement to intercept errors
- ERROR command shows exactly where BASIC detected an error
- Load/Save programs on FLEX disk
- includes 5 working sample programs

## FLEX DIAGNOSTICS PACKAGE £86.25

Will pay for itself many times over by recovering lost data and files.

Contains six memory test programs and ten disk diagnostic programs. The disk diagnostics do not test the hardware, but rather the structure of the files, the directory and free space. Inconsistencies in this structure may result from a problem such as a power failure or "runaway" program. Includes a detailed description of the FLEX disk structure and a guide to disk and memory trouble shooting with case studies. Shows you how to repair a disk, rebuilds "crashed" disks, recovers accidentally deleted files, removes bad sectors from free space.

## 6809 DEBUG PACKAGE £86.25

Cuts down assembly language debugging time - A Valuable Learning Tool

A powerful and complete debugging package which simulates all the functions of the 6809 microprocessor giving complete control over the execution of the program under test.

- interactive assembler
- disassembler
- multiple conditional breakpoints
- breakpoints can be set in ROM code
- step by step trace
- traps illegal codes and other conditions
- display/change registers
- display/change/search memory
- review last 256 instructions
- simulation of interrupts
- protection of memory segments
- counts machine cycles

## TSC EXTENDED BASIC £115.00

A fast interpreted BASIC by the authors of FLEX with 16 digit precision and a dynamic range of 10E38. Supports sequential, random and record format FLEX files. Programs may be developed in an interactive mode. Developed programs may be "compiled" to save loading time and disk/memory space. Includes all the standard BASIC statements and mathematical functions.

## EXTENDED BASIC PRECOMPILER £57.50

An essential tool for the professional BASIC programmer. Allows you to write your BASIC programs without worrying about line numbers using meaningful alphanumeric labels and variable names. Helps you to write programs that are easier to read, understand and maintain.

## TSC SORT/MERGE £86.25

This package is an important tool for the serious computer user. It sorts files, of any type or size, using up to 20 key fields in ascending or descending order. The final output can be sent to disk or printer. It is an essential component for business systems but is just as useful for technical, scientific and statistical work whenever data must be sorted and analysed.

## TSC TEXT PROCESSOR £86.25

One of the most powerful text processors available. Handles anything from a letter to a complex manual.

The Text Processor is an ideal way of producing formatted text for use in mailing lists, personalised letters and large documents. It is NOT an interactive word processor but a batch program allowing very large documents to be processed. The input to the text processor is a standard text file which may include library calls to other text files. Data (eg. names and addresses for form letters) may also be read from disk or typed in by the operator.

- similar to BELL Laboratories' NROFF
- definable line and page lengths, margins and titles
- over 50 formatting commands
- macros simplify complex processing
- left/right/center justification, centering and underlining
- footnote processing
- text diversion for later use

## LANGUAGE COMPILERS FOR FLEX

<b>CRUNCH COBOL</b>	<b>£115.00</b>
standard business language with most level 1 and some level 2 features	
<b>LUCIDATA PASCAL</b>	<b>£103.50</b>
a comprehensive P-Code implementation	
<b>WINDRUSH PL9</b>	<b>£122.70</b>
powerful language similar to PL1, PLM and PL80. Produces position independent ROM-able machine code.	
<b>WINDRUSH 'C'</b>	<b>£189.75</b>
near complete K & R implementation. Requires TSC relocating assembler if user libraries are to be created.	
<b>INTROL 'C'</b>	<b>£431.25</b>
comprehensive implementation with assembler/linker/loader and library manager. Requires 1/2 MByte minimum disk storage.	
<b>CMS FORTH</b>	<b>£86.25</b>
A Fig-Forth implementation with 79-Standard Extensions, Double-Number extensions, Assembler and Editor.	
<b>WINDRUSH 'C' for DRAGON FLEX</b>	<b>£86.25</b>
<b>WINDRUSH PL9 for DRAGON FLEX</b>	<b>£86.25</b>

## ASSEMBLERS AND CROSS ASSEMBLERS FOR FLEX

TSC 6809 ASSEMBLER £40.00

"the standard by which other 6809 assemblers are judged"  
two pass assembly, sorted symbol table, macros, conditional assembly or command line parameters, library files, formatted listing, produces binary or S1-S9 Format.

**XASM CROSS ASSEMBLERS for 6800/2/8 6801/3 6301 6805 6502 8080 Z80** £51.75 each  
with all the facilities of the TSC 6809 assembler. £201.25 all

**TSC RELOCATING ASSEMBLER and LINK/LOADER** £172.50  
The facilities of the standard assembler but allows modules to be assembled separately and linked together.

**TSC 68000 CROSS ASSEMBLER** £287.50

## DYNACALC £69.95 for COMPUSENSE DRAGON/TANDY FLEX

The Electronic Spreadsheet for the 6809

Fast full feature spreadsheets written in 6809 machine code. DYNACALC is an original program developed by CSC Inc. and is similar to VISICALC (trade mark of VISICORP Inc.). Any book describing applications and sample spreadsheets for VISICALC may be used with DYNACALC.

- Runs under DRAGON FLEX with 51 by 24 character screen
- 256 Rows by 256 Columns
- HELP facility
- 16 Digit arithmetic
- Mathematical, Scientific, Trigonometric, Statistical, Logical and Business Functions built in
- Windows
- Plot Graphs
- Print all or part of spreadsheet
- Save/Load Spreadsheet on disk
- Delete Move Replicate any Row/Column
- Execute FLEX commands
- Horizontal and Vertical Titles
- Sort in ascending/descending order

Data save to/Loaded from disk by DYNACALC may be passed to/created by other FLEX programs eg. RMS, BASIC, PASCAL, COBOL, text editor.

## R M S £69.95 for COMPUSENSE DRAGON/TANDY FLEX

A complete DATABASE MANAGEMENT SYSTEM

Versatile and very easy to learn to use. Ideal for accounting, business records, management information systems, customer records, customised data entry, stock control and much more. RMS can be readily configured to do many different jobs which require: data entry, online data retrieval/update and printing of reports without any programming knowledge.

- create a new data base
- design a new form for entering data
- store, retrieve and update records using key field
- produce reports
- create index files to display/modify selected records or print records in any desired order
- merge or copy records to another database

An RMS database is stored as a standard FLEX random file and is accessible to user written programs and packages such as Sort/Merge.



The Classic Adventure Game

**COLOSSAL CAVE ADVENTURE** Now includes game save facility.

If you have never tried Colossal Cave Adventure then this is your chance to see just how captivating this program is. Be warned it's addictive and will burn a lot of 'midnight oil'.

Requires a DRAGON 64 with disk drive. **£9.95**

## OS9 SOFTWARE (LIMITED STOCKS)

OS9 Programmers Manual	£19.95
DYNACALC	£59.95
BASIC 09	£59.95
EDITOR/ASSEMBLER/DEBUG	£49.95
'C' COMPILER	£79.95
PASCAL	£79.95

## DASM/DEMON

THE IDEAL ASSEMBLER AND MONITOR COMBINATION

**DASM** is a versatile two pass assembler designed for ease of use. Allows you to assemble machine code while retaining the full use of BASIC. Supports all 6809 mnemonics. Output may be listed on printer.

**DEMON** is a powerful machine code monitor which helps you to debug your machine code programs and allows you to delve into the internal workings of the DRAGON. Functions include: EXAMINE MEMORY, CHANGE MEMORY, DISPLAY REGISTERS, CHANGE REGISTERS, PRINT SCREEN, SET BREAKPOINTS, CLEAR BREAKPOINTS, TEST MEMORY.

Cartridge £30.45 DRAGON-DOS/RS-DOS £19.95

**DASM SOURCE TAPES** £5.99 each

Working Assembler Programs including Source Code for DASM

- Vol.1 Single Pass Disassembler
- Vol.2 The Game of Life
- Vol.3 Hi-Res Graphics Dump MX-80
- Vol.4 Hi-Res Graphics Dump SEIKOSHA

## DYNAFAST/DYNAMISER/DYNAXREF

The Compiler/Optimiser/Cross Reference Package for BASIC

DYNAFAST speeds up your DRAGON/TANDY BASIC programs by converting the parts that can take advantage of the internal 16 bit arithmetic of the 6809 microprocessor into fast machine code.

DYNAMISER is a utility that squeezes out all the unnecessary spare space from your programs. Savings of 20% are typical.

DYNAXREF helps you analyse programs so that you can readily correct or change them.

Cartridge £30.45 DRAGON-DOS/RS-DOS £19.95 FLEX £19.95

## DECODE

Convert DRAGON BASIC to TANDY COLOUR BASIC

Cartridge for DRAGON or TANDY COLOUR (min 32K and Extended BASIC) £18.95

## HI-RES

51 by 24 Character Text Screen

Just plug in the Hi-Res cartridge, switch on and you will immediately see the improvement. The screen displays 24 lines of 51 characters with proper lower case. BASIC works as normal but with extra features:

- selectable/redefinable character sets (USA UK French German Danish Swedish Italian Spanish)
- sprite graphics
- improved keyboard action with autorepeat for faster typing
- Graphics and text may be mixed on the screen

Cartridge for the DRAGON or TANDY COLOUR (min 32k) £23.50

Hi-Res is included with EDIT+ on cartridge and disk (DRAGON/RS DOS)

## EDIT+

FULL SCREEN EDITOR AND PROGRAMMER'S TOOL KIT

An excellent aid for writing BASIC programs for the beginner as well as the experienced computer user. You can view your program on a Hi-Res 51 by 24 character screen and change it by simply overtyping, inserting or deleting characters. Tool Box functions include: FIND STRING, CHANGE STRING, COPY TEXT, SCROLL UP, SCROLL DOWN, GOTO LINE, APPEND FROM TAPE, ENTER BASIC COMMAND.

Available for DRAGON 32/64 and the TANDY COLOUR COMPUTER (min 32K and Extended BASIC) and for DRAGON/TANDY FLEX (requires DBASIC)

Cartridge £34.45 DRAGON-DOS/RS-DOS £19.95 FLEX £19.95

## GRAPHDRAWER

The ideal way of presenting technical/business results

Graphdrawer allows you to enter data, draw graphs or histograms on the high resolution screen and print on an EPSON MX80 or SEIKOSHA printer.

On Tape/DRAGON-DOS Disk/FLEX Disk £9.95

Requires a DRAGON 32/64 with Hi-Res/EDIT+ cartridge or DRAGON 64 with DRAGON-DOS disk and EDIT+ or DRAGON FLEX with DBASIC

## TECHNICAL DEVELOPMENT SOFTWARE (available for FLEX, OS9 enquire).

DYNAMITE+ 6800/09 Disassembler	£103.50
SLEUTH 6800/09/6502 Disassembler	p.o.a.
6502 to 6809 Translator	p.o.a.
6800 to 6809 Translator	p.o.a.
6502 Simulator	p.o.a.
6805 Simulator	p.o.a.

## DRAGON ACCESSORIES

Dragon Dustcover (Grey material)	£2.99
Monitor/Sound Lead	£3.99
Printer Lead with Centronics Interface	£14.99
WABASH diskettes box of 10	£22.00

\*\*\* One free WABASH disk included with every disk drive sold \*\*\*

**DRAGON CIRCUIT DIAGRAMS (DRAGON 32)** £2.99  
**DRAGON CIRCUIT DIAGRAMS (DRAGON 64)** £2.99



- Prices are in Pounds Sterling
- Prices include VAT
- Prices and specifications subject to change without notice

**SP-Edit**  
**WORD PROCESSOR FOR FLEX**  
with INTERACTIVE SPELLING CHECKER  
only £75.00

- EASY TO USE FULL SCREEN EDITOR - insert/delete/overwrite/find/replace/move/copy/delete/scroll text/go to page/line

- AUTOMATIC ON-SCREEN FORMATTING - shows the text as it will be printed
- COMPREHENSIVE FORMATTING FACILITIES - justify/center/underline/bold/indent
- PAGE HEADER/FOOTER - can be automatically printed on each page
- HANDLES LINES OF UP TO 124 CHARACTERS - using left/right scroll

- WORKS WITH ALL POPULAR PRINTERS - print one page or whole document
- SPELL CHECK ONE WORD OR WHOLE DOCUMENT - indicates words in error
- IDEAL FOR ALL EDITING REQUIREMENTS - eg. programs
- BROWSE UTILITY - allows you to look at/search documents on disk while using word processor



## ★ ★ ★ ★ DRAGONPLUS ★ ★ ★ ★

### DOUBLE THE POWER OF YOUR DRAGON

The ultimate expansion for the DRAGON. Adds 64K DYNAMIC RAM, fast 80 columns by 24 lines video display with it's own 2K STATIC RAM. Turns the DRAGON into a truly professional machine.

#### DRAGONPLUS

expansion board only **£103.50**

Assembled and tested, ready to install in your DRAGON 32 or DRAGON 64. Fitting service available.

#### Software for DRAGONPLUS

EDIT+ cartridge **£25.00**

EDIT+ disk (DRAGON DOS only) **£19.95**

FLEX update **£5.75**

for 80x24 screen and RAM Disk

(Registered FLEX owners only)

SP-EDIT Word Processor: configuration for **DRAGONPLUS** already included.

**Note:** ALL your existing software will still work as before.

### SPECIAL PURCHASE OF DRAGON DATA SINGLE DISK DRIVES

(fully guaranteed - limited supply only)

**£149.99** plus **£9.00** carriage and insurance

with FREE EDIT+ DISK worth **£19.95**

Upgrade kit to double disk only **£105** plus  
**£2.50** carriage and insurance

## GET YOUR DRAGON 64 ON-LINE with CHAT

Only **£6.95**

The easy way to get on to ONE-TO-ONE, bulletin boards, Prestel (300 baud), Telecom Gold etc... Requires a DRAGON 64 and a modem and optional printer. Also turns the DRAGON 64 into a terminal working at up to 19,200 baud or a serial to parallel printer convertor. Supplied on cassette — can also be used with DRAGON DOS/DELTA DOS/CUMANA DOS/FLEX with D BASIC.

Special Package: MODEM, CABLE and CHAT only **£85.00**

NULL MODEM CABLE — connect two DRAGON 64s by RS-232 (approx 15 foot) **£9.50**

## ONE-TO-ONE TELEX — ELECTRONIC MAIL

Friendly and easy to use electronic messaging service with worldwide TELEX. An economical way of getting your own TELEX plus lots of other facilities: instant mail, priority letters, courier letters, distribution lists, radio paging . .

From **£57.50** registration fee plus **£5.75** per month. Full details available.

## CUMANA DISK DRIVES for the DRAGON 32/64

with Double Density DRAGON COMPATIBLE CUMANA DOS Controller

★ ★ ★ FREE WABASH DISKETTE WITH EVERY DISK DRIVE SYSTEM ★ ★ ★

System 1: Single Sided 40 Track **£179.95**

System 2: Double Sided 40 Track **£209.95**

System 3: Double Sided 80 Track **£224.95**

System 4: Twin Single Sided 40 Track **£269.95**

System 5: Twin Double Sided 40 Track **£325.95**

System 6: Twin Double Sided 80 Track **£354.95**

plus **£9.00** carriage and insurance

## OS-9 BUSINESS SOFTWARE for the DRAGON

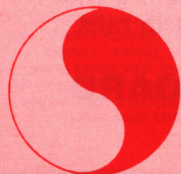
Volume 1: INVOICING/STOCK RECORDING

**£120.00**

Volume 2: SALES LEDGER/PURCHASE LEDGER/CUSTOMER FILE (LABELLING)

**£120.00**

Volume 1 and Volume 2 only **£199.95**



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