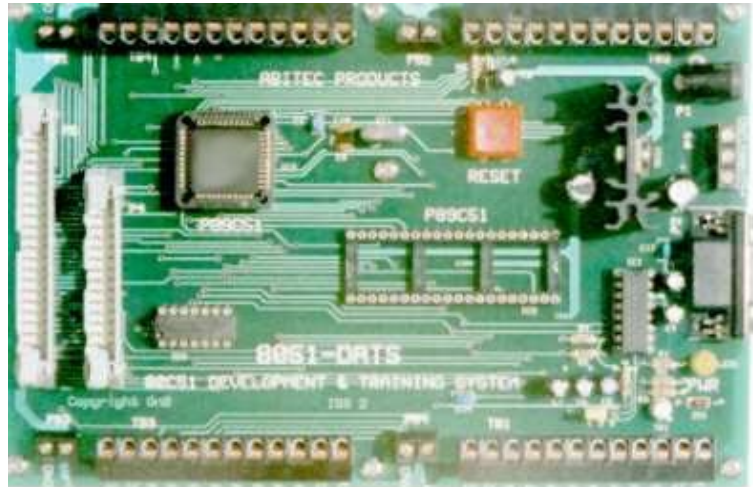


# 8051-DATS

## 80C51 DEVELOPMENT & TRAINING SYSTEM



optional\* screw terminal blocks shown fitted

Of the many types of Micro-controller available on the market the Intel 80C51 family and its directly compatible equivalents from Atmel and Philips are by far the most commonly used.

The **8051-DATS** incorporates the powerful **Atmel T89C51RD2** CMOS "In System Programmable" device in a 44 pin PLCC package with provision for a 40 pin DIL package. These are directly interchangeable with equivalent devices using the **MCS-51 instruction set** and pinout from Intel and Atmel.

The Atmel T89C51RD2 is a high performance micro-controller with **64K Bytes** of downloadable non-volatile FLASH EEPROM and **1K Bytes** of RAM.

The **8051-DATS** offers a wide variety of hardware and software facilities whilst retaining simplicity in operation.

A highly flexible product, the **8051-DATS** runs as a true micro-controller, without external RAM and so enabling all available input/output ports to be retained for their intended use. Designed as a general-purpose unit, suited to **EDUCATIONAL** and **TRAINING** applications, 8051-DATS simplifies the teaching of the 80C51 Micro-controller and is suitable for all levels, from performing simple I/O experiments flashing LEDs to use as a controller in complex student projects. It may also be used, by engineers, as a target board for stand-alone applications.

The **8051-DATS** is used as a target system for **8051 Assembler Code** programs, the FLASH/EEPROM based monitor providing a user interface to any standard Personal Computer, running WIN95 or higher, via its serial port.

8051 code programs are assembled on the PC and downloaded from the host in Intel Hex format. Programs are entered directly into the **WINDOWS** based **Cross Assembler**, **Disassembled** and easily debugged with the powerful **Monitor** facilities. **Register** contents can be displayed on the screen. The monitor software may be integrated into user code for fast, flexible code development. Alternatively, programs can be developed in high level languages such as 'C' and then compiled and assembled into Intel Hex format.

Standard IDC style connectors give full access to all ports for direct connection of our range of compatible teaching applications. Access to the ports is also duplicated via removable screw terminal blocks allowing easy connection for demonstration or development purposes.

The 8051-DATS comes complete with comprehensive, Windows based, **Control and Development software** with an **integrated Cross assembler, Text editor** and **on board monitor**.

8051-DATS is manufactured as a 120 mm x 180 mm printed circuit board with through plated holes, solder mask and screen printed component identification. Program download/ serial port connection is via 9 way D type connector. IDC connectors are used for access to all of the connections to the 8051 Micro-controller and, as an option\*, screw terminal blocks can also be fitted to the board to provide the same direct access. A standard 2.1 mm power inlet socket is fitted for use with an unregulated power supply or alternatively screw terminals allow direct connection of a 5V DC supply. The 8051 target board is supplied mounted on an acrylic base with rubber feet for stability whilst in use on the bench.

## 8051-DATS Hardware Features

- T89C51RD2 Micro-controller (operating at up to 33MHz) compatible with MCS-51 products
- Used in true Micro-controller mode retaining access to all I/O lines for external control.
- 64K Bytes of In-System Re-programmable downloadable FLASH memory.
- 1K x 8-bit internal RAM
- Controller connections accessed via an IDC connector for external processor bus examination.
- Programmable UART serial port (via external 9 way D type connector) buffered by line receiver/driver
- Powered from a simple unregulated 8 to 13V dc or from a regulated +5V dc source (Power on LED).
- Up to 32 Programmable Input/Output lines accessible via IDC headers (3 lines allocated for in service programming).
- Screw terminal block **option\*** to access the 32 I/O lines.
- Input/Output connections compatible with our range of Applications products (via 40 way IDC header).
- Programmable timing provided by three 16 bit counter/timers.
- Programmable Watchdog timer.
- Seven programmable interrupt sources
- Functionality for PWM applications
- Interrupt recovery from power down.
- Hardware reset and Interrupt signal push buttons.
- Power supply, serial cable, communication software and comprehensive manual included.
- 8051 board is mounted on acrylic base and supplied in a rugged moulded storage case.

## 8051-DATS Software/Monitor Features

- Full debug facilities
- Help - displays monitor commands
- Memory - examine/alter memory contents.
- Run program - starts user program
- Cross Assembler - for assembler code entry.
- Disassembler - disassembles code to screen.
- Port Input - read & display specified port.
- Port Output - output byte to specified port.
- Breakpoint - Sets & resets breakpoints
- Single Step - step through code one instruction at a time.
- Trace -automatically single steps user program line at a time.
- Program load -loads extended Intel hex files.
- Full specified memory mapping

The on-board monitor is fully compatible with our range of WINDOWS low cost and professional grade development software. This includes a Re-locatable Cross-Assembler, C compiler and Simulator. The monitor communicates with the host computer via the RS232 interface.

**8051-DATS standard package consists of the 8051 PCB supplied in a rugged moulded storage case, the Technical/User Manual, Power Supply (9V1A), serial cable and Disk based Development and Communications software.**

*To operate the 8051-DATS a PC is required running an operating system of WIN95 or higher.*

## Ordering Information

8051 training system .....8051-DATS (specify UK, US or EU PSU)  
Screw terminal option\* fitted .....ST-OPT51  
Experiments Manual (used with APPS-BD)..... EM-8051  
Cross-assembler for WIN 95,98 and NT..... A8051NT  
C compiler for WIN 95,98 and NT..... C8051NT



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