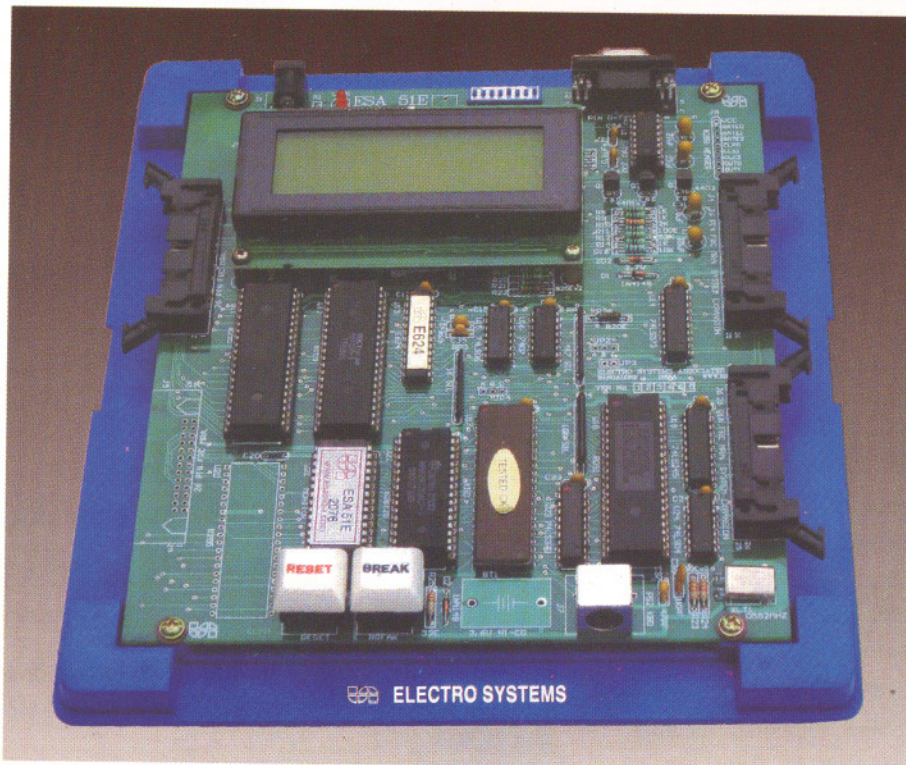




ESA 51E

LOW COST
MICROCONTROLLER TRAINER



8051 family of microcontrollers and its derivatives are increasingly becoming popular for instrumentation and control applications due to its speed and powerful instruction set which are essential for real-time applications. This has created the need for a good trainer and development tools. ESA 51E (a low cost version of ESA 51) provides a complete solution for this requirement. It can be used as a flexible instructional aid in academic institutions and a powerful development kit in R&D Labs.

The system firmware provides stand-alone monitor, serial monitor, one line assembler, disassembler and drivers for EPROM programmer and parallel printer interfaces. ESA 51E is supplied with comprehensive and user-friendly documentation as well as windows based communication software with online - help.

MAIN FEATURES

- ★ ESA 51E operates on single +5V power supply either in stand-alone mode using PC keyboard and LCD or with host PC through its RS-232-C interface in serial mode.
- ★ Stand-alone and serial monitor programs support the entry of user programs, editing and debugging facilities like single stepping and full speed execution of user programs.
- ★ On-board 20 x 4 LCD Module
- ★ Total on-board memory is 128K bytes of which 88K bytes RAM has battery backup provision.
- ★ 48 I/O lines and four programmable interval timers.
- ★ 9 Port lines of MCU brought out to the right angle ribbon cable connector including INT1.
- ★ Buffered Bus Signals are available through ribbon cable connector for easy system expansion.
- ★ Driver software for file upload/download to/from host PC.

ACCESSORIES (OPTIONAL)

- ★ Power Adapter : ESA ADP-DC5 (SMPS); +5V@3A
- ★ PC keyboard for stand-alone mode of operation.
- ★ EPROM Programmer Interface (2716 through 27512).
- ★ 8751 adapter for the above interface.
- ★ Interface modules for training purpose: Keyboard, Elevator, Display, Dual DAC, 12 bit 8 Channel ADC, Logic Controller, Traffic Lights, Tone Generator, Stepper Motor, Opto Isolated Input, Opto Isolated Output, Relay Output, DC Motor Interface, Temperature Controller Interface, etc.,
- ★ Study cards for 8255, 8279, 8251/8253, etc.,
- ★ Power Supply : +5V @ 3A; ±12V @ 250mA; +30V @ 100mA (required for some of the above interfaces).
- ★ 3.6V Ni-Cd battery for power backup to RAM.
- ★ Parallel Printer cable.

SPECIFICATIONS

MCU

8031 / 51 @ 11.0592 MHz.

MEMORY

Two JEDEC sockets provide following memory configuration:

- ROM** : 32K bytes of system firmware using 27C256.
- RAM** : 96K bytes, 32K bytes of **program memory** (using upper half of 628128) and 64K bytes of **data memory** (using lower half of 628128). Upper most 8K bytes of data memory are reserved for I/O addressing and I/O expansion.

PERIPHERALS

- 8155** : Static HMOS 256 bytes RAM with I/O ports and timer. RAM reserved for monitor, 14 bit timer is available for user and port lines are used for LCD & system configuration.
- 8255** : PPI, Two Programmable Peripheral Interface devices ; one supplied; another for user expansion. One of them can be used for parallel printer interface.
- 8253** : PIT, Programmable Interval Timer. Three 16 bit programmable timers available for user.
- 8042** : UPI, Universal Peripheral Interface used to interface PC keyboard in stand alone mode.

INTERRUPTS

- External** : INT0 is used for single stepping and user's BREAK key. INT1 is available to user.
- Internal** : Internal timer and serial interrupts are used by the system monitor.

INTERFACE SIGNALS

- MCU Bus** : Bus signals are available through two 26 pin right angle flat ribbon cable connectors.
- Parallel I/O** : 48 TTL compatible lines (2 X 8255) brought out through two 26 pin right angle flat ribbon cable connectors.
- Serial I/O** : RS-232-C through on-board 9 Pin D-type female connector.
- Timer Signals** : Three 8253 and one 8155 timer signals are available at the 26 pin right angle flat ribbon cable connector.

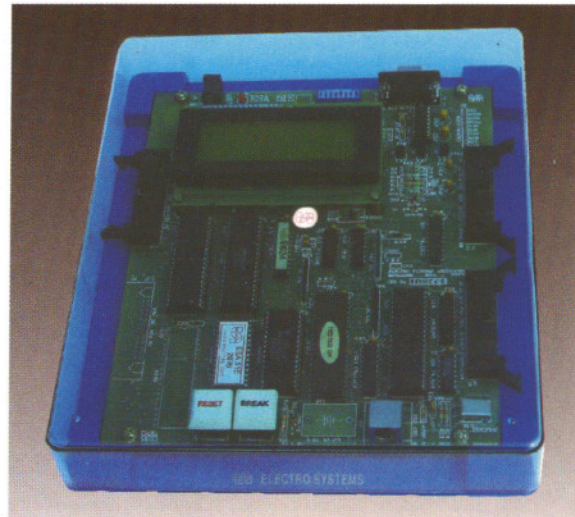
GENERAL

- Power Supply Requirement** : +5V@0.9A (approx.)
- Dimensions** : (L) 240mm x (B) 210mm x (H) 50mm (approx.)
- Weight** : 700 grams (approx.)

Housed in an ABS plastic moulded cabinet

SCOPE OF SUPPLY

1. ESA 51E Trainer with 20 x 4 LCD
2. User's Manual
3. Driver Software (CD) for Windows and DOS.
4. 8051 Reference Card
5. RS-232-C cable



OUR PRODUCT RANGE : Microprocessor Trainers for 8085, Z80, 6809, 8086/88, 68000; Microcontroller Trainers for 8031/51, 80C196 KB/KC, 68HC11, PIC Trainers and Interface Modules; DSP Trainers; Power PCs; In-Circuit Emulators; ROM Emulators; Microcomputer Development Systems; Universal Device Programmers; UV Erasers; PC compatible systems and Add-on Cards, Logic Analysers, AD/DA cards, DIO cards, etc.; Microprinters; Printer Support Products and Software Development Tools; etc.,



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NOTE : Specifications are subject to change without prior notice