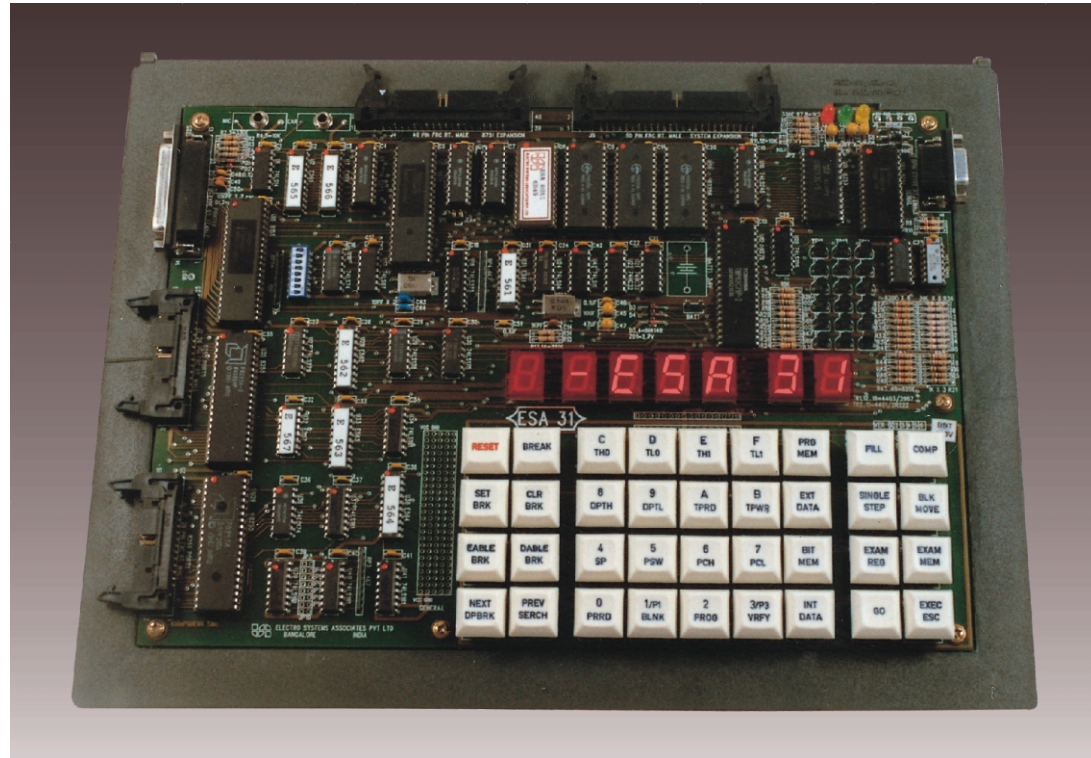


ESA 31

MICROCONTROLLER TRAINER



MCS-51 family of microcontrollers is 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 31 provides complete solution for this requirement. It can be used as a flexible instructional aid in academic institutions and a powerful development tool 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 31 is supplied with comprehensive and user friendly documentation as well as windows based communication software with on-line help.

MAIN FEATURES

- ★ Operates on a **single +5V power supply** either from on-board keypad or from a PC compatible system through its RS-232-C interface.
- ★ Stand-alone mode and serial monitor programs support the entry of user programs, editing and debugging facilities like breakpoints (128K), single stepping and full speed execution of user programs.
- ★ Line Assembler & Disassembler in Serial Mode.
- ★ File upload/download from host system using DOS & Windows based driver software.
- ★ On-board audio cassette interface.
- ★ Total on-board memory is 128K bytes of which 88K bytes memory has optional battery backup facility.
- ★ On-board Parallel Printer Interface.
- ★ 13 unused port lines of MCU brought out to the connector(including INT1, RXD & TXD pins).
- ★ Buffered bus signals are available through ribbon cable connector for easy system expansion.

ACCESSORIES (OPTIONAL)

- ★ Power Adapter +5V @ 3A (SMPS).
- ★ Ni-Cd Batteries for Power backup to RAM.
- ★ EPROM programmer interface (2716 through 27512).
- ★ 8x51 adapter for the above interface.
- ★ Interface modules for training purpose : Keyboard, Elevator, Display, ADC with DAC, Dual DAC, 8 bit-16 Channel ADC, 12 bit 8 Channel ADC, Logic Controller, Traffic Lights, Tone Generator, Stepper Motor, Opto Isolated Input, Opto Isolated Output, Relay Output, DC Motor, RTD interface etc.,
- ★ Power Supply : +5V @ 3A; ±12V @ 250mA ; and +30V @ 100mA (required for some of the above interfaces).
- ★ On-chip serial port adapter.
- ★ Study cards for 8255, 8279, 8251 / 8253 etc.
- ★ Parallel Printer Cable.

SPECIFICATIONS

CENTRAL PROCESSOR

8031/51 @ 11.0592 Mhz.

MEMORY

Four 28 pin JEDEC sockets offer total 128K bytes of memory.

PROGRAM MEMORY

32K bytes EPROM using 27256 and 32K bytes of static RAM using 62256 with optional battery backup.

DATA MEMORY

56K bytes of RAM in two 62256 supplied, Upper most 8K bytes are reserved for I/O devices and I/O expansion.

FIRMWARE

Serial and Keyboard Monitor programs, Assembler and Disassembler in serial mode, Drivers for Cassette Interface, Printer Interface and EPROM Programmer Interface etc.

PERIPHERALS

- 8155 : Used by the system to control the mode of operation (keyboard mode or serial mode), to provide baud clock to 8251A USART, to support Audio Tape and Parallel Printer Interface.
- 8255 : Two Nos. supplied provide 48 programmable I/O lines to the user.
- 8253 : Three programmable interval timers are available to the user.
- 8251 : Used for serial communication supporting all standard bauds from 110 to 19200.
- 8279 : Used to Control 36 keys keypad and 7 digits of 0.5 inch, Seven Segment LED Display.

BUS EXPANSION

STD compatible bus signals available through a 50 pin ribbon cable connector.
I/O Expansion : 8751 port lines available through a 40 pin ribbon cable connector.

INTERFACE SIGNALS

- Parallel I/O : 48 TTL compatible lines (2X8255) brought out through two 26 pin ribbon cable connectors.
- Serial I/O : RS-232-C compatible signals through on board 9 pin D type female connector.
- Printer : Parallel Printer Interface available on a 25 pin D type female connector (pin compatible to PC) printer port.

GENERAL

Power Supply

Requirement : +5V@1.6A (Approx)

Dimensions

: (L) 365mm x (B) 275mm x (H) 55mm (Approx)

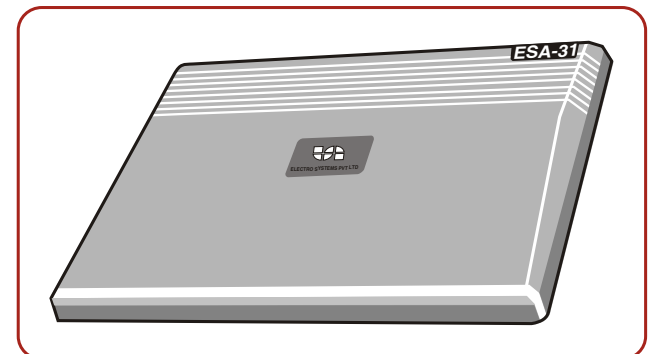
Weight

: 1375 gms (Approx)

Housed in ABS Plastic moulded cabinet

SCOPE OF SUPPLY

1. ESA 31 Trainer
2. User's Manual
3. 8051 Reference Card
4. Windows & DOS driver software CD
5. RS-232-C Cable set



OUR PRODUCT RANGE : Microprocessor Trainers for 8085, Z80, 8086/88, 68000; Microcontroller Trainers for 8051, 80C196, PIC Trainers, and Interface Modules; DSP Trainers ; In-Circuit Emulators; ROM Emulators; Microcomputer Development Systems; Universal Device Programmers; UV Erasers; PC compatible systems and Add-on Cards, AD/DA cards, DIO cards, Logic Analyzers, etc.; Microprinters and Software Development Tools.



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NOTE : Specifications are subject to change without prior notice