Microprocessor Trainer

μ-Kit
Microprocessor Trainer

Purpose

The Hampden **μ-KIT** Microprocessor Trainer provides students with valuable experience in the wiring, testing, operation, and troubleshooting of large scale integrated circuit microprocessors - the central processing unit of microcomputer systems.

Description

The Hampden **μ-KIT** contains all of the circuits and components necessary to construct an actual single-board microprocessor, including the 8085A CPU chip, a printed circuit board, keypad, 6-digit LED display, expansion bus, I/O connector, and the required integrated circuit chips.

Once the student has assembled and properly tested the trainer, he or she is able to concentrate on programming and running programs via the 24-function keypad.

The **μ-KIT** interfaces with equipment such as motors or robots through the 38 Input/Output lines. The Integral 256-bytes of memory is expandable to 64k bytes by means of the expansion bus.

Operation

The Hampden **μ-KIT** can be assembled within a single 3-hour class period, depending on the skill and experience of the student.

The completed unit must be powered by a separate 5-volt DC power supply. The **μ–KIT** draws 350mA.

Following are some of the principal characteristics of the Hampden **μ-KIT**:

- The 8085A CPU uses the most popular instruction set of all microprocessors. Instructions are compatible with both the 8080 and Z80 CPU's.
- Uses 3MHz crystal controlled clock. This extremely fast processing speed makes the 8085 superior to more limited CPU's such as the 6502 and the 6800.
- The 16-key, 26-function keypad is under control of the system monitor, a source program burned into the EPROM chip at the factory. The student thus interfaces directly with the microprocessor by programming in machine language. No assemblers nor compilers are needed.

Hexadecimal characters representing address and data information are displayed on six 7-segment LED's

A counter-timer is an integral part of the **μ-KIT** as is the 256-byte memory capacity.

The **μ-KIT** is provided with a 50-pin, 38 line Input/Output connector and an expansion connector, which permits the addition of memory capacity and peripheral devices such as an EPROM programmer, an RS232 interface board, or a motor control experimentation board.

The **μ-KIT** is supplied with a student manual containing assembly and wiring instructions plus 85 microcomputer experiments.
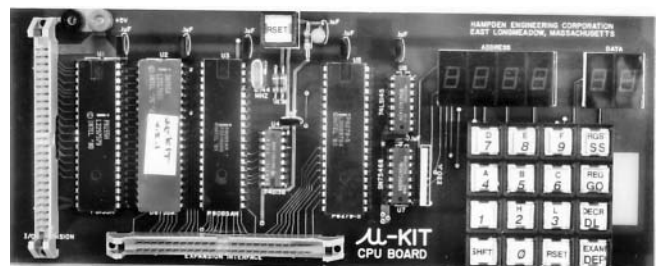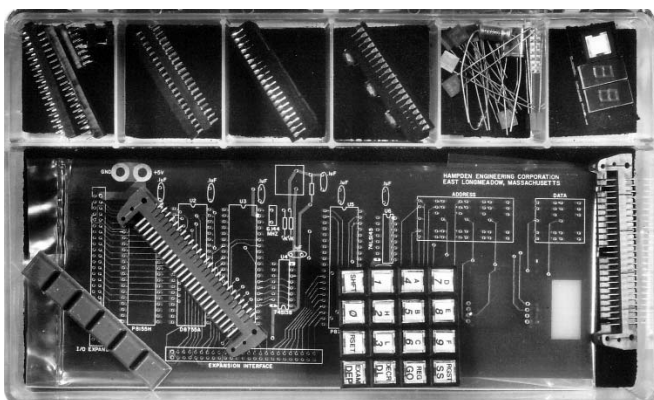
All Hampden units are available for operation at any voltage or frequency

Hampden®
ENGINEERING CORPORATION

110403

Accessories

To expand the capabilities of the **µ-KIT** CPU board, several peripherals have been developed by Hampden that complement the teaching of microprocessor techniques already imparted to the student. The modules are divided by function to familiarize the student with the various building blocks of the computer: memories, serial communications, motor control, and EPROM programming. All of these modules come in kit form with easy to follow step-by-step assembly instructions.
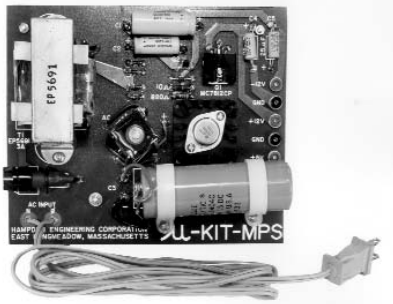
Power Supply Module µ-KIT-MPS

Provides a fully regulated 5VDC supply, and the ±12VDC supplies needed for all of the **µ-KIT** series boards. The module requires a single 120VAC input, includes on board fuse protection, and comes with cabling to bring the power onto the **µ-KIT** CPU board.

Dual RS232 Interface Module µ-KIT-DRM

Interfaces the **µ-KIT** CPU board to one or two serial devices, such as a terminal or printer. The EIA standard RS232C interface means that any of hundreds of peripheral devices can be used.

EPROM Programming Module µ-KIT-EPM

Allows the student to program his own developed software onto EPROMs for use on the Hampden Memory Expansion Module. Programs all types of EPROMs used on the Memory Expansion Module.

Microprocessor Tool Kit µ-KIT-MKS-1

Basic tools used for assembly of the **µ-KIT**, includes soldering station, solder, continuity tester, and anti-static mat.

Experimentation Breadboard µ-KIT-EBI

Provides a location for the student to assemble circuits for analog and/or digital control interface experiments.

Experimental Board Accessories µ-KIT-EBA-2

Provides components for building interfacing circuits for control purposes. Circuits include half-wave AC control, full-wave AC control, DC control, digital/analog and analog/digital conversion.
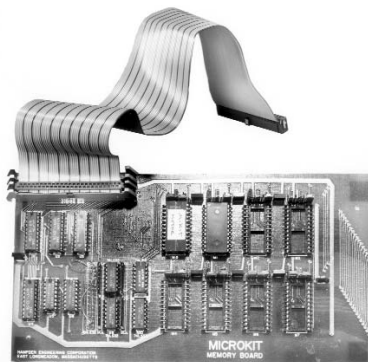
Memory Expansion Module µ-KIT-MEM

Provides for up to 32K of additional memory for the **µ-KIT**. Six different types of memory devices are supported on the module. Each of the eight memory sockets are individually configurable and can be independently addressed.

Integer Basic Module µ-KIT-BAS

Provides the very popular BASIC language for the student's use in programming. Also included is a full 8085 Assembler for machine language programming.

All Hampden units are available for operation at any voltage or frequency

Hampden®
ENGINEERING CORPORATION

110403