



# The modular synthesizer for the professional

**The Eμ synthesizer is a professional-quality system designed for use in recording studios, live performances, and teaching. Like any finely-crafted instrument, it is produced with painstaking attention to quality. The high quality of the Eμ synthesizer and the inherent flexibility of its modular design make it an investment that will return years of satisfaction.**

## Why modular?

The essence of a synthesizer is its ability to create unique sounds with electronic components connected together and controlled in various ways. As the number of ways to interconnect and control the components increases, so does the ability to create sounds.

We chose to make our system completely modular because we want it to be capable of producing virtually any sound. In our modular design, we have separated electronic functions into independent units as much as possible and eliminated "hard wired" interconnections and control signal routing. How the modules are connected and controlled is entirely up to you.

For the serious musician, Eμ offers the ultimate in flexibility. Think of an Eμ synthesizer as an "audio erector set." Play with it, experiment with it, learn from it. Arrange signal sources and modifiers in

nearly any configuration. The sounds you produce will be limited only by your own skill.

In addition to creative flexibility, the Eμ synthesizer also gives you important economic advantages. The Eμ is not the least expensive synthesizer available, but it will never become obsolete, and you will never outgrow it. Therefore, you will never be faced with having to spend several thousand dollars for an entirely new instrument just to get one additional feature. Start with the system that meets your needs now; add to it as you grow; change it as your creative requirements change.

You can even update modules you already have as advances are made in electronic technology. When improved circuits become available, the "submodule" unit that contains the circuit can be replaced in existing modules quickly and inexpensively.

# Features of the E $\mu$ synthesizer

**The E $\mu$  synthesizer was designed with several features that add to creative flexibility and playing ease.**

## **Patching**

Patching can be done in either of two ways. Conventional front-panel patching is available for all modules. In addition, almost any connection that can be made by a front-panel patch can also be made by a "firm-wire" patch at the back of the modules. Firm-wire patches can be made or changed by the user in minutes. The firm-wire patch is effective whenever a patch cord is not inserted into the input phone jack on the front panel. When a patch cord is inserted, the firm-wire patch is overridden.

Firm-wire patches are especially useful for setting up frequently used module connections. They can greatly reduce the usual tangle of patch cords on the front panel.

## **Keyboard bus**

Keyboard signals, synchronization signals, and power are distributed throughout the synthesizer by ribbon cables. When a new module is added, all required connections can be made in minutes simply by installing a single plug on the cable and inserting it into a connector on the rear of the module.

## **Mixing**

Summing input mixers with attenuators are included on most modules, so no separate mixers are required. Several outputs can be patched together in a multiple to get averaging output mixing with no distortion.

## **Filters**

Filters are what give the synthesizer's sound its unique qualities. E $\mu$  offers the widest line of voltage-controlled filters available to give you the greatest possible control of the waveform. All E $\mu$  filters feature extremely low noise and distortion. Filter modules include:

- lowpass filter\* with 24 dB/octave cutoff
- highpass filter\* with 24 dB/octave cutoff
- universal (simultaneous highpass, bandpass, lowpass, and notch) active filter
- resonant ("formant") filter

## **Standard signal levels**

E $\mu$  uses the industry standard 1V/octave frequency control sensitivity and "hot" audio levels (10V p/p) with 6dB headroom.

## **Submodules**

All of the circuitry needed to perform the functions of most modules is contained in submodule circuit boards. (The submodules do not contain switches, jacks, controls, or connectors, which are attached to the module panel.) Submodules can be removed and replaced easily.

Submodules are available by themselves for replacement in modules or for use by experimenters who wish to build their own systems. Submodules are accompanied by full documentation. Prices run from \$40 to \$200.

\*E $\mu$  patented design.

### **Modular sequencer**

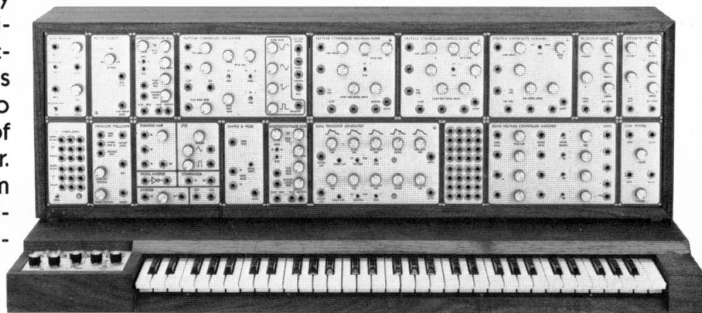
E $\mu$ 's modular sequencer separates clock, counter, memory, and voltage output functions into individual modules which can be interconnected in a variety of ways. Additional logic-function modules further add to the flexibility of the sequencer. You can perform all of the traditional sequencer functions, and you can also program

lines of music with a monophonic keyboard, store them in memory modules, and play them back in synchronization.

The sequencer's modular design offers a unique advantage to music educators: The E $\mu$  sequencer modules can be arranged to simulate the operation of any other type of sequencer.

### **Polyphonic keyboard and sequencer**

The programmable polyphonic keyboard,\* with its built-in microprocessor and memory, adds a new dimension of creative capability to the E $\mu$  synthesizer. With optional memory the sequencer holds thousands of key depressions which can be permanently stored in digital format on any audio tape recorder. The dual section keyboard will let you play up to 16 notes at once. You can build individual parts in the sequencer memory and play them back as whole compositions.



### **Listen to E $\mu$ synthesizers on records**

The following albums feature

E $\mu$  synthesizers:

**Classical** "Beyond the Sun" (Holst's The

Planets)

Patrick Gleeson

Mercury

(performed en-

tirely on the E $\mu$

synthesizer)

**Popular**

"Will O' The Wisp"

Leon Russell

Shelter Records

**Avant-garde**

"Seastones"

Ned Lagin and Phil Lesh, Round Records

### **About E $\mu$ Systems**

E $\mu$  is pronounced like the first sounds of Electronic Music. The company was formed in 1972 to produce synthesizers in the same tradition of craftsmanship that has always been the mark of fine instrument makers. We feel that mass production and marketing are not compatible with our standards of quality, so we have chosen to remain independent and small enough to live up to those standards.

We at E $\mu$  systems, and our representatives around the country, will give you personal help in selecting modules for your first synthesizer and in choosing additional modules as your capability grows. We are always available to answer questions and help with problems.

\*E $\mu$  patented design.

Our representatives are experts in the use of synthesizers, and each has a demonstration unit in a studio setting. Before you order a system, you should study our technical catalog. Then set up an appointment with a representative to see the system and discuss your musical needs and budget. Keyboard systems start around \$3000.

### **Available functions**

- Voltage Controlled Amplifier
- Quad Voltage Controlled Amplifier
- Voltage Controlled Lowpass Filter
- Voltage Controlled Highpass Filter
- Universal Active Filter
- Resonant Filter
- Resonant Filter Bank Controller
- Voltage Controlled Oscillator
- Sawtooth/Pulse Voltage Controlled Oscillator
- Voltage Controlled Lag Processor
- Dual Delayed Transient (ADSR) Generator
- Transient Generator Voltage Control Unit
- Noise Source
- Sample & Hold
- Dual Preamp
- Ring Modulator
- Envelope Follower
- Potpourri (Misc: LFO, Comparator, V Sources, etc.)
- Dual Reverb
- Sequencer Modules:
  - Voltage Controlled Clock
  - 8 Position Address Generator
  - Voltage Source (Pot) Output Unit
  - Memory Address Generator (512 step)
  - Memory Output Unit
  - Memory Programmer
  - Audio Tape/Memory Interface
  - Hex Inverter                      Triple Latch
  - Triple OR Gate                  Dual One-shot
- Monophonic Keyboard
- Polyphonic Keyboard with Sequencer

