



SELECTING AN ELECTRONIC MUSIC SYNTHESIZER

THERE ARE SYNTHESIZERS FOR EVERY TASTE AND POCKETBOOK—FROM ELABORATE STUDIO MODELS TO DO-IT-YOURSELF MODULES

THE design of most commercial synthesizers is based on the original RCA and Moog systems — a series of keyboard-controlled vco's and vcf's interconnected through patch cords, matrix switches, relays, or stop-like fixed presets. The majority have only one- or two-note-at-a-time capability, although the latest designs are beginning to go truly polyphonic.

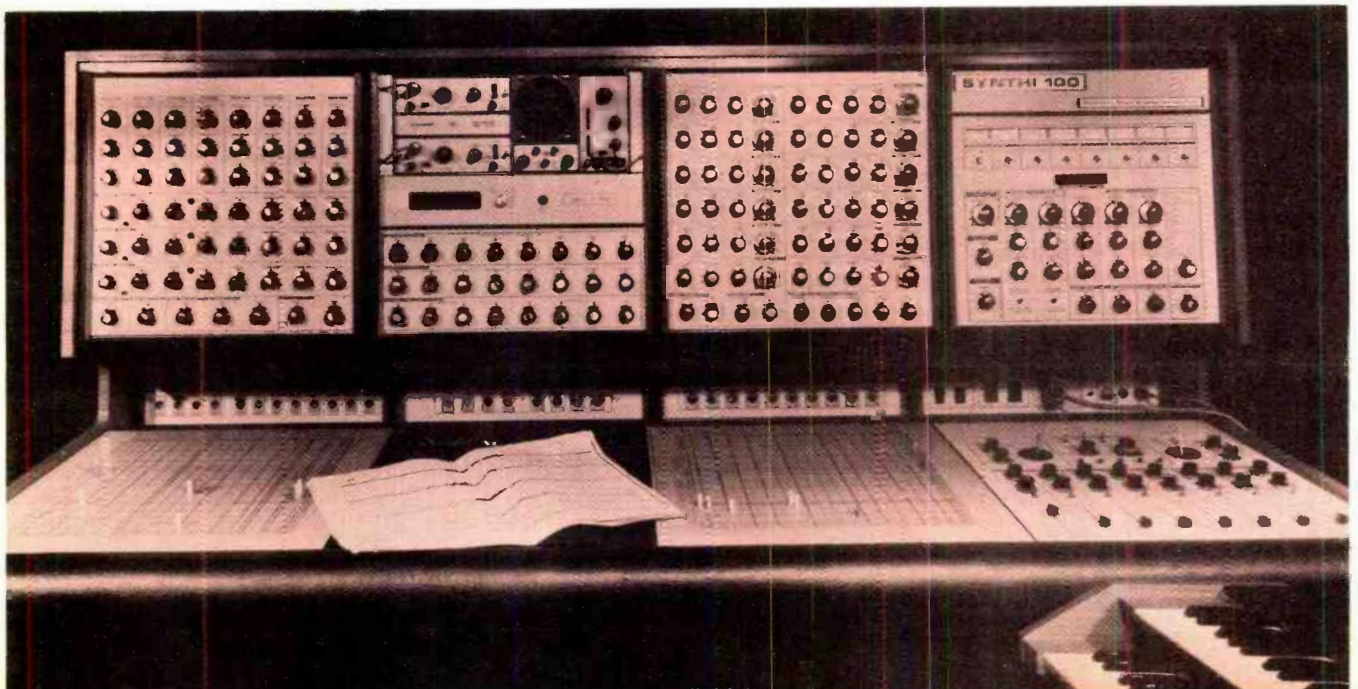
At present, synthesizers fall into several broadly defined categories: studio models, live-performance models, economy build-it-yourself kits, and individual modules.

Studio Models. Synthesizers for recording studios are the most expensive, featuring as much in performance and variations as can possibly be offered. However, they are not really suitable for live performances. Typical of the synthesizers in the studio category are several custom Moog units (see box on page 51 for manufacturer and supplier addresses), the Synthi 100 from Electronic Music Studios, and the ARP 2500 from ARP Instruments.

Live-performance synthesizers are usually offered through music stores for retail prices ranging from a low of

about \$900 to a high of \$3000 or more. Currently popular versions are the ARP *Odyssey* and *Soloist*, the *Minimog*, and EMSA's *Electrocomp 101* (made by Electronic Music Labs., Inc.), and the Ionic *Performer*.

Prices for these synthesizers are somewhat high, but they are comparable to what you would have to pay for other quality musical instruments, and much less than for most electronic organs. At present, the prices are high because the synthesizers are sold and serviced by retail music stores, because much engineering cost must be



MORE EM BOOKS

Organ Building, R.L. Eby. This is a complete handbook on electronic organ and synthesizer parts and pipe-organ materials. It costs \$3 from Newport Organs, 486 Production Place, Newport Beach, CA 92660.

Musical Acoustics, C.A. Culver. Discussed in this book are the basics of all musical instruments, timbre, tone production, harmonic structures, etc. The book was published by McGraw-Hill Book Co. in 1956.

Music, Physics, And Engineering, H.F. Olsen. An updated version of the out-of-print *Musical Engineering*; it includes material on much of the original RCA synthesizer experiments. The book was published by Dover Publications in 1967.

Psychology of Music, C.E. Seashore. Published by McGraw-Hill Book Co. in 1938; you may have to hunt through the shelves of a large library to find a copy of this book. In it you will find discussions on instruments, their tonal structures, and how music is interpreted.

SYNTHESIZER MANUFACTURERS

The following is a list of addresses of the manufacturers and suppliers of commercial synthesizer products mentioned in the text:

ARP Instruments, 320 Needham St., Newton, MA 02164

Electronic Music Laboratories, Inc., Box H, Vernon, CT 06066

Electronic Music Studios, 460 West St., Amherst, MA 02164

E μ Systems, 3455 Homestead Rd. #59, Santa Clara, CA 95051

Ionic Industries, 128 James St., Morristown, NJ 07960

Moog Music, Inc., Box 131, Williamsville, NY 14221

PAIA Electronics, Box 14359, Oklahoma City, OK 73114

Southwest Technical Products Corp., 219 West Rhapsody, San Antonio, TX 78216

Total Technology, Box 828, Belmont, CA 94002



*ARP Instruments Model 2600 (above)
costs about \$2800*

*The EMSA Synthi 100 (opposite) is complete
professional studio model (\$20,000 up).*

amortized over a relatively few units, and because, when these instruments were designed, components and techniques were far more expensive and complex than they are with today's IC's.

If you question that last statement, consider that you can get four analog switches that double as sample/hold devices in the RCA CD4016 for only \$1.50. Just \$2.50 will buy a three-waveform vco with extreme stability in the Intersil 8038. Motorola's MC14049 gives you a hex analog switch that doubles as a hex vca for only \$2, and their MC1408 8-bit D/A converter sells for \$5. RCA's CD4046, another \$5 IC, can be used to make a phase-locked loop tracker. In addition, the price of the 741 operational amplifier IC, the mainstay of all EM, now sells for less than 50c.

Another frequently overlooked cost factor is that the switches, patches, controls, etc. used in synthesizers are expensive items in the quantities required for EM systems. And don't forget that the cabinet is another high-expense item.

Once the newer IC's are put to use in synthesizers and all-digital tone generation schemes are prevalent, we can reasonably expect prices to drop drastically. But even if the prices remain the same, there should be considerably more in the way of performance from the instruments.

Basic Models. The third synthesizer category is the bare-bones kit type. PAIA Electronics, with their Model 2720 that sells for \$200, is a good example of such a system. The least expensive synthesizer (actually a composer) you can buy is the *Psychtone* from Southwest Technical Products Corp. It sells for \$53.

The fourth route to synthesizers is the use of modules to build up a custom system that does exactly what you want. Two leaders in this field are E μ Systems (their catalog is \$5, which is refundable with your first order) and Total Technology.

Buying Hints. This seems to be the overall picture as we see it. If you are interested in the commercial gear, try to arrange a live demonstration so you can compare several different makes and models. Better yet, try to rent a synthesizer or use it on a lease/purchase basis to make certain that it meets your specific needs. In short, if possible, try before you buy. ♦