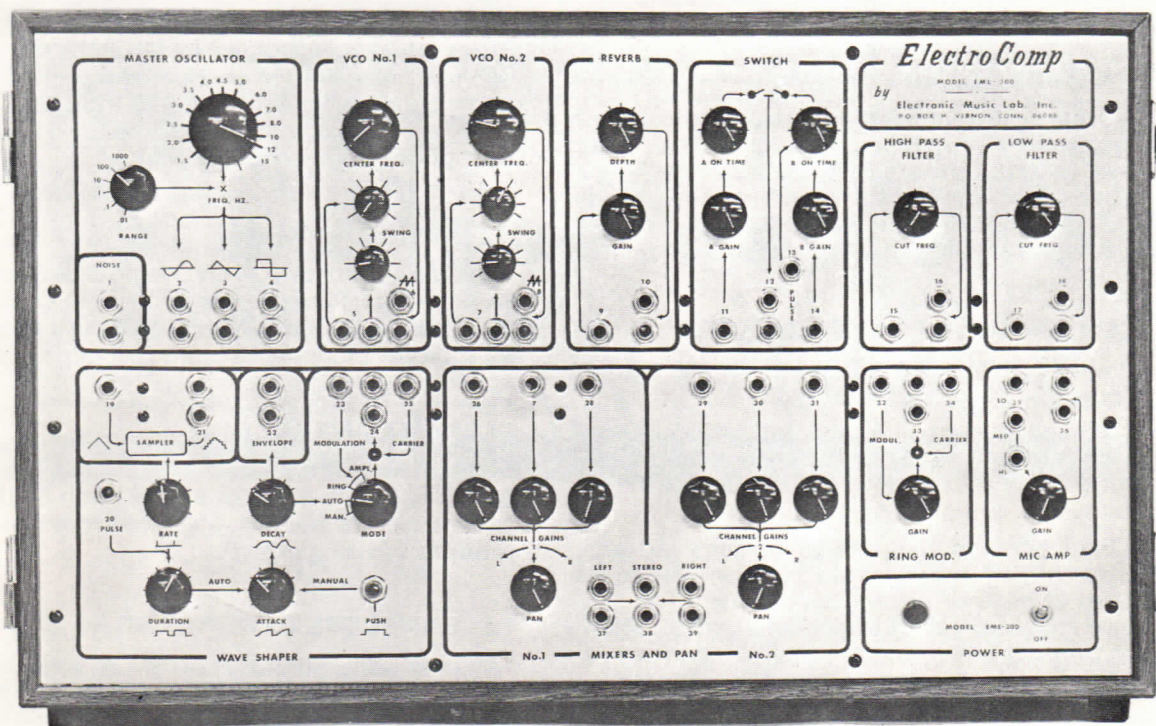


# THIS SYNTHESIZER STARTED A REVOLUTION!



Our studio synthesizer started a revolution in music. It was the first synthesizer priced under a thousand dollars. It permitted musicians at all levels to get involved in electronic music that could not afford the multi-thousand dollar price tags of earlier synthesizers.

It began in 1969 when the Connecticut State Department of Education asked Electronic Music Labs to design a synthesizer for use in Connecticut Public Schools. Their requirements were quite unique.

They wanted a synthesizer suited to the needs of the beginning electronic composer. They wanted a synthesizer that could stand up

to young exploring hands and 10 hours a day use. It was composition they wanted, not merely exposure to the latest sounds available.

These requirements produced a virtually indestructible, low cost synthesizer configured to permit you and your students to produce electronic composition.

The complexities of the synthesizer were reduced by modeling the 200 after equipment used by early electronic composers, where each synthesizer function is independent and permits a building block approach to the creating of sounds.

The 200's success spread rapidly

and created a demand for larger configurations by colleges, universities, and recording studios. This forced the development of a series of keyboards to permit larger, more capable synthesizer configurations. When you combine the 200 with our 101 Keyboard Synthesizer, you have capabilities that can only be matched by synthesizers costing many times its \$2445 price.

Anywhere people want to control sound, you'll find a 200. Its versatility is unmatched. Take a few minutes and read some of the more interesting applications on the back cover. Creating your own revolution may be a synthesizer away.

**ElectroComp 200 \$950**

# ElectroComp 200

## SPECIFICATIONS

### 1. NOISE GENERATOR.

The Noise Generator is a sound source for producing wind, thunder, and percussive effects. It produces white noise which contains all the audible frequencies.

The Noise Generator can be used to produce random triggers and pitches when used in combination with the other synthesizer functions.

### 2. MASTER OSCILLATOR.

The Master Oscillator is a wide range, manually tunable oscillator. It produces a pitch proportional to the setting of its range switch and tuning control. Six overlapping ranges are provided covering both the audio and subaudio spectrums — .01 to 18,000 cycles per second. Three waveforms are simultaneously available — sine, triangle and square.

### 3. VOLTAGE CONTROLLED OSCILLATORS.

The two Voltage Controlled Oscillators cover the audio range and produce sawtooth waveforms.

Each oscillator has two control inputs with attenuators. The Master Oscillator, Sampler, Envelope Generator and any of the optional keyboards may be used at these inputs to produce variations in pitch.

The Master Oscillator could be used to produce various types of vibratos of different speeds. The Sampler to generate a series of ordered or random pitches. The Envelope Generator to produce sweeping pitches. The Keyboards to produce discrete pitches of fixed interval. The pitch of the VCO's can also be adjusted manually.

### 4. REVERB.

The Reverb is used to delay any audio signal connected to its input. In the process it adds body and depth to the original signal. The Reverb contains a depth control for proportioning the amount of reverberated and unreverberated signal and an output attenuator for adjusting the volume. The Reverb may also be used as a waveform inverter.

### 5. ELECTRONIC SWITCH.

The Electronic Switch alternates two audio sound sources to a single output. The duration of each source at the output is independently adjustable and is determined by an internal variable ratio oscillator. This ratio may be varied over a 300 to 1 range. External triggers may be used in place of the internal oscillator.

### 6. HIGH PASS FILTER.

The High Pass Filter passes the highs and weakens the lows present in any audio source connected to its input. The cutoff frequency (where the lows start to be attenuated) is manually adjustable over a 30 to 1 range.

### 7. LOW PASS FILTER.

The Low Pass Filter passes the lows and weakens the highs present in any audio sound source connected to its input. The cutoff frequency is adjustable over a 30 to 1 range.

The High Pass and Low Pass filters may be combined to produce band pass or band reject filters.

### 8. MICROPHONE AMPLIFIER.

The Microphone Amplifier permits the introduction of external sound sources through the use of microphones and electric pickups.

### 9. MODULATORS.

There are two Modulators within the synthesizer. Each of them is capable of producing ring modulation. They both have a D.C. coupled input and therefore can be used in combination with the Envelope Generators to produce amplitude modulation.

### 10. STEREO MIXERS.

The two Mixers each have 3 inputs with volume attenuators. Through use of the Pan controls, the two mixers may be combined into a single mixer with six inputs.

### 11. PAN CONTROLS.

The Pan Controls permit any portion of the left mixer to be added to the right, or any portion of the right mixer to be added to the left, and therefore can be used to produce crossing effects.

### 12. ENVELOPE GENERATOR.

The Envelope Generator produces a waveform for shaping pitch and loudness. It may be triggered by the Sampler's internal oscillator, a manual trigger, keyboard or other oscillators.

### 13. SAMPLER.

The Sampler produces a waveform for generating random or ordered sequences of tones. A variable ratio oscillator is provided in the sampler for determining the sampling speed and to trigger the Sampler's associated envelope generator.

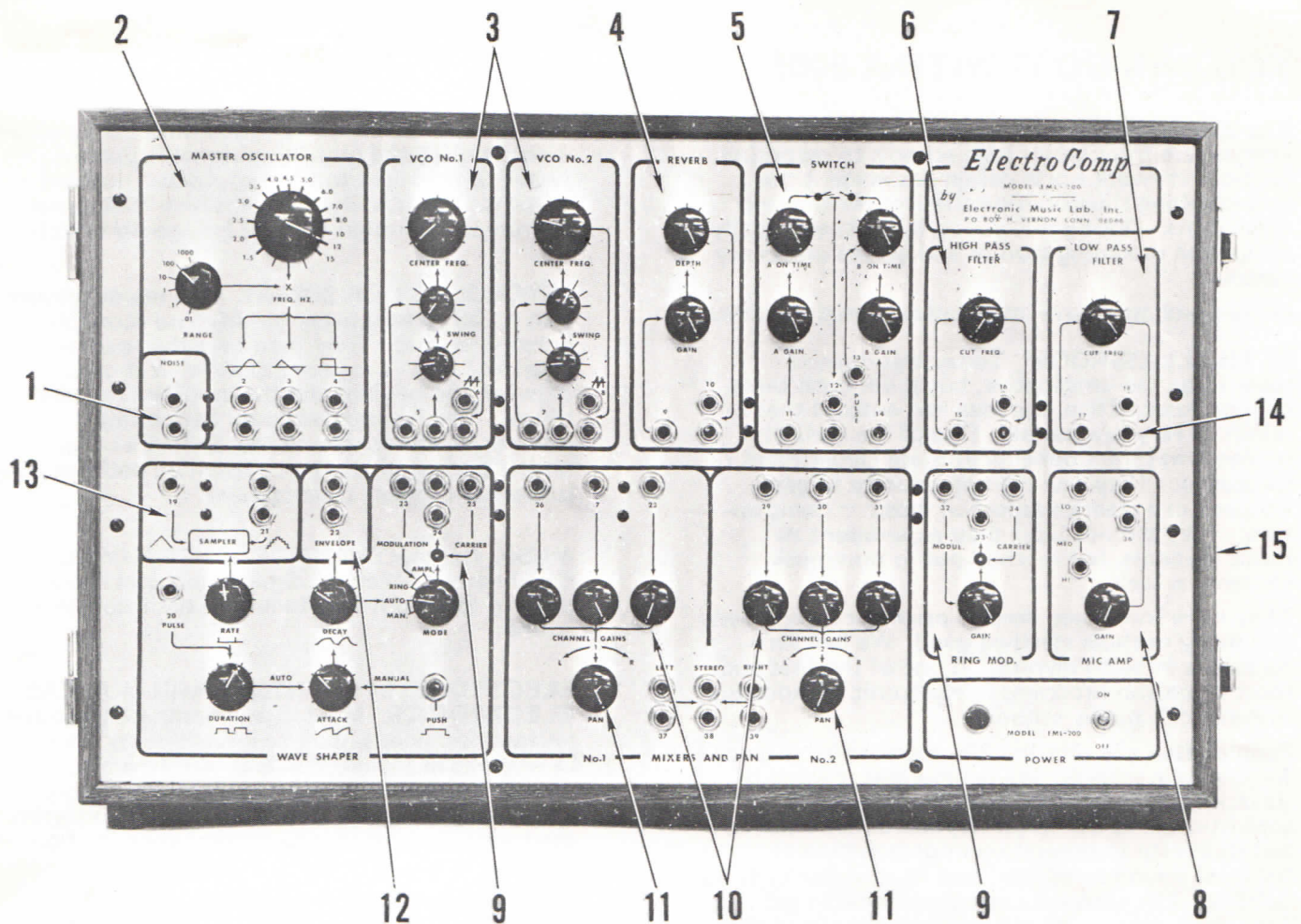
### 14. PATCH PANEL.

The Patch Panel provides inputs and outputs for every function contained within the synthesizer. This is particularly handy for the beginning electronic composer because it permits him to concentrate on one dimension at a time.

Output impedances are 470 ohms and are well matched for all professional equipment. All outputs are short circuit proof. For your convenience and reliability, standard size phone jacks and plugs are used throughout. The Patch Panel also permits you to inexpensively expand your studio by adding keyboards and sequencers as your budget permits.

### 15. CASE.

The 200's case consists of a rugged, aluminum splined mahogany core, covered with wood-grained formica. It comes with a cover and weighs 32 pounds.



### OPTIONAL KEYBOARDS.

The 200 Studio Synthesizer is also available with any of three optional keyboards. Their capabilities cover the entire range from non-equal tempered to equal tempered microtonal. Their prices vary from \$325 to \$1495.

Most importantly, the three keyboards give you a wide choice. A choice we'd be pleased to discuss with you.

### ELECTRO COMP 300 MANUAL CONTROLLER.

The 300 was originally suggested by a professional composer who wanted to escape from the traditional keyboard with its equal temperment and the patterns it suggests. Inspired by his request, the 300 was developed.

The 300 provides a keyboard which is similar in appearance to an adding machine keyboard. Its sixteen keys are arranged in a 4 x 4 matrix. Each key has a separate control, also arranged in a matrix, for adjusting pitch. The pitch of each key may be adjusted over a considerable portion of the audio range.

The 300 also contains a voltage controlled oscillator, envelope generator and voltage controlled amplifier. These three functions work together to produce shaped tones with each key depression. In addition, their outputs are available for use in the 200.

The output of the 300's keyboard is also available for controlling various functions of the 200. Two additional manual gates and a trigger are provided.

The Manual Controller has found wide application in Junior and Senior High Schools where its "adding machine like keyboard" has helped both the traditionally trained, performance oriented musician and the untrained, non-music student to produce original composition. Many

colleges and universities also use the 200/300 combination to lead their students away from the traditional keyboard.

### ELECTROCOMP 101 KEYBOARD SYNTHESIZER.

The 101 is a premium quality, keyboard synthesizer and can be fully integrated with the 200. The 101/200 combination has extensive ability to generate and modify sounds.

This combination provides an unusually large number of sound sources — 6 voltage controlled oscillators, 2 noise generators, and 2 microphone amplifiers.

It contains the means to modify these sources — a multimode voltage controlled filter, 2 manual filters, a reverb, 3 ring modulators, and a voltage controlled amplifier.

It has numerous controllers to shape these sounds — a two-voice polyphonic keyboard, 2 sample and holds, 3 envelope generators, 4 control oscillators, 6 mixers, panning, and an electronic switch.

The 101/200 can be found in numerous colleges and universities, recording studios and high schools interested in truly large synthesizer capability. The price of the 101 is \$1495.

### ELECTROCOMP 500 KEYBOARD SYNTHESIZER.

The 500 is a simplified version of the 101 and does not have the full patch panel of the 101. For this reason, it cannot be fully integrated with the 200.

The lack of a patch panel does not inhibit the 500's keyboard abilities and it is possible to play the 500 through the 200 and to use the 200 to modify the 500. Its price is \$895.

## YOU CAN DO IT WITH A 200!

The 200 is a plain, no nonsense synthesizer found everywhere from junior high schools to recording studios. Its work horse design has made it the largest selling classroom synthesizer for the last three years. During this period it has been equally popular in recording studios and on the university campus.

Many purchasers have imaginatively used the 200.

**IN THE CLASSROOM.** Today this doesn't seem to be too imaginative, but think back three or four years. Then, the idea had entered the minds of very few people. One of the earliest pioneers was the Connecticut State Department of Education. They saw the opportunity to get involved in a creative aspect of music — composition. They did not limit their experiment to music students, but reached out to non-music students as well.

They were soon knee deep in original compositions and many of them startling good. We feel very fortunate in being involved in one of the first and most successful programs in electronic composition in America's public schools.

People often ask why the 200 has been so successful in public schools. We believe that it's due to its lack of complexity. True, the 200 is not as sophisticated as our larger keyboard instruments, but its ability to generate sounds is sufficient for most young composers and its complexity is not baffling. The students understand how to get the sounds they want and can spend more of their effort organizing them into composition, the real task at hand.

**NEW POETRY.** Many people have used the synthesizer as a sound effects machine to reinforce poetry readings. Recently, a number of poets familiar with the capability of the synthesizer have discovered that poetry as well as being read with a synthesizer background could be read through the synthesizer. Opening a new dimension for the poet in his endeavor to express himself.

**SOUND EFFECTS.** Team a 200 with a creative student and a school play. You'll get wind, rain, thunder, an old fashioned steam train, a waterfall, sirens, a computer, churchbells — simply, it's just what you make it. Surely, not the most glamorous use, but it's there when you need it and it does the job.

**A FOUNDATION FOR LARGER STUDIOS.** Many colleges, universities and recording studios saw the 200 as the central element in larger electronic studios. This led to the development of the 101 keyboard synthesizer. The 101/200 combination produces an instrument with immense capabilities.

Soon this pair will be joined by a powerful sequential synthesizer.

**ROCK MUSIC.** We've had rock musicians perform without using the more traditional keyboard synthesizers — just turning knobs and pushing buttons. Other rock musicians play traditional instruments through the 200 for special effects.

**PSYCHOLOGY OF SOUND.** One major university uses a 200 to selectively modify and scramble nursery rhymes. They then take the resultant tapes and give very young children a choice between the original and the modified nursery rhyme. The researchers study the child's preference and use the results to further their understanding of children's listening patterns and subsequent speech development.

**MUSIC DEPARTMENT TEACHES PHYSICS.** One high school music department uses its synthesizer to teach physics students a basic course in sound.

**ELECTRONIC STUDENTS LEARN MUSICAL ELECTRONICS.** Most high schools, colleges and universities recruit one or more students interested in working in the electronic studio to maintain, explain and build equipment. Simultaneously giving them the opportunity to use and expand their skills and for you to expand your studio.

**MUSIC APPRECIATION THROUGH COMPOSITION.** One western college had an elective music appreciation course taken primarily by engineering and pre-med students whose course participation was low.

The professor considered the problem and concluded — why not take advantage of their scientific direction and get them involved with synthesizers and music through electronic composition.

**ART AND ELECTRONIC MUSIC.** Numerous people have worked with a synthesizer connected to an oscilloscope to produce visual realizations of music. Many more have produced light shows, movies and modern dance to compliment electronic compositions. A few examples of the inter-departmental uses of the synthesizer.

**AND IT DOESN'T COST MUCH.** No, the 200 can't do everything, but it's done a lot. The cost of a 200 is only \$950. This is a low per pupil cost when compared to any traditional instrument. Add a 101 to the 200, bringing the cost up to \$2445. This is a small price to pay for a synthesizer with as much capability as this combination.

If you think a 200 fits into your future, give us a call. We've had plenty of experience and would be pleased to share it with you.

electronic music laboratories, inc.

P.O. Box H, Vernon, Connecticut 06066 Tel: (203) 875-0751