

ADVANCED ELECTRONICS FOR THE '80's AND BEYOND

P-4700/J COMPUTER BASED MODULAR
SYNTHESIZER SYSTEM
page 2



EKx - EXPONENTIAL MODULE CARDS
page 8

PROTEUS - PROGRAMMABLE PRESET LEAD SYNTHESIZER page 5

DIGITAL CONTROL FOR ELECTRONIC MUSIC SYNTHESIS

THE HARDWARE

WITH PAIA COMPUTER/SYNTHESIZERS POLYPHONIC IS ONLY THE BEGINNING!



P-4700/J

4700/C

The ideal monotonic starter system. Can be used without a computer/processor as a conventional electronic music synthesizer. But, by simply unplugging the synthesizer head from the keyboard, a computer can be put into the loop to provide power and versatility never before possible for synthesizers of any cost. The 4700/C module complement includes the 8782 Encoded Keyboard, Digital to Analog Converter, Control Oscillator/Noise Source, Balanced Modulator/VCA, Reverb, 4720 VCO, 4730 VOF, Envelope Generator, 4771 Regulated Power Supply and a 4781 Module Cabinet, complete step-by-step assembly instructions and Using manual.

No. 4700/C Synthesizer Kit . . . \$359.00 (shipped freight collect)

4700/J

By anyone's standards this is a BIG synthesizer, as you can see by reviewing the module complement. Like our other packages, it may be used without a computer as a normal monotonic synthesizer. With a computer in the loop (our 8700 or your own personal computer), you are ready to perform polyphonic instruments, multi-track recording work, and innumerable composer and performer assisting functions that are only possible with a computer/synthesizer combination. The 4700/J module complement includes the 8782 Encoded Keyboard, Digital to Analog Converter, QuASH, two 4710 Balanced Modulator/VCA's, three 4720 VCO's, 4750 Control Oscillator Noise Source, 4730

Filter, 4711 Mixer, two Envelope Generators, Reverb, 4771 Regulated Power Supply and two Module Cabinets, step-by-step assembly instructions and Using manual.

No. 4700/J Synthesizer Kit . . . \$579.00 (shipped freight collect)

P-4700/C & P-4700/J

These P-4700 Series packages have it all together; synthesizer, computer and software ready to load from any cassette recorder and begin playing. Each package includes the synthesizer modules listed above as well as an 8700 Computer/Controller fully loaded with RAM, CS-87 cassette interface and power supply with all required hardware and connectors. Each represents a significant savings when purchased in this package configuration.

Music firmware supplied with the P-4700/C includes the PIEBUG Monitor, and CS-87 tape I/O PROMs, SEQUE 1.0 and Orgasmatronic Glide Software are included.

P-4700/C Computer/Synthesizer Kit . . . \$519.00
(shipped freight collect)

Firmware supplied with the P-4700/J includes: PIEBUG monitor, CS-87 tape I/O and MUS-1 music PROMS; Seque 1.0, Poly Seque, Orgasmatronic Glide, Pink Tunes, Echo and Poly Split Software included.

P-4700/J Computer/Synthesizer . . . \$799.00
(shipped freight collect)

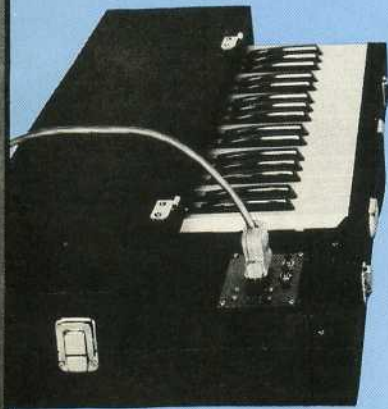
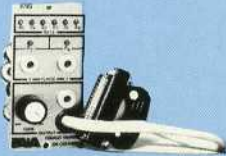
CUSTOM ASSEMBLY AVAILABLE. DETAILS ON PAGE 15.

DIGITAL CONTROL MODULES

8780 & 8781 EXPONENTIAL
DIGITAL TO ANALOG
CONVERTER & QUAD
ADDRESSABLE SAMPLE/HOLD
(page 11)



8700 COMPUTER/CONTROLLER
(see page 8)



8782 DIGITALLY ENCODED KEYBOARD
HAS COMPUTER SPACE RESERVED
(see page 11)



8782 WITH COMPUTER AS FEATURED
IN P-SERIES PACKAGES (tape recorder
not included)



8785 LINEAR DIGITAL TO ANALOG CONVERTER
RETRO-FITS EXPONENTIAL SYNTHESIZERS
TO PAIA DIGITAL (see page 9)

SYNTHESIZERS TO USE WITH
ANY COMPUTER (software
translation required)
OR WITHOUT
A COMPUTER (add
the computer later)



4700/C



4700/J

With PAIA computer-based synthesizers, true polyphonic synthesis is only the beginning because. PAIA equipment allows you to load and run any of a constantly growing number of personality programs including:

POLYPHONIC

MUS-1.0 - a 16 voice polyphonic synthesizer with software transient generators. (firmware PROM)

POLY SPLIT - splits the keyboard into two polyphonic synthesizers with up to 8 voices each.

SEQUENCERS

SEQUE 1.0 - a general purpose monophonic sequencer.

POLY SEQUE - a 4 voice sequencer.

ORGASMATRONIC GLIDE - a fast programming sequencer that plays keys held down (up to 8) sequence up or down.

COMPOSERS

PINK TUNES - composes 4 part harmonies.

PINK FREUD - Composes 4 part canons.

SPECIAL EFFECTS

SHAZAM - Multiple keyboard split and chorusing.

ECHO - much like tape echo, but each iteration can be in a different voice.

WANT TO KNOW MORE?

"FRIENDLY STORIES ABOUT
COMPUTERS/SYNTHESIZERS"
HAS THE ANSWERS.

Mating a computer with an electronic music synthesizer presents almost unlimited possibilities for performer and composer alike, and true polyphonic synthesis is only the beginning. Let us tell you the whole story with this package of off-prints from Polyphony, using manuals and more telling how it works and what it does and why.

I-COMP Friendly Stories
About Computers/Synthesizers

..... \$5.00 (postpaid)



SPECIAL PURPOSE KEYBOARDS

SYNTHESIZER MEETS COMBO ORGAN

THE RESULT: ORGANTUA

Forget about the "thin" sound of single voice combo organs, ORGANTUA has three individual ranks, each with a five position octave switch, for a thick, textured sound. The multi-voice feature allows ranks to be detuned slightly for flanging or chorusing effects, or ranks can be tuned to wider intervals such as 4ths or 5ths to simulate drawbar organ or multi-oscillator synthesizer effects. Super wide-range sound is possible by tuning the ranks apart in increments of an octave, with up to 5 octaves between voices.

The master rank utilizes a voltage controlled clock to allow pitch bending, vibrato (two waveforms), and percussion effects. The two slave ranks can each be synchronized to either the master clock or an alternate tunable clock. The output amplifier allows variable attack time and overdrive control. A master level control is also provided.

Optional footpedals and foot switches allow the musician to bend pitch up or down, introduce vibrato or trilling, and switch the slave ranks in and out. ORGANTUA also features a unique "octave jump" footswitch capability, which raises all ranks one octave.

If you're not convinced by now that ORGANTUA represents the first major advance in combo organs in 10 years, send for our instruction manual . . . it tells the full story . . . \$5.00 refundable upon purchase of ORGANTUA kit or assembled model.

No. 6780 Organtua Kit . . . \$349.95 . assembled \$650.00 (33 lbs.)*

THE STRING SYNTHESIZER THAT'S MORE
THAN JUST STRINGS STRINGZ 'N' THINGZ

We can't possibly cover all of the features and options of STRINGZ 'N' THINGZ in this limited space but even in this small space we can say that the 1550 is the most advanced and versatile string ensemble available at any price, from anybody. Features include: Violins/Cello/Piano, separate mixable piano output, synthesizer interface, variable chorusing, variable sustain controls, jacks for foot controls, keyboard split, dual violin/cello mixers, stereo string option and even a modestly priced computer interface option. You'll love it. Computer interface will be announced when available.

If you'd like more detailed operational information before purchasing we recommend the Stringz 'n' Thingz documentation set, an eighty-four page assembly and user's manual priced at \$5 refundable upon purchase of Stringz 'n' Thingz kit or assembled model.

No. 1550 Stringz 'n' Thingz Kit . . . \$349.00 (35 lbs.)*
No. 1550A Stringz 'n' Thingz assembled . . . \$650.00 (35 lbs.)*
No. 1551 Stereo Option kit . . . \$44.95 (postpaid)



ORGANTUATM

*Stringz 'n' Thingz*TM

PROTEUS I T.M.

- 2 exponential VCO's; sine, triangle, ramp, square and modulated pulse waveforms.
- Sync provided on oscillators
- Noise source
- Exponential 24 dB/octave low pass voltage controlled filter
- Wide range low frequency modulation oscillator
- Wide range ADSR envelope generator
- 3 octave encoded keyboard with computer port
- 16 programmable presets with ni-cad battery backup
- Preset data and address port provided.
- Liberal patch over hardwire points on rear panel
- Absolute minimum point to point wiring for easy kit assembly and high reliability.

Even without the programmable presets, PROTEUS would be one of the nicest lead synthesizers around. Its well planned normalization scheme allows direct access to a wide range of effects and sounds, and for those times when no normalization could let you get the voice you're after, PROTEUS's rear panel provides enough patch over hardwire points for modular versatility.

PROTEUS's easy to use programming system for up to 16 presets is the finishing touch. Two buttons control it all:

ADVANCE — press once to step from one preset to the next. Press and hold to scan through presets. Seven segment display shows preset in effect.

PROGRAM — one touch and you punch into the front panel. As you set up the voice you want, PROTEUS's internal memory remembers the control positions and assigns them to the preset number shown in the display.

PROTEUS's features go on and on. Nickel-Cadmium power back-up allows presets to be stored for a week or more without power and recharge automatically when PROTEUS is plugged in. Easy to use computer interface ports allow connection to external controllers for sequencer operations, extended storage of presets, etc. Rear panel provisions for joystick pitch bend or modulation controls. And lots more.

QUESTIONS? How easy is it to assemble? How powerful and versatile? What are the interfacing details? The PROTEUS USING/ASSEMBLY MANUAL set answers these questions and many more. Price — \$10.00 refundable upon purchase of the 8750 kit or assembled model.

No. 8750 PROTEUS Kit \$399.00 (shipped freight collect)

No. 8750-A PROTEUS Assembled \$499.00 (shipped freight collect)



THE
PERFECT
INTRODUCTION
TO ELECTRONIC MUSIC



the versatile GNOME Micro-Synthesizer

Every day more people discover that the GNOME is the most versatile, cost effective special effects device on the market today.

The Gnome has two function generators (one with repeat for cyclic effects), VCA, VCF and VCO. Use alone with its built in ribbon controller or modify to interface to guitar, electronic piano, polytonic keyboards, etc.

With the Gnome's normalized controls you'll soon be able to produce those far out electronic sounds even if you've never been near a synthesizer before. The Gnome can make outer space sounds for rock musicians, demonstrate principles of music and acoustics for educators, provide rhythmic pulses for modern dance groups and sound effects for theatre companies and is one of the neatest toys in the world for the audiophile.

Complete kit and well illustrated step-by-step instructions and using manual make the GNOME the perfect introduction to electronic music synthesis.

No. 3740 Gnome Micro-Synthesizer Kit \$59.95 (wt. 3 lbs.)

No. 3740A Gnome Micro-Synthesizer (Assembled)\$100.00 (3 lbs.)

Interface OZ with the GNOME for a completely portable, polytonic, synthesizer-like instrument complete with speaker and amplifier for less than you'd expect to pay for a guitar.

OZ the mini-organ that doubles as synthesizer controller

Oz is polytonic with over 6½ octaves total range from its specially manufactured 1½ octave keyboard. A built in speaker and amplifier makes OZ a truly self-contained instrument. Large Scale integration and CMOS technology allow battery powered portability. OZ has a single tuning knob (no internal adjustments) and a mixing input that allows other instruments to play through the amplifier. Output jack and switch selectable step or multiple pulse trigger provides simple synthesizer interface. LEDs indicate: Power on, octave setting and trigger status. A unique pressure sensitive pitch bender chromatically transposes single notes or whole chords by up to a full octave. The entire package closes into an extremely portable, rugged 13X11X4 inch vinyl covered wood case.

Complete kit includes all parts, circuit board, completely finished case and front panel, specially manufactured keyboard and our step-by-step, loaded with pictures instruction manual.

No. 3760OZ Mini-Organ Kit\$99.95 (12 lbs.)
No. 3760A OZ Mini-Organ (assembled)\$150.00 (12 lbs.)



As Larry Fast of Synergy puts it, "When I don't want to pack up my big 'poly-machine', my OZ processed through a smaller synthesizer makes a good substitute."

24 HOUR
DEMO/ORDER
LINE

(405) 843-7396

VISA & MC



MODULAR SYNTHESIZERS

For the beginner, a package configuration devised by experienced users removes a lot of the guesswork. As you grow, your system can grow because every PAIA module from the simplest to the most complex, those you buy today and the ones that we're developing for tomorrow, are compatible. Not by accident, by design.



2720/R

2720/R MODULAR KEYBOARD SYNTHESIZER KIT

Everything you need to begin synthesizing sounds ranging from flutes, snare drums and the sound of the wind to conjuring sounds from your own imagination. Shown above, the 2720/R is the ideal place to start for the semi-professional or serious amateur with applications in the small recording studio or radio station and is excellent for grade school through university level music labs. With this system you can even process external signals from guitar, microphone, etc. The package includes the following 2720 series modules: VCA, Function (envelope) Generator, Band-pass and Low-pass Filters, Control Oscillator/Noise Source, VCO, Envelope Follower Trigger, Inverter Buffer, Sine Converter/Pulse Width Modulator, power supply and Keyboard/Case with Glide. Includes our well illustrated, step-by-step assembly instructions, detailed User's Manual and materials for 6 audio and 12 control voltage patch cords.

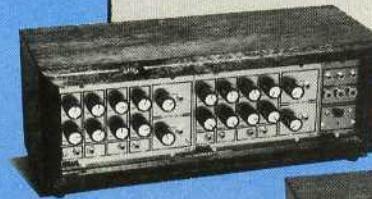
No. 2720/R Modular Keyboard Synthesizer Kit \$299.00 (26 lbs. *)
(available only in Kit form.)

4700/S SYNTHESIZER KIT

When you combine all of the modules that are part of this package and then throw in a keyboard, 12 event sequencer and a four input stereo mixer, it's almost like having two synthesizers in a single package. Wrap them all in sturdy road cases and you have an instrument that goes anywhere and does any job. Module complement includes: Keyboard with Glide, two Module Cases, two Balanced Modulator/VCA's, Stereo Mixer, Reverb, three 4720 VCO's, 4730 VCF, two Envelope Generators, three Watt Blocks, Control Oscillator/Noise Source and 12-Event Sequencer. Accompanied by step-by-step assembly instructions and detailed Using Manual.

No. 4700/S Synthesizer Kit . . . \$575.00 (shipped freight collect)

SEE PAGES 10 & 11 FOR MODULE DESCRIPTIONS
CUSTOM ASSEMBLY AVAILABLE. DETAILS ON PAGE 15.



4700/II

4700/A



Whether your interest is in electronic music synthesis, stage work, production of film presentations or any of the other areas where precision audio eases the task or enhances the product, you always seem to run out of mixers before the job is done. PAIA Mixer Pacs are an economical solution to this problem. The package contains one 4760 Wing Cabinet, one 4770 watt block and two 4711 Mixers and provides an 8 in/4 out capability for under \$90.00.

No. 4700/II 8 in/4 out Mixer Pac Kit \$89.95 (12 lbs.)

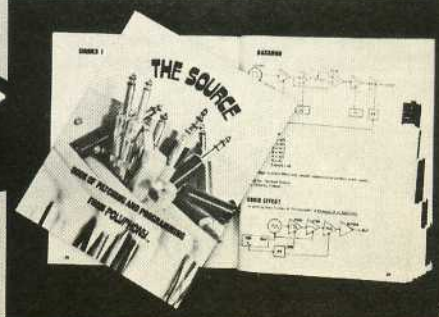
This package forms a completely self-contained sequencer compatible with either PAIA equipment or units from other manufacturers. Package contains: one 4780 sequencer, two 4770 power supplies and cabinet.

No. 4700/A Sequencer package kit \$119.95 (10 lbs.)

"THE SOURCE" BOOK OF PATCHING AND PROGRAMMING

Over 100 pages of patch charts for voices used in popular recordings and film scores plus some that are just bizarre. Also includes patch charts for the Gnome, scores for the programmable drum set and computer programs for such things and sequencers, polyphonic synthesizer and others. Compiled and edited by the staff from Polyphony Magazine, "The Source" is a must for anyone into synthesizers!

The Source \$4.00 (postpaid)



4700/S

8700 COMPUTER/CONTROLLER



8700 PROCESSOR: 6502 Instruction set, Wear free "Active Keyboard", Micro-Diagnostic, Extensive documentation, Fully Socketed.

PIEBUG MONITOR: User Subroutines, Relative address calculator, Pointer High-low, Back-step key.

CASSETTE INTERFACE: Load & Dump by file #, Positive indication of operation, Tape motion control.

An exceptional price on an applications oriented micro-processor system featuring: 1K bytes RAM (supplied), 1K bytes ROM locations (256 byte monitor included), two 8 bit input ports, two 8 bit output ports, one latched and one buffered.

6503 MPU has the same powerful instruction set and interrupt structure as the popular 6502 (Apple II, PET, etc.) but with fewer address lines.

A 24 key touch operated keypad is used by the monitor to allow entry and execution of user programs as well as controlling features not normally found on low-cost single board

computers; including a relative address calculator that completely eliminates this normally tedious hexadecimal calculation and back-space key that eases entry and editing of programs. Pointer High and Pointer Low keys allow the 8700's twin seven segment displays to serve the multiple functions of indicating both address location and data.

No. 8700 Computer/Controller Kit\$149.95 (4 lbs.)
No. 8700 Computer/Controller Assembled\$199.95 (4 lbs.)

CASSETTE INTERFACE OPTION

Reliable and easy to use cassette system. LED indicates proper volume control setting. Software and hardware provision for tape motion control (relays must be added).

No. CS-87 Cassette Interface Option Kit\$22.50 (1.00)
No. CS-87 Installed on assembled 8700\$27.50 (1.00)

POWER SUPPLY

The logical choice to power the 8700. Fully regulated 5v. at 1 amp, -9 volts a 300 mA. Also provides a 60 Hz. output for real-time clock applications.

No. PS-87 Power Supply Kit \$24.95. **Assembled** \$30.00 (3 lbs.)

APPLE II DOWNLOADER

The Apple II, with its growing software and hardware support (assembler, disk, printers, etc.) makes an exceptional development system at a most reasonable price. Our downloader software allows programs written on the Apple II to be saved in the Pot-Shot format. Ready to load directly to an 8700. For schools and manufacturers of limited run dedicated processor systems, this **APPLE II DEVELOPMENT SYSTEM/8700 TARGET SYSTEM REPRESENTS THE MOST ECONOMICAL APPROACH EVER AVAILABLE.**

No. APDL Apple Downloader cassette\$4.95

CES AUDIO/SYNTHESIZER I.C.'s

The Curtis Electromusic Specialties line of integrated circuits for audio processing and electronic music are wide range, exponential response, low noise, second generation devices which represent a significantly higher degree of integration than similar units available from other sources.

Unmatched features of the Curtis chips include: virtual ground summing nodes on most inputs eliminate external summing amplifiers; internal temperature compensation eliminates the need for "Q81" or similar tempo resistors;

design excellence provides exceptionally low control voltage feedthrough. If you've tried other synthesizer IC's and found them temperamental or difficult to work with, try the CES chips — you'll be pleasantly surprised.

CEM 3310 ADSR\$7.95
CEM 3320 VCF\$8.95
CEM 3330 DUAL VCA\$7.95
CEM 3340 VCO\$10.00
 (Add 2.00 shipping and handling charge for each order for CES Chips whether you order one or the whole set)

EKx MODULE SERIES

Whether you want to evaluate the Curtis chips, expand your present exponential system or custom design your own studio quality synthesizer or laboratory grade audio processing system from the ground up, the PAIA EKx series is for you. Each kit comes complete with all the components required to produce a fully functional high quality voltage controlled module card. All audio and control voltage inputs and outputs are brought out to the edge of the card in a configuration compatible with either Molex connectors or standard 22 pin .156 center edge connectors. All modules require $\pm 15v.$ nominal regulated supplies (PAIA 4771 or equivalent). Each card is a trim 3½" x 4".

EKx-10 ENVELOPE GENERATOR

Voltage controlled ADSR Envelope Generator with exponential control of attack, decay and release times and linear control of 5v. peak sustain voltage. Time ranges are typically 250,000:1 (2ms. to 20 seconds guaranteed) with particular attention paid to high accuracy, repeatability and tracking of parameters. The Curtis IC's are unique in that they provide for all practical purposes no control voltage feed-through.

EKx-10 Voltage Controlled Envelope Generator\$24.95 (1.00)

EKx-20 VOLTAGE CONTROLLED FILTER

The CES 3320 VCF chip features 4 low or high pass sections in a single chip with onboard temperature compensation and resonance control cell. The EKx-20 provides exponential voltage control of pole frequency over greater than a 10 octave range and voltage control of resonance from 0 to low distortion oscillation. This card is a programmable filter element that can be wired by the user for high pass, low pass, band pass or all pass operation with 4 pole (24 dB/octave) response. Forget about noise, this filter is specified at a quiet -86 dB below maximum rated signal output. **EKx-20 Voltage Controlled Filter**\$26.95 (1.00)

EKx-30 DUAL VOLTAGE CONTROLLED AMPLIFIER

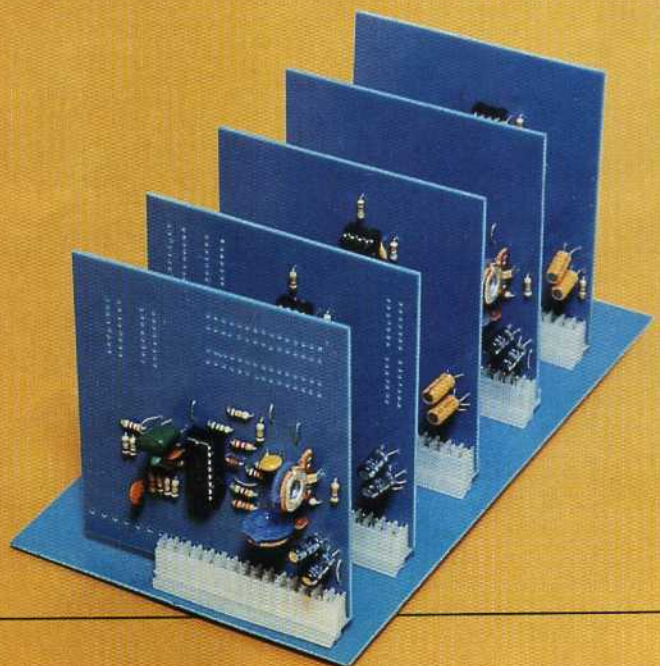
There's no need to run out of VCA's when you get them with these features at these prices. EKx-30 card provides two independent low noise, low distortion, wide bandwidth VCA's with high control scale accuracy and low control voltage feed-

through. Both exponential and linear control voltage inputs are provided and may be used simultaneously.

EKx-30 VOLTAGE CONTROLLED FILTER\$24.95 (1.00)

EKx-40 VOLTAGE CONTROLLED OSCILLATOR

Because of the CEM 3340's minimum support circuitry requirements we can offer this card at an exceptionally low price. But, don't be fooled; this is a full feature oscillator providing ramp, triangle and pulse outputs. The card provides such outstanding features as exponential frequency control over a highly accurate and temperature stable 100,000:1 range, voltage controlled pulse width, linear FM input and provision for both hard and soft sync inputs. **EKx-40 VCO** ...\$29.95 (1.00)



TOP-OCTAVE EXPERIMENTER'S KIT

A full octave of equally tempered semi-tones plus one note from a single LSI circuit. Instructions outline use as a simple organ, push-button chord box, random voltage source, random melody generator, more. Includes 50240 type top-octave divider circuit, 4001 CMOS quad nor gate (for clock signal generation), circuit board with space for additional components. Requires common value resistors and capacitors.

No. EK-1 TOP OCTAVE EXPERIMENTER'S KIT . . . \$15.95 (1.00)

COMPUTER DRUMS

The ultimate electronic percussion unit-drum oscillators interfaced to your computer/micro-processor. Provides seven drum sounds: Heavy Bass (down beat), Light Bass, Snare Drum, Tom-Tom, Conga, Clave and Wood Block. Circuitry includes hand-shaking logic with data ready and data accepted lines. Theory text includes both analog and digital analysis and multiple programming examples for a variety of machines. Useable on even the smallest system. Kit includes circuit board and ALL parts. SEE DRUMSYS PROGRAM

No. EK-2 COMPUTER DRUMS . . . \$24.95 (1.00)

DRUM-SYS. SOFTWARE

An 8700/EK-2 Computer Drums operating system that produces the most advanced automatic percussion unit ever offered. Provides all of the features of a 3750 Programmable Drum Set plus dumps and loads drum scores to tape, computer control of drum dynamics, extensive editing of scores, special effects that make drums almost a lead instrument and a unique tempo setting control that requires only the tap of a finger.

Drumsys Cassette (Includes documented listing & interfacing details) . . . \$4.95 (1.00)

EK-3 KEYBOARD ENCODER EXPERIMENTER'S KIT

Up-date PAIA (or other) keyboards to the new digital format. Consists of encoder circuit board and all parts required to modify your present keyboard for use with computers and/or the 8780 D/A converter. Off-print instructions from "Computer Music Without the Computer"; Polyphony 4/76.

No. EK-3 KEYBOARD ENCODER EXPERIMENTER'S KIT . \$15.95 (1.00)

EK-5 ANALOG DELAY EXPERIMENTER'S KIT

This kit provides a circuit board which holds a Reticon SAD-1024 analog delay IC, a 4013 clock conditioner, and several passive components required to set up the SAD-1024 for proper operation. Spare IC locations are provided for on-board clocks, output filters, mixers, companders, or other types of features which will vary from one application to the next. The circuitry supplied exploits Reticon's use of dual 512 stage delay lines in their SAD-1024. Thus, two complete delay lines are provided which can be used independently or strapped together in various configurations.

EK-8 HEX VCA

Lots of Voltage Controlled Amplifiers for very little money. Six independently controllable amplifiers mix to a single output. Invaluable in computer assisted synthesis or for use as voltage controlled mixers. Circuit board fits behind normal PAIA double width module space. Kit consists of circuit board, instructions and all electronic components. Does not include jacks or other hardware items. Requires $\pm 9v$. nominal power supply.

EK-8 . . . \$15.95 (1.00)

8785 LINEAR DIGITAL TO ANALOG CONVERTER

There are a lot of ARP and MOOG fans around. But we wouldn't want past allegiances to stand in the way of your realizing the maximum that your equipment has to offer when teamed with PAIA's leadership in digital control.

This linear digital to analog converter matches the output structure of our 8700 computer/controller at one end and QuASH bus at the other. Behaves according to all PAIA protocols to provide over 5 octaves of control voltage output plus software control of glide and gate signal. Up to 16 channels easily supported, more if you like. Can be modified to provide over 10 octaves control. Requires regulated +5v. (tapped from computer in most cases) and $\pm 15v$ a 50 ma. nominal ($\pm 9v$. from PAIA 4770 works well also)

8785 LINEAR DAC . . . \$24.95 (1.00)

*ARP is a registered trademark of Tonus, Inc.
MOOG is a trademark of MOOG Music, Inc.*

KEYBOARDS

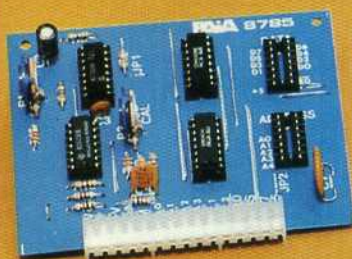
These are the finest quality keyboards available. Manufactured by Pratt Read to AGO specifications they have two sets of self wiping gold contacts on each key, one contact which can be used as "key down" (any key pressed causes contact to close) and one contact for each key which closes to a common bus, except the AGO 61 which has only one contact per key closing to a common bus.

No. AGO-18 — 18 keys C-F . . . \$40.00 (3.00)

No. AGO-37 — 37 notes C-C . . . \$82.00 (3.00)

No. AGO-61 — 61 notes C-C . . . \$135.00 (3.00)

NOW YOU CAN USE PAIA
DIGITAL CONTROL WITH
YOUR EXPONENTIAL
SYNTHESIZER!



BALANCED MODULATOR/VCA

Balanced modulators (also known as "ring" modulators) allow the synthesist to construct sounds with non-harmonic frequency components. Signals applied to the carrier and modulation inputs of the module are suppressed and in their place appears a new output signal containing only the sum and difference frequencies of the original inputs. Essential for realistically producing the sounds of large gongs, railroad type chime horns and many other natural and purely electronic effects. Can also be used as VCA or frequency doubler. Light Emitting Diode warns of signal overload when processing piano, guitar or other electrified instruments. Requires +18, $\pm 9v$. supply.

No. 4710 Balanced Modulator Kit \$22.50, Assembled \$33.00 (1 lb.)

STEREO MIXER

As the synthesist's talents progress beyond "waa-waa's" and bleep-bleeps" a good mixer becomes essential to realize the subtle, almost natural sounds that express today's music. Op-amp circuitry is significantly better than passive mixers. Individual level controls for each input; pan pots allow each signal source to be placed left, right or in between. Master gain controls for left and right outputs. 10K impedance is compatible with common sound sources, 100 ohm output impedance will drive most loads. 6 db max. gain; 20 Hz - 20 kHz. frequency response. Requires $\pm 9v$. supply.

No. 4711 Stereo Mixer Kit \$29.88, Assembled \$45.00 (3 lbs.)

REVERB

A reverberation unit is a natural addition to any Synthesizer system since it provides an electro-mechanical equivalent to the delays and echos that define the acoustics of a large auditorium. The 4712 optimizes control flexibility by allowing for the mixing of two separate input signals as well as post-mixing of the input signals with the processed reverb signal. Front panel switch allows for instantaneous, pop-free termination of reverb effects without affecting normal signal flow through the module.

Consists of two units, control head electronics and reverb spring assembly. Control head occupies single module space in standard PAIA equipment and reverb spring assembly fastens to rear of cabinet (mounting hole drilling required).

No. 4712 Reverb Module Kit . . . \$26.95, Assembled \$40.00 (4 lbs.)

WIDE RANGE VCO

If you're particular about specifications, this is the oscillator for you. Features 16 Hz. to 16 kHz. guaranteed minimum frequency range, simultaneous ramp, triangle, sine and voltage modulated variable duration pulse outputs. Front panel initial pitch control allows multiple oscillators to be chromatically offset from one another while tracking a keyboard.

No. 4720 VCO Kit \$34.95, Assembled \$50.00 (1 lb.)

MULTI-MODAL VCF

A filter for the purist, the 4730 multi-filter features simultaneous lowpass, high pass and band pass outputs with Q adjustable from .5 to over 150. Guaranteed corner frequency range from 16 Hz. to 16 kHz. Linear control voltage/frequency characteristics provide keyboard tracking and front panel initial frequency control allows multiple filters to be chromatically offset. Requires ± 9 , +18 volt supplies.

No. 4730 VCF Kit \$37.95, Assembled \$55.00 (1 lb.)

ENVELOPE GENERATOR

ADSR - Attack/Decay/Sustain/Release. Voltage step or manual push-button causes output voltage to rise at a rate set by attack control, then fall at decay control rate to constant level set by sustain control. Releasing push-button or terminating trigger causes output to fall to Ov. at a rate set by release control. Level control varies output. Light Emitting Diodes indicate module status. Times variable from 2 ms. to 2 seconds, 5v. peak output level. Requires +18v. supply.

No. 4740 Envelope Generator Kit . . . \$25.95, Assembled \$35.00 (2 lbs.)

CONTROL OSCILLATOR/NOISE SOURCE

Typical applications of the control oscillator are as a source of tremolo and vibrato or a means of cyclicly sweeping filters. Frequency range of the oscillator is 1 to 25 Hz. in three ranges and both fixed 5v. peak to peak and variable amplitude outputs are available.

SYNTHESIZER MODULES



The noise source provides unpitched sound used in wind/surf sounds, cymbals, snare drums, steam and many other special effects. **No. 4750 Control Osc./Noise Source Kit \$21.95, Assembled . . . \$30.00 (1.00)**

WATT BLOCK

300 ma. power supplies may be wired to provide either +18v. or $\pm 9v$ Power requirements vary from module to module but on the average 300 ma. is sufficient for 30 of the 2720 series or 20 of the 4700 series modules. Light Emitting Diode power indicator. Multiple jack panel consisting of 3 pin jacks and 3 phone jacks aid in complex patches.

No. 4770 Watt Block Kit \$14.95, Assembled \$22.00 (3 lbs.)

Since Watt-Block will often be used in groups of 2, line cords for above are sold separately.

No. LC-6 6 ft. line cord \$1.00 postpaid

4771 REGULATED POWER SUPPLY

Provides the three supply voltages commonly required by the PAIA synthesizer modules, plus several front panel convenience features. Voltages available include: +18 volts unregulated, and positive and negative regulated voltages adjustable to provide from ± 5 volts to ± 15 volts. Each supply line provides up to 200 mA. This variable voltage feature makes the 4771 an excellent choice for low cost precision power supplies for your homebrew projects, or a variable supply for your workbench. Front panel features include two variable bias supplies, each can be trimmed to provide exactly 0 to 5 volts. One bias provides only positive voltage, the other is switch selectable for positive or negative bias. A patch bay section allows AC coupling of control voltages, and conversion of audio signals to control lines. Front panel power switch and LED provide positive indication of power status. Line cord included. Power transformer must mount on the enclosure.

No. 4771 Regulated Power Kit \$29.95, Assembled \$39.95 (3 lbs.)

SEQUENCER

Use for automatic bass lines, super speed arpeggios, any repeating or non-repeating sequence up to 12 events long. "Synch" and "run" inputs to internal clock allow for remote control and series or parallel chaining of multiple sequencers. Built in glide. Clock rate pulse or variable duration step triggers as well as trigger output jacks at each stage. Light Emitting Diodes (not shown in this photo) indicate position in sequence, clock rate and step trigger duration. Includes manual operation pushbuttons. Requires +18, $\pm 9v$ supply.

No. 4780 Sequencer Kit \$79.95, Assembled \$119.00 (3 lbs.)

EXPAND OR CUSTOMIZE



JOYSTICK CONTROLLER

A Joy Stick is the missing control element on most American synthesizers. A Joy Stick gives you total, infinitely variable control of two parameters simultaneously. Our Joystick controller works in either of two modes: As a Control Voltage Source with your exponential front-end equipment, or as a Controllable Multiplier for linear response elements. A touch activated "gate" trigger activates with the slightest touch of the Joy Stick's metal shaft. No buttons to search for. The kit comes complete with all parts, step-by-step instructions and its own completely finished case.

No. 4783 Joy Stick Controller Kit . . . \$39.95, Assembled \$55.00 (2 lbs.)

EQUALLY TEMPERED DIGITAL TO ANALOG CONVERTER

Unlike more conventional R-2R ladder type digital to analog converters, the PAIA 8780 kit is based on a multiplying principle that allows the module to generate the exact exponential stairstep function required to make even the simplest linear response oscillators and filters produce equally tempered musical intervals. The 8780 uses only 6 bits of data to generate over five octaves of control voltage. In an 8 bit system, the remaining two bits are ordinarily reserved for trigger flags, but may be used to provide micro-tonal tunings.

The module is physically and electrically compatible with the complete line of PAIA music synthesizer modules and is easily interfaced to any micro-processor.

No. 8780 Digital to Analog Converter Kit \$34.95, Assembled \$50.00 (1 lb.)

QuASH [Quad Addressable Sample and Hold]

The least expensive way to provide multiple control voltage channels in a computer based synthesizer system is to multiplex the output of the D/A using multiple, computer addressable, sample and hold circuits. The QuASH provides four of these outputs in a single module. Other features of the module include: adjustable glide rate for each channel with the glide selected or de-selected under computer control, individual trigger "gate" signal associated with each output channel and an individual modulation input for each channel that is non-interactive with other channels. On-board address decoding allows up to four QuASH to be bussed together in a single system without external logic and Bank Select input allows external logic expansion beyond this point. **NOTE: THE QuASH MUST BE OPERATED UNDER COMPUTER/PROCESSOR CONTROL.**

No. 8781 Quad Addressable Sample & Hold Kit \$34.95, Assembled \$50.00 (1 lb.)

ROAD CABINETS

Anyone who doesn't have their equipment nailed down needs the protection that these sturdy vinyl covered cases provide. The 4761 road cabinets have space for 13 single width modules and include power buss, interface panel (for power distribution) and all hardware. Buy two and we throw in hinges, latch and carrying handle for a fold-up portable package.

**No. 4761 Road Module Cabinet Kit \$24.95 each (9 lbs.)
Set of 2, Assembled \$65.00 (18 lbs.)**

ROAD KEYBOARD

The traveling musician needs equipment that is brawny enough to survive the ordeals of the road—and that's what this keyboard unit is all about. Internal electronics are identical to the time-tested 2720-8, but in a trim and sturdy vinyl covered case. Features slip hinges on the keyboard cover and fully hinged top for tuning access. Includes separate power supply for sample and hold electronics.

No. 4782 Road Keyboard Kit \$149.95, Assembled \$199.00 (30 lbs.)

DIGITALLY ENCODED KEYBOARD

A scanning, matrix encoder tied to a 37 note AGO keyboard provides 6 bits of data and both STROBE and STROBE control outputs. Input control lines to the encoder include SCAN (starts and stops the encoder clock). RESET, START and RANDOM making the keyboard universally applicable to all computer-processors from the very largest to the very smallest. Housed in a trim and sturdy vinyl covered road case, the kit consists of all parts including keyboard, power supply and detailed assembly instructions; software overview for computer applications and detailed instructions for digital sample and hold.

No. 8782 ENCODED KEYBOARD KIT \$149.95, Assembled \$199.00 (Shipped freight collect)

PATCH CORD SETS

. . . Something you never seem to have enough of. Set consists of 16 audio and 24 control voltage connectors with 15 ft. of cord.

No. PTCH KIT \$9.95, Assembled \$15.00 (1.00)

BLANK PANELS

When configuring a custom system and fitting it into cases you sometimes end up with unsightly gaps. Blank panels are available in single, double or triple module widths to close the space until you decide to expand further. Specify 2720 or 4700 series material.

No. BP-1 SINGLE WIDTH BLANK PANEL \$2.50 (postpaid)

No. BP-2 DOUBLE WIDTH BLANK PANEL \$3.00 (postpaid)

No. BP-3 TRIPLE WIDTH BLANK PANEL \$3.50 (postpaid)

DEMONSTRATION CASSETTE

If you'd like to hear for yourself the capabilities of the synthesizer equipment listed in this catalog a demo cassette offers both information and inspiration. Includes examples of a variety of applications from free form sound effects, compositions and live performance pieces using 2720, 4700 and 8700 series modules, in addition to demonstrations of selected special effects kits. Included with the tape is an explanatory manual with patch charts telling you how to achieve all of the effects used on the tape. The next best thing to a hands on demonstration in our studio.

DEMO CASSETTE \$3.50 (postpaid)

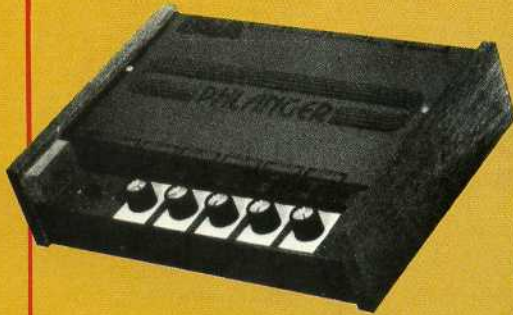
THE CRAIG ANDERTON MUSIC TAPE

You may recognize the name from his monthly columns in Guitar Player and Contemporary keyboard or from his prolific contributions to other magazines or his book "Electronic Projects for Musicians". Now you can see a side of Craig that few have seen before, the composer/performing artist.

This recording is a collection of ten original works ranging from the semi-classical "Dog Dreams 1/11" to the totally bizarre "Roy Herful". Using a lot of our equipment as well as many devices of his own design, Craig composed, performed and recorded the tape singlehandedly in his home studio. An explanatory booklet is included with the cassette including lyrics and details on how the effects were accomplished. We're not promoting this as a demo tape but rather as thoroughly enjoyable listening. We think you'll like it.

No. CAMT The Craig Anderton Music Tape \$5.95 (.50)

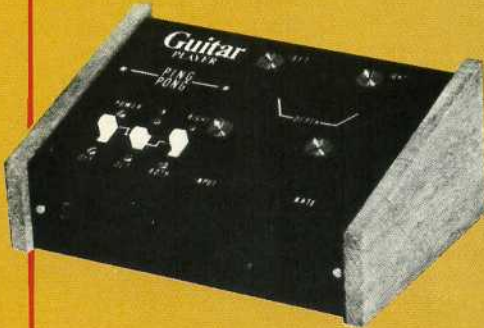
SPECIAL EFFECTS DEVICES



PHLANGER

Phil Spector's original "Big Hurt" sound, which can only be approximated by using frequency dependent phase shifters, is exactly duplicated using our new constant time delay PHLANGER. This unit features a 1024 stage Charge Coupled Device analog shift register that exactly duplicates the effect of two tape recorders running slightly out of synchronization. Multiple user controls allow effects ranging from chorusing, voice doubling and reverb to full "jet plane" effects. Optional foot pedals provide hands free control of internal oscillator sweep speed or manual spectrum sweeping.

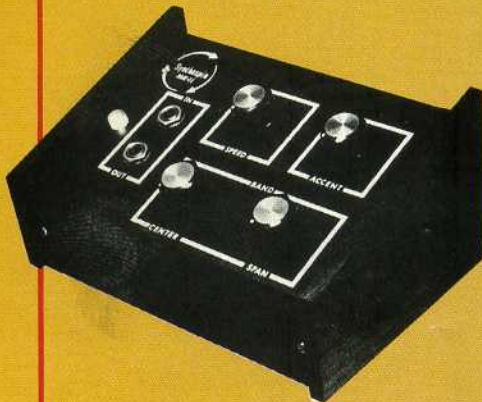
No. 1500 Phlanger Kit \$59.95, assembled \$90.00 (4 lbs.)



PING PONG

An outa site effect for live performances. The Ping-Pong accepts an input from any electronic musical instrument and alternately routes it to two separate amplifiers. Independent left and right depth controls allow for a gentle undulation of the sound back and forth or a fantastic stroboscopic jump from one end of the stage to the other. Front panel switch allows the sound to be routed to one or both of the amps then the unit is switched out. Effect can be initiated or terminated with either front panel switch or optional foot switch plugged into the rear panel jack. Powered by a single 9v. transistor battery. Complete kit includes case with hardwood end panels, circuit board, all parts and hardware, step-by-step instructions. Battery not included.

No. 3712 PING-PONG KIT \$29.95, assembled \$45.00 (wt. 3 lbs.)



SYNTHESPIN MKII

For years electronic organs have used mechanical rotating speakers to produce a tremolo effect. Recently these speakers have gained added popularity with musicians because the sound they produce is totally unlike electronic forms of tremolo. However, mechanical speakers are too bulky and heavy to be conveniently carried from one date to the next and their cost puts them beyond the means of many amateur and semi-professional musicians. The synthespin was designed as a low cost, portable electronic simulator of the rotating speaker effect.

The Synthespin MK-II is an updated and improved version of a similar unit sold by PAIA for several years. In addition to the rotating speaker effect the MK-II also produces numerous effects ranging from very slow phasing type sounds to a bubbling pseudo-reverb. Electrical inputs on the rear of the case provide for optional foot pedal control of the rotating effect as well as allowing for instantaneous foot switch cancellation and bypass functions.

Complete kit includes: circuit board, all parts, wire & hardware, pre-finished case and step-by-step instructions.

No. 1702K Synthespin MK-II Kit \$29.95, assembled \$40.00 (3 lbs.)

Note; The 1702K is not a Phaser.



INFINITY PLUS SUSTAIN

"Infinity Plus" may seem like an ambitious name to call a sustain but once you hear this one you'll have to agree—it fits. Sustain duration control lets you pull out notes or chords as long as you like without changing over-all volume. Maximum sustain allows controlled feed back guitar techniques that hold a note until you decide to let it go. Rear panel jack for optional foot switch allows the sustain to be switched in or out at the touch of a toe.

The Infinity Plus is a low distortion sustain that adds little coloration and no fuzz to the original sound. The use of two low noise Integrated Circuit operational amplifiers plus fully imprinted circuit board and "modular" design add up to a trouble free unit that is easy to build and a gas to use.

Complete kit includes circuit board, pre-finished case, instructions, wire, all parts.

No. 9711 Infinity Plus Kit \$25.95 (4 lbs.)

WEAR A PAIA T-Shirt

Polyester and cotton T-shirt. Specify size: Small, Medium, Large, Extra-Large. \$6.95 (1.00)



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AND VERSATILE ACCESSORIES

PYGMY

Battery powered portable amps are the slickest things to come along in a while. They are tiny, light weight, and LOUD. Use them for practicing on the road, headphone listening while others sleep, distortion boosters at full volume, stage monitors, spontaneous open air concerts—you name it. Eight penlight batteries are good for about a month's use and drive the PYGMY's 5 Inch acoustic suspension speaker to a room filling 1.2 watts RMS (up to 8 watts peak). The speaker's hefty magnet assures that what goes in as signal comes out as sound. Internal 3 position switch selects speaker/headphones/line level outputs. Road worthy ½ Inch ply case is supplied to you pre-covered with heavy black vinyl and all hardware (corners, hinges, strap pegs, latch and speaker bezel) is provided. The Pygmy's integrated circuit design and step-by-step instructions make assembly a snap—figure about 3 hours tops. Batteries and strap not included.

No. 1750 PYGMY AMP KIT\$39.95 (6 lbs.)

USE YOUR PYGMY AMP TO GET "TALKING GUITAR" EFFECTS

Convert your Pygmy Amp to produce the new "Talking Guitar" effects. Modification kit includes a replacement speaker bezel which concentrates the sound from the speaker and emits this higher pressure signal from a small hole. The sound pressure is then fed through a 6 ft. length of tubing to your mouth for formant processing.

ELECTRO/LARYNX RETRO-FIT\$5.00 (1.00)

FOOT SWITCH

A positive action, push on, push off switch housed in a ruggedly constructed stamped steel frame with scuff-proof cover of moulded neoprene. The switch can be activated from any position and its circular serrated top gives you non-slip contact. Switch comes complete with 8 foot connecting cable and standard phone plug.

No. 1650 PAIA/DeArmond Foot Switch\$12.95 (1.00)

PEDAL VOLUME CONTROL

We've made special arrangements with Rowe/DeArmond to sell their model 1600 as a PAIA/DeArmond foot pedal. If you're familiar with this pedal you know that it's one of the toughest made and is an industry standard. We've made it available in a volume control expression pedal configuration for use with synthesizers, guitars, or whatever you've got. Included with the pedal are two interesting and informative articles from POLYPHONY. The first, by Marvin Jones describes a multitude of ways to use foot pedals with synthesizers as well as simple modifications that provide foot operated control voltage sources. The second, "Build a Wa/Anti-Wa Pedal" by Craig Anderton describes a unique special effects unit that can be housed in the pedal. DeArmond's recommended list price is \$54.00 but we sell them for \$39.95.

No. 1600 PAIA/DeARMOND FOOT CONTROL\$39.95 (4 lbs.)

DRUMMER BOY

Eleven Rhythms: Waltz, Vienna Waltz, Jazz Waltz, Polka, Fox Trot, Samba, Boss Nova, Funk, Cha-Cha, Rhumba, Tango. Rhythms are switch selected and can be combined two or more at a time for an almost unlimited range of effects. Drum sounds include Bass, Snare, Conga, Clave, and wood block. Rocker switches allow individual drum sounds to be interchanged within the framework of a rhythm pattern. Down-Beat emphasis is switch selectable. Plugs into any guitar, organ or hi-fi amplifier. Case is pre-punched sturdy gauge aluminum with oiled hardwood end panels.

No. 7701K Drummer Boy Kit\$89.00 (6 lbs.)

CRAIG ANDERTON'S LOW BUDGET LIMITER WITH HIGH BUDGET PERFORMANCE AS FEATURED IN NOVEMBER 1979 MODERN RECORDING

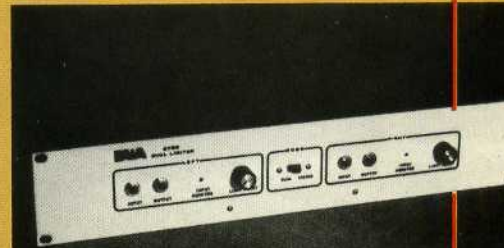
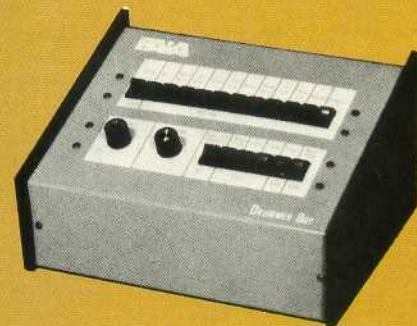
Until now, low noise, low distortion, quality limiters have been priced beyond the reach of budget studios—just the place where they're most useful. Like a safety valve, a limiter does nothing as long as everything's going as planned. But, when that unexpected loud transient tries to sneak in and ruin hours of careful preparation, the 6790 is there to unobtrusively hold the signal at a level that prevents distortion in the rest of the audio channel.

Craig's design features the new Signetics 570 Componder chip in a configuration that allows switch selection of either two independent limiters or a "dual" mode which allows the signal on one channel to limit both channels, thereby preserving stereo imaging. The limit point is controllable from the front panel of this 1¾ inch high standard rack panel package over a range of approx. -10 to +3 dB. LED indicator shows when limiting is taking place.

The limiter is also useful as a special effects device for guitar, etc.

SPECIFICATIONS: Power: +12v. @25 ma., -12v. @8 ma. nominal (external supply such as 4771 required); Frequency response: ±1dB., 20 Hz. -20 kHz.; Attack time: less than 1 ms.; SNR referenced to 0 dB. output: greater than -65 dB.

No. 6790 Dual Limiter Kit\$49.95 Assembled \$74.95 (2 lbs.)



ENVIRONMENTAL SOUND EFFECTS

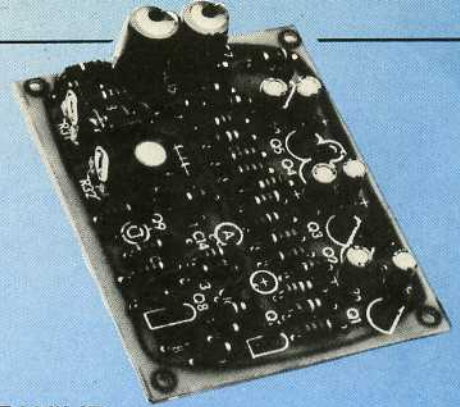
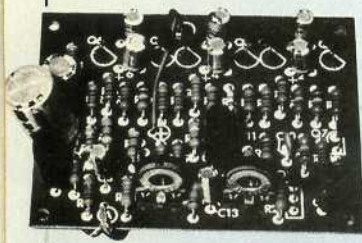
LOW COST BATTERY POWERED USE WITH ANY HI-FI AMP

SURF SYNTHESIZER

The roar of the ocean is one of the most relaxing sounds imaginable. Now you can have the sound of the surf electronically synthesized and played through your hi-fi. Complete in this low cost package is a special purpose synthesizer consisting of a pink noise source, random voltage generator, voltage controlled attenuator, and voltage controlled low pass filter. Use as a background sound generator, mood setter. An unbeatable conversation piece. Powered by two 2U5 type batteries (not supplied).

Complete kit includes: circuit board, all parts, battery connectors and clips, miniature type phone output jack and plug, detailed instructions.

No. 3711K Surf Synthesizer Kit \$15.95 (1.00)



THE WIND

Don't be surprised if you feel like running for your coat when you hear the wind, it's so realistic that people who have heard it report they actually feel cooler. Trimmer adjustments provide a range of effects from moderate breeze to full gale. Great for background sound, special effect accessory for organs or other musical instruments, or just as a party starter. May be used with any hi-fi or musical instrument amplifier, powered by two standard transistor batteries (batteries not included).

Complete kit includes: circuit board, all parts, hardware and wire; battery connectors and clips, miniature type phone output jack and matching plug, detailed instructions.

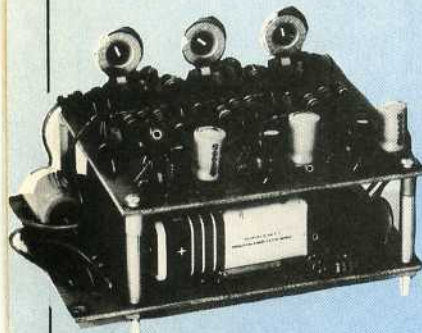
No. 3730 Wind Kit \$15.95 (1.00)

ELECTRONIC WIND CHIMES

You'll feel like you've been transported to the Mikado's palace for the afternoon tea ceremony as you settle back and relax to the gentle random tinkling of these electronic wind chimes. Internal trimmer adjustments allow you to select either the ring of brass chimes or the percussive resonance of bamboo rods. The wind chimes are completely self contained, battery powered (battery not supplied) and may be used with any hi-fi or musical instrument amplifier.

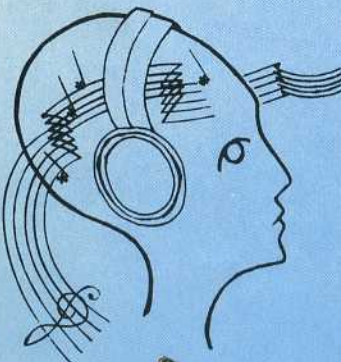
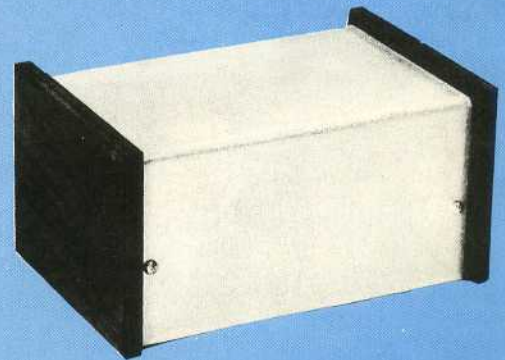
Complete Kit includes circuit boards with parts placement designators, all parts, hardware and wire, power switch, co-ax output lead with RCA type plug, detailed instructions.

No. 3721 Wind Chimes Kit \$21.95 (1.00)



A CASE FOR YOUR FINISHED PROJECT

This attractively styled case houses the Surf Synthesizer, The Wind or the Wind Chimes interchangeably. Heavy aluminum body with oiled hardwood end pieces blends with contemporary audio and hi-fi equipment. Aluminum top and bottom are completely pre-punched with provision for power switch and output jack on the rear apron of the case. The case is supplied unpainted. **No. 3711-C \$5.50 (1 lb.)**



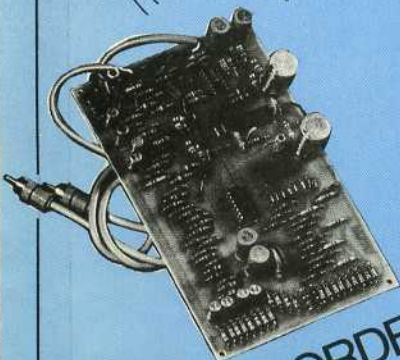
STEREO CHORD EGG*

The EGG plugs into any stereo amplifier to create soothing, flowing environmental sound textures — and through headphones it's incredible. The chords and notes exist in your mind, they pan and swell and phase their way through your psyche in unpredictable patterns, never repeating.

The combination of LSI organ technology with synthesizer-type processing and digital randomizing/control elements make the EGG and altogether intriguing package from either technological or metaphysical viewpoints. Kit includes: circuit board, all parts and step-by-step instructions. No case available — requires 8 "AA" penlight batteries.

No. 3790 Stereo Chord EGG Kit \$29.95 (1.00)

*EGG Encephalo-Gratification Generator



shut out noise pollution and keep your cool with the CHATTER JAMMER

We make only one claim for the Chatter Jammer; if you must work in a noisy environment the Chatter Jammer will help you to concentrate by blocking out distracting outside sounds and substituting the gentle "rushing" sound of pink noise. Thousands of these units have been bought by students and businessmen. Hundreds have been sold to doctors of various disciplines (MD, DDS, PHD, etc.).

Technically speaking, Pink noise is an equal probability distribution of an all frequencies within a given bandwidth.

If you still have trouble visualizing what it sounds like there are many natural phenomena that come close to being pink noise. The sound of falling rain and the roar of the ocean are two good examples. Strangely enough, most people find these sounds relaxing.

The Chatter Jammer is shirt pocket size, completely self contained and can be assembled in less than an hour. Kit includes circuit board, case, earphones, selected noise diode and instructions. Requires two 9 volt transistor batteries (not supplied).

No. 111 Chatter-Jammer Kit \$9.95 (1.00)



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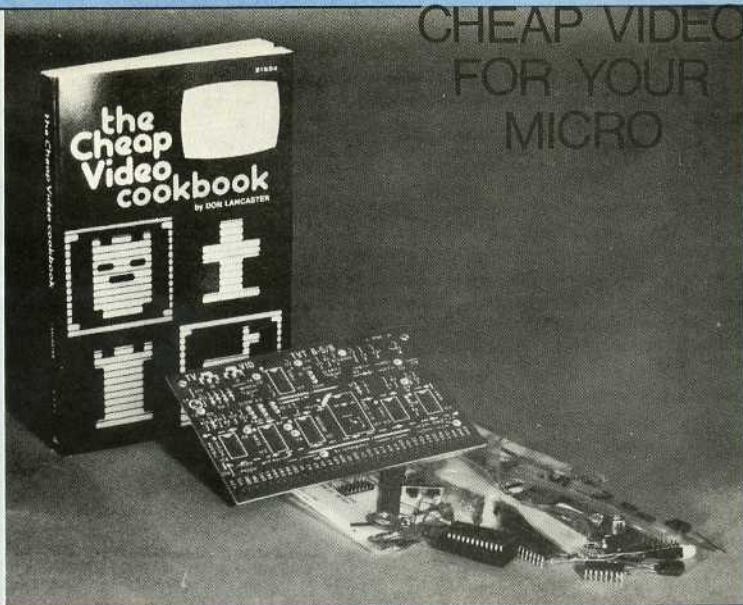
Don Lancaster's "Cheap Video" concept allows almost unlimited options, including: Scrolling, Full performance cursor, Line/Character formats of 16/32, 24/80, 32/64 . . . or almost anything, Graphics—up to 256 X 256 B & W; 96 X 128 Color (requires low cost option modules). Works with 6502, 6800 and other micros.

SPECIAL OFFER: Buy the kit (upper case alpha-numeric option included) & get the book at ½ price.

TVT-6 5/8 Kit & Cheap Video Cookbook \$42.95 (1.00)
TVT-6 5/8 Kit only [book required for assembly] . . . \$39.95 (1.00)

IF YOU HAVE QUESTIONS: There is no doubt that the TVT-6 5/8 is the ultimate in low cost video, but there is the possibility that it's not the proper approach for your application. The only way to know for sure is to read the book. The quickest way to get the book is from your local computer store or book dealer, but if they are not available to you through these channels you may order the book alone from PAIA.

CHEAP VIDEO COOKBOOK* \$5.95 (1.00)
 *sorry but we cannot credit separate book sales against future kit orders.



CHEAP VIDEO
FOR YOUR
MICRO

You bought your **APPLE II*** Computer because of an appreciation for quality and uncompromised performance. Now you can match those standards with the **PAIA/APPLE II** Joystick controller. Whether your requirements are for a technical/graphics controller or just a more realistic game of star wars, you'll like the feel of the PAIA precision-gimballed joystick with user oriented features like self-centering action*, front panel X and Y axis trimmers, Switch #2 input pushbutton, and the unique capacitive Switch #1 that requires only a touch of the controller shaft to activate. Plug compatible with the **APPLE II*** game controller. *Self centering may be easily disabled if required.

No. APJS PAIA/APPLE II* Joystick Controller . . . \$65.00 (1.50)

(Available only in completely assembled model)

*APPLE II is a registered trademark of Apple Computer, Inc.



A JOYSTICK
FOR YOUR
APPLE II

JUST FOR FUN

SOLID STATE BIRD

If you like the sweet warbling song of a canary but don't dig that cage to be cleaned, try this electronic bird — a real solid state singer. When turned on the bird whistles down-scale for a few seconds, breaks into a warble and shuts itself off only to start again a few seconds later.

Kit includes circuit board, off-print instructions, parts, wire, switch and speaker. Powered by four AA pencils (not included).

No. EK-110 Solid State Bird Kit \$8.95 (1.00)

ALL ELECTRONIC STEAM WHISTLE

Shades of John Henry! An electronic package that sounds so much like an old time steam whistle you'll keep looking over your shoulder to make sure ol' 99's not steaming through the door. Use with any amplifier to provide realistic sound effects for model railroads, recordings, etc., or, how about a steam whistle car horn!

Kit includes circuit board, all parts, wire, battery connectors and step-by-step instructions. Powered by two 9 volt transistor batteries (not supplied)

No. EK-6710 Steam Whistle Kit \$9.95 (1.00)

TWO PREAMPS

KEYBOARD PRE-AMP

As featured in Craig Anderton's column in Contemporary Keyboard.

Five position rotary switch (supplied) selects gains of 6, 10, 20, 30 or 40 dB. Bilateral clipping indicator flashes LED when positive OR negative peaks exceed user set level. Accepts high or low impedance unbalanced signals — drives high impedance loads.

Instructions supplied are not the typical step-by-step assembly procedures, but are geared towards the advanced experimenter with applications, design analysis, and installation procedures. The user must supply the enclosure or mounting panel, power supply (two 9 volt batteries, or a ± 5 volt to ± 15 volt power supply), and knob for the rotary switch.

No. 1720 Keyboard Pre Amp Kit \$15.95 (1.00)

SUPER INEXPENSIVE PRE-AMP

A single stage transistor amplifier that will find numerous applications in the audiophile/musician's shop. Useful as a signal booster for many electronic music processing elements and a sure cure for problems associated with low signal levels into special effects boxes. This kit includes ALL parts, circuit board and step-by-step instructions.

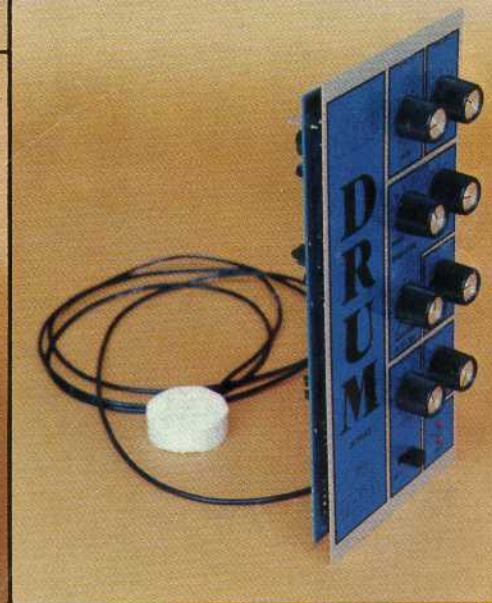
No. 1710 PRE-AMP KIT \$1.50 (1.00)

CUSTOM ASSEMBLY POLICY

Custom assembled orders are accepted on a cash with order basis only. As assembled units are not normally in stock, assembly will be scheduled upon receipt of your order and a

delivery date quoted at that time. Synthesizer packages are assembled and charged on a per module basis. Please note that not all items listed in this catalog are available assembled.

PERCUSSION



the DRUM by PAIA - PERCUSSION SYNTHESIZER

At PAIA, we've always thought that your instruments should provide the maximum power and versatility available from the technology. That's why where others give you only two options, on and off, the DRUM provides infinitely variable control of: waveform (fade from triangle to square wave or stop in between, sine wave switch selectable), Noise filter, corner frequency (white to various shades of pink), Oscillator/Noise mix (get just the sound you're after).

Add to this innovative PAIA touches like filter modulation setting that lets the filter track the drum envelope and convenience features that include:

- * Variety of sensor mounting options (use your own drum set or practice pads.)
- * Power indicated LED on each card.
- * Trigger LED

- * Multiple rear panel interfacing and control options.
- * Modular expandability
- * Quick and easy kit assembly.

and you begin to get a feel for why we say - The Drum by PAIA, definitely not a hum-drum drum. The Drum card requires $\pm 9v$.@ 20 ma. power (4771 power supply recommended). The assembly and using manual has details . . . \$5 refundable with purchase of The Drum.

- No. 5700 The DRUM card kit \$59.95 (postpaid)
- No. 5700A The DRUM card assembled \$89.95 (postpaid)
- PACKAGE OFFER - Buy four cards and the power supply and we'll throw in the case (\$34.95 value) AND pay the shipping.**
- No. P-5700 Four channel drum synthesizer package kit \$269.75 (postpaid)
- No. P-5700A assembled \$399.95 (postpaid)

the PROGRAMMABLE DRUM SET

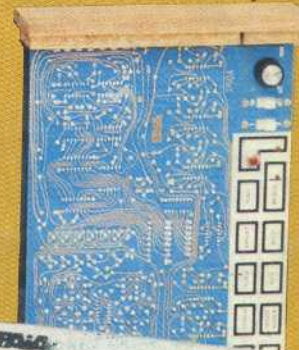
While most electronic rhythm units offer only a limited choice of pre-determined rhythm patterns, the PAIA Programmable Drum Set allows you to select percussion sounds - Heavy Bass, Light Bass, Snare Drum, Tom-Tom, Conga, Wood Block or Clave - and structure pattern and time signature in any conceivable combination. And touch sensitive electronic controls allow scores to be entered in seconds with no programming knowledge required.

Without question the Programmable Drum Set advances the state of the art in automatic percussion units with features and abilities too extensive to cover completely, including: Score editing, bridges and intro's, external sync. to sequencers or foot controls, memory save switch and many more.

- No. 3750 Programmable Drum Set Kit \$89.95 (5 lbs.)
- No. 3750A Programmable Drum Set assembled \$154.95 (5 lbs.)

High Fidelity Magazine describes the 3750 as "An easy project . . . fun to do and yields delightful results . . . an excellent educational tool and versatile aid to the musician who can't afford a live rhythm section."

And Peter Gabriel, former vocalist for "Genesis" and solo recording artist on Atlantic Records, says "I like it a lot. I think of it as a composer's tool. It has helped me with my recent songwriting. I like to set up complex timings, and then play against it to find words and music that work well with the pattern."



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PAIA Electronics, Inc.
1020 W. Wilshire Blvd.
Oklahoma City, OK 73116

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