

# PAiA 2004

On-line Catalog  
Winter-Spring



## Theremax

A classic theremin with contemporary features



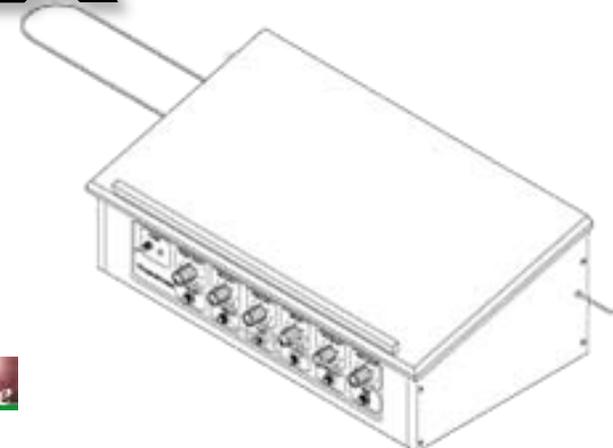
## P9700S Synth Package

The power and versatility of 15 modules in 3U rack space.

PAiA Electronics, Inc / 3200 Teakwood Ln. / Edmond, OK 73013  
phn (405) 340-6300 / fax (405) 340-6378

# PAiA

# THEREMAX



## Theremax

Since its introduction during the 1920's the instrument which bears Leon Theremin's name has been evocative in image and tone. Theremax captures this spirit in an instrument based on the same heterodyne principles as the original but with embellishments made possible by the economy of integrated circuits and solid state electronics. In addition to the traditional mellow sine-like tone, Theremax's Timbre control can mix in a harmonic rich square wave to produce a signal that's ideal for use with external filters and processors. And to control outboard units, there are Pitch and Volume Control Voltage outputs.

But the features that really set Tmax apart as a gestural controller are it's Velocity Control Voltage (proportional to how fast you increase the Volume) and Gate/Trigger outputs. A convenient foot switch input allows muting the internal tone source without disabling the CVs.

The Theremax Kit includes all electronic parts, knobs, wire, circuit board, 12 VDC wall mount Power Supply. The optional wooden lectern case measures 16"w X 8.5"d X 5.5"-3.25"h and has antennae that are easily removed for transport. Wood pieces are pre-cut from clear white pine and drilled for ease of assembly. Includes punched, anodized and screen printed front panel and metal bottom plate and all hardware.

For those that want to build a case dimensioned drawings of case parts and antennae are linked at <http://www.paia.com/theremax.htm>. The Partial Case Kit has antennae with mounting hardware suitable for non-conductive cases, the Tmax front panel and miscellaneous hardware.

- 9505k Theremax Kit.....\$89.75 (7.00)
- 9505c Theremax lectern case kit.....\$79.25 (12.00)
- 9505fpa Partial Case Kit.....\$28.50 (7.00)

## Clara Rockmore T-Shirt

We originally awarded these T-shirts featuring virtuoso thereminist Clara Rockmore in this familiar pose as prizes in a contest. We then secured permission from Mrs. Rockmore to offer them for sale - provided she got a dozen for herself and friends.

- CRT Clara Rockmore T.....\$15.00 (4.00)  
(specify M,L,XL)



# PAiA ANALOG SYNTHESIZER MODULES

## High Level Modules Combine Multiple Functions.

By designing double or even triple versions of conventional modules and including modulation sources as an integral part of the processing elements the PAiA 9700 series takes modular synthesizers to a new level.

Normalization of these high level functions is carefully optimized to allow complex voices with minimum patch cords while still allowing individual elements to be used independently. For example, it would take (2) VCAs, (1) Balanced Modulator, (1) Envelope Generator, (1) LFO, (1) noise source and lots of patch cords to duplicate the functionality of a single PAiA 9710 VCA.

Electronic parts kits for the modules are complete with tin-lead plated and solder masked circuit boards, controls and knobs, wire, etc. The basic kits do not include panels or jacks so that individual builders can customize to suit their needs.

FracRak accessory kits include punched, anodized and screen printed Panel, 1/8" Jacks, hardware and other mechanical parts required to build a FracRak format module.

For more details including block diagrams and full schematics check the 9700 web pages at <http://www.paia.com/9700.htm>



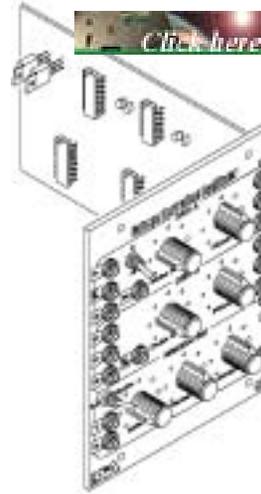
### P9700S Package Offer

This comprehensive MIDI system includes a midi2cv8 MIDI to CV converter, 9710 VCA, 9720 VCO, 9730 VCF, FracRak Case and patch cord set. Everything needed for a complete MIDI controlled modular synthesizer system with extraordinary power and flexibility. The discounted package price saves you more than \$25 on the purchase of the individual kits and panels.

**P9700S Synthesizer Package.....\$450.00 (12.00)**



## ANALOG SYNTHESIZER MODULES



### 9720 Dual VCO w/Modulator

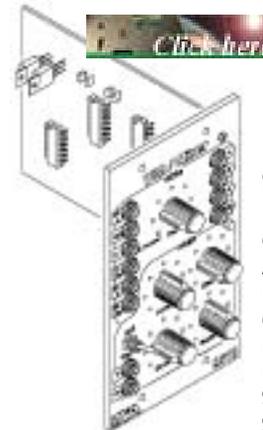
Two independent VCOs that between them have Ramp, Triangle, Sine and Pulse waveforms. Pulse width is controllable by panel control or CV. Each oscillator has two 1V/oct. scaled Pitch CV inputs and a 10 octave range from 16Hz to 16kHz. One VCO has a linear FM input and the other has a sync input and 3 octave transpose switch. Pitch knobs set initial pitch over a 3 octave range. The built-in modulator provides AR/ASR and Gated LFO functions and is normalized for PWM or vibrato (Pitch shift).

**9720K VCO Electronics kit.....\$84.75 (6.00)**  
**9720FR VCO FracRak Accessory kit.....\$23.25 (6.00)**

### 9730 Dual VCF w/Modulator

Two identical, independent filters with Lo Pass, Band Pass and Hi Pass outputs are normalized as a single 24dB/oct filter but can also be used separately for a large variety of 12 dB/oct and 24dB/oct responses. Corner frequency range is 10 octaves from 16Hz to 16kHz with the two Fc inputs to each filter scaled 1V/oct. Each filter self-oscillates at high resonance settings. The built-in AR/ASR/ Gated LFO modulator is normalized for Fc modulation.

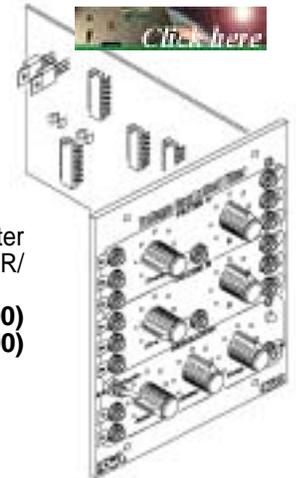
**9730K VCF Electronics kit.....\$79.75 (6.00)**  
**9730FR VCF FracRak Accessory kit.....\$23.25 (6.00)**



### 9710 VCA/Mixer/Noise Source

Light years beyond the traditional VCA, the PAiA 9710 combines 3 VCAs, a White Noise Source and full function ADSR/LFO Envelope Generator in a single module. The unique normalization produces a powerful processing element that can be used as VCA/Balanced Modulator with panning sub-mix input, Voltage Controlled 3-input mixer or as three totally independent VCAs and EG.

**9710K VCA Electronics kit.....\$77.50 (6.00)**  
**9710FR VCA FracRak Accessory kit.....\$20.00 (6.00)**



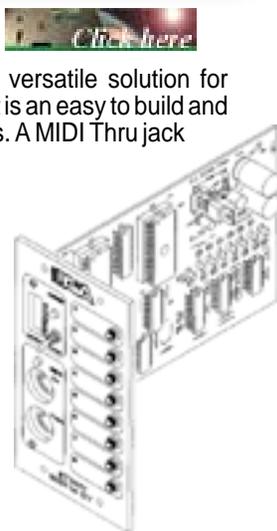
# midi2cv8

## MIDI to Control Voltage Converter

Our new MIDI to CV converter is an economical and versatile solution for interfacing MIDI to the world of analog synthesis and control. It is an easy to build and use system with eight Control Voltage, Gate or Trigger outputs. A MIDI Thru jack allows easy expansion through daisy-chaining.

### Operating modes in the v.2.0 firmware comprise:

- Pitch and Gate control of 4 synth voices.
- Pitch, Velocity and Gate control of 2 voices plus Mod and Pitch Wheel CVs.
- Pitch, Velocity, Pitch Wheel, Mod Wheel, Release Velocity, Channel Pressure, Gate and Re-trigger.
- 8 CVs from Control Change messages.
- Analog Drum Trigger Mode.
- DIN Sync - with simultaneous 1 or 2 synth control.
- Self-Test - helpful with setup and trouble shooting.
- Mono (rotation) and Multi (per channel) assignment



The native tempering of the midi2cv8 is 127 semi-tones of V/oct Control Voltages for MOOG, ARP and other linear CV synths. An optional V/Hz conversion board provides five octaves of exponentially scaled Control Voltages for PAiA, Korg and some Yamaha synths.

For custom applications, the midi2cv8 Electronics Kit is supplied without case, output jacks, power switch or transformer. The FracRak and Rack Mount Accessory Kits add the parts needed for modular or stand alone applications.

**9700k midi2cv8 Electronics Kit** has all electronic parts, circuit board, pc mount DIN jacks and keyboard style DIP switch but does not include Transformer, Power Switch or CV/Gate Jacks.....**\$92.25 (6.00)**  
**SPECIAL PRICE ON TWO 9700K.....\$169.75 (6.00)**

**9700frm FracRak Accessory Kit** adds Transformer, Switch, 8 Stereo Jacks, punched, black anodized, grey legended, 2W FracRak panel and all hardware.....**\$25.75 (7.00)**

**9700rck Rack Mount Accessory Kit** adds Transformer, Switch, 16 Jacks and fully enclosed 1U rack case with punched, black anodized, grey legended panel and all hardware.....**\$47.00 (8.00)**

**9700vhz midi2cv8 Volts/Hertz Option** includes all components and circuit board with mounting hardware.....**\$14.25 (4.00)**

Bookmark <http://www.paia.com/midi2cv.htm> for schematic, source code and the latest info on firmware revisions and extensions.

# PAiA FRAC RAK

## Experimenter's Fractional Rack Packaging System

This new card frame packaging system fits up to ten 5.25" X 1.5" X 7" modules into a standard 3U rack space. Mounting rails, end pieces and rack ears easily bolt together to form a sturdy cage. The single, double and triple wide black anodized blank panels are industry standard 1/8" thick and pre-punched with mounting holes. #4 "L" brackets and hardware for circuit board mounting are included with the panels.



### FR-7 FracRak Case

(includes hardware, 7" deep end pieces, mounting rails and black anodized rack ears).....**US\$18.75**

### FR-7TBR Top/Bottom/Rear covers

(not shown in drawings).....**\$15.25/set**

**Blank** (except for mounting holes) **black anodized panels**

**FRB-1 single (1.5 X 5.25)**.....**\$3.50**

**FRB-2 double (3 X 5.25)**.....**\$4.00**

**FRB-3 triple (4.5 X 5.25)**.....**\$4.50**

Add **US\$7.00 p&h** for each FracRak card cage

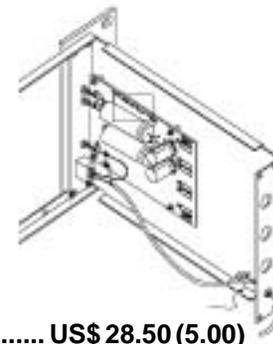
## Bipolar Power Supplies

Choose from 3 configurations: The 9770U provides unregulated nominal +/- 18VDC @ 350mA. and is intended for devices that don't require regulated voltage. The 9770R-12 and 9770R-15 are +/- 12VDC @ 300mA. and +/- 15VDC @ 200mA. regulated supplies respectively. Each supply has provisions for connecting up to 6 devices. LEDs indicate status of AC input and both power rails. Kits include tin-lead plated and solder masked circuit board (4" X 2-3/4"), wall mount transformer and all electronic components.

**9770U Unregulated +/- 18V Power Supply Kit**..... **US\$ 28.50 (5.00)**

**9770R-15 Regulated +/- 15V Power Supply Kit** ..... **US\$ 32.75 (5.00)**

**9770R-12 Regulated +/- 12V Power Supply Kit** ..... **US\$ 32.75 (5.00)**



## Power Wing

The FracRak Power Wing Accessory package mounts a 9770 power supply in the end panel of a FracRak case without using up a module space. Includes black anodized, punched and screen printed panel, power switch and all hardware.

**FR-PWP FracRak Accessory Package...\$ 18.50 (4.00)**



## METAL FOR MUSIC

### Blank Rack Panels

Standard size rack panels made of 1/8" unfinished aluminum with pre-punched rack mounting ears and blank fronts. Easily machined with hand tools to accommodate your custom project.

**BP-1 Single Height Rack Panel (1-3/4" X 19").....\$7.95 (5.50)**  
**BP-2 Double Height Rack Panel (3-1/2" X 19").....\$9.95 (6.00)**

### Rack Chassis Enclosures

Many PAiA devices are designed with circuit boards attached to the Rack Panel on "L" brackets and careful design and shielding eliminate technical reasons for complete enclosures. Cases from other manufacturers are beautiful, but cannot be used with the thick anodized and legended panels available from PAiA. These Universal Rack Chassis Enclosures are for those whose aesthetic sense requires completely enclosed equipment, but be warned that you will have to add extra holes to the PAiA panel and there are no specific instructions for each kit.

**RCE-1 Single High Chassis (17" X 7" X 1.5").....\$19.95 (6.00)**  
**RCE-2 Double High Chassis (17" X 7" X 3.25").....\$21.95 (6.00)**

## FREQUENTLY ASKED QUESTIONS

### Can I build the....? How long will it take? What tools will I need?

Our kits assume that you don't know a thing about electronics. Color codes or special markings of parts are given and assembly is detailed and step-by-step. You will need the mechanical skill of soldering, if you've ever repaired a guitar cord you probably qualify. If not, it wouldn't hurt to practice some.

But it should go without saying that the builder brings a lot to the building experience. A patient attitude goes a long way. Trying to build something tonight for a studio date in the morning is guaranteed to be problems.

Our manuals also focus on the how's and why's of the design and most people pick up a lot of technical understanding while building, testing, using and perhaps hot-rodding their kit.

It's difficult to answer how long it will take to assemble a given kit, we hear a surprisingly large range of times. For all but the simplest kits you should plan on multiple assembly sessions of a few hours apiece. To give you a range, Our Vocoder and FatMan are probably the most complicated assembly jobs - most people will do them in 15 - 20 hours. The quickest will be EPFM kits, maybe 2 hours for most of them.

For tools you need routine things like pliers, wire cutters, screwdriver, knife, ruler and so on. You need a soldering iron, not a soldering gun, and kits do not include solder. We write all of our assembly manuals assuming that you do not have any test equipment and all testing and calibrating is done by ear.

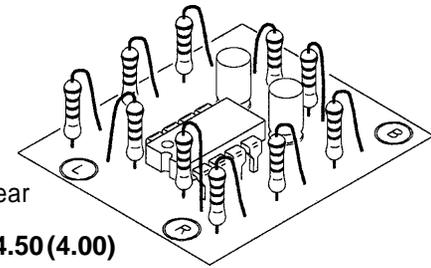
Other questions? Check out the FAQ at <http://www.paia.com/paiafaq.htm>

## NOW FOR SOMETHING COMPLETELY DIFFERENT

### Headphone Buffer Amp

Ideal for adding a headphone jack to equipment that lacks one, the 1.2" X 1.4" circuit board squeezes into the smallest spaces and existing supplies in retrofitted gear can be used for power.

**9605K Headphone Buffer Amp Kit.....\$24.50 (4.00)**



### Drum Tone Board

In the dawn of cyber-time (before digital sampling) electronic percussion units generated drum sounds using "ringing oscillators" like those on this analog Drum Tone Board. The absolute realism of Digital Sampled Drums made these electronic sounds unfashionable for a while, but what goes around comes around and now ringing oscillator sounds are regaining popularity. Why not? They expand the sonic palette with percussion sounds that AREN'T exactly like real drums. Drum sounds produced by the 6 Tone Oscillators are individually adjustable from their Nominal sounds of Bass, Tom-tom, Snare, Conga, Wood-Block, Clave and SynthDrum. Requires 5 to 12V @ 30mA. power

**9302/K Drum Tone Board Kit.....\$38.25 (6.00)**

Can you use the Tone Board with MIDI? Find out how and learn other applications details at [paia.com/syndrum.htm](http://paia.com/syndrum.htm).



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on your order  
from this  
catalog.**

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code "1003JS"  
when placing  
your order**

US states only



## STUDIO SERIES

High quality, quiet and full-sounding ANALOG sound processors from PAiA are ideal for project studios or traveling racks. Each kit includes circuit board with parts placement designators, all parts, wire, and step-by-step instructions. Standard 1/8" thick anodized aluminum rack panels with silk screened graphics and control designations are available for most of these kits. Blank rack panels and chassis enclosures are also available (see pg. 6).



### Dual Phantom Power Pre-Amp

You already know that Condenser Microphones offer a sonic "transparency" that you can't get with their Dynamic counterparts, but how do you use them? Your mixer has Mic inputs, but Condenser Mics need "phantom power" and have balanced outputs, features that are usually only available on the most expensive consoles.

There's no need to buy a new mixer just because you found a good deal on an AKG 414. This pre-amp provides phantom power, adjustable gain up to 60 dB and converts balanced inputs into single ended outputs. Its two identical sections can be used with any kind of Condenser Mic.

It's low noise, low distortion and, at less than \$35/channel, low cost. The kit comes with wall mount power supply and precision metal film resistors where needed. The optional case provides an attractive and compact home for the electronics. *There is no rack mount version of this kit.*

**9215/K Phantom Power Pre-Amp Kit.....\$65.25 (7.00)**  
**9215/C Case for Phantom Power Pre-Amp.....\$17.75 (6.00)**

### Headphone Distribution Amplifier

This extremely useful, high-quality device allows low or line-level sources to drive up to 6 pairs of stereo headphones. 12 separate amplifiers drive any mix of headphones from 8 to 600 ohms and each headphone has its own stereo volume control. Compared to alternative multi-headphone devices, the HDA provides more outputs, more volume, less distortion and no noise. Case and wall mount power supply included.

*There is no rack mount version of this kit.*

**9206/K HDA Kit.....\$79.50 (7.00)**



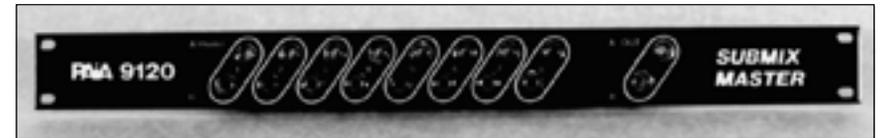
## STUDIO SERIES



### SubMixer

Sometimes you need a few more inputs than the average compact mixer offers, but moving up to a larger board is expensive overkill. If all you need is a few more line inputs, this low-noise PAiA SubMixer could be the perfect solution. With its four stereo inputs, two panable mono inputs and stereo output it's ideal as a dedicated effects-return mixer, a stand-alone "disco mixer," or for adding a few extra inputs to your existing console. Requires +/- 12V power, such as 9770R-12.

**9402/K SubMixer Kit.....\$68.75 (6.00)**  
**9402/FP SubMixer Front Panel.....\$17.75 (5.50)**



### Submix Master

Craig Anderton's Submix Master combines up to 8 stereo or mono line level signals into a master stereo output. Panning, effect and levels are taken care of at the MIDI Instrument itself. Feeding the Submix Master output into two mixer inputs frees up all the mixer inputs that would otherwise be occupied by keyboards. Requires +/- 9 to 15 volts.

**9120/K Submix Master Kit.....\$39.95 (6.00)**  
**9120/FP Submix Master Front Panel.....\$15.95 (5.50)**



### Four-Band EQ

One thing that separates compact mixing boards from their big studio cousins is a good EQ section. It's true that today's world of multi-timbral sound sources doesn't need a lot of EQ for most things. Yet, inevitably, there are those tracks that need more than a simple Hi/Low Boost/Cut. Minor stuff like vocals and mic'd instruments (remember those).

The Four-Band EQ provides up to 16 dB of continuously adjustable Boost or Cut in four overlapping frequency bands from 35Hz to 15kHz. This unit is quiet and can be used with either low level or line level signals. It's the perfect complement to the great inexpensive mixers available today. Kit includes wall mount power supply.

**9303/K Four Band EQ Kit.....\$64.75 (6.00)**  
**9303/FP Four Band EQ Front Panel.....\$17.75 (5.50)**

## STUDIO SERIES



### Hot Springs Reverb

You know the problems with spring reverbs - nearly all of them are twangy, boingy, bassy, boomy and noisy. But the Hot Springs is none of these.

Craig Anderton's innovative design incorporates some of the same tricks that are used to "hot rod" guitar pickups. Instead of a single reverb tank, this design uses two tanks with the input and output transducers connected in such a way that the original audio as well as "sproings" and "boings" are canceled out leaving only clean multiple echoes and reflections.

The second trick is to drive the input transducers with a current source for equal drive at high and low frequencies. This emphasizes the bright high end and de-emphasizes the muddy, bassy sound typical of spring reverbs to produce a clarity usually associated with expensive studio plate systems.

Finally, the connection of the output coils doubles the overall output level so the recovery amp can have lower gain, significantly improving Signal-to-Noise ratio. The end result is a very high quality analog reverb system that offers an attractive combination of high performance and low cost. No panel needed. Requires +/-9 to 15 volts.

**6740/K Reverb Kit.....\$79.75 (6.00)**

### Dual Limiter

A low noise, low distortion, low cost limiter for even the most budget conscious studios and performers. Like a safety valve, a limiter does nothing as long as everything's going as planned, but, keeps unexpected loud transients from ruining long hours of careful preparation. Requires +/- 15 volts.

**6790/K Dual Limiter Kit.....\$49.95 (6.00)**

**6790/FP Dual Limiter Front Panel.....\$15.95 (5.50)**

### Parametric Equalizer

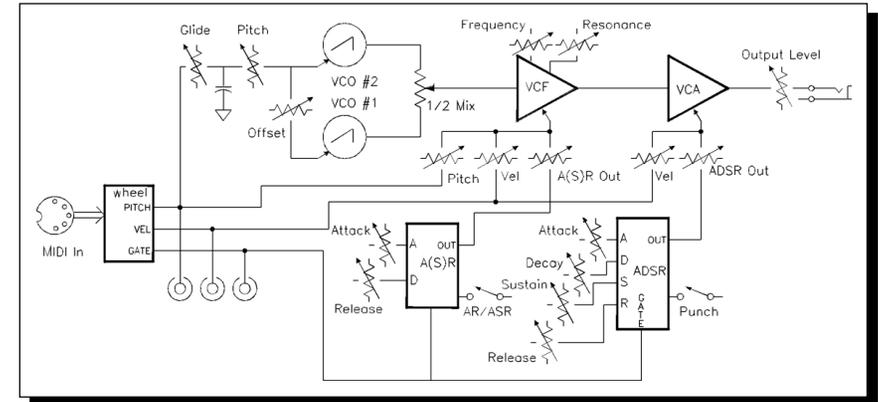
For either studio or live performance work, a parametric equalizer is the most powerful and versatile tone control available with applications that range from notching out the feedback howls in an unruly venue to taming that one note in a run that just won't quit pegging the meters. And this PAiA unit is a true parametric that gives you complete and independent control of frequency (40Hz.-16kHz.), bandwidth (resonance .2-4 octaves) and continuously variable Boost or Cut. Requires +/- 9 to 15 volts.

**6760/K Parametric Equalizer Kit.....\$74.75 (6.00)**

**6760/FP Parametric Equalizer Front Panel.....\$16.50 (5.50)**

## FatMan MIDI Controlled Analog Synth

<http://paia.com/fatman.htm>



The FatMan's classic normalization of two VCOs, VCF and VCA is enhanced with MIDI pitch bend and a Velocity Control Voltage routed to both filter and final amplifier. With transpose and offset, pitch covers seven octaves starting from a room-shaking 65 Hz., four octave response under MIDI control.

### FatMan

The FatMan has all of the features that give analog it's big bottom and punch in a MIDI controlled package. The classic Voltage Controlled normalization is brought up to date with a Velocity CV not available on pre-MIDI synths. Pitch wheel modulation is supported and Pitch and Velocity CVs and gate signal are provided on the front panel for driving PAiA or other linear response synthesizer modules.

And all those knobs. They invite experimentation and invention in ways that a single control with functions buried under layers of obscure menus never can. Just a few hours with the FatMan will teach you more about the nature of sound than you might ever learn otherwise. It's as at home in the physics lab as on-stage.

The new desk top case shown on the cover provides a complete 12" X 6" X 2" enclosure.

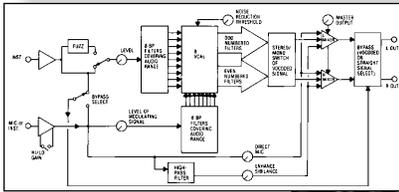
**9308/K FatMan Analog MIDI Synth Kit.....\$154.00 (7.00)**

**9308/FP 2U Rack Panel.....\$19.50 (6.00)**

**NEW**

**9308/C Desk top Case.....\$37.50 (8.00)**

## STUDIO SERIES



### Vocoder

The PAiA Vocoder, designed by Craig Anderton, is truly a price/performance breakthrough. Eight bands of resolution let you make instruments "speak" with remarkable intelligibility. But that's only the beginning of applications for this versatile spectral cross-modulator which allows the timbre of one sound source to directly modulate the pitch of a second source. Features like stereo outputs, built-in fuzz and an effects send and receive loop add flexibility missing in other vocoders. The block diagram above tells better than words the functionality of this extraordinary unit. Requires +/- 15 volts.

**6710/K Vocoder Kit.....\$139.00 (6.00)**  
**6710/FP Vocoder Front Panel.....\$17.75 (5.50)**



### Direct Interface

If you record guitars Craig Anderton's Direct Interface may be the solution to problems you didn't even know you had. The pickups of most electric string instruments are just too high an impedance to match the 600 ohm balanced input of pro recording consoles and signal processors. The result can often be loss of clarity and generally muddy signal. The Direct Interface makes these problems a thing of the past. Beyond impedance matching and single-ended to balanced line conversion, the DI also allows for mixing of stereo signals, splitting the signal to amps, variable gain, polarity reversal and much more. Requires +/- 9 to 15 volts.

**9110/K Direct Interface Kit.....\$39.95 (6.00)**  
**9110/FP Direct Interface Front Panel.....\$15.95 (5.50)**



### Quadrafuzz

This sophisticated fuzz designed by Craig Anderton splits the guitar signal into four specially equalized channels and fuzzes each one separately for a smooth, clean, sustaining sound with minimum harshness. Includes separate level and resonance controls and two pole tunable low pass filters for each channel. If you've been looking for a new exciting fuzz sound...here it is! Requires +/- 9 to 15 volts.

**6720/K Quadrafuzz Kit.....\$64.50 (6.00)**  
**6720/FP Quadrafuzz Front Panel.....\$16.50 (5.50)**

## MORE STUDIO STUFF

### The Project-r\* MS Stereo Microphone

MS mic'ing techniques produce a spacious, airy stereo ambiance that's ideal for recording acoustic instruments. And a nice side benefit is that if you initially record "too much" stereo you can reduce spread, or even take the mix to mono, without any fear of the frequency dependent phase cancellations that can occur with simple XY pair mic'ing.

This pro technique usually requires at least one high-\$ dual element condenser microphone and a mixing board able to split the outputs of the elements, invert phase, and assign both signals to different channels. But Jules Ryckebusch's MS Stereo Mic uses three high quality electret microphone elements and a package of electronics that performs mixing and matrixing to duplicate an MS Micing arrangement in a single low-cost package. Two controls set the level and stereo spread at the mic's 1/4" balanced Left and Right outputs.



*As Seen In  
Recording Magazine  
Dec. '95*

The MS Mic is a surprisingly smooth and accurate stereo microphone and will make a great addition to your audio arsenal. Frequency response is 20hz to 20Khz and noise specs are comparable to most pro audio condenser microphones. Complete kit of all electronic parts including electret mic elements, circuit board, controls, knobs and wall mount power transformer.

**9506K MS Stereo Mic Kit.....\$54.00 (7.00)**  
**9506C Case black anodized and legended (hardware included) \$22.25 (6.00)**  
*\* Project-r is a trademark of Recording Magazine*

### Vocal Zapper

Want to practice and improve your singing, feel like a rock star for a few minutes, or just have fun at your next party? The Vocal Zapper is just the thing. This low cost device can be used with any conventional stereo system to remove the lead vocal from most stereo records and tapes. Plug in almost any dynamic microphone and you're ready to put your voice where the lead singer was. And there are more serious uses too. With the lead vocal gone you can hear and study harmony parts you've never known about before. Some singers have used the Vocal Zapper to make demo tapes featuring their voice in place of another singers. This easy to use, easy to build kit includes circuit board, all parts, front panel and step-by-step instructions. Requires two 9 volt batteries (not included).



**6730/K Vocal Zapper Kit.....\$34.95 (4.00)**



# PAiA TUBE STUFF



## Two Channel Vacuum Tube Preamplifier

If you love vacuum tubes, these pre-amps have your name on them. The TubeHead is a low-cost, two-channel vacuum tube pre-amplifier with a twist; it's designed to be adjustable from crisp, solid-state transparency to an exaggerated caricature of tube amp warmth. In between these extremes, you'll find tonal coloring options that you've never had before and sounds that mimic every tube amp you ever heard. This circuit is so versatile that you may use it in place of compressors, limiters and sustainers even though, technically, it is none of these. Kit comes complete with fully enclosed 1U rack case, 1/4" phone jack inputs and outputs on the rear case apron and wall mount power supply.

**9305HSR Rack Mount TubeHead Kit.....\$109.00 (9.00)**



*As Seen In  
Electronic Musician  
Dec. '93*

## HiFi TubeHead

The HiFi version of the TubeHead appeared in the June '94 issue of Electronics Now. The tube circuitry is identical to the rack mount version and is ideal for jobs like warming annoyingly sterile CD's. RCA Phono jacks are used for inputs/outputs. Kit includes case and wall mount power supply.

**9305KEN HiFi TubeHead Kit.....\$109.00 (9.00)**



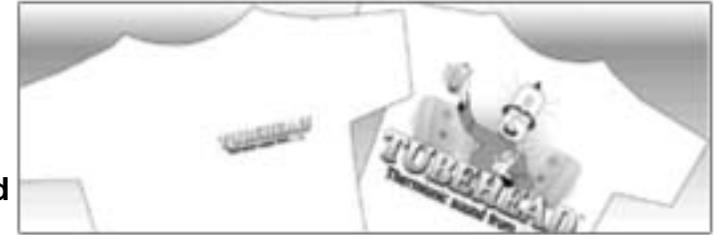
*The TubeHead finally gives me back the warmth and musical quality that has been lacking in many too-clean digital recordings. Though there are some pieces of vintage tube gear still around, none of them have the ability to tweak the sonic characteristics of the tube response and "tune" the sound to match the music. It gives me the best of analog in a digital world.*

**Larry Fast / Synergy@ Electronic Music**

*I must applaud you all on your efforts. In this day and age, just the fact that you exist is worth celebrating. I wanted to get a (hi-dollar) mic pre-amp to warm up my ADAT. I think I'm going to skip that purchase, thanks to you. This and my Mackie mixer pre's compliment each other very well. This unit is quiet and very professionally designed.*

**Al Carmichael / Sylvan Lake, MI**

## MORE TUBE STUFF



## TubeHead Tee-Shirt

Be proud that you have the good taste and discerning ear to be a Tube-Head. Show it with this sturdy 100% cotton Tee from PAiA with the TubeHead caricature emblazened across the back in vibrant colors.

**THT TubeHead Tee (specify size M, L).....\$15.00 (4.00)**



## Tube Mic Preamp

The Tube Microphone Pre-amp uses the same warm tube tricks that have made the TubeHead such a popular and useful addition to many studios but includes balanced inputs with switchable 48V phantom power (on the front panel) and balanced or single ended outputs on the back panel. The kit for this one is mono, and the fully enclosed Rack Case is designed to accommodate two amplifiers. Kit includes wall mount power supply.

**9407/K mono Tube Mic Preamp Kit.....\$68.85 (2 for \$129.50) (7.00)**

**9407/C enclosed Rack Case for 2 mic. pre's.....\$29.75 (8.00)**



*As Seen In  
Recording Magazine  
Jan. '95*



## Stack-In-A-Box

This mono tube pre-amp is optimized for use with guitar. Its vacuum tube stages add fullness and warmth while two switchable filters simulate the timbre of speaker cabinet resonances. You sound like you're playing through a stage stack even if you're using a practice amp or Direct Injecting.

And despite its low cost, this double high rack unit also features high and low impedance unbalanced inputs, "bright" and "fat" switches, an effects loop, a balanced XLR output for interfacing with pro studio gear and both normal and inverted unbalanced outputs. Best of all, this Craig Anderton and John Simonton collaboration just sounds WAY COOL. Wall mount power supply included.

**9210/K Stack-In-A-Box Kit.....\$74.75 (7.00)**

**9210/FP Stack-In-A-Box Front Panel.....\$19.75 (6.00)**

*As Seen In  
Guitar Player  
Feb. '93*



## GUITAR EFFECTS



### QUALITY EFFECTS-AFFORDABLE PRICES

*These guitar effects kits from PAiA are designed to give electronic guitarists the highest quality effect at the lowest possible price. All feature heavy duty switches for long life and electronic effect switching for pop-free punch-in and punch-out. All are high input impedance, low output impedance, non-inverting, low noise devices that provide hour after hour of operation from a single 9 volt battery. Batteries not included with kits. Cases are available separately.*



#### Hot Lyx Sustain

Probably the most used guitar effect by any electronic guitarist, a sustain unit is essentially an amplifier that automatically increases its gain to compensate for a guitar's normal decay characteristics. The result is the ability to hold notes and chords much longer than would otherwise be possible.

Hot Lyx gives you all the control you need, continuously variable sustain from just enough to make your Silvertone sound like a Les Paul to "pedal to the metal" controlled feed-back settings that give rock-guitar its "all out" quality. Level control allows for either lower or higher volume levels when you're punched into the effect and can also be used as an over-drive control to give you the sweetest fuzz-sustain sounds you've ever heard.

**5710/K Hot Lyx Sustain Kit.....\$42.75 (5.50)**

#### Motion Filter

An envelope follower/filter combination translates the normal dynamic properties of your axe into modulated timbral changes as well, you could think of it as an automatic wah-wah pedal. Independent Initial Frequency and Sensitivity knobs give you the control you need to realize a wide range of effects and allow the Motion Filter to be used with either electric bass or guitar. You won't believe that so much funk and soul can be squeezed into such a tiny box.

**5720/K Motion Filter Kit.....\$38.50 (5.50)**

## GUITAR EFFECTS

#### Gator(tm) Noise Gate/Envelope Controller

Despite its low cost, Gator has features that make it both an important effect and a tool-box for cleaning up your sound.

The Attack control lets you re-shape the normal percussive envelope of your guitar for bowed string and organ effects with attack times up to 1.5 seconds.

An Auxiliary Trigger Signal Input imparts unique "synchro sonic" rhythmic characteristics to your playing by allowing the sound of one instrument to be gated by another (guitar sync'd to drums, for example).

As a noise gate, Gator zaps "hiss" and "swish" completely by electronically isolating your effects chain from your amplifier when you stop playing.

**5730/K Gator(tm) Kit.....\$42.75 (5.50)**

#### Axe Grinder(tm)

The Axe Grinder might be a pretty routine fuzz if it weren't for a couple of subtle but significant features. Like a Distortion Intensity Knob that provides smooth control of clipping from just a hint when you really get in on to pure square waves when you even think of picking.

And the Distortion Tone, Distortion Level and Clean Level controls are like having a built in mixer and EQ, letting you precisely set the amount of distortion and its tone as well as the mix of clean and distorted signal. You probably never realized you could get so many sounds from a "simple" fuzz.

**5750/K Axe Grinder(tm) Kit.....\$38.75 (5.50)**

#### Roctave Divider(tm)

Whereas most effects only produce or accentuate harmonics higher than the fundamental frequency produced by the instrument, the Roctave Divider fills out your sound by adding in waveforms that are sub-harmonics of those produced by your axe.

Companor stages preserve the original dynamics and feeling of your playing by modulating the amplitude of the newly created sub-harmonics to match the original sound. Independent level controls on the extracted fundamental and first and second sub-octaves and a master tone control allow you to produce just the mix you're after.

**5760/K Roctave Divider(tm) Kit.....\$49.95 (5.50)**

#### Stomp Box Case

House your finished project in our heavy duty aluminum stomp box type case with scuff resistant baked on finish (not legended). Order with your kit for extra savings.

**5700/C Stomp Box Case (when ordered with kit).....\$11.75 (5.50)**

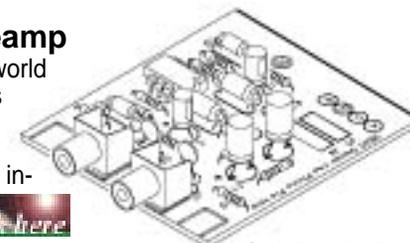
**5700/C Stomp Box Case (when ordered separately).....\$17.25 (5.50)**

#### RIAA Compensated Phono Preamp

Vinyl is the forgotten medium in this digital world but when you want to grab a couple of loops from a 70's LP you need an RIAA compensated pre-amp to do it. Here's one that's small (2-1/8" X 2-1/2") and inexpensive. Kit includes phono jacks.

Requires +/- 12V power.

**9802/K RIAA Phono Pre Kit.....\$23.75 (4.00)**

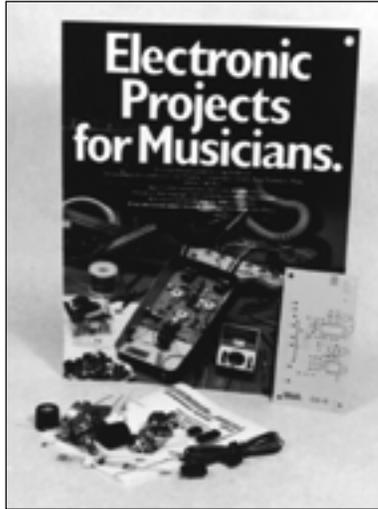




### ELECTRONIC PROJECTS FOR MUSICIANS

by Craig Anderton

Even if you don't know an ohm from a volt, Craig Anderton's revised and expanded book shows you how to build 27 accessories that enhance your sound and broaden your musical horizons. If you're an old hand at musical electronics, you'll really appreciate that all of the processors, from tube sound fuzz to phase shifter are compatible and work together without creating noise, signal loss, bandwidth compression or any of the other problems common to interconnecting effects from different manufacturers. There's even a complete chapter on how to modify and combine effects to produce your own custom pedal board. Low cost project kits available from PAiA help make even your first exposure to electronics a pleasant, hassle-free experience and thanks to the CD bound into the book, you know just how the device will sound before you even start.



**EPFM Electronic Projects for Musicians Book.....\$27.95 (4.00)**

**PAiA KITS  
MAKE IT  
EASY**



#### About The Kits:

These kits include circuit board and all components. To allow maximum flexibility in their application, no cases or enclosures are included (see FracRak page 5).

Instructions for the assembly of each kit are part of the book "Electronic Projects for Musicians" and are Not duplicated with the kit.

**Postage & Handling:** Add \$2.00 for each circuit board and \$4.00 for each kit ordered.

Proj. Kit #	Description	PC Only/Parts & PC
1.....CA-1.....	Preamp (less XLR & VU).....	\$9.95.....\$29.95
2.....CA-2.....	Metronome.....	\$7.95.....\$19.95
3.....CA-3.....	No kit available	
4.....CA-4.....	Headphone Amp.....	\$7.95.....\$19.95
5.....CA-5.....	No kit available	
6.....CA-6.....	Ultra-Fuzz.....	\$7.95.....\$19.95
7.....CA-7.....	Bass-Fuzz.....	\$7.95.....\$21.95
8.....CA-8.....	Compressor/Limiter.....	\$7.95.....\$29.95
9.....CA-9.....	Ring Modulator.....	\$8.95.....\$34.50
10.....CA-10.....	Dual Filter Voicing Unit.....	\$8.95.....\$29.95
13.....CA-13.....	Bipolar AC Adapter.....	\$9.95.....\$34.95
14.....CA-14.....	Treble Booster.....	\$7.95.....\$12.95
15.....CA-15.....	Electronic Footswitch.....	\$8.95.....\$19.95
17.....CA-17.....	Super Tone Control.....	\$8.95.....\$32.25
18.....CA-18.....	8 In 1 Out Mixer (less XLR).....	\$9.95.....\$49.50
20.....CA-20.....	Practice Play Along.....	\$8.95.....\$24.95
21.....CA-21.....	Phase Shifter.....	\$12.95.....\$69.95
24.....CA-24.....	Tube Sound Fuzz.....	\$7.95.....\$22.95
25.....CA-25.....	Envelope Follower.....	\$8.95.....\$26.95
26.....CA-26.....	No kit available	
27.....CA-27.....	Noise Gate.....	\$12.95.....\$32.95

## LIBRARY

### PROJECTS FOR GUITARISTS

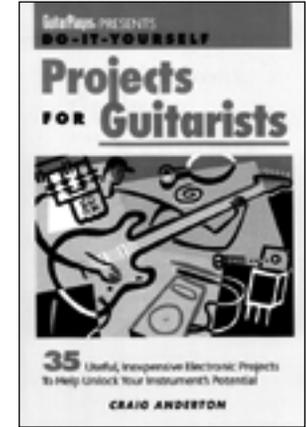
by Craig Anderton



If you've ever thought it would be cool to build your own gear but just didn't know where to start, here's where. This is without a doubt the best DIY book I've seen. Don't let the title fool you, this book is not just for guitarists, all electronic musicians will find lots of things to like here.

For the absolute beginner, the chapter on "how to read schematics" removes the mystery from the drawings that are the *lingua franca* of electronics. Liberal illustrations link real parts to symbols, and connections between parts to schematics.

The project on designing a preamp is my favorite. It goes through the thought processes and decisions made while designing an actual circuit, something the DIY hobbyist has needed for a long time, and all with only the barest hint of math.



*"It is pretty hard to imagine adding anything to Craig's classic Electronic Projects for Musicians But fortunately you don't have to, Projects for Guitarists does it." -John Simonton*

#### Table Of Contents

Chap 1: How to Read Schematics / Chap 2: Construction Basics / Chap 3: One Evening Projects / Chap 4: Buffers and Preamps / Chap 5: Cool Accessories / Chap 6: Guitar Rewiring / Chap 7: Projects for the Studio / Chap 8: Vintage Effects Helpers / Chap 9: Testers / Chap 10: Advanced Projects

**PFG Projects for Guitarists.....\$19.95 (3.00)**

#### OTHER BOOKS

**MIDI FOR MUSICIANS** - Craig Anderton

The first guide that clearly illustrates the impact of Musical Instrument Digital Interface on the creation of music. Well illustrated with easy to understand diagrams. Includes examples that take the mystery out of MIDI. The only publication that includes the complete MIDI 1.0 spec.

**MHB (softcover 104 pages).....\$17.95 (3.00)**

**ON THE SENSATIONS OF TONE** - Hermann Helmholtz

The physical and psycho-acoustical background to music is an important part of musical synthesis. Helmholtz's "Sensations of Tone", a century after it's original publication, is still the standard text for physiological acoustics.

**SENS (softcover).....\$15.95 (3.00)**

**PSYCHOLOGY OF MUSIC** - Carl Seashore (developer of the Seashore Music Test)

Provides an in-depth analysis of musical style and performance characteristics of many instruments.

**PSYCH (softcover).....\$10.95 (3.00)**

**MUSIC, SOUND AND SENSATION** - Fritz Winckel

Much like the Helmholtz work, with a bit less detail and more concentration of the psycho-acoustics.

**MSS (softcover).....\$7.95 (3.00)**

**MUSIC, PHYSICS AND ENGINEERING** - Harry Olson (worked on the first RCA synth.)

Brings you a thorough discussion of the physical properties and design of traditional musical instruments plus a chapter on electronic music.

**MPE (softcover).....\$10.95 (3.00)**