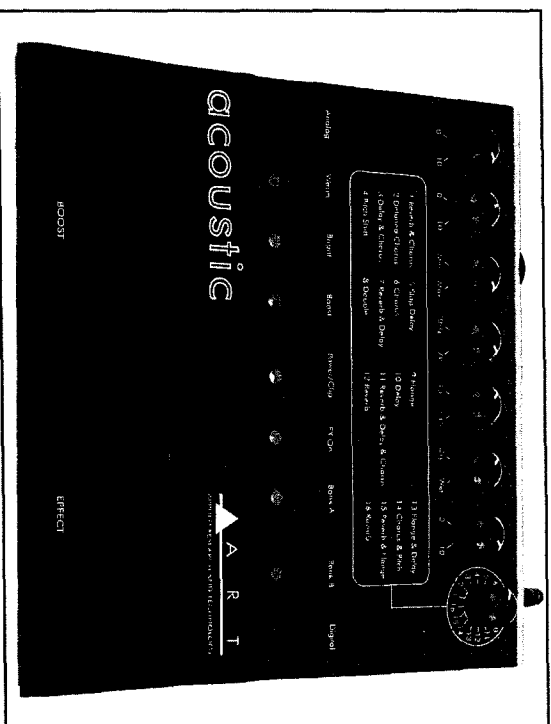


acoustic



Personal Acoustic Guitar Preamp/ Processor

USER'S GUIDE

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Applied Research and Technology's Acoustic provides you with the best, most natural sounding way to process your acoustic guitar. The Acoustic features a finely tuned preamplifier coupled with 32 custom designed digital effect presets. Stereo outputs, balanced XLR (DI) output, headphone output, fixed and variable EQ and a unique Accent control round out what is surely the most important thing to happen to acoustic guitar since the steel string. Don't let the list of features scare you, the Acoustic is incredibly easy to use. Applied Research and Technology designed a combination of powerful processing and ease of use into the Acoustic. However, since this is the manual, and you may be new to the "electric" side of acoustics, we suggest that you read and refer to this manual while getting used to your cool new toy!

And another thing! Take the time to fill out the User Registration Card included with this manual. This is the only way we will know you're an Acoustician! We do periodic mailings about new products and updates that you do not want to miss (and every once in a while there's some great give-aways and contests with prizes and gear worth tons-o'-money to registered users). It only takes a minute and only a few cents for the postage, and in return we'll be your friend for life and send you stuff!

Fill in the following information for your reference:

DATE OF PURCHASE _____
PURCHASED FROM _____
SERIAL NUMBER _____

126-5004-101

Introduction

Thank you for purchasing the Acoustic! - and congratulations! You now own the coolest, hippest, and most versatile acoustic preamp-processors ever developed. Additionally, the Acoustic is one of the most sophisticated pieces of audio signal processing technology available. The Acoustic offers all of the features you need to bring out the best sound your acoustic guitar has to offer. Grab your guitar and get ready to hear the full potential of your acoustic guitar!

Features

- * The only acoustic DI box you'll ever need!
- * Acoustic instrument preamp
- * Over 40dB of gain
- * Fully parametric EQ band for notching or enhancing
- * Bright and Warm global settings
- * 16 bit digital effects
- * 32 presets
- * Reverb, Delay, Doubling, Flanger, Chorus, combination effects
- * Pitch shifting
- * Dual pitch shifting
- * Stereo outputs
- * Headphone Output
- * Accent control to bring out intricacies in playing
- * AC powered - no tongue-tingling-testing of batteries required!
- * All steel construction - The way it ought to be!
- * Looks as cool as it sounds
- * Adds about \$300 to the sound of your acoustic guitar!
- * Greatly improves your relationship with sound-people!
- * Designed and manufactured in the United States of America

QUICK START INSTRUCTIONS

You've unpacked your Acoustic and you're in a hurry to get it up and running. You probably would rather play with it than read the manual (at least, right now). Fair enough. But check out the basics outlined here just to get your Acoustic on line. It should take only a couple of minutes for you to read through, and then you'll be ready to fire up your Acoustic. Refer to this section if you have any difficulty. And later, when you want to get into more of the details of your Acoustic, check out the rest of the manual.

Quick Setup

Turn the Output knob to its full counterclockwise position. Turn this knob up only after all other setup steps are completed.

Insert the supplied AC adapter's plug into the input labeled 9VAC Input on the Acoustic's back panel.

Straight into an amp: If you're patching the Acoustic into a guitar (or other instrument) amplifier, use one cord between the instrument and the Acoustic's Input. Run a second cord from the Left Output to the amp's input. If the amp has stereo input capabilities (or if you're using two amps), connect another cord between the Acoustic's Right Output and the amp's second-channel input (or the second amp's input).

Into a mixer: Connect a cord between your guitar and the Acoustic's Input. Connect another cord between the Acoustic's XLR Output and a line input of your mixer. If you want to run in stereo, connect the Acoustic's Left and Right Outputs to two line inputs of your mixer.

*Note: The XLR and 1/4" outputs (and Headphones for that matter) can all be used at the same time! Use them all!

Plug the Acoustic's AC adapter into the wall socket (the Acoustic is now powered up). Now turn on your mixer and your monitor amplifier.

Turn up the Input control on the Acoustic. Make sure that your guitar's volume control is turned up and a signal is being sent to the Acoustic.

Now turn up the Acoustic's Output level and raise the gain level on your amp or mixer. You should be hearing the Acoustic! If not, check your connections and your amp or monitor system (you did remember to turn it on, didn't you?).

Select Warm or Bright EQ types with the switch to the left of the illuminated inlay. Select the second bank of presets with the switch to the right of the inlay. Apply a boost to your output signal (for soloing - or just to be a rebel!) with the left rubber activator pad and turn on and off the digital effects with the right rubber activator pad. For a complete list of the preset settings see pages 13 & 14.

Give your guitar a real workout. Try all the presets, and don't hold back. Then, when you're ready, check out the rest of this manual for all the details on how to get the most out of your Acoustic.

INSTALLATION

The Acoustic, while primarily designed to be used straight into a guitar amp, may be used in a variety of setups including: straight into a power amplifier, P.A., or mixing console. Self-contained in an all-steel enclosure, the Acoustic is designed for continuous, professional use and can withstand the rigors of the road and stage.

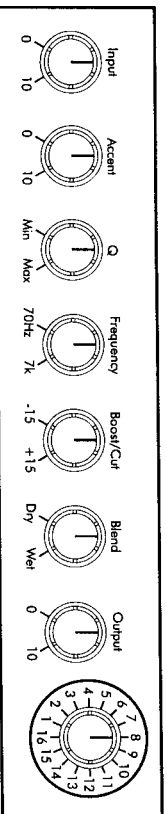
Powering The Acoustic

The Acoustic is powered by an external AC adapter. Always make sure that its output jack is securely plugged into the rear of the Acoustic and that the adapter is held firmly in an electrical outlet.

Never operate the Acoustic or AC adapter in the rain or in wet locations. If the AC adapter cord is ever cut or damaged, discontinue using it and replace the adapter with a new one. To prolong its life, unplug the adapter when the Acoustic is not in use. Refer to the label on the adapter for proper operating voltages.

KNOBS AND PRESETS

The upper half of the Acoustic's front panel includes: the controls for the preamp circuitry, blend control, and the preset encoder knob. The effect combinations for the digital presets are screened below these controls for easy identification.



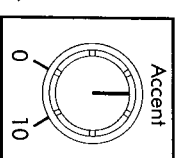
Input

The Input control adjusts the amount of gain into the preamp circuit. The range is from 0 (none) to 10 (Max). Adjust the Input control for a healthy level. If you experience a low output signal, this control may be set too low. Alternatively, if the Power/Clip LED lights red with the Output control set very low, this level is set too high. You'll get the hang of setting this properly very quickly.

Accent

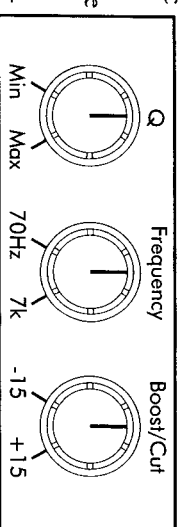
The Accent control is a unique EQ circuit designed to compliment the overall sound of your instrument while bringing out the intricacies in your playing. The range is from 0 (none) to 10 (max). Lower

settings will provide a very subtle effect. When using higher settings you'll notice a "bump" in the low end as well as an increase in high frequency information. The setting you "should" use for the Accent control is dependent on your stage, or playing, volume. At lower volumes, a higher setting will work well. At higher volumes, a low to mid setting will work well. Experiment with different settings and choose the one that works best for you.



Parametric EQ Band

The Acoustic is equipped with a fully adjustable EQ band. The Q, Frequency and Boost/Cut controls are powerful tools in shaping your sound. Since most acoustic guitars already *sound* like acoustic guitars, there really isn't any need for heavy EQ'ing. For those who have nice acoustic guitars (basses, violins, cellos, electric tubas, etc.) the EQ section of the Acoustic allows you to tune out (or notch) those nasty frequencies that make your guitar vibrate like crazy whenever you lean out of the "sweet spot" between the onstage monitors (don't you hate how that tickles under your arm?). On the other hand, for those of us who have not-so-cool acoustics or purchased the "super-econo-wonder-pickup assembly" (we know who we are) the acoustic is a super tool for adding that "big" sound we all dreamt of. As mentioned earlier... the Acoustic can make that \$199 special sound at least \$299 better!



Q Control

The Q control is used to "tune in" the frequencies you want boosted or cut. Picture a bell. The frequency selected by the Frequency control knob is positioned at the middle of the bell. At the "min" end

of the control, the bell is very narrow. At the “max” end of the control the bell is very wide. The Q control selects how the frequencies adjacent to the selected frequency are selected. Or, in human terms, The “min” setting has a “minimum” effect on adjacent frequencies and the “max” setting has a “maximum” effect on those frequencies. For notching a problem frequency (feedback) without changing the overall sound, use a setting towards the “min” end of the control. If you are using the EQ to change the overall sound of the instrument (getting rid of that pesky “boxy” sound) use settings closer to the “max” setting. Explaining this control is much harder than it is to *hear* how the control works. After some playing around you’ll get the hang of it.

Frequency Control

The Frequency control adjusts the frequency range you want to boost or cut. Its range is from 70Hz to 7kHz.

Boost/ Cut Control

The Boost/ Cut control adjusts the amount of boost or cut is applied to the selected EQ settings. Its range is + or - 15dB.

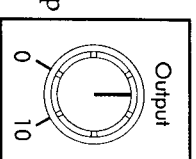
Notching (or feedback fighting) hints

One way to “tune out” feedback is to do the ever-so-lovely-sounding “ringing out” that sound-people do with monitors. This involves finding and cutting the frequency. Once you find the feedback, you’ll work with both the Frequency and Q controls to “tune” it out. While sitting in your normal playing position (in front of your amp or monitor speaker) turn up the output level and Boost/ Cut control of the Acoustic. Set the Q control to “max” and sweep the frequency control until that raging feedback rears its ugly head. Turn down the Boost/ Cut control slightly until the feedback subsides. Turn down the Q control slightly. Adjust the Frequency control to “tune in” the

feedback again. Repeat this process until the Q control is towards the “min” range of the control. When satisfied with your results, return the output level of the Acoustic to your normal playing level.

Output

The Output control is used to set the output level of the Acoustic. The Output control is located *before* the digital effects section (it drives the digital circuitry). Set the Input control so that the Power/ Clip LED flickers red occasionally. If you see the Power/ Clip (red) LED on constantly, turn down the Input control (-you’re overdriving the digital section). Turn up the Output control for a good level to your amplification device.



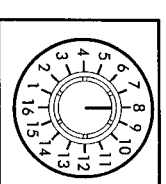
Now that you’re sounding like an “Unplugged” Guru, don’t forget the Acoustic offers a whole other section full of digital wizz-bang goodies that that we haven’t even covered yet. Feel free to put down the manual and really get into the fact that you *do* sound great. When your calluses have calluses, cramps have cramps, etc. - pick the manual back up and read on.

DIGITAL EFFECTS CONTROLS

The Acoustic’s high quality digital effects were developed to be impressively musical, plus they are perfect compliments to the natural sounds of acoustic instruments. Note that you can use the Acoustic with or without digital effects.

Preset Encoder

The Preset encoder is a continuously variable, 16 position knob that is used to select presets. The related effects combinations are screen printed below the row of controls for easy reference. Select the effects combination you wish to use and set the



blend control for the proper amount of effected signal. See pages 13 & 14 for a complete listing of presets and their values.

Blend Control

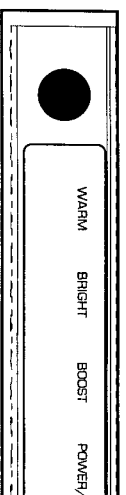
The Blend control adjusts how much of the digital effects are added to your guitar sound. The Blend control ranges from Dry (all guitar) to Wet (dripping wet).

Changing Banks

32 presets are available in the Acoustic. Variations of the 16 listed effects combinations are available in Bank 2. To change Preset Banks simply press the switch located to the right of the illuminated inlay. The selected bank is illuminated - Bank A or Bank B.

PREAMP CHARACTER TYPES

The Acoustic provides you with two preamp character types. These variations are available to either accent or alter the overall tonality of your instrument. One type is always active. The switch to the left of the Warm and Bright indicator LEDs toggles between the two options.



Warm

The Warm

setting does what its name implies: makes your guitar “warm”, or full sounding. Use this setting if you have a full sounding guitar and want to keep it that way. The Warm setting will retain this characteristic. On the other hand, use the Warm setting to “warm-up” a brittle (or trebly) guitar.

Bright

Similar to the Warm setting, the Bright setting does what its name implies: makes your guitar “bright” sounding. Use this setting if you

have a “boomy” sounding guitar and want to thin it out. If you have a thin sounding guitar and want to add “bite”, use the Bright setting.

ACTIVATOR PADS

Two rubber Activator pads are provided. The one labeled “Boost” provides a 6dB boost to the preamp output when depressed. This is useful when soloing or when a louder output level is needed. The activator pad labeled “Effect” turns on and off the digital effect section. Status lights in the illuminated inlay keep you informed as to the presence of either the boost or digital effects “on” settings.

LEAD FOOT WARNING!

Even though the Acoustic is built like a tank and the rubber Activator pads were designed to be pressed with your feet... The Preamp character and effects bank select switches were designed to be pressed with a finger. Because of its location, you’ll be tempted to do some fancy footwork and toggle these switches with your feet. We strongly recommend being light-footed! A tap is all it takes!

Practice this maneuver with caution (which can be difficult with high-heeled, flame-throwing, pointy-toed stage wear).

DIGITAL EFFECTS PRESET LIST

The following list describes all of the 32 presets in the Acoustic’s digital effects section. They are arranged in banks (A and B). Here’s a quick explanation of some of the abbreviations:

doubling Short delay that gives the illusion of two instruments playing in unison.
ms Short for “milliseconds”, or thousandths of a second.

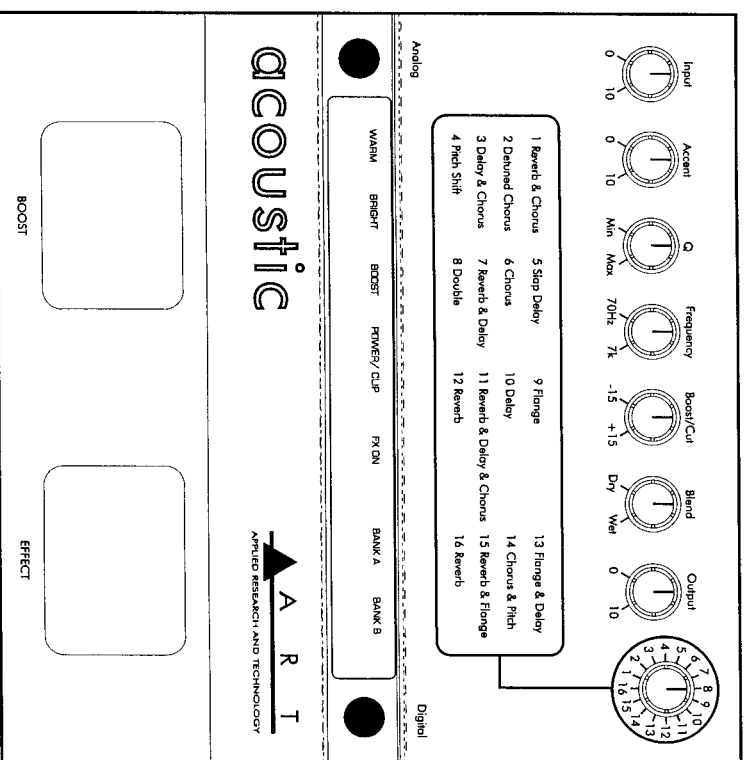
pitch Short for pitch transposer, which creates a harmony.

In the dual Pitch programs, two harmonies are created.

regen Short for “regeneration”. This means sending part of the output signal back through an effect.

Regenerating a delayed signal produces echoes. In flanging and chorusing, regeneration of certain frequencies (highs, for instance) can create a thicker, more dramatic effect.

sec Short for “second” (equal to 1,000 milliseconds).



Bank 1

Preset	Description	
1	Reverb & Chorus	Room reverb & slow chorus
2	Detuned Chorus	Med. chorus & detuned pitch shift
3	Delay & Chorus	345ms delay & slow chorus
4	Pitch Shift	Octave down pitch shift
5	Slap Delay	70ms delay
6	Chorus	Slow chorus
7	Reverb & Delay	1s room reverb & 70ms delay
8	Double	40ms doubling delay
9	Flange	Med. flange - 25% regen
10	Delay	350ms delay - 15% regen
11	Reverb & Delay & Chorus	.8s room & 60ms delay & slow chorus
12	Reverb	1s room reverb
13	Flange & Delay	Med. flange - 10% regen & 300ms delay
14	Chorus & Pitch	Med Chorus & octave down pitch
15	Reverb & Flange	.8s room reverb & med. flange
16	Reverb	1.2s room reverb

Bank 2

Preset	Description
1	Reverb & Chorus 1.8s hall reverb & med. chorus
2	Detuned Chorus Slow chorus & detuned pitch shift
3	Delay & Chorus 250ms delay & med-slow chorus
4	Pitch Shift +5th pitch up
5	Slap Delay 110ms delay
6	Chorus medium chorus
7	Reverb & Delay 2.4s hall reverb & 220ms delay
8	Double 60ms doubling delay
9	Flange Slow flange - 50% regen
10	Delay 450ms delay - 15% regen
11	Reverb & Delay & Chorus 2.0sec hall & 220ms delay & chorus
12	Reverb 2.5s hall reverb
13	Flange & Delay Slow flange - 40% regen & 420ms delay
14	Chorus & Pitch Octave up pitch & med. chorus
15	Reverb & Flange 1.8s hall reverb & slow flange
16	Reverb 2.5s hall reverb

SETUP INSTRUCTIONS

PLUGGING DIRECTLY INTO AN AMP

Plug your guitar into the Input jack of the Acoustic. Plug the Left output jack into your amplifier's instrument input (use the Right output as well if your amp has stereo inputs or if you are using two amps). When plugging a guitar into the Acoustic, make sure that there is sufficient signal level coming from the instrument (you've turned up the volume pot). Turn up the Acoustic's Input and Output controls before turning up the amplifier's volume control.

USING THE ACOUSTIC DIRECTLY INTO A MIXER

Connect the XLR DI/ Bal. output of the Acoustic to a line input channel of your mixer. Adjust the Input and Output levels of the Acoustic and then the input level of the mixer. Once you see signal present at the mixers' input, turn up your mixer's output levels (or monitor amp). The Acoustic's Left and Right 1/4" outputs may be used to go directly to a mixer as well.

USING AN ACOUSTIC WITH A POWER AMP & CABINETS

Plug your instrument into the Acoustic. Connect the Left and Right output jacks into the Left and Right input jacks on the power amp. Connect the speaker outputs of the amp to two cabinets (or a stereo cabinet). Be sure to power on the Acoustic *before* turning on the power amp.

WARRANTY & SERVICE INFORMATION

Warranty and Service for this unit will be provided by Applied Research and Technology, Inc. in accordance with the following warranty statement.

Applied Research and Technology, Inc. (ART) warrants to the original purchaser that this product and the components thereof will be free from defects in workmanship and materials for a period of three years from the date of purchase. Applied Research and Technology, Inc. will, without charge, repair or replace, at its option, defective product or component parts upon prepaid delivery to the factory service department or authorized service center, accompanied by proof of purchase date in the form of a valid sales receipt. **EXCLUSIONS:** This warranty does not apply in the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs. This warranty is void if the serial number is altered, defaced, or removed.

ART reserves the right to make changes in design or make additions to or improvements upon this product without any obligation to install the same on products previously manufactured.

ART shall not be liable for any consequential damages, including without limitation damages resulting from loss of use. Some states do not allow limitations of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific rights and you may also have other rights which vary from state to state.

For units purchased outside the United States, service will be provided by an authorized distributor of Applied Research and Technology, Inc.

Service

The following information is provided in the unlikely event that your unit requires service.

- 1) Be sure that the unit is the cause of the problem. Check to make sure the unit has power supplied, all cables are connected correctly, and the cables themselves are in working condition.
- 2) If you find the unit to be at fault, write down a complete description of the problem, including how and when the problem occurs. Please write down a description of your complete setup before calling Customer Service.
- 3) Call the factory for a Return Authorization (RA) number.
- 4) Pack the unit in its original carton or a reasonable substitute. The packing box is not recommended for a shipping carton. Put the packed unit in another box for shipping. Print the RA number clearly on the outside of the shipping box. Print your return shipping address on the outside of the box.
- 5) Include with your unit: a return shipping address (we cannot ship to a P.O. Box), a copy of your purchase receipt, a daytime phone number, and a description of the problem.
- 6) Ship only your unit and its power supply (keep your manual!) to:

APPLIED RESEARCH AND TECHNOLOGY, INC.
215 TREMONT STREET
ROCHESTER, NEW YORK 14608
ATTN: REPAIR DEPARTMENT
RA# _____
- 7) Contact our Customer Service department at (716) 436-2720 for your Return Authorization number or questions regarding technical assistance or repairs. Customer Service hours are 8:30 AM to 5:00 PM Eastern Time, Monday through Friday.

ACOUSTIC SPECIFICATIONS

Dimensions	9.0" D x 8.25" W x 2.0" H
Weight	3.0 lbs
Connections	1/4" unbal. input. Stereo 1/4" unbal. outputs & bal. XLR input (pin 2 hot).
Digital presets	32
Input impedance	1 meg ohm
Output impedance	150ohm (1/4") 300 ohm (XLR) 47 ohm (Headphone)
Maximum input level	+4dBu
Maximum output level	+11dBu
Residual output noise	>-81dB @ +5dBu
Input dynamic range	>86dB
Power requirements	9VAC @ 400mA

A R T retains a policy of constant product improvement. A R T reserves the right to make changes in design or make additions to or improvements upon this product without obligation to install the same on products previously manufactured. Therefore, specifications are subject to change without notice.

Designed and manufactured in the United States of America.

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