



Sound Meister

Stereo Digitizer/Amplifier for your Apple IIgs!



Installation Manual

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Introduction

Welcome to the world of digital audio! Your new SoundMeister™ card opens up your Apple IIs to a whole new world in multimedia education, entertainment and excitement! You will soon be able to play rich, vibrant, colorful sounds and music as well as record your own audible creations. You will add sounds to your HyperStudio or HyperCard IIs stacks and play them back with high fidelity. You will live up your computing experience by creating fun system sounds and playing them back during specific events such as disk inserts/ejects. Additionally, any application that generates sounds using the Apple IIs' built in Digital Oscillator Chip (DOC) will now be able to do so in stereo. The Apple IIs has better built in sound generation capability than any other personal computer and you will soon hear why!

What is the SoundMeister?

The SoundMeister is an expansion card that plugs into one of the seven expansion slots located inside your Apple IIs case. It takes the audio signal produced by the IIs DOC and splits it up into two distinct channels providing a stereo output. The SoundMeister then amplifies these signals so you can hear the sound on a pair of regular speakers. For louder volume levels, the SoundMeister also provides a standard audio signal so you can plug it into the back of your home stereo equipment. Lastly, the SoundMeister provides the ability to record an audio source. Unlike other cards produced in the past, this source can be either a regular microphone or the output from your home stereo equipment!

What You Should Have Received

Before we get started, make sure that you received everything you were supposed to. The SoundMeister package should include: SoundMeister interface card, 7-Pin sound expansion cable, a disk labeled 'DigitalSession' and this manual.

Installation

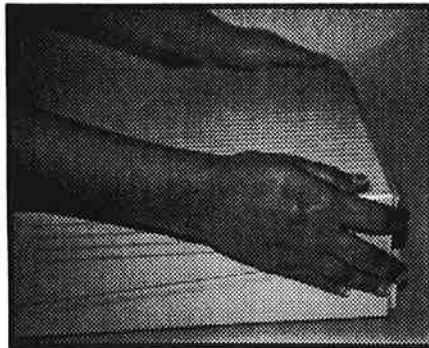
Installation of the SoundMeister is fairly simple and straightforward. It requires no tools other than a Philips head screwdriver, and can be performed in less than half an hour. It does, however, require opening your computer's case and possibly removing and replacing other expansion cards that may already be installed. If you are at all uneasy or unsure about performing this operation then we suggest taking your SoundMeister and Apple Iigs CPU to your nearest computer dealer and have them perform the installation for you. Better yet, contact your local Apple II user group for assistance. You will be most likely to find an enthusiastic member who would love to help you install your SoundMeister card. For the name and address of your nearest Apple II user group call the Apple User Group Connection at 1-800-538-9696 ext. 500. Be sure to indicate that you are looking for an APPLE II user group!

Prepare Your Work Area

To access your Apple Iigs expansion slots you will have to remove your monitor and any other external peripherals that may be in the way. We suggest disconnecting all cables from the back of your CPU and moving it to a work bench or table away from your computer desk. This gives you complete access to all angles of your Apple Iigs CPU.

Open The CPU Case

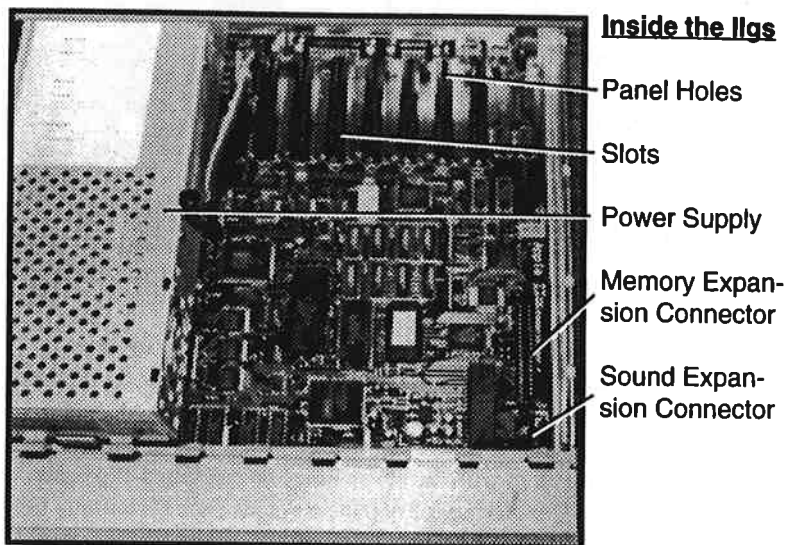
Depress the two plastic tabs at the rear of the CPU case while lifting up on the lid. This is best done by reaching around the back of the case, depressing each tab simultaneously with your index fingers while pushing up on the lid with the palms of your hands.



Removing The CPU Lid

Discharge Yourself Of Any Static Charge

With the Apple IIgs case open, locate the power supply. This is the large rectangular, metallic box at the left side of the computer. Touch your hand to the power supply (Note that while this method is considered safe, it is actually better to touch a metallic object that comes in contact with the floor such as a table or chair leg...).

***Locate The Expansion Slots***

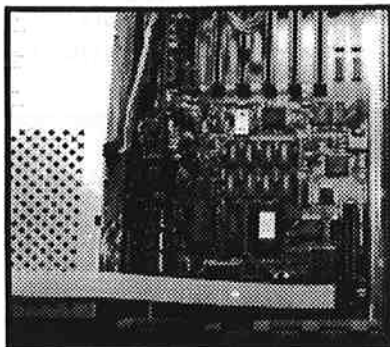
The expansion slots are arranged in a row of seven, towards the rear of your computer's logic board. Chances are, if you have a hard drive or other such peripheral, you already have a card in one of these slots. The slots are numbered from left to right, one through seven. Thus slot one is closest to your power supply while slot seven is furthest away. You may also notice a single 'slot' by itself toward the front right of the logic board. You may or may not have a card already plugged into this slot. This is your memory expansion connector and isn't really considered a slot.

The SoundMeister will be installed in one of the seven expansion slots. Exactly which slot is entirely up to you... you can place it in any one except slot number three. Most people will want to use either slot one or

slot two for their SoundMeister cards. Pick one of these slots unless you have another card already installed in them.

Install The Sound Expansion Cable

The sound expansion cable plugs into your Apple IIgs logic board at the sound expansion connector. The sound expansion connector is located just in front of the memory expansion slot. If you have a memory expansion card, you will want to remove it to allow easy access to the sound expansion connector.



Sound Expansion Cable

Take the sound expansion cable provided with your SoundMeister and locate the end which has a connector with a single row of seven holes. This connector plugs into the sound expansion connector on the logic board. There is only one way to comfortably plug the connectors together. Take extra care to make sure that all seven pins on the sound expansion connector align with the seven holes on the sound expansion cable. When plugged in, the sound expansion cable should naturally fall towards the power supply. You want this cable to run underneath the front of any other cards you may have installed in your computer.

At this point, if you removed the memory expansion card, plug it back into the memory expansion slot.

Remove A Panel Cover

At the back of the CPU case, near the slots, you'll notice several panel holes that are covered by plastic plates. These plates are designed to be removed by twisting the metal clips on the inside of your case counter-clockwise. There are three different size panel holes/plates. The SoundMeister input/output plate will be mounting in one of the largest panel holes. Exactly which panel hole is up to you but is largely determined by two factors: 1) it has to be a panel hole to the right of whatever slot your SoundMeister will be going in (a good reason NOT to choose slot seven for your SoundMeister card!), and 2) other expansion cards may be making use of some of these holes thus narrowing down your

choices.

When you decide which panel hole to use, remove its cover by rotating the metal clip counter-clockwise.

Install The Sound Input/Output Plate

The Input/Output connectors are mounted on a metal plate which is attached to your SoundMeister card by three shielded wires. This metal plate has a top and a bottom. The top of the plate has two 3.5mm mini-phone jacks grouped together, while the bottom has one 3.5mm mini-jack by itself. There are also two Philips-head screws on the metal plate. Remove the 'top' screw completely while unscrewing the bottom one approximately half-way. Position the metal plate inside the panel hole you just uncovered. Notice that there are two notches at the top and bottom of the panel hole to accommodate the mounting screws. Slide the half-removed screw into the bottom notch. Follow this by replacing the screw you removed through the back of the panel hole. Tighten up on both of these screws so that the metal plate is solidly mounted.

Install The SoundMeister Card

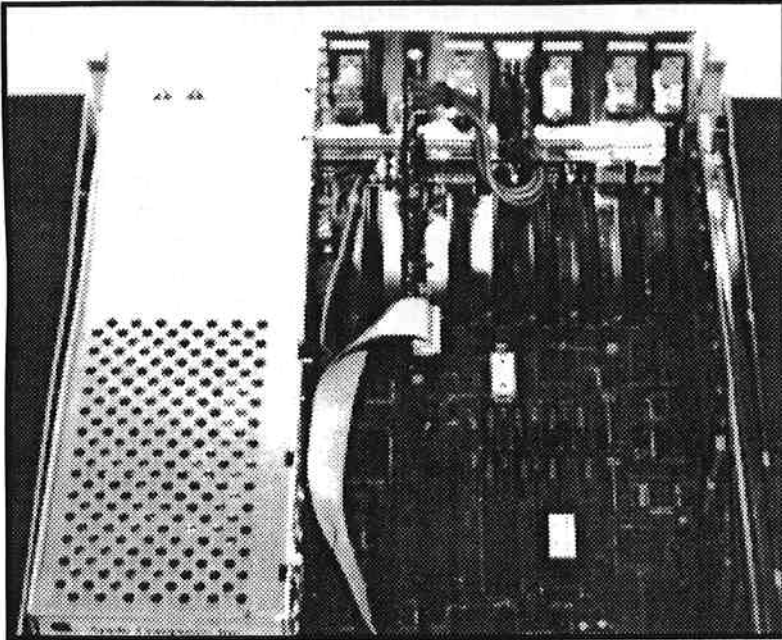
Insert the SoundMeister card into the slot you have chosen. Be careful to route the SoundMeister's three input/output audio cables around the back of any other cards that may be in the way. Do not route them over the top of any other card since the computer's lid does not provide the extra room to do so. You may want to consider removing any other cards that are in the way until you've installed the SoundMeister card.

When inserting the card, angle the back of the SoundMeister's edge connector towards the rear of the slot then push down towards the front of the card. Seating the card completely in the slot may require a bit of force. Be careful not to bend any of the components mounted on the SoundMeister card itself. When seated completely, you should just barely be able to see the top of the SoundMeister's gold plated edge connector.

Connect The Sound Expansion Cable

Fasten the end of the sound expansion cable with the double row connector to the 14-Pin header on the top front of the SoundMeister card. To do this requires coming 'up-and-over' the back of the card. When mating

the connector make sure that all of the pins are aligned correctly with the holes on the cable's connector. When installed, there should be no kinks or twists in the sound expansion cable. If the cable twists, then it is plugged in wrong!



SoundMeister Card - Completely Installed

Replace All Expansion Cards

If you removed any other cards during the installation process, replace them in their correct slots at this time. Make sure all cards are firmly seated, even if you did not remove them. When installing a new card in your Apple IIs it is quite easy to accidentally loosen a previously installed card.

Replace The Lid

Replacing the Apple IIs lid is the reverse of removing it. The lid pivots on the plastic 'fingers' at the front of the case. Lower the back of the lid until it meets friction with the two plastic tabs at the rear, then press firmly but gently until it snaps closed.

Your SoundMeister Card Is Now Installed!

Whew! That wasn't so bad was it? It is now time to reassemble your computer, plugging all of those external peripherals back into it. But wait, we forgot one thing! What are we going to connect the SoundMeister to? Without speakers or a microphone the SoundMeister is pretty useless. The following section explores the several options available to you.

Understanding The Input/Output Connector

Before we go on, it helps to know what those three new mini-phone plugs on the back of your computer are all about. But first, let us define the three types of audio signals that the SoundMeister deals with:

High Level- This refers to an amplified, high power signal, usually used to drive a pair of speakers. Those 'zip' cords that you run from your home stereo equipment to your speaker cabinets are carrying a high-level signal.

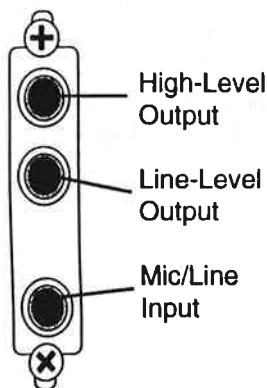
Line Level- Refers to an intermediate, relatively weak signal that happens to be the standard method for carrying an audio signal between audio equipment. When you connect a CD player to your home stereo receiver, you are connecting a line level signal between the two devices.

Mic Level- Refers to a very weak signal, typically generated by microphones. This signal is very weak because a microphone induces an electric current based on the vibration of sound waves and there is only so much electric current that a sound wave can generate.

If you haven't guessed already, the three new plugs on the back of your computer each deal with high, line and mic level signals. The plugs themselves are referred to as mini-phone jacks and measure 1/8" (3.5mm) in diameter. They are stereo phone jacks which means each jack carries two distinct channels of audio.

The SoundMeister has two output jacks meaning these jacks carry signals that produce sounds. The two outputs are the two jacks grouped together on the top side of the panel plate. The topmost jack is the 'high-level'

output. It carries an amplified signal that is intended to be connected directly to speakers. The middle jack is the 'line-level' output. It is intended to be connected to external equipment for further amplification.



The SoundMeister has one jack that can be used as an input meaning the audio signal fed to this jack can be digitized (converted to digital data) by the Apple IIgs and played back later. The bottom jack on the panel plate is the input jack. This one jack serves a dual role as it can take both line-level and mic-level signals as inputs. Exactly which type of signal is being used can be controlled by software that runs on the IIgs.

Connecting Specific Devices

Now that you know what each phone jack is for, it is time to consider what devices to connect to your SoundMeister and how each device should be connected. This section discusses the most common configuration options available to you. It is by no means the final word since the combination of different types of stereo equipment is quite vast.

Connecting Unpowered Speakers

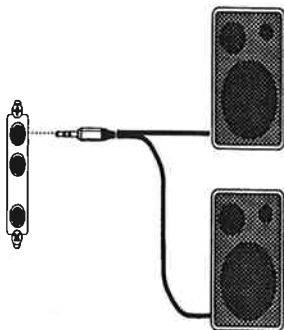
The term 'unpowered speakers' refers to standard, plain audio loudspeakers, the type you connect to your home stereo equipment. The qualification 'unpowered' is used because, in the past, sound cards for the IIgs required that you used speakers that had built in amplification. This is not the case with the SoundMeister thus offering a much more economical alternative.

There are two basic cabling schemes that may be used to do this. The first requires purchasing a (or build your own) cable that converts a 3.5mm mini-phone plug to two separate speaker 'zip'cords. One cord would then connect to your left speaker, the other to your right.

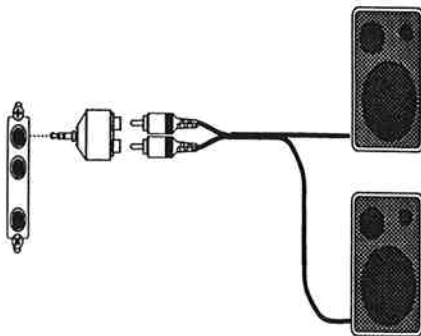
The alternative method requires purchasing a 3.5mm mini plug to two female RCA "Y" adaptor. You can then use readily available speaker wire with a male RCA plug on one end for each channel. This is the

more expensive option but it gives you a "Y" adaptor that can be used for other purposes.

In both cases, the 3.5mm mini-phone plug will plug into the top jack on the SoundMeister panel plate.



Unpowered Speakers using custom 3.5mm phone cable.

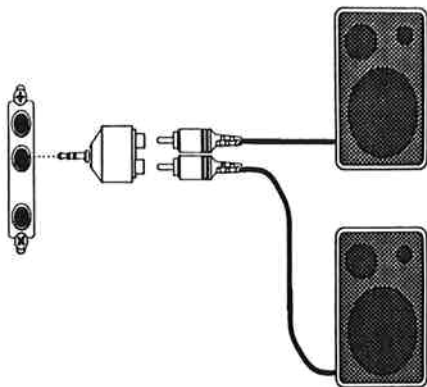


Unpowered Speakers using mini-phone to RCA "Y" adaptor.

Connecting Amplified Speakers

Amplified speakers are just regular speakers with a built in power amplifier to provide high volumes. These type of speakers are typically high priced and lower sound quality than unpowered speakers. To get really good sounding amplified speakers be prepared to spend over \$100 for a pair! This is not the option recommended by ECON Technologies! You can get equal or better quality from unpowered speakers at a considerable savings. A good pair of mini-speakers (unpowered) can be purchased for \$30-\$40 from a wide variety of outlets. Furthermore, the SoundMeister provides software volume control but only on the amplified (high-level) output. Thus if you connect a pair of amplified speakers with no built in volume control, you will be forced to listen to full volume output at all times! This can be quite annoying!

Just how a pair of amplified speakers is connected to your SoundMeister depends largely on the type of cabling the speaker uses. Most good quality amplified speakers will use RCA type patch cords. If this is the case then you will need to purchase a 3.5mm mini plug to two female RCA jack "Y" adaptor. You will then plug the speaker's RCA cables into the "Y" adaptor.



Powered Speakers using
mini-phone to RCA "Y" adaptor.

Some amplified speakers will have a 3.5mm mini-phone jack on its cable. This is the type of speaker that typically plugs into 'WalkMan' type equipment. To connect this type of speaker into your SoundMeister, a 3.5mm stereo-to-mono "Y" adaptor will be needed.

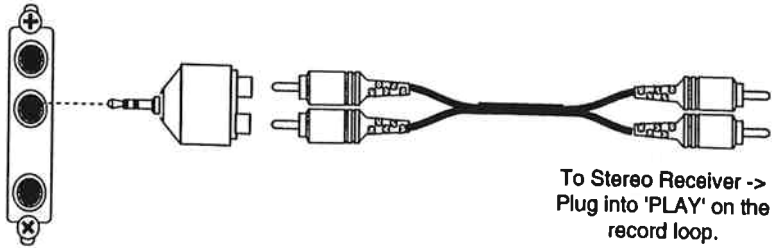
In almost all cases, plugging an amplified pair of speakers into your SoundMeister requires using the middle (line-level) mini-phone jack

on the panel plate. This is very important since plugging into the top, high-level phone jack could damage your speakers and/or SoundMeister. There are, however, some high quality amplified speakers that allow you to flip a switch to determine if the sound source is amplified or not. If this is your case then we suggest you set this switch to indicate an amplified source and then plug into the top (high-level) phone jack on the SoundMeister panel plate. This will give you much better results.

Connecting External Stereo Equipment

For the highest fidelity output with your SoundMeister card we recommend connecting to an external amplifier such as a home stereo receiver. Home stereo equipment gives you complete attenuation (volume control) and tone control so you can match your sound output to your personal preferences. The SoundMeister purposely has both a line-level and high-level output so that, during normal computer usage, you can rely on an inexpensive pair of unpowered speakers but when you want to really 'crank', then you can reach over and turn on your stereo equipment.

The most common arrangement is to use a 3.5mm mini-phone to female RCA adaptor, then use standard patch cords to connect to your stereo equipment. You can connect to any one of the input source plugs except 'phono' which is intended for turntables (remember those?). In most cases you would want to connect to your 'tape' input. The tape loop on the back of your stereo equipment has a two pairs of plugs, one marked 'Play', the other marked 'Record'. You will want to plug into the pair marked 'Play'.



Connecting the SoundMeister to external stereo equipment using a RCA "Y" adaptor and patch cords..

In all cases, you will plug the 3.5mm mini-phone plug into the middle (line-level) jack of the SoundMeister panel plate. Never plug stereo equipment into the SoundMeister high-level output!

Recording An Audio Source

Now that we have taken care of sound output, lets not forget about audio input. You will undoubtedly want to make recordings with your SoundMeister card and this is how you will most likely do it...

Connecting A Microphone

Most inexpensive microphones will already have a 3.5mm mini-phone plug on the end of their cable. If this is your case, simply plug it into the



You must then make sure your digitizing software is configured to make a 'mic-level' recording and you'll be set to go.

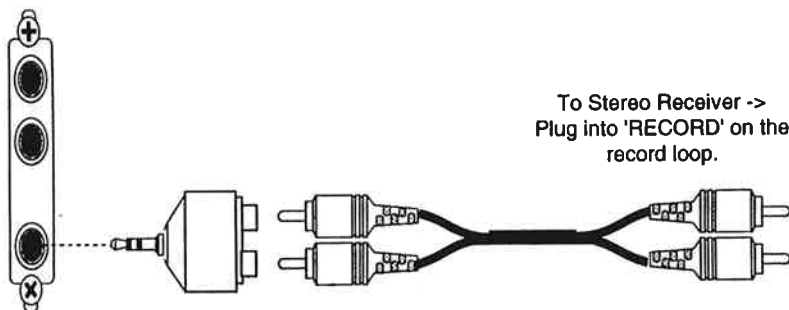
Connecting a microphone to the SoundMeister using a 3.5mm plug.

Higher quality microphones will have a 1/4" phone plug on the end of their cable. To get one of these microphones to work a simple 1/4" to 1/8" (3.5mm) adaptor is all that is necessary.

Recording From Stereo Equipment

The SoundMeister has the unique ability to record from line-level sources such as your home stereo equipment. This will give the truest, highest quality recordings since the audio signal is much stronger and cleaner than that of a microphone.

To record from your home stereo equipment requires that you tap into the 'tape loop' of your stereo equipment. Virtually all stereo receivers provide such a tape loop so that whatever you are listening to can be recorded by a tape-deck. This also allows your radio, CD-player, turntable, etc. to be recorded by your SoundMeister!



Connecting the SoundMeister to record from external stereo equipment using a RCA "Y" adapter and patch cords..

To plug into your stereo equipment's tape loop requires a 3.5mm to female RCA "Y" adaptor. This adaptor will be plugged into the bottom phone jack on the SoundMeister panel plate. You can then use standard RCA patch cords to connect to the tape loop on your stereo equipment. The tape loop on the back of your stereo equipment has two pairs of plugs, one marked 'Play', the other marked 'Record'. You will want to plug into the pair marked 'Record'. If by chance you already have a tape deck on your stereo system, use a RCA female to RCA male "T" adaptor to allow both the tape deck and SoundMeister to be plugged into the 'Record' plugs.

To make recordings be sure your digitizing software is setup to record from a line-level source. Be sure to do this since setting the source to 'mic' level but connecting 'line' level will overload the input on your SoundMeister.

If you will be switching between 'line' and 'mic' level inputs frequently we strongly suggest you purchase an audio mixer. Inexpensive varieties are readily available from your local Radio Shack store. A mixer will not only allow both inputs to be simultaneously connected, but will give you total control over the input level. Thus you could record your voice over the output from your CD-player!

Installing The Software

The SoundMeister hardware is now ready to be used. For sound output, you will need to do nothing special... any application that generates sounds will now do so through the SoundMeister. As for making recordings, virtually any application that can record sound data will work with the SoundMeister hardware. Other than these obvious requirements, you will not need any special software to take advantage of the SoundMeister. However, for enhanced use of the SoundMeister board, we've provided some special software that allows you to control the amplified output volume and whether or not the input source is 'Line' or 'Mic' level. This software is implemented as an INIT/Control Panel combination so that you can make these changes from within any desktop based application. You must be running GSOS System 6.0 to use the software provided with the SoundMeister card. If you are not running System 6.0 you can obtain a copy by contacting your favorite Apple II dealer or your local user group.

In addition to the INIT/Control Panel, we've also included an application program called DigitalSession™. This application is useful for recording your own sounds and/or editing existing sound files you may have. It can apply filters and special effects to any sound file you load. When finished, you can save your sounds in a variety of useful formats so that other applications such as HyperCard IIgs and HyperStudio can take advantage of them. DigitalSession is discussed later in this manual.

Using The Custom Installer

To install the INIT/Control Panel combination or DigitalSession, you should boot your Apple IIgs into the Finder™. Insert the disk labelled 'DigitalSession' in the 3.5" disk drive. A window should open on the desktop with a couple of icons in it. Double-click the icon named

'Install'. This launches the custom installer program we provide for you.

When the installer first comes up it will ask you to enter your name and the name of the organization you belong to (if any). This registers you as the legal owner of this software. Enter the appropriate information and click the 'Continue' button.

After a few moments, another window will appear. In this window there are two check boxes labelled 'Install INIT/Control Panel' and 'Install Digital Session'. By default they should both be checked. If you only want to install one or the other, then you should uncheck the item you do not want installed.

To select the destination volume, you can continually click the 'Next Disk' button. This will show the next online volume at the top of the window as your destination disk. By default, the installer shows your boot volume as the destination disk. This is because the INIT/Control Panel must be installed on a bootable volume. The application 'DigitalSession' may be placed on any volume. It will be copied into a folder named DigitalSession on whatever disk you choose. Once installed, it can be copied virtually anywhere, provided you copy all of its accompanying files.

When you have chosen your destination disk, and are ready to perform the installation, click the 'Install' button. The appropriate files will then be copied to where they belong. When finished, you will be informed of the installer's success or failure by an alert dialog. Note that you can repeatedly install the software onto several disks while this window is open.

When you are finished installing the software, click the 'Done' button. If you installed the INIT/Control Panel combo, you will be forced to restart your system. If you didn't install the combo, you will be returned to the Finder.

When you return to Finder (either by rebooting or by quitting the installer), take note of the file named 'Read.Me.Now'. This is a 'Teach' document that contains information regarding the latest release of the SoundMeister and its accompanying software. Double click it and the application 'Teach' should be launched, automatically loading the document. If you never launched a Teach file before, the Finder will tell you that the application Teach could not be found and will give you an

option to locate it. You can click 'Locate' and navigate through your online volumes until you find Teach. It is usually located on your system disk. Once you tell Finder where Teach is, it will never ask you where it is again.

When viewing the 'Read.Me.Now' document, take note of any special addendums that may be mentioned. You may want to print the file and keep it with your SoundMeister documentation.

Using The INIT/Control Panel

The INIT portion of this software duo loads at boot time and sets up the SoundMeister to your predetermined preferences. It then sits in the background awaiting commands from the Control Panel to change the SoundMeister's settings.

The Control Panel is accessed from desktop based applications by selecting 'Control Panels' from the 'Apple' menu (the Apple menu is located under the color apple icon at the top left of the system menu bar). Choosing 'Control Panels' loads the Control Panels desk accessory which gives you access to all control panels presently installed in the system.

You can choose which control panel you want to open by scrolling through the list of icons in the Control Panels window. Open the SoundMeister control panel by

finding its icon in the list and double-clicking it. A window appears with two scroll bars and a pair of radio buttons.



The two scroll bars indicate the maximum amplified volume of the SoundMeister board and the idle volume. The SoundMeister INIT tries to be intelligent by tracking an applications use of the built in Digital Oscillator Chip (DOC). When an application tries to use this chip, the INIT steps in and sets the SoundMeister volume to the setting indicated by the maximum volume scroll bar. When an application is done, the INIT will step in and return the SoundMeister to its idle volume. This