SeaSound

Soloist

Includes instructions for Solo Expander

User's Guide

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Version 1.9

The latest version of this manual is available in PDF form for free download at

http://www.seasound.com

Important Safety Instructions

1. Read all instructions prior to operating this product.

2. Retain all instructions and packing materials.

3. Do not attempt to service this product beyond those means described in this manual or the SeaSound web site. Contact SeaSound should service be necessary.

4. To reduce the risk of electrical shock do not expose this appliance to rain or moisture.

5. If you are installing a SOLO EXPANDER, connect the SOLOIST only to the SOLOIST PCI card and the EXPANDER only to the Expansion PCI Bracket. See **"Quick Start"** on page 2 for directions. Reversing connections to the SOLOIST and EXPANDER could seriously damage your SOLOIST system as well as your computer.

6. Turn off your computer and disconnect its power cord before connecting or disconnecting interface cables to the computer, the SOLOIST, or the SOLO EXPANDER. Connecting cables with power on could seriously damage your SOLOIST system as well as your computer.

Introduction

Congratulations on your purchase of a SOLOIST system!

You're about to experience the most hands-on, efficient way to do solo recording with computer-based audio software.

This manual includes instructions for the SeaSound SOLOIST and SeaSound SOLO EXPANDER (optional 6 channel expansion unit.)

We know you're anxious to get started, but please take your time when installing the PCI card and the drivers. This is the foundation upon which your SOLOIST system depends; improper card installation could damage your computer or the card, while improper driver installation could cause your computer to become unstable. Just follow the step-by-step instructions, and all will be well.

Thank you for becoming part of the SeaSound phenomenon! We hope you enjoy your SOLOIST system, and welcome your comments.

Note: Please write your SOLOIST (and EXPANDER) serial numbers in the space below.

Enjoy your SOLOIST system!

Table of Contents

Quick Start Guide

If you're experienced with installing computer software and hardware, this Quick Start Guide should get you up and running. However, please read the rest of the manual at some point to learn about the many unique features that the SOLOIST offers.

*This manual also covers installing and operating the SOLOIST EXPANDER. Text which relates to the EXPANDER is printed in this font. If you are just adding an EXPANDER to an existing SOLOIST system, see *

System Requirements

The SOLOIST system places very little demand on computer resources and will function with just about any Macintosh® or Windows® PC sold today. Recording software typically places great demands on computer resources. Therefore, SeaSound recommends that you follow the computer system requirements of the audio software you plan to use. In general, the performance of audio software improves with faster CPUs, more RAM, and bigger, faster disks.

For digital audio software, SeaSound recommends the following **minimum** computer system requirements.

- PC: Windows 95/98/98 SE, Intel Pentium 200 MMX (Pentium II or III recommended) or equivalent AMD processor, VGA color monitor, CD-ROM drive (for installation), 128 MB RAM, 5-10 MB hard disk space for audio application installation. Note: Cyrix chips are not recommended for digital audio applications. SOLOIST is not compatible with PC laptops which have no PCI slots. (Some PC laptops can be connected to a SOLOIST system via a third-party PCI bus, but this has not been tested.)

- Macintosh: 604e or better processor (G3/G4 recommended), 128 MB RAM, CD-ROM drive (for installation), 2nd level cache, MacOS 8.6 or higher. SOLOIST is not compatible with the iMac, which has no PCI slot. Accelerator cards, which accelerate older processors to G3 or G4 speed are not recommended.

- SOLOIST Only: One unused PCI card slot.

- SOLOIST + EXPANDER: one unused PCI slot and one adjacent empty PCI bracket.

A Little Orientation

Before we proceed, here are the components you will be installing:

- SeaSound SOLOIST 19" rack-mountable chassis
- SeaSound SOLOIST PCI card
- Interface cable which connects the SOLOIST to the PCI card
- *If you are installing the SeaSound EXPANDER, it's 19" rack-mountable chassis adds six additional analog audio channels for a total of eight.*
- *Expansion PCI Bracket and ribbon cable to connect the EXPANDER to the PCI card.*
- *Interface cable marked with a yellow band which connects the Expansion PCI Bracket to the EXPANDER.*
- SOLOIST CD which includes drivers, SeaSound utility programs and bundled recording software.

If you are installing a new system, check out "Quick Start" on page 2 to get going right away. *If you are adding an EXPANDER to an existing system, check out* "Adding an EXPANDER to Your Existing SOLOIST System" *on page 6.*

Figure 1.   SOLOIST

Figure 2.   EXPANDER

Quick Start

Assuming you are familiar with installing PCI cards and drivers and are familiar with your audio software, let's plug in the SOLOIST + *EXPANDER* right away.

Caution: This section is only for those who are experienced at installing PC hardware. If you are unfamiliar with these procedures, *do not use this Quick Start guide*, instead follow the more detailed instructions in "Installing a New SOLOIST + EXPANDER System" on page 3.

1. Shut down your computer. Unplug the power cord to your computer. Turn off your audio monitoring system (amplifier or powered speakers).

2. Remove the computer's cover, and install the PCI card in an available slot, as follows.

Discharge any static electrical charge by touching your fingers to bare metal on the computer chassis before removing the PCI card from its plastic bag. Remove the blank PCI card slot bracket from the PCI slot you will use. Plug in the PCI card and replace the screw anchoring it to the chassis.

If you are installing an EXPANDER too, there must be two empty PCI slots available. Optimally these are adjacent and the Expansion PCI Bracket occupies the right-most of the two. Attach the ribbon cable to the header on the PCI card. See Figure 3 on page 8 for the location of the header. There's only one place it can go, and it's keyed so you can't get it in backwards. Then install both the PCI card and the Expansion PCI Bracket. See "Installing a New SOLOIST + EXPANDER System" on page 3 if you are unsure of what to do.

3. Connect the SOLOIST to your computer via the supplied interface cable (see "Connecting the EXPANDER to Your Computer" on page 7).

4. *Connect the EXPANDER to your computer via the supplied interface cable with yellow bands.*

   Before applying power, be sure that the SOLOIST cable connects to the PCI card and that the Expansion PCI Bracket connects to the EXPANDER. Reversing these two connections could seriously damage both interfaces as well as your computer.

5. Replace the computer's cover and turn to "Installing Drivers & Software" on page 8.

If you wish to perform a quick audio test of your system at this point, see "Quick Audio Tests" on page 13.

Installing a New SOLOIST + EXPANDER System

Caution: The PCI card can be damaged by static electricity until is installed. Keep the card in its protective bag until it is ready for use. Ground yourself by touching the computer chassis metal before opening the PCI card package. Handle the card only by the edges (but not the edge with the gold fingers that insert into the computer's card slot). After opening the bag, leave the card on its conductive plastic bag until you're ready to install it. If you are not comfortable installing PCI cards, refer installation to a qualified computer or music store.

1. Turn off the power to the computer, audio monitoring system and all associated peripherals. Unplug the computer. (Some computers keep the PCI Bus powered even in shut-down mode, and the only way to turn it off is to unplug the computer.)

2. Remove the computer's cover to expose the PCI card slots.
   - Windows: Only slots that have associated rear panel brackets are usable with SOLOIST. There may be other slots for internal cards; do not use these with the

SOLOIST PCI card. Identify the PCI slots, which are usually white or ivory and shorter than the ISA slots.

- Macintoshes have only PCI card slots.

3. Touch the metal computer chassis to discharge any static electricity, then remove the PCI card *and Expansion Bracket* from the conductive plastic bag by the edges.

4. Install the SOLOIST PCI card.

   a. **SOLOIST Only PCI Card Installation:**

      The SOLOIST requires one available PCI slot.

      (1) Locate an available PCI slot. Remove its blank bracket (if any) and keep the retaining screw (if present) for re-installation in a later step.

      (2) Make sure the bracket of the SOLOIST PCI card faces the rear of the computer. Line up the card edge connector with the vacant PCI slot, and gently nudge the card inward. There may be some resistance as the card slips into the slot, but do not force the card. You will feel it held securely by the slot when it is in proper position. The bracket should now line up with the rear panel, and the connector should be seated all the way in its slot.

      (3) Secure the PCI card in place with the retaining screw (if present). Some computers have other ways to lock down cards in the card cage, be sure yours is secured.

   b. *SOLOIST + EXPANDER PCI Card Installation:*

      Altogether, the SOLOIST + EXPANDER system requires two empty PCI slots, one for the PCI card, the other for the Expansion PCI Bracket. Optimally these slots are adjacent and the Expansion PCI Bracket occupies the right-most of the two. But any available PCI slot can be used for the Expansion PCI Bracket, so long as the ribbon cable can reach between the PCI card and the Expansion PCI Bracket.

      (1) Locate two available PCI slots. Remove their blank brackets (if any) and keep the retaining screws (if present) for re-installation in a later step.

      (2) Attach the ribbon cable on the Expansion PCI Bracket to the header on the PCI card. See for the location of the header. There's only one place it can go, and it's keyed so you can't get it in backwards.

      (3) Install the SOLOIST PCI card. Make sure the PCI card bracket faces the rear of the computer. Line up the card edge connector with the vacant PCI slot, and gently nudge the card inward. There may be some resistance as the card slips into the slot, but do not force the card. You will feel it held securely by the slot when it is in proper position. The bracket should now line up with the rear panel, and the connector should be seated all the way in its slot.

      (4) Mount the Expansion PCI Bracket on its PCI slot. You may need to adjust the way the ribbon cable folds to make it fit securely in its slot. If so, don't crease it too hard.

       (5)   Secure the PCI card and Expansion Bracket in place with the retaining screws (if present). Some computers have other ways to lock down cards in the card cage, be sure yours is secured.

5.   Before you close up the computer, look again at the PCI card you've installed to make sure that the card edge is seated properly to the connector on the motherboard and that the bracket at the rear of the card is securely fastened to the rear of the card cage.

6.   Replace the computer cover.

Do not re-plug the power cord into the computer yet.

7.   Now turn to "Connecting the SOLOIST + EXPANDER to Your Computer" on page 5.

Connecting the SOLOIST + EXPANDER to Your Computer

Caution: *Turn off your computer and disconnect its power cord before connecting or disconnecting interface cables to the computer, the SOLOIST, or the EXPANDER.*
Be sure that the SOLOIST is connected to the SOLOIST PCI card and the EXPANDER is connected to the Expansion PCI Bracket.

Warning: Connecting cables with power on or reversing connections to the SOLOIST and EXPANDER could seriously damage your SOLOIST system as well as your computer.

1.   With the computer powered off and the power cable removed, connect the interface cable between the PCI card's 25-pin connector and the corresponding connector on the SOLOIST's rear panel. *If you are also installing an Expander, you have two of these cables; you want to use the one without yellow stripes for the* SOLOIST. Tighten the lock-down screws at both ends; these connections must be rock-solid.

2.   *If you are also installing an EXPANDER, patch the interface cable with yellow stripes between the Expansion PCI Bracket's 25-pin connector and the corresponding connector on the EXPANDER's rear panel.*

If you need a replacement cable, use an IEEE-1284-compatible printer cable. SeaSound does not recommend using SCSI cables, or cables longer than 12 feet (approximately 4 meters). Make sure that any replacement cables can be distinguished from each other so that connections will never be reversed. If replacement cables are similar, mark both ends of one cable so you can tell them apart easily.

3.   If you are using MIDI, connect the appropriate MIDI cables to the SOLOIST's rear panel. For more information on connecting MIDI devices, see "MIDI Setup" on page 11.

4.   Connect 1/4" cables from the SOLOIST's rear panel Control Room Outputs to your monitor system (powered speakers or power amplifier).

5. *The EXPANDER's Monitor Outputs can be connected directly to the SOLOIST's Auxiliary Inputs, eliminating the need for a separate mixer. Or you can connect 1/4" cables from the EXPANDER's rear panel Monitor Outputs to your monitor system.*

6. Proceed to "Installing Drivers & Software" on page 8.

If you wish to perform a quick audio test of your system at this point, see "Quick Audio Tests" on page 13.

Adding an EXPANDER to Your Existing SOLOIST System

If you already have a SOLOIST and you are just adding an EXPANDER to it, follow the steps in this section.

Here are the necessary steps:

- *Add the Expansion PCI Bracket to your computer.*
- *Connect a ribbon cable from the SOLOIST PCI card to the Expansion PCI Bracket.*
- *Connect the EXPANDER to the Expansion PCI Bracket with the supplied 25-pin yellow-striped cable.*

Adding an EXPANDER to your system requires one unused PCI slot for the Expansion PCI Bracket. Optimally, the unused slot is adjacent to your existing SOLOIST PCI card, and the Expansion PCI Bracket can go into the right-most of the two. However, any available PCI slot can be used for the Expansion PCI Bracket. Because the ribbon cable is 9 inches long, all you need to do is fold the ribbon cable so it reaches from the SOLOIST PCI card to the slot which the Expansion PCI Bracket occupies, as described below.

Adding the Expansion PCI Bracket

1. *Turn off the power to the computer, audio monitoring system and all associated peripherals. Unplug the computer. (Some computers keep the PCI Bus powered even in shut-down mode, and the only way to turn it off is to unplug the computer.)*

2. *Open up the computer to expose the PCI card slots.*

3. *Identify the SOLOIST PCI card (it's the one which connects to your existing SOLOIST). Touch the metal computer chassis to discharge any static electricity, then remove the SOLOIST PCI card from its slot.*

4. *Attach the Expander PCI Bracket's ribbon cable to the header on the SOLOIST PCI card. See Figure 3 on page 8 for an illustration of where the header is on the PCI card. There's only one place it can go, and it's keyed so you can't get it in backwards.*

5. *Reinstall the SOLOIST PCI card in its slot. Line up the card edge connector with the PCI slot, and gently nudge the card inward. There may be a slight bit of*

resistance, but do not force the card. You will feel the card slip securely into position. The PCI card's bracket should now line up with the rear panel, and the connector should be seated all the way on its connector.

6. *Select the vacant PCI slot you will use for the Expansion PCI Bracket. Remove the blank bracket (if any) and keep the bracket retaining screw (if present) for re-installation in a later step.*

7. *Put the Expansion Bracket into the empty slot. This may involve folding the ribbon cable so it lies flat. If so, don't crease it too hard.*

8. *Secure the PCI card and Expansion Bracket in place with the retaining screws (if present). Some computers have other ways to lock down cards in the card cage, be sure yours is secured.*

9. *Replace the computer cover.*

Do not re-plug the power cord into the computer yet.

10. *Now continue with "Connecting the EXPANDER to Your Computer" on page 7.*

Connecting the EXPANDER to Your Computer

Caution: *Turn off your computer and disconnect its power cord before connecting or disconnecting interface cables to the computer, the SOLOIST, or the EXPANDER.*
*Be sure that the SOLOIST is connected to the SOLOIST PCI card and the EXPANDER is connected to the Expansion PCI Bracket.*

Warning: Connecting cables with power on or reversing connections to the SOLOIST and EXPANDER could seriously damage your SOLOIST system as well as your computer.

1. *With the computer powered off and the power cable removed, patch the interface cable with the yellow bands between the Expansion PCI Bracket's 25-pin connector and the corresponding connector on the EXPANDER's rear panel. Tighten the lock-down screws at both ends; these connections must be rock-solid.*

2. *The EXPANDER's Monitor Outputs can be connected directly to the SOLOIST's Auxiliary Inputs, eliminating the need for a separate mixer. Or you can connect 1/4" cables from the EXPANDER's rear panel Monitor Outputs to your monitor system.*

3. *Proceed to "Installing Drivers & Software" on page 8.*

If you wish to perform a quick audio test of your system at this point, see "Quick Audio Tests" on page 13.

Figure 3.   SOLOIST PCI card and connector showing location of EXPANDER header.

Header for EXPANDER
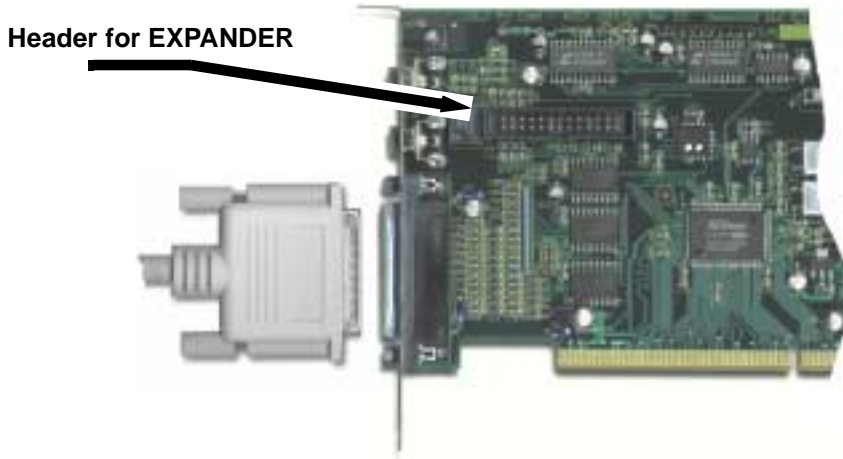
Installing Drivers & Software

If you are adding a SOLOIST EXPANDER to an existing SOLOIST system, SeaSound recommends that you update your drivers to the ones that came with your SOLOIST EXPANDER. The EXPANDER requires drivers version 3.0 or later, which may be more recent than the existing SOLOIST drivers you have installed in your system.

Installing Windows Drivers

1. Attach the computer's power cable.
2. Turn on the computer. When power is applied, the SOLOIST runs through a systems test, flashing its lights. *The EXPANDER simply turns on its Power LED.*
3. As part of its startup process, Windows should automatically take you through the steps of installing the SOLOIST's drivers. Insert the SOLOIST CD into your CD-ROM drive when Windows asks for it. Windows may ask you to restart your computer in order to complete installation. It will display a dialog asking if you want to restart now or later. Restart it now.

   If driver installation does not run automatically during Windows startup, you can force installation as follows.

   a. Navigate to your CD-ROM device from My Computer, or by using Windows Explorer.
   b. Double-click on the CD icon so you can see its contents.
   c. Double-click on the Setup.exe icon. The setup program will install both the drivers and software.
4. After rebooting, verify that the drivers were installed as follows:

a. Right-click on the My Computer icon on the Desktop and select Properties.

b. Click on the Device Manager tab.

c. Click on the + sign next to "Sound, Video, and Game Controllers."

d. SOLOIST should appear under this tree. (It may be named SOLO, either one is OK).

    If it does appear, but there is an exclamation point ("!") or "X" covering it, or it appears in the "Unknown Device" category, there was a problem with driver installation. Often, the problem can be fixed either by reinstalling the drivers (by repeating step 3 above) or updating the drivers (see "Updating Drivers" on page 10). If not, see "Troubleshooting" on page 32.

5. Select the Preferred Audio Device

    Selecting your SOLOIST system as the Preferred Audio Device informs Windows that you wish programs such as the Windows Media Player and other audio software applications to record and play back audio through your SOLOIST system.

    Set the Preferred Audio Device and check your SOLOIST system computer audio ports as follows.

    a. Open the Multimedia Control Panel: go to Start > Settings > Control Panel.

    b. Double-click on the Multimedia control panel.

    c. Select the Audio tab.

    d. In the Playback controls, select the Preferred device to be SS 1/2 Out.

    e. In the Recording controls, select the Preferred device to be SS 1/2 In.

    f. Check the "Use only preferred devices" box.

    g. Click "OK."

    If SS 1/2 Out or SS 1/2 In are not listed as Playback or Recording choices, go to "Troubleshooting" on page 32.

    Now turn to "MIDI Setup" on page 11.

Installing Macintosh Drivers

Note: Additional information on the driver installation procedure shown below can be found in the "Read Me" file on your SOLOIST or EXPANDER CD. Please read that file in addition to the directions below.

1. Attach the computer's power cable. Turn on the computer after the card has been installed.

2. Insert the SOLOIST CD after startup.

3. Drag the "SeaSound Solo Driver" to the Extensions folder located inside your System folder.

4. If you are using an application that supports ASIO, drag the "ASIO SeaSound" icon into the application's ASIO folder.

Note: the "ASIO SeaSound (Legacy)" driver is included for Cubase 3.5 and other programs which use the ASIO 1.0 specification. If your recording software was released before the year 2000, this may be the driver you need.

5. Most Mac audio software includes OMS. Drag the "Solo OMS Driver" into the OMS folder located in your System Folder. If you do not have an OMS folder in your System Folder, you need to install OMS. Get the latest version at http://www.opcode.com or find and OMS install included with any Mac recording software you may own. Make sure the version is 2.3.6 or later.

6. To install Cubasis, double click on the "Install Cubasis" icon in the Cubasis folder on the SeaSound CD.

Updating Drivers

If you are adding a SOLOIST EXPANDER to an existing SOLOIST system you may need to update the drivers. Follow the procedures below.

Updating Windows Drivers

1. Verify your current driver version by right clicking on the "My Computer" icon on the Desktop. Select Properties. The System Properties dialog appears. Select the Device Manager tab. Scroll down to "Sound, video and game controllers" and expand it by clicking the plus sign in front of it. Double click on the "Solo" icon. The Solo Properties dialog appears. Select the Driver tab and click on "Driver File Details." The Driver File Details dialog appears. If the File Version is lower than 3.0 you must update drivers before using the SOLOIST EXPANDER. Click OK to dismiss this dialog and return to the Solo Properties dialog.

2. Update the driver as follows. On the Solo Properties dialog, press "Update Driver." Insert the CD which came with your EXPANDER and follow the directions from the Update Device Driver Wizard.

Updating Mac Drivers

1. Verify your current driver version by highlighting (clicking once on) the current "SeaSound Solo driver" (which is found in System folder/Extension folder). Press and hold the Apple key while pressing the "I" key. A dialog appears which provides version information.

2. If your version is not 3.0 or above you should replace your current SOLOIST OMS driver and current SOLOIST ASIO driver in any applications which use ASIO. To do this, follow the directions in "Installing Macintosh Drivers" on page 9 but substitute the EXPANDER CD instead of your original SOLOIST CD to replace your old drivers.

MIDI Setup

Windows MIDI Setup

Selecting your SOLOIST system as the Preferred MIDI Device informs Windows that you wish programs such as the Windows Media Player and other audio software applications to record and play back MIDI through your SOLOIST system.

1. Go to Start>Settings>Control Panel
2. Double-click Multimedia
3. Select the MIDI tab.
4. In the MIDI Output group, select Single Instrument and click on SOLOIST MIDI Out. (It may say Solo MIDI Out, which is fine.)

Each audio application will provide its own way of allowing you to specify which MIDI output to use. The SOLOIST will be one of these choices.

Note: do not activate the "Solo Command Port" as a MIDI In or MIDI Out device in your software, unless you have a SeaSound DTC-1 or other device which utilizes the External Controller port on the Soloist back panel.

MAC MIDI Setup

1. Verify that the "Solo OMS driver" has been installed on your hard drive by making sure that the System Folder contains an OMS Folder. Go to "Installing Macintosh Drivers" on page 9 if it is not present.
2. Run OMS Set Up by double clicking on the "OMS Setup" icon on your hard drive located in Opcode>OMS Applications. A dialog will appear on your screen. Appletalk may be left on or disabled depending on your preference. Do not check the Modem or Print boxes unless you have a MIDI device connected to them.
3. Press the Search button on the dialog. OMS will look for the SOLOIST as a MIDI device. OMS Setup should find "Solo 1." If it does, press OK. If "Solo 1" is not detected press the "Troubleshooting" button on the dialog. Or see "Troubleshooting" on page 32. "Solo 1" will appear with the "Unknown" MIDI device icon (which is a keyboard with a question mark.) This is normal.
4. Save this setup as "MyStudio Set Up".
5. Change device icon to sound card by going to file menu Studio>Device icon.
6. You can perform a quick In/Out continuity test on your MIDI setup as follows.
   a. With the OMS Set Up program still running, go to the File menu, then select Studio>Test studio.
   b. Click on the "Solo 1" icon in the My Studio Setup window to trigger MIDI devices attached to Solo EX.

c. Then play any MIDI Controllers attached to your SOLOIST. You will hear a "MIDI received" message if successful.

Additional interfaces will remain available in OMS in case you need to expand your MIDI setup in the future.

Recording Software Settings

SeaSound highly recommends using the SeaSound ASIO drivers if your software supports ASIO. Consult your software manual or manufacturer. On Windows, the SOLOIST ASIO drivers are named "SS SOLOIST." On the MAC they are named "ASIO SeaSound."

(Please refer to our Technical Support web page at http://www.seasound.com for software-specific settings for DMA, offsets and other useful information.)

CUBASIS VST

Mac

1. Launch Cubasis VST.
2. Pull down the Options menu.
3. Select Audio Setup>System.
4. Select "ASIO SeaSound" as the ASIO device. (The Soloist can be used with "Apple Sound Manager" selected as your ASIO device, so long as SeaSound is selected as your Input and Output device in the Sound Control Panel. In general, the native ASIO Seasound drivers offer superior performance.)
5. Click OK.

Windows

1. Launch Cubasis VST.
2. Pull down the Audio menu.
3. Select System.
4. Select "SS ASIO" as the ASIO device. (The SOLOIST system can be used with "ASIO Multimedia" as well, so long as SS 1/2 is selected as your Multimedia Preferred Device. In general the native SS ASIO drivers offer superior performance.).
5. Click OK. Cubasis will then run a DMA block test. Press start. When the test is finished, the SOLOIST should be selected and ready to use.

Acid Rock (Windows only)

Acid Style plays and records via whatever audio device you have selected as your Preferred Audio Device. If you have not already selected the SOLOIST, turn to "Select the Preferred Audio Device" on page 9.

Quick Audio Tests

The tests in this section are designed to quickly verify that your SOLOIST system is functioning properly without the use of software.

Quick SOLOIST Audio Test

Here is a way to verify that the SOLOIST is receiving input correctly using a microphone and headphones.

1. With your computer turned on, check that the SOLOIST's Power light is illuminated. If not, there was an installation problem. Go back and check the installation, or see "Installing a New SOLOIST + EXPANDER System" on page 3.

2. Plug a pair of headphones into the SOLOIST's Phones jack and turn the associated Phones volume control down all the way.
   Or, plug a stereo phone jack from the Phone plug to your monitoring system.
   Or, turn down the Control Room volume all the way and patch 1/4" phone cables from the SOLOIST's rear panel Control Room Outputs to your monitoring system, and use the Control Room volume in the tests to follow.

   To prevent feedback, do not bring the microphone into close range to monitor loudspeakers. Instead, use headphones to prevent possible feedback.

3. Perform the following test with a microphone:
   a. Plug your microphone into the Preamp Mic XLR plug. If the microphone requires phantom power, set the Phantom Power switch On. If you don't have a mic with an XLR connector, plug in a mic to the Guitar input; or plug in a guitar, or whatever you've got.
   b. Set the Mon Pan control for that channel to 12 o'clock.
   c. Flip the Input/Output switch up to the Input position so the Level Meters monitor the analog input signal.
   d. Set the Mic Trim knob fully counter-clockwise, and the Mic Level knob at 3 o'clock.
   e. Flip the Ch 1/Ch 2 switch up (the Rec LED will light) to send the signal to the computer's channel 1 audio input port.
   f. Speak or sing loudly into your mic while slowly turning up the Trim knob. Adjust the Trim until the Level Meters go into the red (indicating possible distortion), then back off just a tiny bit on the Trim to keep the Level Meters in the green and yellow LEDs, but not red.
   g. Use the Level knob as you would a fader on a mixing desk.
      Using low-level instruments (guitar, bass, electric piano, etc.) works similarly, except that these never use Phantom power, and will almost always plug into the 1/4" input jack, not the XLR.

Seeing activity on the Level Meters tells you that the SOLOIST is receiving signals and producing a signal for its converters.

4. To verify that the mic signal is arriving at the headphones, do the following:

    a. Turn the Phones control all the way down.

    b. Turn the Input volume control in the Monitor Mix section to 3 o'clock.

    c. Slowly turn up the Phones control while singing into the mic. At some point you will hear it if the last test was successful. If it sounds distorted, go back to the previous step and turn down the Trim.

These tests verify that the SOLOIST is functioning normally. If you did this step as part of installation, return to the installation process where you left off. Otherwise, if the system is still not behaving as expected, check out "Troubleshooting" on page 32.

Quick EXPANDER Audio Test

Here is a simple way to verify that the EXPANDER is receiving input correctly using a line input and monitoring system.

1. *With your computer turned on, check that the EXPANDER's Power light is illuminated. If not, there was an installation problem. Go back and check the installation, or see "Installing a New SOLOIST + EXPANDER System" on page 3.*

2. *Turn the Input Monitor volume control down (fully counter-clockwise).*

3. *Plug a CD player or other line-level audio source into Inputs 3 & 4 on the back panel of the EXPANDER.*

4. *On the EXPANDER's front panel, set the switches for Level Meters 3–4 to Input and –10.*

5. *You should see activity on the Level Meters for those channels on the EXPANDER. If not, check the CD player, cables and connectors to the EXPANDER. If the Level Meters go into the red (indicating clipping) set the input sensitivity switch to +4, and/or reduce the output signal from the CD player.*

6. *Turn down the input volume to your monitoring system. Connect your monitoring system to the stereo Monitor Outputs on the back panel of the EXPANDER with 1/4" jacks. Turn up the input to your monitoring system.*

7. *Turn up the Input Monitor volume on the EXPANDER. You should hear the CD through your monitoring system.*

These tests verify that the EXPANDER is functioning normally. If you did this step as part of installation, return to the installation process where you left off. Otherwise, if the system is still not behaving as expected, check out "Troubleshooting" on page 32.

Windows Note: When using professional recording applications on a PC, SeaSound recommends you disable Windows system sounds. (Go to Start > Settings> Control Panel> Sounds> Schemes and select "No Sounds.") If you must use Windows sounds, check the box "Use Preferred Devices Only" at Start > Settings> Control Panel > Multimedia > Sounds.

SOLOIST University

Here's a little orientation for how the SOLOIST system fits together.

Audio Ports

The audio software on your computer routes audio to and from the SOLOIST and EXPANDER through *audio ports*, which are software-selectable sources and destinations for audio signals in your audio software. Exactly how many audio ports you have and what they are called varies somewhat depending on your system and software, but their function is straightforward, as described in this section. First, a little orientation.

How Audio Ports Work

• *In ports* receive audio data from the SOLOIST and/or EXPANDER and allow your audio software to record it. *Out ports* send audio data to your SOLOIST and/or EXPANDER and allow your monitoring system to play it back.

•

The SOLOIST has one stereo In Port and one stereo Out Port. *The EXPANDER adds three additional stereo In Ports and three additional stereo Out Ports.*

Generic Audio Port Names

Because different computer systems and audio drivers may name them differently, the audio ports are given generic names in this section that will be used throughout the rest of this manual to identify the various ports. Table 1 on page 16 supplies the equivalent names for the audio ports for various computer and driver combinations.

SOLOIST Out Port — This is the port your audio software uses for analog stereo playback through the SOLOIST. In Windows, this should be chosen as the "Preferred Audio Device" for playback so that the audio software uses this port by default when it plays audio. See "Select the Preferred Audio Device" on page 9.

SOLOIST In Port — When your audio software records audio from this port, the input comes from the SOLOIST's Preamp Input and Line Inputs.

EXPANDER Out Port — *Audio Out ports 3/4, 5/6, 7/8 are used by your audio software for audio playback through the EXPANDER. When your audio software plays audio to these ports it goes to the Monitor Outputs of the EXPANDER as well as to the individual master outputs on the EXPANDER's back panel.*

EXPANDER In Port — *Audio In ports 3/4, 5/6, 7/8 are used by your audio software for audio recording from the EXPANDER's A/D Converters.*

Audio Port Names for Specific Computers and Drivers

If you have a SOLOIST-only system, the Audio Port names are given below in Table 1 on page 16. If you have a SOLOIST + EXPANDER system, the names are given in Table 2 on page 28, along with a full discussion of the "EXPANDER Controls and Connections" on page 28.

Table 1. SOLOIST-Only Audio Port Names

	SOLOIST Out Port	SOLOIST In Port
WIN Multimedia	SS 1/2 Out	SS 1/2 In
WIN ASIO-Multimedia	SS 1/2 Out	SS 1/2 In 1 SS 1/2 In 2
Win SS ASIO	SS1	SS1 SS2
Mac Sound Manger	SeaSound	SeaSound
Mac ASIO	Solo Analog Out	Solo AnalogIn-1 Solo AnalogIn-2

Main SOLOIST Components

It's easiest to think of the SOLOIST as composed of the following main components.

- Analog Inputs on the SOLOIST receive audio signals from microphones, guitars, CD players, and the like. (Do not confuse these with the SOLOIST In Port which connects your audio software to the SOLOIST. Here, we're talking about actual physical connectors.)

- A/D Converters in the SOLOIST convert the Analog Inputs to digital signals and sends them to your computer.

- D/A Converters convert digital signals sent to the SOLOIST from your computer into analog audio which you can hear through headphones and speakers.

- The Stereo Monitor Mixer combines the Analog Inputs and D/A Converter output so you can monitor both inputs and outputs simultaneously.

- The Level Meters allow you to see the strength of the signals you are recording and/or playing back.

If we look at each of these components in more detail, here's what we find:

Analog Inputs — The Preamp Input allow microphones or low-level instruments such as guitars to be recorded. The Line Inputs allow line-level signals from CD players, mixers and other such devices to be recorded. These analog inputs are mixed and sent to the A/D

Converters and to the Stereo Monitor Mixer. Two Auxiliary Inputs are also available which go directly to the Stereo Monitor Mixer, but they do not go to the A/D Converters.

A/D Converters — Stereo Analog-to-Digital Converters receive stereo signals from the Preamp Input and Line Inputs, and convert these analog signals to digital samples which are then sent to the computer. The A/D Converters receive input from whichever inputs have their Record Mode Switch turned on and send their converted digital signals to the audio software's SOLOIST In Port.

D/A Converters — Two Digital-to-Analog Converters receive digital audio from the audio software via the SOLOIST Out Port and convert them to analog signals which are then sent to the Stereo Monitor Mixer.

Stereo Monitor Mixer — mixes stereo signals received from the D/A Converters, the Preamp Input, Line Inputs and Auxiliary Inputs. The output of the Stereo Monitor Mixer is sent to the Control Room Outputs, and Headphone Jack.

Level Meters — can be used to visually track the signal levels being recorded or playing back. They can be switched to monitor the signals being sent to the A/D Converters or to monitor the signals coming from the D/A Converters.

Figure 4 on page 17 shows a high-level block diagram of how these components fit together with your audio software. (Note, the SOLOIST does not have a separate Master Output, and does not have S/PDIF input or output, so these are shown with dashed lines.)

Figure 4.   High-level SOLOIST System Block Diagram
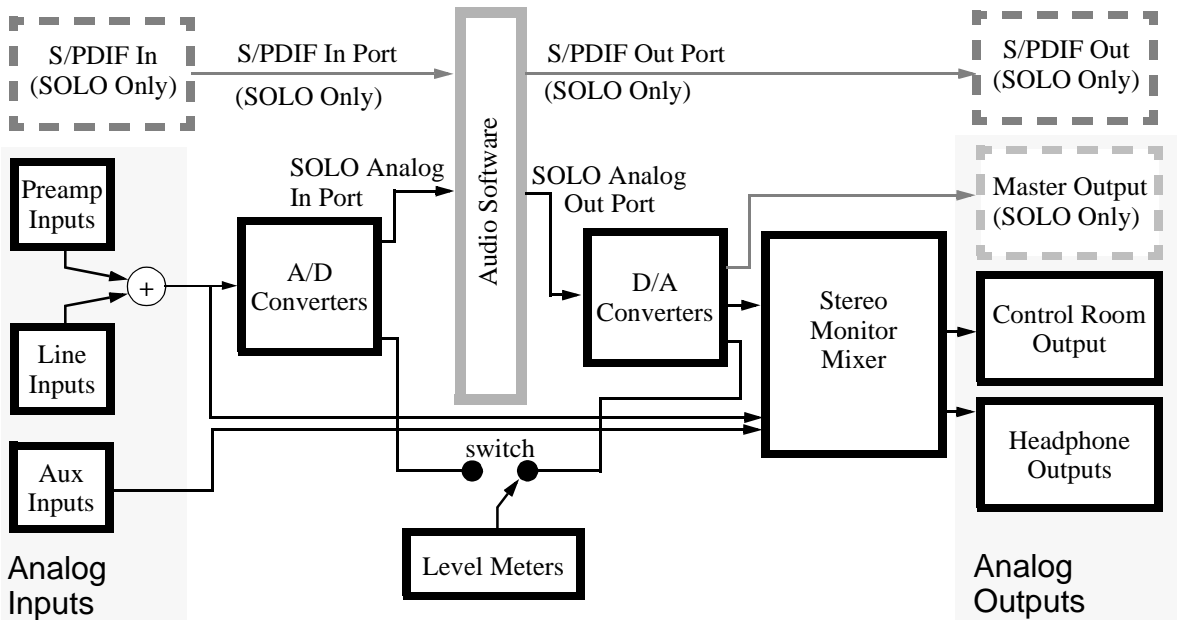
Main EXPANDER Components

The EXPANDER contains all of the basic components of the SOLOIST but it has no preamplifier inputs (Line Inputs and Auxiliary Inputs only), and has fewer controls. Figure 5 on page 19 shows a high-level block diagram for a SOLOIST + EXPANDER system. The EXPANDER's Line Inputs are converted through A/D Converters to the Analog Input Ports which are available to your audio software for recording. The Analog Output Ports are converted by the D/A Converters and are available to your mastering and monitoring systems. EXPANDER Level Meters are available to show signal strength, and are switchblade from input to output.

(Note, the SOLOIST does not have a separate Master Output, and does not have S/PDIF input or output, so these are shown with dashed lines.)

Connecting the EXPANDER Monitor Outputs to the SOLOIST Auxiliary Inputs offers a convenient way to monitor the EXPANDER without the need for a mixer.

Figure 5.   High-level SOLOIST + EXPANDER System Block Diagram
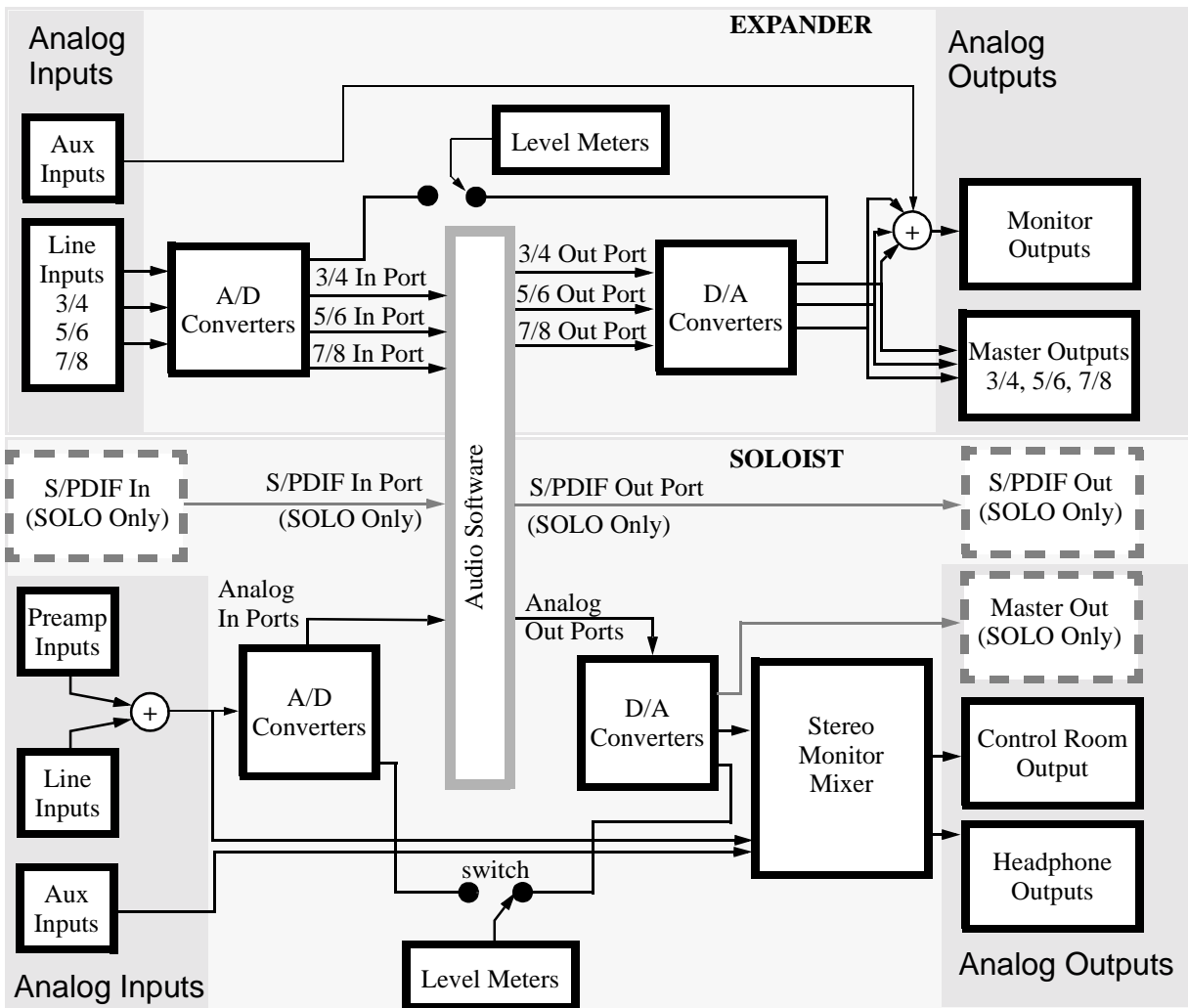
Gain Structure of the SOLOIST System

Now that you have had a look at the layout of the SOLOIST's components, let's think about how to get the best performance from it while recording and playing back. The most important thing to understand is how the various volume controls combine to give you the widest possible recording range from soft to loud—called *dynamic range*. The SOLOIST is capable of recording with an extremely wide dynamic range, but it is up to you to

understand how to make use of it to get the best possible recording. Fortunately, it's not hard to understand.

Recording Gain Structure

Figure 6 shows a block diagram of the connections for one of the two channels from the input signal through the SOLOIST and on into your audio recording software.

Figure 6.   Recording Gain Structure for One Channel
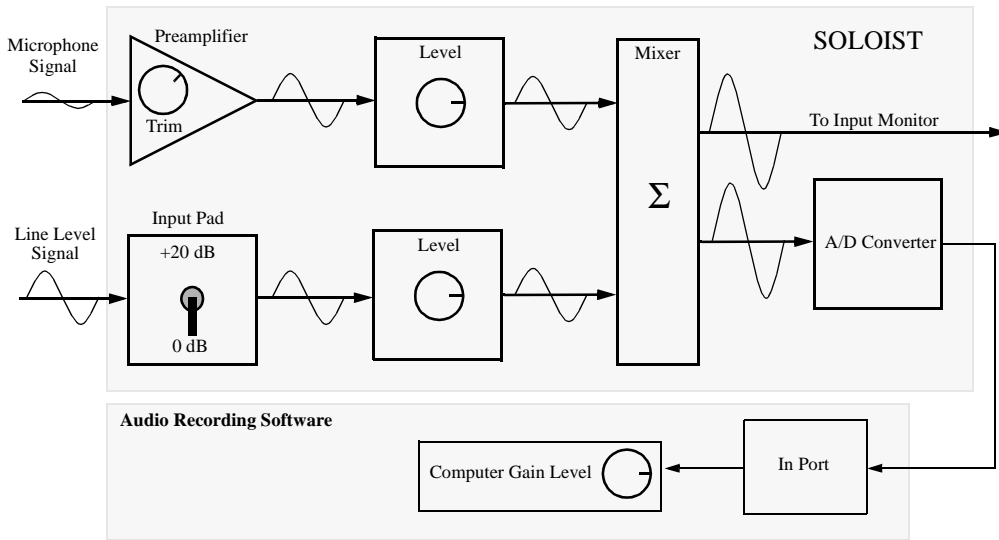
Waveforms on the arrows connecting the boxes show the strengths of signals for a hypothetical recording session. Preamp inputs are best at amplifying low-level signals from microphones or guitars. Line Level inputs are best at amplifying signals from CD players, mixers, etc.

When you are recording from the Preamp Input, there are three gains to think about:

- Input Trim — This control sees the input signal first, and is used to amplify it to line level. If it is set too low, the input signal is not amplified enough and the resultant recording will sound weak and possibly noisy. If it is set too high, it will sound distorted. You want it to be as high as possible without distorting the incoming signal.

- Level — Think of this control like the fader on a mixing desk: use it to make the level of this signal match the others you are recording. When it is set at about 3 o'clock, it passes the signal through at *unity gain*. Above that it *amplifies*, below that it *attenuates*.

- Computer record gain level — There may be a volume control inside your recording software or operating system which determines the final level of the incoming signal.

When you are recording from the Line Input, there are likewise three gains to think about:

- Input Pad switch — Think of this as a two-stage input trim control that either passes the signal through at unity gain (0 dB setting) or amplifies it by 20 dB.
- Level — same as above.
- Computer record gain level — likewise, same as above.

Each of these volume controls is like a link in a chain: the quality of recording you get depends upon having all these links working together. As a consequence, it is usually best if each of these controls is in the middle of its operating range. If one is mostly down and the other is mostly up, one control will be throwing away the amplification being provided by the other, and since all amplification introduces some noise, the quality of your signal will be worse than if they are all evenly matched.

Notice that the Preamp Input and Line Input are eventually summed in the Mixer prior to the A/D Converter. Here is another potential problem: if both input signals are close to maximum before they are mixed, they might start clipping (distorting) after they are mixed. Then the A/D Converter gets a distorted signal which the audio software records. The Level Meters tell you when this is happening by lighting their red LEDs.

Playback Gain Structure

Figure 7 shows a block diagram of the connections for one of the two channels from the audio recording software through the SOLOIST and out to your monitoring system.

Figure 7.   Playback Gain Structure for One Channel
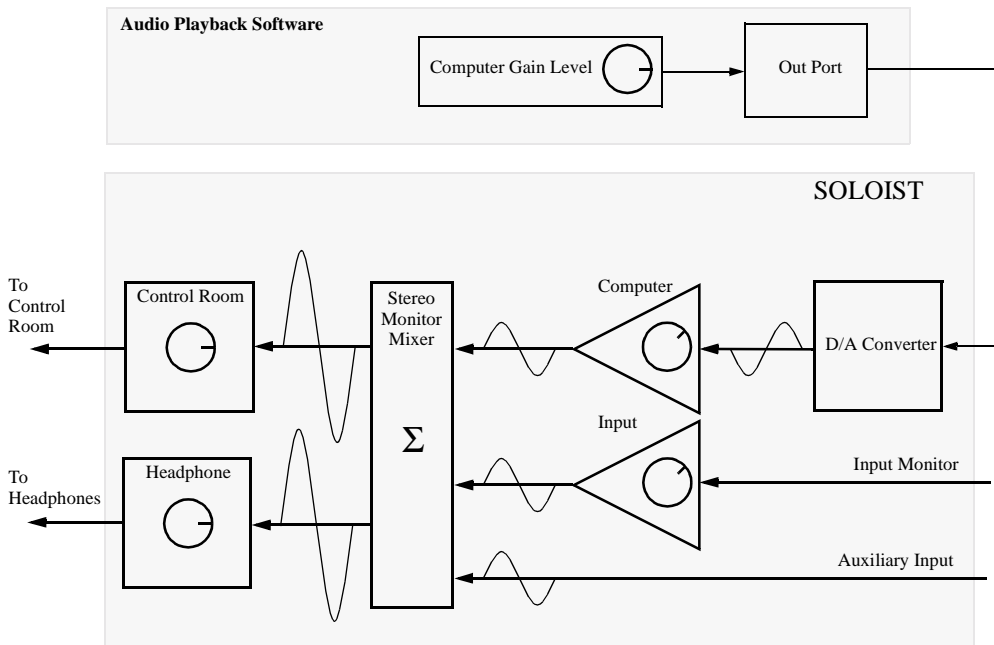
As with recording, you must balance the work done by the various volume controls, keeping in mind how signals are mixed together.

When playing back from the computer, there are three volume controls to think about:

- Computer playback gain level — this determines how strong a signal is given to the D/A converters.
- Computer Monitor Mix Level — this scales the output of the D/A Converters. Use this control to balance the strength of the computer output signal to match the signals you want to hear via the Input Monitor.
- Control Room Level and/or Headphone Level — the final stage in output, use these controls to adjust the strength of the sound you listen to.

When monitoring an input signal, you must think about all the volume controls along that path as well:

- The levels in the recording chain shown in Figure 6 on page 20 determine the signal sent to the Input Monitor.
- The Input Monitor Level matches the input signal to that coming from the D/A Converters.
- The monitor signal is then mixed with the computer signal, and sent together to the output gain controls.
- The Auxiliary Inputs are also mixed with the computer signal, and sent together to the output gain controls.

The quality of playback you get depends upon having all these controls working together. As a consequence, it is usually best if each of these controls is in the middle of its operating range. If one is mostly down and the other is mostly up, one control will be throwing away the amplification being provided by the other, and since all amplification introduces some noise, the quality of your signal will be worse than if they are all evenly matched.

Notice that the D/A Converter, the Input Monitor signal and the Auxiliary Inputs are all summed in the Stereo Monitor Mixer (of which only one channel is shown in Figure 7 on page 21) prior to the final output gain controls. Here is another potential problem: if all these signals are close to maximum before they are mixed, they might start clipping (distorting) after they are mixed. Then the outputs get a distorted signal. The Level Meters can tell you when this is happening by lighting their red LEDs.

SOLOIST Analog Input Controls

Figure 8.   SOLOIST Controls

The SOLOIST has one preamplified input for low-level signals such as microphones and guitars which can be assigned to the left or right input to the A/D Converters by a switch. By adjusting the trim, it can also be used for line-level signals. It also has stereo line-level inputs. Signals received by record-enabled inputs are combined and sent to the A/D Converters and also to the Stereo Monitor Mixer. (The Auxiliary Inputs do not go to the A/D Converters, only to the Stereo Monitor Mixer.)

Preamplifier Input Controls

Preamp Input — There is one XLR microphone input with switchable phantom power. When plugging or unplugging a mic, always turn the Preamp Level control to minimum (fully counter-clockwise).

Phantom Power — Most modern condenser microphones require phantom power; dynamic mics do not. Check your microphone's documentation to determine if it needs phantom power. If so, flip this switch up to supply the microphone with 48V.

Guitar Input — This input is ideal for low-level sources such as guitar, bass, or acoustic instruments with pickups.

Trim — adjusts the input sensitivity of the microphone and instrument inputs. Set this control for the highest signal level possible, short of distortion.

Preamp Level — This sets the signal level output of the Preamplifier. From here the signal goes to the A/D Converters if the Record Mode Switch is up (Channel 1) or down (Channel 2), and also goes to the Stereo Monitor Mixer via the Monitor Input Volume control.

Record Mode Switch — When in the up position, this switch turns on the Rec LED, sets the channel to record-ready mode, and starts the A/D Converters, sending digital audio to your audio software via channel 1 of the SOLOIST In Port. In the down position, the digital signal is sent to channel 2 of the SOLOIST In Port. Record mode is off in the middle position.

Rec LED — when on (red), indicates the Microphone Preamplifier is sending its signal to the A/D Converters. It is turned on by the Record Mode Switch.

The Level Meters receive input from Microphone Preamplifier and Line Inputs only if the respective Record Mode Switch is up.

Mon Pan — determines the position of the channel signal in the stereo field going to the Stereo Monitor Mixer. It does not pan the signal sent to the A/D Converters. Turning the knob counter-clockwise pans the signal toward the left; clockwise pans it toward the right.

Line Input Controls

The SOLOIST has two Line Amplifiers which can be used for line-level signals.

Line Level — The Left and Right Line Level controls set the signal level output of the left and right channel Line Amplifiers, respectively. From here the signal goes to the left and right inputs to the A/D Converters if the Rec LED is lit and also goes to the Stereo Monitor Mixer via the Monitor Input Volume controls.

Record Mode Switch — When in the up position, this switch turns on the Rec LED, sets the channel to record-ready mode, and starts the A/D Converters, sending digital audio to your computer via the SOLOIST In Port.

Rec LED — When on (red), indicates the Line Amplifiers are sending signals to the A/D Converters. It is turned on by the Record Mode Switch.

Line Level Trim Switch — boosts Line Input signals by 20 dB when switched up. It is ideal for instruments with low output volume.

The Level Meters receive input from Microphone Preamplifier and Line Inputs only if the respective Record Mode Switch is up.

Level Meters and MIDI Activity Meter

Level Meters provide visual cues about the presence and strength of signals in the SOLOIST. They can be switched to track the levels going to the A/D Converters, or they can be switched to track the output of the D/A Converters.

The MIDI Activity LED gives a visual indication of MIDI commands at the MIDI Jacks.

Meter Source — Flipping this switch up sets the Level Meters to monitor the input to the A/D Converters. Flipping this switch down sets the Level Meters to monitor the output of the D/A Converters.

Level Meters — track the level of the signal you're listening to, as determined by the Meter Source switch. If your signal at peak volume only lights up the green LEDs, the signal may be too weak and your recording may sound faint and noisy. The yellow LEDs should mostly light up for normal recording applications. If the meter's red LED lights, clipping may be occurring. However, note that there is approximately 6 dB of headroom left after the red LED first lights, so clipping may not actually be happening. When in doubt, the Solo-o-meter gives more precise indications about clipping. Also, your audio application may provide additional ways of monitoring clipping.

SOLOIST Stereo Monitor Mixer Controls

The Stereo Monitor Mixer combines signals from the Preamp Input, Line Inputs, D/A Converters, and Auxiliary Inputs and routes them to the Control Room Outputs and Headphone Jack.

Monitor Input Volume — determines the signal level sent to the Stereo Monitor Mixer from the Preamp Input and Line Inputs.

Computer Volume — determines the level of the output of the D/A Converters. This is the volume control for the audio output from your computer software. Use this control to listen to what is recorded in your computer. Because the SOLOIST has separate Monitor Input Volume and Computer Volume controls, you can adjust the balance between already-recorded audio and the instrument you're playing when overdubbing.

Control Room Volume — This sets the level coming from the Stereo Monitor Mixer out to your audio monitoring system via the rear panel's Control Room Outputs.

Headphone Jack — Plug in headphones here. SeaSound recommends using closed-ear headphones (where the earphone cup surrounds the ear) to minimize leakage and feedback during recording.

Headphone Volume Control — level control for headphones. Because the headphones have a dedicated level control, changing headphone levels does not change the control room or master output levels.

Caution: Because of the earphone driver's proximity to your ear, excessive levels or loud transients can cause hearing damage. Turn down the headphone volume when switching inputs or plugging and unplugging instruments from the SOLOIST, as this can create pops that can hurt your ears.

Power LED — When lit, indicates that the SOLOIST is plugged in and receiving power.

SOLOIST Midi Jacks/Computer Interface

Figure 9.   SOLOIST Back Panel
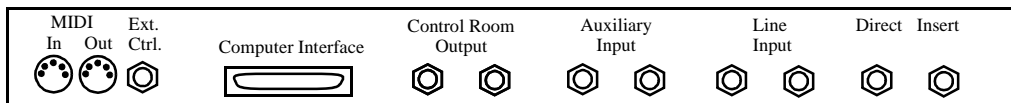
Computer Interface — connects your computer to your SOLOIST. With computer power off and the power cord disconnected, connect one end of the interface cable to this jack, and the other end to the corresponding PCI card jack.

Caution: *Turn off your computer and disconnect its power cord before connecting or disconnecting interface cables to the computer, the SOLOIST, or the EXPANDER.*
Be sure that the SOLOIST is connected to the SOLOIST PCI card and the EXPANDER is connected to the Expansion PCI Bracket.

Warning: Connecting cables with power on or reversing connections to the SOLOIST and EXPANDER could seriously damage your SOLOIST system as well as your computer.

If you need a replacement cable, use an IEEE-1284-compatible printer cable. SeaSound does not recommend using SCSI cables, or cables longer than 12 feet (approximately 4 meters). Make sure that any replacement cables can be distinguished from each other so that connections will never be reversed. If replacement cables are similar, mark both ends of one cable so you can tell them apart easily.

External Controller — for seaSound DTC-1 (desk top controller) and future control interfaces. This can be used in conjunction with your audio software to start/stop recording from a desktop controller. For more information on expansion products, visit your SeaSound dealer or go to the SeaSound web site at http://www.seasound.com.

MIDI Jacks — allow MIDI instruments, controllers, and sync generators to communicate with MIDI-compatible software. The device generating MIDI—such as an external MIDI keyboard—plugs into the SOLOIST's MIDI In. MIDI Out provides MIDI data playback from your software.

Here are some typical applications:

- With sequencers, patch a MIDI master keyboard's MIDI Out into the SOLOIST MIDI In, and patch the SOLOIST MIDI Out to a MIDI-controlled sound module. Your software will allow you to patch the MIDI In to the MIDI Out while recording (called "MIDI Thru" or "MIDI Echo"), thus allowing you to hear what you're playing. On playback, MIDI data exits the MIDI Out and plays back through the sound module.

- With the same scenario but using a keyboard with self-contained sound generation, patch the keyboard MIDI Out into the SOLOIST MIDI In, and patch the SOLOIST MIDI Out to the keyboard's MIDI In. Turn off Local Control at the keyboard (refer to the unit's manual for information on how to do this), and enable the software's MIDI thru function described above.

- Some programs allow MIDI controller changes to control mixer faders, signal processing parameters, etc. In this case, you could patch the MIDI Out from a MIDI Machine Controller device to the SOLOIST MIDI In to control the software's parameters.

- If you need to synchronize your software to another source (such as another computer, an all-in-one "groove box," time code from a video project, or anything else that generates MIDI Time Code), patch the MIDI Time Code source's MIDI Out into the SOLOIST's MIDI In.

For more information on typical MIDI setups and studio interconnections, SeaSound recommends the book *Home Recording for Musicians*, published by AMSCO.

SOLOIST Analog Audio Connections

Analog Outputs

Control Room Outputs — The output of the Stereo Monitor Mixer is fed through the Control Room Volume control, then to these outputs. Connect these to your control room monitoring system and/or outboard recorders such as a DAT.

To avoid transients and spikes that could damage your speakers, make sure the monitoring system is off when connecting it to the SOLOIST.

Analog Inputs

Line Inputs — are routed first through the Line Level controls on the front panel, then are routed to the A/D Converters and the Stereo Monitor Mixer. They are best for line-level signals such as keyboards, drum machines, or preamplified guitars.

Auxiliary Inputs — are routed directly into the Stereo Monitor Mixer without volume control. They are best used for adding in another signal that you want to monitor; they are not mixed into the signal that feeds your computer. They accept line level signals from sources such as drum machines, cassettes, CDs, DATs, or the EXPANDER Monitor Outputs. Another use of the Auxiliary Inputs is to monitor yourself with effects that you don't want to record. For example, a vocalist might feel more comfortable recording with reverb, but you don't necessarily want to record the reverb, as you would prefer to add it during mixdown. To accommodate the vocalist, send a signal from the Direct Output to the reverb, then patch the reverb outputs to the Auxiliary Inputs. Note that there are no level controls for these inputs. Adjust levels at the device feeding the Auxiliary Inputs.

Direct Output — sends a pre-level, post-insert signal from the Preamplifier. You can think of it as a way to tap a copy of the SOLOIST's Microphone Preamplifier. These are useful for adding non-insert effects such as reverberation, which you can then route back into the SOLOIST via the Auxiliary Inputs. See "Using Direct Outputs" on page 41 for more information.

Preamp Insert — can be used to add effects such as compression, EQ and distortion, for example. When nothing is plugged in, the Preamp Insert simply copies the preamplified signal straight through to the Preamplifier's Preamp Level controls. If an effects device is plugged in, this straight-through connection is broken, and the signal must be routed through the effects device. The device must be wired so as to receive the SOLOIST's preamplified signal from the tip of a 1/4" TRS (tip-ring-sleeve) plug, and to return the signal with overlaid effects on the ring of the same jack. See "Using Inserts" on page 40 for more information.

EXPANDER Controls and Connections

The EXPANDER has fewer connections and controls than the SOLOIST, so they are presented together here.

EXPANDER Audio Ports

See Table 2 for specific names given to these ports by various computer systems and device drivers.

EXPANDER Audio Output Ports — *connect the output of your audio software to the EXPANDER's D/A Converters.*

EXPANDER Audio Input Ports — *connect the output of the EXPANDER's A/D Converters to the input of your audio software.*

Table 2.   SOLOIST + EXPANDER Audio Port Names

	Analog Out Port	**Analog In Port**
WIN Multimedia	SS 1/2 Out *SS 3/4 Out* *SS 5/6 Out* *SS 7/8 Out*	SS 1/2 In *SS 3/4 In* *SS 5/6 In* *SS 7/8 In*
WIN ASIO-Multimedia	SS 1/2 Out *SS 3/4 Out* *SS 5/6 Out* *SS 7/8 Out*	SS 1/2 In 1 SS 1/2 In 2 *SS 3/4 In 1* *SS 3/4 In 2* *SS 5/6 In 1* *SS 5/6 In 2* *SS 7/8 In 1* *SS 7/8 In 2*

Table 2.   SOLOIST + EXPANDER Audio Port Names

	Analog Out Port	**Analog In Port**
Win SS ASIO	SS1 *SS3* *SS5* *SS7*	SS1 SS2 *SS3* *SS4* *SS5* *SS6* *SS7* *SS8*
Mac Sound Manger	SeaSound	SeaSound
Mac ASIO	Solo Analog Out *Expander Analog Out 3* *Expander Analog Out 5* *Expander Analog Out 7*	Solo AnalogIn-1 and Solo AnalogIn-2 *Expander Analog In-3* *Expander Analog In-4* *Expander Analog In-5* *Expander Analog In-6* *Expander Analog In-7* *Expander Analog In-8*

EXPANDER Front Panel Controls

Expander front panel connections are shown in Figure 10.

Figure 10.   EXPANDER Front Panel

Power LED — *when illuminated, shows that the EXPANDER is receiving power.*

Input Monitor Volume — *All EXPANDER Line Inputs are summed and routed to this control. Its output is mixed with the Computer Monitor Volume output and the combined signal goes to the Monitor Outputs.*

Computer Monitor Volume — *All EXPANDER Audio Output Ports are summed and routed to this control. Its output is mixed with the signal coming from the Input Monitor Volume and the combined signal goes to the Monitor Outputs.*

Level Meter Groups — *There are three Level Meter Groups which contain two switches and a level meter.*

- *Input/Output switch — the Level Meter will register either EXPANDER Line Inputs or EXPANDER Audio Output Ports.*

- *+4/−10 — adjusts input sensitivity. Set this to −10 when input comes from standard consumer-electronics devices such as CD players. Set it to +4 for professional audio sources.*
- *Level Meters — EXPANDER metering uses only Peak meter ballistics, but in all other regards, they operate like SOLOIST Level Meters. In particular, there's still 6 dB of headroom when the red LED lights. Aim to get only the yellow LEDs to light for typical recording applications.*

EXPANDER Back Panel

Expander back panel connections are shown in Figure 11.

Figure 11.   EXPANDER Back Panel
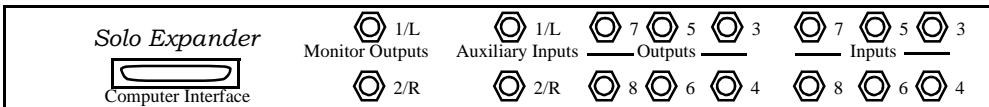
Inputs — *Use these line inputs for any line-level signal. Adjust the input sensitivity if necessary with the +4/−10 switch. See Level Meter Groups.*

Auxiliary Inputs — *connect directly to the EXPANDER's Stereo Monitor Mix.*

Outputs — *The individual outputs of the EXPANDER's D/A Converters are available at these plugs.*

Monitor Outputs — *The combined outputs of the Input Monitor Volume control, Auxiliary Inputs and the Computer Monitor Volume control are routed to these plugs. For convenient monitoring, connect these outputs to the Auxiliary Inputs on your SOLOIST.*

Solo-o-meter

The Solo-o-Meter is a utility program that allows control and monitoring of several of SOLOIST's parameters.

Windows users: The Solo-o-Meter's metering function uses a lot of computing power. Turn it off if you don't need it.

Installation

Windows: Click "Install the Solo utility programs" on the SOLOIST CD, and follow the install wizard.

Mac: Drag the Solo-O-Meter icon to your System folder>Apple menu items, or wherever you prefer.

Controls
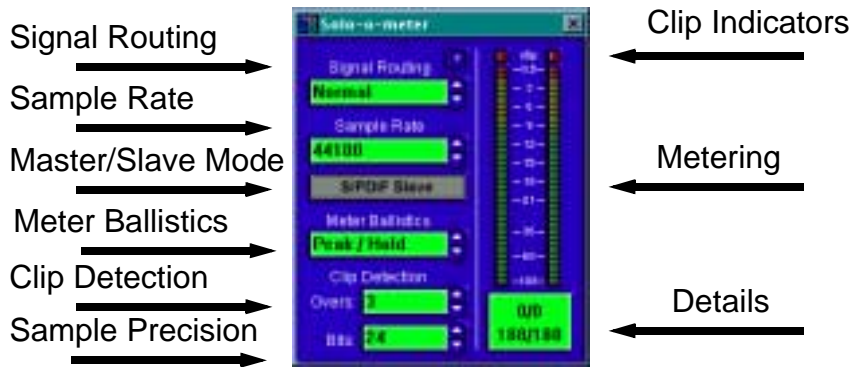
Signal Routing — Five routing modes are available however, only two of them are of interest to SOLOIST users, the remainder are only for use with the SeaSound SOLO. The two which can be used with the SOLOIST are:

- **Normal** — (Default) Digital audio routed from your audio software to the SOLOIST Out Port is sent to the SOLOIST D/A Converters. Digital audio routed from the SOLOIST A/D Converters is sent to the SOLOIST In Port.

- **Converter** — The Solo-o-meter receives input from the SOLOIST (if it is in record mode). You can use this to test whether your computer is actually receiving audio samples from the SOLOIST. See "Troubleshooting" on page 32.

Don't forget to set the Solo-o-meter back to Normal mode before trying to use your audio software again. The SOLOIST system does not send or receive any signals to or from your audio software in Converter mode.

Sample Rate Control — This control is only useful with the SeaSound SOLO.

Master/Slave Mode — This control is only useful with the SeaSound SOLO.

Meter Ballistics — (Default: Peak Program) The Level Meters can model the ballistics of several types of standard audio VU meters. The current version supports two modes: Peak Program and Peak Hold. See Meter Ballistics.

Clip Detection — The clip detector displays when the digital input signal is clipping. You can set the threshold yourself: **Overs** — sets the number of consecutive clipped samples required to light the Clip Indicators.

Bits — (Default: 16) sets the number of bits per sample. Set this to match your recording application's bits-per-sample resolution (typically 16 or 24 bits).

Clip Indicators — The top segments of the Level Meters light to indicate that clipping has been detected based on the number of Overs. They stay lit until cleared by clicking them with the mouse. This way you can do a recording and check afterwards to see if there was any clipping.

Level Meters — The Level Meters indicate signal strength. Green segments indicate low-amplitude signals; yellow indicate nominal level; red indicate danger of clipping. If the Clip Indicators are lit, clipping has definitely happened.

Details — There are two fields in this indicator: The first line displays the maximum number of consecutive Overs (clipped samples) encountered since the last time you cleared the Clip Indicators. This is useful to see how many times clipping occurred while you weren't watching the meters. The second line indicates the current meter level in dB.

Troubleshooting

Computers are complex devices, and while most of the time the SOLOIST will work just fine right out of the box, complications sometimes arise. Despite its high-quality performance, the SOLOIST places little burden on the computer processing resources. More than likely, the problem will be in one of the following areas:

- Improper settings of SOLOIST knobs and switches
- Improper analog cable connections
- Improper installation of the PCI card
- Improper installation of SOLOIST drivers
- Improper configuration of audio software
- Improper selection of default playback/recording device.

We have yet to encounter a situation where we couldn't get a SOLOIST working, so don't panic.

If the following steps don't solve the problem, call our Technical Support line at (415) 485-3788 during normal business hours, Monday through Friday 9:00am to 5:00pm, PST.

We pride ourselves on fast, courteous, knowledgeable response.

General Troubleshooting

Most problems can be solved by following these instructions for either Mac or Windows installations.

1. Verify that the SOLOIST is receiving an input signal.
    a. Plug a known-good signal into an input on the front of the SOLOIST.
    b. Make sure there is an audio signal on the cable coming into the SOLOIST, perhaps by first playing the audio through your control room monitors directly.
    c. Turn the Trim, Preamp Level and Mon Pan controls all to 12 o'clock.

2. Switch on the Record Mode Switch so the Rec LED lights. This sends the selected Analog Inputs to the Level Meters. Set the Meter Source to Input. Verify that the Level Meters respond to the signal. Adjust the level of the Analog Inputs to a nominal level.

3. On your computer, launch the Solo-o-meter application. Set the Signal Routing to Converters. If the Solo-o-meter's Level Meters show activity which matches the Level Meters on the front of the SOLOIST, then digital audio is getting into your computer from the SOLOIST.

4. Check the Solo-o-meter's settings.

    a. Set Signal Routing back to Normal mode.
    b. Darken the Master/Slave Mode control so the SOLOIST is in Master Mode.

5. Exit the Solo-o-meter, run your audio software again. Be sure it is selecting the correct Audio Ports, usually SOLOIST Out Port for playback and SOLOIST In Port for recording.

If the above steps fail to correct the problem, or if you get signal to the SOLOIST's Level Meters but no signal to the Solo-o-meter when Signal Routing is set to Computer, there may be a software driver or hardware installation problem. Proceed to platform-specific troubleshooting, below.

Windows Troubleshooting

The most likely Windows-based problems are as follows:

*   The PCI card is not fully seated into its slot on the motherboard. Turn off power, and unplug the computer; check for a proper fit, and reinsert or realign as necessary.

*   The cable between the PCI card and the SOLOIST is not secure. Turn off power, and tighten the connector screws all the way.

*   Miss-set controls. Check your audio software's settings to be sure it is set to receive input from the SOLOIST.

*   Audio software is not set up properly to communicate with the SOLOIST. Check your audio software's settings to be sure it is set to receive input from the SOLOIST. Check the software manual carefully to see how to send and receive signals from sound cards.

*   Drivers are not installed or should be updated. To verify that the SOLOIST has been properly installed, do the following:

    a. Right-click on My Computer, select Properties, then select Device Manager.
    b. Click the "+" sign by "Sound, video and game controllers." One of the devices listed there should be the SOLOIST.
    c. If the SOLOIST icon has an "X" or an "!" over it, there is a driver problem. Otherwise...
    d. Select the SOLOIST so it is highlighted and then press the Properties button.

e. Under the "General" tab, the "Device status" should read "This device is working properly." If it says anything else, the hardware or software is not installed correctly.

f. The "Device usage" checkbox should *not* be checked, or the device is disabled.

g. Click the "Resources" tab and check that the "Conflicting Devices" list reads "No conflicts," otherwise, the hardware has a conflict with another device.

h. Click "Cancel" to return to the Device Manager.

If you suspect software driver problems, you can remove and reinstall the drivers as follows.

a. Exit all applications running on your computer except Device Manager.

b. Select the SOLOIST so it is highlighted.

c. Press the Remove button.

d. Windows will remove the device, then ask you to reboot the computer.

e. When it has rebooted, it will once again go through the driver installation process described in "Installing a New SOLOIST + EXPANDER System" on page 3.

Check http://www.seasound.com for updated drivers for Mac or PC. Drivers are often updated to reflect changes in other programs, increase functionality, or fix bugs.

Other computer problems can impact the SOLOIST's functions. Before getting into specific troubleshooting techniques, let's look at some of the broader problems associated with computer operating systems.

PCI bus problems — Some video cards, especially those designed for optimum game performance, hog the PCI bus, starving other devices such as the SOLOIST. As this bus is also how audio cards communicate with the computer, video cards can actually affect the efficiency of audio software. The best solution is to use a graphics card that goes in the motherboard's AGP slot (as found on most recent computers). This will also give improved graphics performance. If you're stuck with a PCI type video card, low-cost cards are often better for audio than "high-performance" types. Video acceleration can also be turned down, or off if necessary in the System Control Panel. Go to Start>Settings>Control Panels>System, then Perfomance>Graphics. Adjust the slider to reduce graphics acceleration.

Interrupt Request (IRQ) conflicts — There are only so many interrupt request lines available in a PC. When the system boots, Windows assigns PCI cards to share IRQ lines if there are not enough to go around. With well-behaved systems, devices can share IRQs without problems, but it is still preferable for audio devices to have their own IRQs. Sometimes one device which shares an IRQ with the SOLOIST may prevent the SOLOIST from getting the computer's attention when it needs to send a buffer of audio samples. The SOLOIST will appear to be hung. Often you can correct the problem by rearranging the order of the PCI cards in your computer, or by disabling a conflicting device using the Device Manager. If you suspect you are having IRQ conflicts, get help

from a qualified professional or contact SeaSound Technical Support, since the steps required go beyond what can be described here.

Other common problems include the following:

Problem	Solution
After installing the SOLOIST PCI card, one or more peripheral devices no longer functions.	Possible interrupt (IRQ) conflict. Remove or disable any devices you don't need such as modems, other sound cards, etc. You can disable devices as follows: Open the Device Manager, double-click on the device, and its properties dialog will appear. Under the General tab, check "Disable In This Hardware Profile."
The System crashes or hangs after installation of drivers, or upon playback and record.	Try removing the PCI card, then reinstall the drivers before reinstalling the card. There may also be a possible interrupt conflict (see above).
After installing the SOLOIST and restarting the computer, Windows reports New Hardware and wants you to load drivers for hardware you've previously installed.	If you've moved a card to a different slot during installation, Windows may no longer recognize that card. Reinstall the driver.
After installing the SOLOIST, the computer does not recognize it in the Device Manager.	Drivers are not loaded correctly, reinstall them. Try putting the PCI card in a different slot.
No sound on playback or record.	Check that drivers were installed correctly. Go to Device Manger and make sure there is not a yellow triangle or question mark by the SOLOIST audio device. Check that the SOLOIST is chosen as the Preferred Audio Device in the Multimedia control panel. Also check the Solo-o-Meter settings.

Problem	Solution
Project is playing back at half speed.	Go to Start > Settings > Control Panel > Multimedia > Audio. Check the "Use preferred devices only" box to ensure proper playback.
No signal at input or output.	Restart audio software. Triple-check all your cable connections; speakers, computer interface cable, and audio in/out cables. Make sure the Trim and/or Volumes on the SOLOIST channels are turned up. Also check the Solo-o-Meter settings.
Pops, clicks, and/or memory problems.	Turn video acceleration down or off, and set Virtual Memory to no more than twice the amount of RAM in your system. Use the same setting for Minimum and Maximum.

Mac Troubleshooting

- Extension conflicts – In this case, drivers for two devices try to access the same computer resources. The Macintosh Extensions Manager is the best way to resolve these conflicts. If the computer behaves unpredictably or refuses to boot, first determine if an extension conflict is the problem. Do this as follows:

    a. Shutdown the Mac and Restart while holding down the Shift key. The Mac will indicate that extensions are off while booting.

    b. If the computer boots properly with extensions off, then there must be an extension conflict.

    c. Go to the Apple Menu > Control Panels > Extensions Manager. Disable all extensions other than those indicated as being part of the Apple OS and the SeaSound extension. Save this under a different name, such as "Extensions Test."

    d. Reboot normally (don't hold down the Shift key). Verify that the SOLOIST works. If not, it's time to call Tech Support so we can walk you through a solution. Otherwise...

    e. Return to the Extensions Manager and turn on half of the extensions you normally use, then reboot.

    f. If there is no problem, continue turning extensions on until the problem arises again.

    g. If there is a problem, start turning extensions off until the problem goes away again.

This should help narrow down which extension is causing the conflict: If a problem occurs, you know the conflict is between SOLOIST and one of the extensions you turned on. Turn off half of that group of extensions and test again. Continue in this manner until

you isolate the offending extension or extensions. You can then create a custom setup in Extensions Manager for SOLOIST that turns on the SeaSound extension and all other extensions except the offending extension. Also check the Internet to see if there is a revised version of the conflicting extension, as that may solve the problem.

- Preferences file trashing – If the SOLOIST or the program running with the SOLOIST starts behaving mysteriously for no obvious reason, the Preferences file may be corrupted. Drag any associated preferences files into the trash. The program will generate a new Preferences file the next time you run the application.

Other common Mac problems include:

Problem	Solution
No audio on playback	Check to see that the SOLOIST extension is enabled in the extensions manager. If not, enable it and restart the computer.
No output sound	Check all cabling and make sure volumes are up on the SOLOIST.
No sound control panel	Usually found in the apple extra folder. If not, Look in your Mac OS install CD.

Recording Setups

The SOLOIST's inputs and outputs provide a multitude of high-quality recording solutions whether your application is a home or project studio or a large-scale professional system.

Basic Mic Record/Playback System

The easiest setup is just to use the microphone and headphone jacks on the front of the SOLOIST.
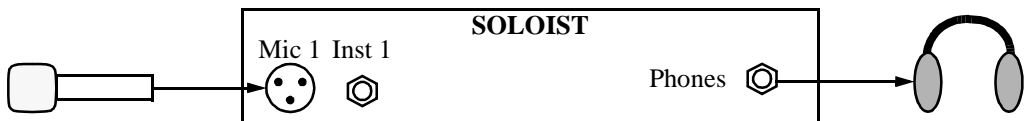
Basic Line-level Record/Playback System

You can hook up your SOLOIST to receive line-level inputs such as a synthesizer, CD player, mixer output, etc. and hear the result over monitor speakers.
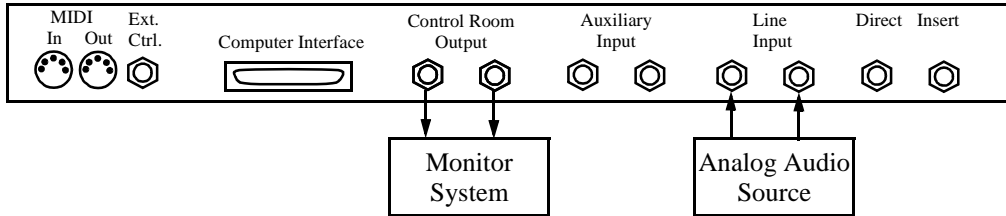
SOLOIST Plus Sound Card

The SOLOIST can coexist with other sound cards in your computer. For instance, you can hook up a sound card which has an on-board MIDI synthesizer you like to the SOLOIST's Line Inputs. Then, using sequencer software that can control both MIDI tracks and audio tracks, the SOLOIST can monitor the output of both. All that's needed is the setup shown in "Basic Line-level Record/Playback System" on page 38.

When you are satisfied with the mix of MIDI and audio and want to master it, simply record-enable the Line Inputs on the SOLOIST, and record-enable audio tracks in your sequencer software; the SOLOIST's digital output will supply the sequencer with a high-quality mix of the MIDI and audio tracks which it can simultaneously record. You can monitor all this simultaneously to verify that you are getting what you want.

Recording SOLOIST to a Master Recorder

Connect the SOLOIST's Control Room Outputs to the analog inputs of your mastering recorder, such as a DAT or stand-alone CD-R. You can still monitor the process by connecting your monitoring system to the Headphone Jack.
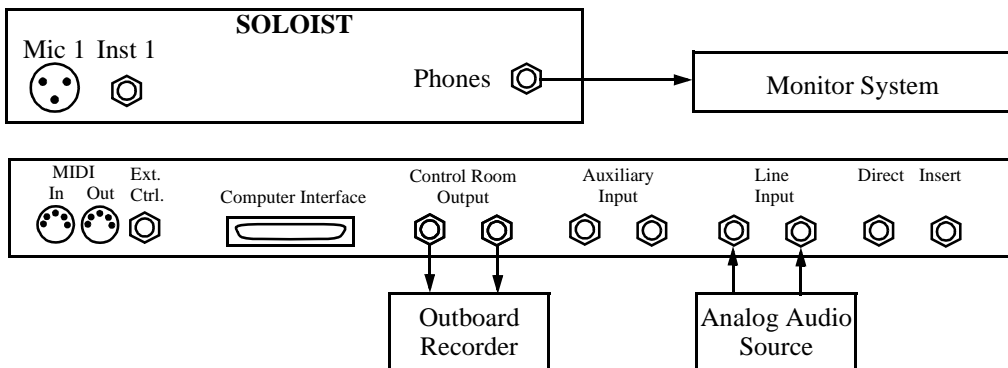
SOLOIST Plus MIDI Keyboard

Your SOLOIST comes with MIDI Jacks for attaching outboard synthesizers and keyboards. A typical setup is shown below.
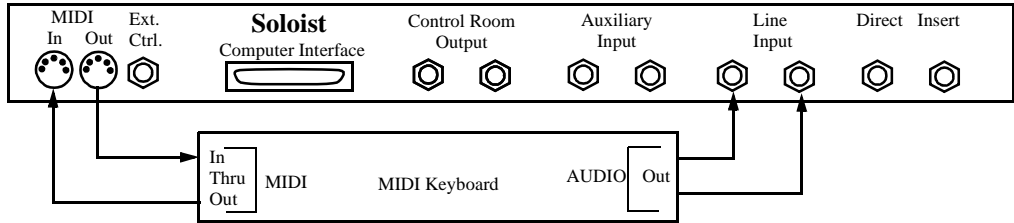
Routing SOLOIST + EXPANDER

If you also purchased an EXPANDER, you can use its inputs and outputs to do sophisticated multi-track recording and editing. Here are but two of an infinite number of scenarios:

- *Minimal — route additional line level inputs and outputs directly to the EXPANDER. That's it! Just select the appropriate EXPANDER audio port in your audio application, and you are on your way to multitrack recording.*

- *Microphone recording — You can use an EXPANDER for multi-track recording from additional microphones by connecting it's Inputs to a high-quality mixing console output. Tip: connect the console's direct outputs to the EXPANDER's Inputs. This uses the console only as a microphone preamplifier, avoiding the noise all mixers introduce in later stages, and preserves your inputs as separate signals.*

- *Monitoring — You can use the Auxiliary Inputs of the SOLOIST to mix the Monitor Outputs from the EXPANDER with the output of the SOLOIST, as shown below. This way, EXPANDER output will be added automatically to SOLOIST output.*
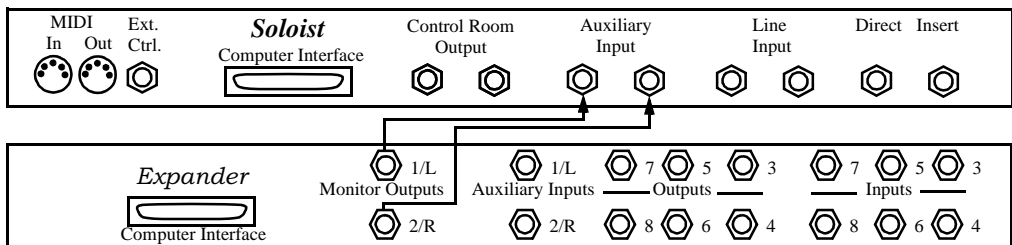
Advanced Applications

This section contains advanced applications for the SOLOIST. It combines information from many other sections of the manual into one place.

Using Inserts

To use a compressor, EQ, or any processing you wish to record, SOLOIST provides Preamp Insert. These inserts follow the Trim controls, but come before the Preamp Level controls.

Using the inserts requires a special insert cable (obtainable at music stores), shown in Figure 12. One end of the cable has a 1/4" TRS (tip-ring-sleeve) plug which connects into the SOLOIST Insert jack. Two cables emerge from this plug, one carrying the SOLOIST's *send* signal, the other carrying the effects *return* signal.

Plug the TRS side of the cable into the Insert jack of the SOLOIST's Preamp channel you wish to process. Then plug the TS cables into the processor. Standard insert cables are labeled "tip send, ring return." Most often, the black end is *send* and the red end is *return*, which is also how the SOLOIST is wired. Attach the *send* to the effects input and the *return* to the effects output.

Figure 12.   Insert Cable

TRS Connector   TS Send Connector

TS Return Connector

Because the Inserts are after the preamplifier, you can use line-level effects with low-level signals such as microphones or guitar, because the preamplifier will raise the guitar to line level.

See Preamp Insert for more information.

Figure 13.   Using Inserts
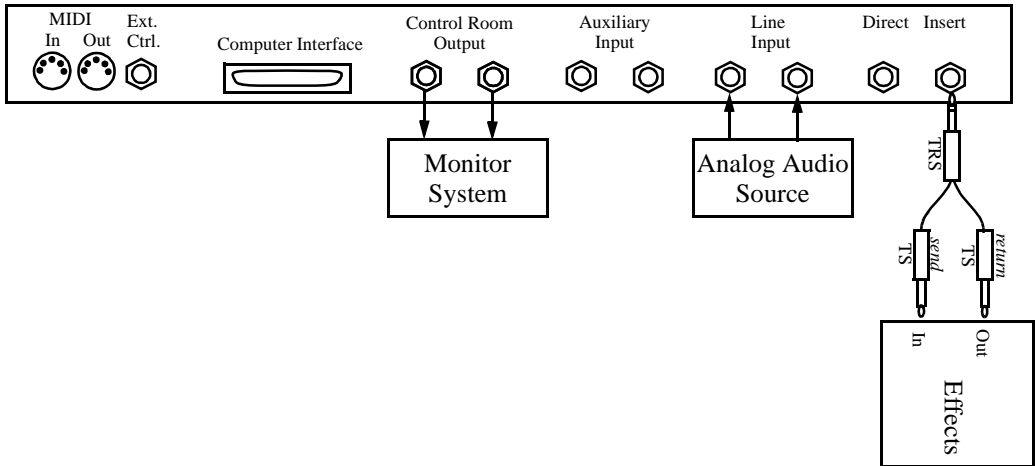
Using Direct Outputs

To monitor effects such as reverb or delay without recording them, the SOLOIST provides Direct Output and Auxiliary Inputs. Take the signal from the Direct Output of the SOLOIST's Preamp you wish to process, and plug it into your outboard effects processor. Then return the signal to the SOLOIST's Auxiliary Inputs. The mix of wet to dry signal and the volume can be adjusted on the outboard processor. The SOLOIST's Auxiliary Inputs feed the Stereo Monitor Mixer of the SOLOIST, and are routed from there to the Control Room Outputs and Headphone Jack.

Figure 14.   Using Direct Outs
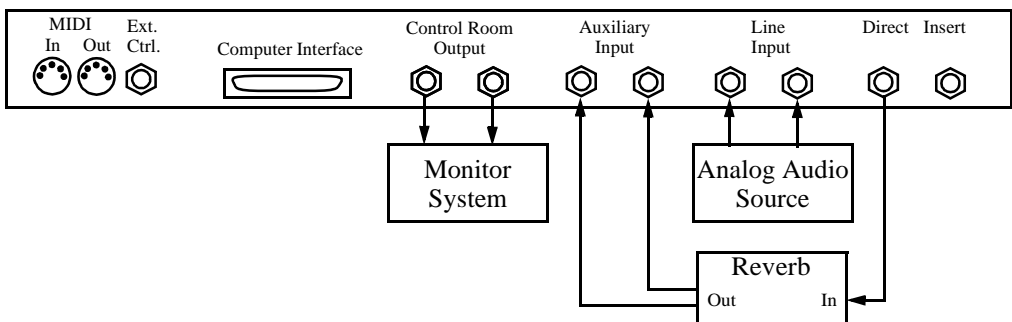
If you wish to have more control over the processed signal, you may want to return the signal to the SOLOIST's Line Inputs. To record and blend the dry signal with the wet signal, engage the Record Mode Switch on the Line Inputs.

Sub-mixer

For production rooms with multiple audio sources such as samplers and sound modules, a sub-mixer can be used in conjunction with the SOLOIST. There are a number of ways to return the signal from the sub-mixer to the SOLOIST. Here is one example.

Take the monitor outputs of the sub-mixer and plug them into the Auxiliary Inputs of the SOLOIST. This only works for monitoring the sub-mixer because the Auxiliary Inputs do not go to the A/D Converters.

Figure 15.   Using a Sub-mixer
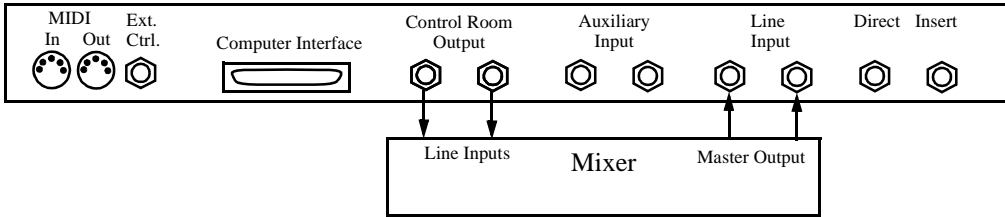
When you need to record the signal from the sub-mixer, record-enable a track in your audio software and switch on the Record Mode Switch on the selected Line Inputs of the SOLOIST.

SOLO Block Diagram
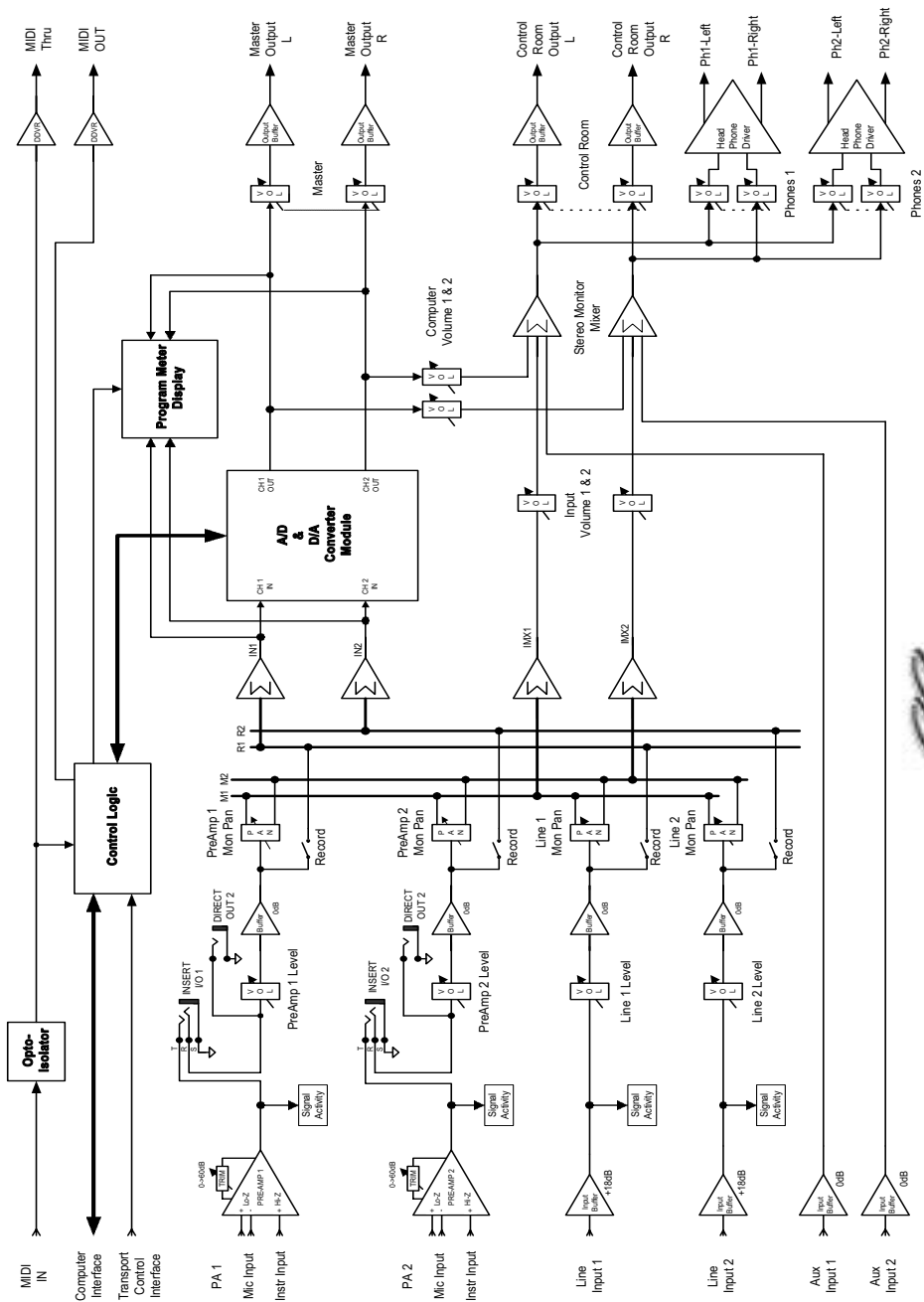
EXPANDER Block Diagram

SeaSound
EXPANDER
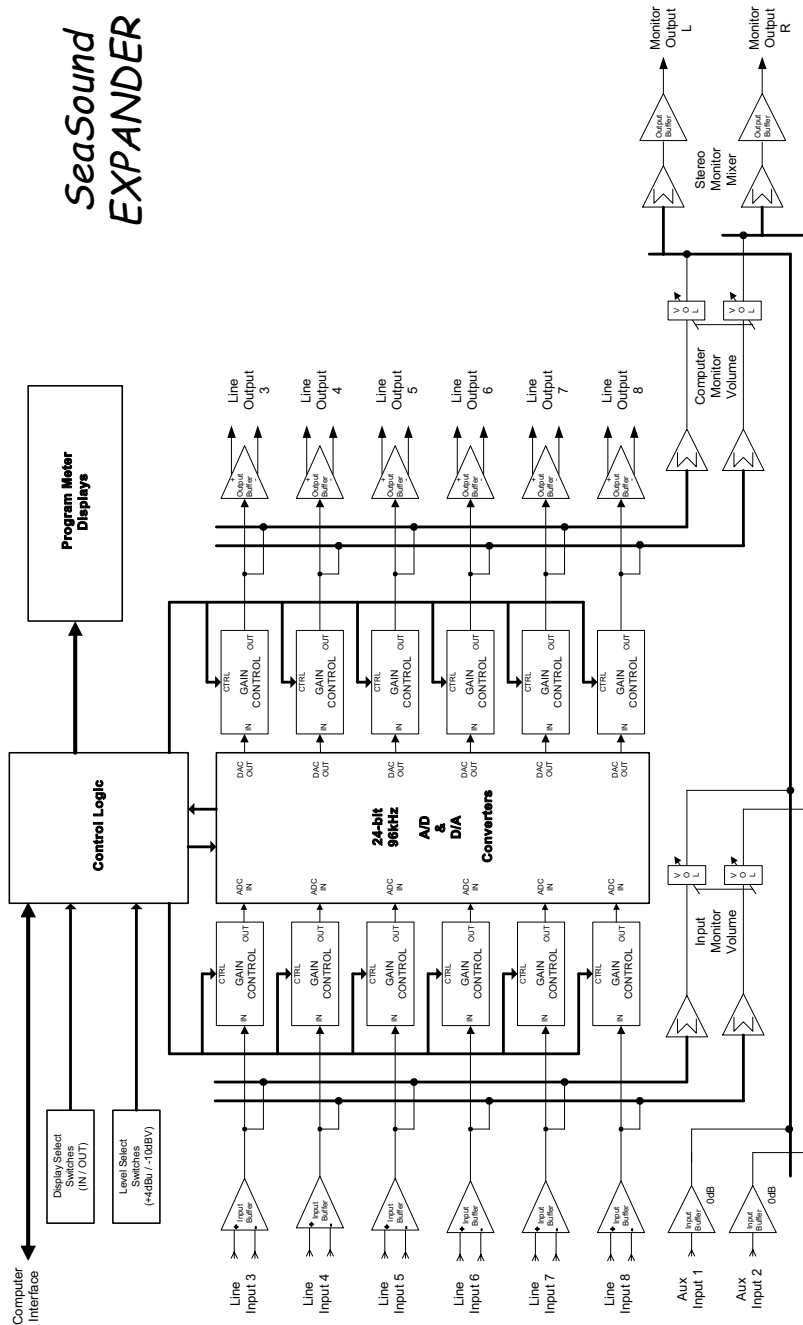
SOLOIST Block Diagram

Soloist EX

1.9

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