

# ALESIS

## AI-1

# Reference Manual

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# CHAPTER 1: INTRODUCTION

## 1.0 ABOUT THE AI-1

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Congratulations! You've just purchased a powerful tool that will enhance your ADAT system with incredible digital audio routing flexibility. The AI-1 Digital Interface and Sample Rate Converter provides you a way of routing any two ADAT tracks to another digital recording system, or the other way around, and will convert the sampling rate as needed. The AI-1 is essential for either recording digital audio from other sources onto ADAT, or mixing down a 2 track mix from ADAT to a DAT machine or CD recorder, all while remaining in the digital domain. Here are some of the features the AI-1 will provide you:

- **High quality, dual-channel digital interface.** The AI-1 provides the connection between AES/EBU, S/PDIF and ADAT digital formats. With it, you can interface your ADAT digital audio with various professional and consumer digital audio products (such as DAT and CD recorders, and digital audio workstations) with the assurance that the audio never leaves the digital domain.
- **Sample rate conversion.** The AI-1 can automatically detect the sampling rate of an incoming digital audio source. When you want to convert that source, it will transform a 44.1kHz clock to 48kHz, or vice-versa. When routing ADAT digital audio to another digital destination, the AI-1 can convert the ADAT's 48kHz sample rate to 44.1kHz (this is especially useful for creating a mix that's ready for transfer to CD).
- **Sample accurate syncing capabilities.** Using ADAT's exclusive Proprietary Synchronization Interface, the AI-1 keeps perfect time with the system. Each ADAT tape is "formatted" with a proprietary Alesis time code that is much more accurate than SMPTE or other time code systems. This process time-stamps the tape to an incredible single-sample accuracy; that is, 1/48,000th of a second. The AI-1 uses the ADAT's timecode to keep perfectly synchronized while transferring digital audio.
- **Simple to use.** The AI-1's front panel is extremely easy to understand and operate. Just select the source, destination,

track(s) and the sampling rate...and you're up and running!  
With the BRC Master Remote Control, it's even easier since all AI-1 controls are available from the BRC's Digital I/O edit menu.

- **Optic digital interface.** ADAT's Proprietary Multichannel Optic Digital Interface carries up to eight tracks simultaneously via optic cable, allowing for perfect, degradation-free digital dubbing between ADATs. With analog recording, bouncing tracks or backing up from one multitrack to another loses one generation, which adds hiss and distortion. With digital recording, such procedures will produce a "clone" of the original. This makes it easy to create extra copies of tracks or safety copies of entire tapes, or make multiple copies for distribution. The AI-1 lets you choose a pair of tracks from a single ADAT, and output them to the AES/EBU and S/PDIF connections. This allows for direct digital connection to and from other digital audio recorders, DAT recorders, CDs, hard disk recorders, synthesizers, and more.
- **Fast and easy hookup.** Connection of the AI-1 is accomplished via fiber optic digital audio cables, which connect the AI-1 to and from a single ADAT or multiple ADAT system. Connection to AES/EBU devices is provided via XLR type connectors. Connection to S/PDIF devices is provided by both fiber optic and RCA connectors.  
When used with the BRC and multiple ADATs, the Sync Out of the last ADAT in the chain is connected to the Sync In of the AI-1, using a 9 pin style sync cable. The last ADAT's digital out is connected to the AI-1's digital in, and the AI-1's digital out is connected to the digital in of the first ADAT, using fiber optic cables.  
When the BRC is turned on, it automatically becomes the system's master, and assigns each ADAT an identification number, from first to last in the chain. The BRC also automatically checks to see if an AI-1 is connected, and provides remote control over all of its functions.
- **Voltage tolerant power supply.** The AI-1 accepts any AC voltage between 90 and 250 volts.

For more information on digital recording, see Appendix 1 in the ADAT manual. Appendix 2 in the ADAT manual is a glossary of

digital recording terms that may be helpful as you read this manual.

## 1.1 IMPORTANT NOTES ABOUT THIS MANUAL

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This manual has been designed as a reference to assist the recording professional in learning the basic operation of the AI-1. All functions are explained in a clear manner, using step-by-step instructions and illustrations for setting up and performing various operations.

However, it is assumed that you already have some understanding of multitrack recording and digital audio in general. It also assumes you have read the ADAT manual (and the BRC manual, if you are using the BRC) and comprehend its/their operation.

If you have little or no previous experience with multitrack recording or working with digital audio, please read the second manual that comes with the BRC Master Remote Control, entitled BRC Concepts and Applications. It will give you an understanding of how an ADAT/BRC/AI-1 system functions in real world applications, and the types of things you may expect. It explains why certain features are significant, and how to employ them in your recording routine. Most importantly, there are simple tutorials for commonly performed operations, which illustrate exactly how to put it all together.

In this manual, all connectors, buttons and LEDs are spelled with all capital letters (such as S/PDIF LED button or SOURCE ADAT button).

## 1.2 OVERVIEW OF MAIN FUNCTIONS

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Here is a brief rundown of the AI-1's main functions:

### **1.2A Digital Interface**

The AI-1 provides conversion between ADAT, AES/EBU and S/PDIF digital formats. This means you can record from other digital audio devices onto ADAT, or vice-versa, without ever

leaving the digital domain. The AI-1 can be used to transfer digital audio back and forth between DAT machines, CD player/ recorders and digital audio workstations. Whenever you transfer digital audio through the AI-1, the result is a perfect, exact duplicate of the original with no degradation or change in audio quality.

## **1.2B Digital Audio Synchronization**

All digital audio protocols, whether Alesis' Proprietary Multichannel Optical Digital Interface or AES/EBU format, transmit data plus a timing clock that dictates the speed at which the data will be recorded or played back. This timing clock is related to the sample rate. The ADAT speed is controlled automatically to conform to this sample rate whenever its DIGITAL IN LED is lit. Therefore, the PITCH controls on the ADAT have no effect when performing digital transfers onto ADAT.

## **1.2C Sample Rate Conversion**

The AI-1 also provides conversion between 48kHz and 44.1kHz sampling rates. If you are recording onto ADAT from a source that is running at 44.1kHz, you can either record at the same rate, or convert it to ADAT's superior 48kHz sampling rate. One of the best ways to use ADAT is not only as a multitrack recorder, but as a mixdown recorder as well, using two tracks to mix to. Using the AI-1, you can transfer the two-track mix to DAT or a CD recorder and simultaneously convert the audio to the required 44.1kHz sample rate.

Because of its superior sound quality, it is always better to record onto ADAT at the 48kHz rate, even when the original audio was recorded at 44.1kHz. Contrary to what many people think, converting 44.1kHz audio to 48kHz does not change the sound quality in any way. If, however, you choose to not to convert such an audio source and record it onto ADAT at 44.1kHz, don't be surprised when you play back the ADAT recording and hear the music a little faster and transposed up a bit. This is because 48kHz is literally a faster sampling rate than 44.1kHz. When the AI-1 sends 44.1kHz audio to ADAT, the ADAT's motor slows down to match the rate of the incoming audio. If you are monitoring other pre-recorded tracks on the same machine, you'll notice that they are now slower and transposed down.

When you play back the audio once it is on ADAT, it will adjust back to its normal speed and of course sound sharp...roughly 147 cents sharp. If you want to hear the audio on ADAT at the original pitch and speed, bring the ADAT's pitch setting down to -147. Doing so will temporarily show "44.1" in the ADAT's LED display, indicating that you are now running at the equivalent to the 44.1kHz rate.

## 1.3 BASIC OPERATION

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When power is first turned on, the AI-1 recalls the most recent mode of operation (the last mode before power down). The mode is indicated by the LEDs in the control buttons. These buttons are used to change the operating mode. The ADAT CHANNEL buttons, the DESTINATION RATE buttons, and the SOURCE and DESTINATION buttons define the possible uses of the AI-1.

### 1.3A Source

The three SOURCE buttons (ADAT, AES/EBU, and S/PDIF) are used to select the digital source. When one of these buttons is pressed, its LED will be lit indicating it has been selected. Only one of the sources can be selected at a time; the corresponding format input will be enabled, while the others will be disabled.

Here are descriptions of the three Source possibilities:

- ADAT: This allows two tracks from a connected ADAT to be transmitted to another ADAT, or an AES/EBU or S/PDIF device (depending on the Destination setting).
- AES/EBU: This allows two tracks from a connected AES/EBU device to be recorded to an ADAT, or another AES/EBU device, or an S/PDIF device (depending on the Destination setting).
- S/PDIF: This allows two tracks from a connected S/PDIF device to be recorded to an ADAT, or another S/PDIF device, or an AES/EBU device (depending on the Destination setting).

If the selected Source button's LED lights solid, it means that a



device is connected, and the AI-1 is receiving its clock information. If the selected Source button's LED flashes, it means that either no device is connected to the selected input, or the clock information is not being provided by the source to the AI-1, or the clock information being provided by the source is neither 48kHz or 44.1kHz (see section 1.3D)

### **1.3B Destination**

The three DESTINATION buttons (ADAT, AES/EBU, and S/PDIF) are used to select the digital destination. When one of these buttons is pressed, its LED will be lit indicating it has been selected. Only one of the destinations can be selected at a time; the corresponding format output will be enabled, while the others will be disabled.

Here are descriptions of the three Destination possibilities:

- ADAT: This routes the AI-1 output to a connected ADAT for recording from another ADAT, or an AES/EBU or S/PDIF device (depending on the Source setting).
- AES/EBU: This routes the AI-1 output to a connected AES/EBU device for recording from an ADAT, or another AES/EBU device, or an S/PDIF device (depending on the Source setting).
- S/PDIF: This routes the AI-1 output to a connected S/PDIF device for recording from an ADAT, or another S/PDIF device, or an AES/EBU device (depending on the Source setting).

### **1.3C ADAT Channel**

The four ADAT CHANNEL buttons (1/2, 3/4, 5/6, and 7/8) are used to select two channels on which an ADAT will transmit or receive digital audio. When one of these buttons is pressed, its LED will be lit indicating it has been selected. Only the four defined channel groupings (1 & 2, 3 & 4, 5 & 6, or 7 & 8) may be selected from the front panel.

In most cases, only one of the four ADAT CHANNEL buttons will be lit, indicating the two channels on which an ADAT will transmit or receive audio. If both the Source and Destination are set to ADAT, all four ADAT CHANNEL buttons will be lit indicating that

all eight channels of the ADAT digital bus are transferred.

When using the BRC Master Remote Control, any two channels can be selected, in which case the ADAT CHANNEL button(s) corresponding to each selected channel will be lit. Example: if the BRC is used to select channels 2 and 5 as the ADAT channels, two of the AI-1's ADAT CHANNEL buttons (the 1/2 and 5/6 buttons) will be lit indicating the groupings which contain the selected channels.

### **1.3D Destination Rate**

The DESTINATION RATE buttons (48kHz and 44.1kHz) are used to select the AI-1's sample clock output. When one of these buttons is pressed, its LED will be lit indicating it has been selected.

Only one of the two DESTINATION RATE buttons will be lit to indicate the output sampling rate. The input rate is automatically set to match that of the digital source (i.e. whatever rate the source uses, the AI-1 will automatically detect it and adjust the sampling rate accordingly).

Here are descriptions of the two Destination Rate possibilities:

- 48kHz: If the source rate is 48kHz, this button's LED will be lit indicating the AI-1's sample rate. If the source rate is 44.1kHz, pressing the 48kHz button will convert the source's sample rate to 48kHz.
- 44.1kHz: If the source rate is 44.1kHz, this button's LED will be lit indicating the AI-1's sample rate. If the source rate is 48kHz, pressing the 44.1kHz button will convert the source's sample rate to 44.1kHz.

*Note:* If the AI-1's Destination is set to ADAT and the source's sample rate is 48kHz, you will not be able to select the 44.1kHz button nor alter the AI-1's output rate. This is because ADAT already uses a 48kHz sample rate, which is of course superior to 44.1kHz.

If the source rate is neither 48kHz or 44.1kHz, the SOURCE button LED corresponding to the source (ADAT, AES/EBU or S/PDIF) will flash, and no sample rate conversion will be allowed. This will be

indicated by the fact that both the 48kHz and 44.1kHz LEDs will be turned off.

# CHAPTER 2: HOOKUP

## 2.0 POWER

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The AI-1 works with *any* AC voltage from 90 to 250 volts, 50 to 60 Hz. This eliminates the need for transformers or voltage switches. The AI-1 comes with a line cord for the destination to which the AI-1 is shipped.

The AI-1's IEC-spec AC cord (do not substitute any other AC cord) is designed to feed an outlet that includes three pins, with the third, round pin connected to ground. The ground connection is an important safety feature designed to keep the chassis of electronic devices such as the AI-1, BRC and ADAT at ground potential. Unfortunately, the presence of a third ground pin does not always indicate that an outlet is properly grounded. Use an AC line tester to determine this. If the outlet is not grounded, consult with a licensed electrician. When AC currents are suspected of being highly unstable in VAC and Hz, a professional power conditioner should be used.

## 2.1 CONNECTION TO ADAT(S)

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### 2.1A Single ADAT

To connect an Alesis AI-1 module, simply use two fiber optic cables to connect the digital ins and outs back and forth between the AI-1 and the ADAT (see figure 1). It is not necessary to connect a sync cable from the ADAT to the AI-1 (or vice-versa) since the ADAT will provide the AI-1 with clock information via the optic digital connection when outputting tracks to an AES/EBU or S/PDIF destination, and the AI-1 will provide clock information to the ADAT via the optic digital connection when recording from an AES/EBU or S/PDIF source.

To connect the AI-1 to a single ADAT:

1. Connect one end of a fiber optic cable into the optic digital output of the ADAT, and the other end to the AI-1's "ADAT"

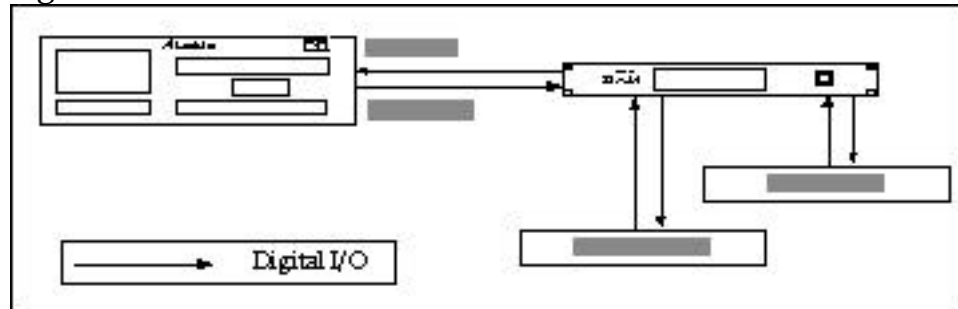
optic digital input;

*Note:* If the other end of a fiber optic cable is disconnected and a signal is being sent through the cable, you will be able to see a red light at the output. This is an LED and not a laser light, so you don't have to worry about damage to your eyes.

2. Connect one end of a fiber optic cable to the AI-1's "ADAT" optic digital output, and the other end to the ADAT's optic digital input.

This last step creates a loop in the digital bus, and thus allows for two-way communication between the ADAT and the AI-1.

Figure 1



## 2.1B Multiple ADATs without the BRC

When using two or more ADATs along with the AI-1, the setup is basically the same as with a single ADAT, except you'll need more cables to accommodate a longer chain of devices (see figure 2). The ADATs must be synchronized together, using dual male, 9-pin D connectors. The AI-1 still uses fiber optic cables to connect to the ADAT's digital bus, but it does not require connecting the synchronization cable, since all sync information is conveyed over the fiber optic cable along with the digital audio.

You might decide to dedicate the AI-1 to just one of the ADATs by connecting the fiber optic cables between them. This would, however, limit you to only transmit/receive data between the AI-1 and only that one ADAT, and would prevent you from bouncing tracks in the digital domain between that ADAT and the other ADATs in your system. By the way, using a BRC solves all of these problems.

In the meantime, you may be tempted to reconnect the AI-1 to a different ADAT when you want to route digital audio to tracks on another machine. However, to avoid a lot of cable swapping, we recommend swapping tapes instead. For example, let's say you have two ADATs, the AI-1 is connected to and from ADAT #1. When you wish to record from an S/PDIF source onto tracks 9 and 10 (ADAT #2), the best and quickest solution is to swap tapes between the two ADATs and record onto tracks 1 and 2. During this time, any pre-recorded tracks may appear on different channels of your mixer (unless you have a sophisticated patch-bay system). But this is a minor inconvenience that lasts only until you have finished recording from the AI-1.

It is recommended that you use the BRC Master Remote Control if you have a multiple ADAT system, due to greater flexibility in digital routing. However, it is possible to incorporate the AI-1 into a multiple ADAT system without the BRC.

To connect the AI-1 to a multiple ADAT system:

- 1.** Connect one end of a shielded dual male, 9-pin D connector to the first ADAT's SYNC OUT jack, and connect the other end of the cable to the SYNC IN jack of the second ADAT;
- 2.** For each additional ADAT slave, connect one end of an additional shielded dual male, 9-pin D connector to the second ADAT slave's SYNC OUT jack, and the other end to the third ADAT slave's SYNC IN jack. Its SYNC OUT jack then connects to the fourth ADAT slave's SYNC IN jack, and so on;
- 3.** Connect one end of a fiber optic cable to the first ADAT's DIGITAL OUT, and connect the other end of the cable to the DIGITAL IN of the second ADAT;

*Note:* If the other end of a fiber optic cable is disconnected and a signal is being sent through the cable, you will be able to see a red light at the output. This is an LED and not a laser light, so you don't have to worry about damage to your eyes.

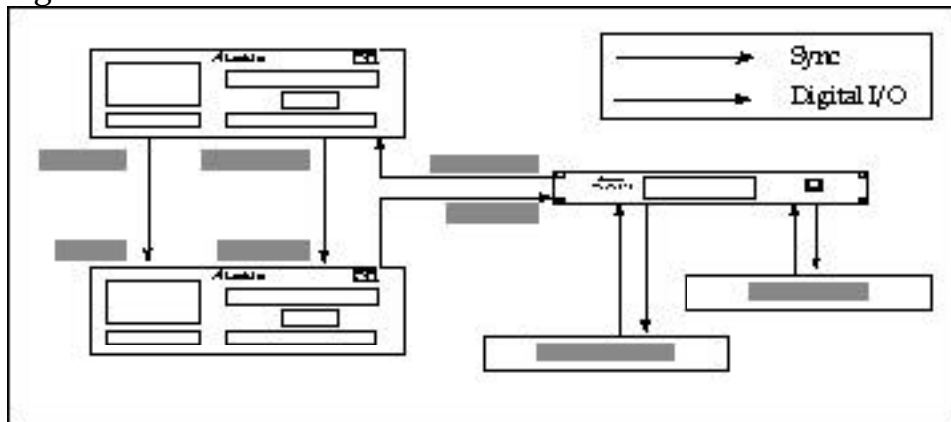
- 4.** For each additional ADAT slave, connect one end of an additional fiber optic cable to the second ADAT slave's DIGITAL

OUT, and the other end to the third ADAT slave's DIGITAL IN. Its DIGITAL OUT then connects to the fourth ADAT slave's DIGITAL IN, and so on;

5. Connect one end of a fiber optic cable to the DIGITAL OUT of the last ADAT in the chain, and connect the other end of the cable to the AI-1's "ADAT" optic DIGITAL IN;
6. Finally, connect one end of a fiber optic cable to the AI-1's "ADAT" optic DIGITAL OUT, and the other end to the optic DIGITAL IN of the first ADAT in the system.

This last step creates a loop in the digital bus, and thus allows for communication between all ADATs and the AI-1.

Figure 2



*Note:* In a multiple ADAT system, if power is turned off on one of the ADATs in the middle of the chain, all ADATs following it will no longer sync to the master ADAT, as the sync information will not pass through a unit that is turned off.

## 2.1C Connecting the BRC

When using the BRC, the AI-1's "ADAT" digital in and out connect between the last ADAT and the first ADAT in the system. In order for transfer of digital audio to be possible, the AI-1 requires synchronization information from the BRC. Synchronization requires a dual male, 9-pin D connector to connect the last ADAT in the system to the AI-1. In addition, a BNC-type connector must be used to connect the 48kHz word clock output of the AI-1 into the

BRC. This is required so that the BRC can synchronize to an AES/EBU or S/PDIF source. Both these connections can be made while power is on or off, and the ADATs do not need to be turned on in any particular order (see figure 3).

To connect the AI-1 to a BRC and a multiple ADAT system:

- 1.** Connect one end of a shielded dual male, 9-pin D connector to the SYNC OUT jack of the last ADAT in the system, and connect the other end of the cable to the SYNC IN jack of the AI-1;
- 2.** Connect one end of a BNC connector to the 48kHz OUT jack on the AI-1, and connect the other end of the cable to the 48kHz IN jack on the BRC;
- 3.** Connect one end of a shielded fiber optic cable into the optic DIGITAL OUT of the last ADAT in the system, and connect the other end of the fiber optic cable to the AI-1's "ADAT" optic DIGITAL IN;

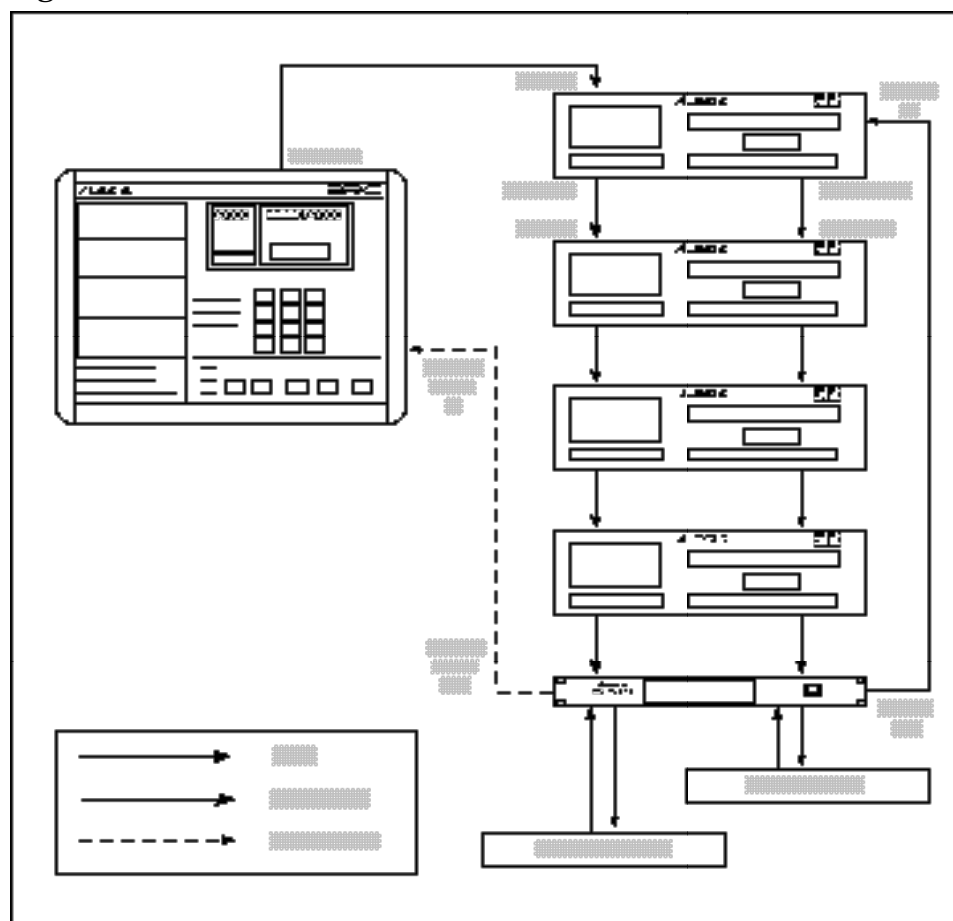
*Note:* If the other end of a fiber optic cable is disconnected and a signal is being sent through the cable, you will be able to see a red light at the output. This is an LED and not a laser light, so you don't have to worry about damage to your eyes.

- 4.** Connect one end of a fiber optic cable to the AI-1's "ADAT" optic DIGITAL OUT, and the other end to the optic DIGITAL IN of the first ADAT in the system.

This last step creates a loop in the digital bus, and thus allows for communication between all ADATs and the AI-1.



Figure 3



*Note:* In a multiple ADAT system, if power is turned off on one of the ADATs in the middle of the chain, all ADATs following it will no longer sync to the BRC, as the sync information will not pass through a unit that is turned off.

## 2.2 AES/EBU AND S/PDIF

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### 2.2A Connecting an AES/EBU Device

Digital routing to and from an AES/EBU device requires XLR type cables. These connections can be made while power is on or off, and the components do not need to be turned on in any particular order.

To connect an AES/EBU device:

1. Connect one end of an XLR cable into the AES/EBU XLR output of the AI-1, and the other end to the XLR input of the AES/EBU device;
2. Connect one end of an XLR cable into the AES/EBU XLR output on the device, and the other end to the AES/EBU XLR input of the AI-1.

### 2.2B Connecting an S/PDIF Device

Digital routing to and from an S/PDIF device requires either fiber optic cables or RCA cables, since the AI-1 provides both these connectors. These connections can be made while power is on or off, and the components do not need to be turned on in any particular order.

To connect an S/PDIF device:

1. Connect one end of a fiber optic cable into the S/PDIF optic output of the AI-1, OR, connect one end of an RCA cable to the S/PDIF RCA output of the AI-1 (depending on which connections are available on the S/PDIF device);
2. Connect the other end of the fiber optic cable to the optic input of the S/PDIF device, OR, connect the other end of the RCA cable to the RCA input of the S/PDIF device;
3. Connect one end of a fiber optic cable into the S/PDIF optic output, OR, connect one end of an RCA cable to the RCA output on the S/PDIF device;

4. Connect the other end of the fiber optic cable to the S/PDIF optic input, OR, connect the other end of the RCA cable to the RCA input of the AI-1.

*Note:* Both the optic and RCA outputs are active when the AI-1's Destination is set to S/PDIF. This means you can route digital audio to two S/PDIF devices simultaneously. When the AI-1's Source is set to S/PDIF, the RCA input has priority over the optic input. If the AI-1 does not detect a device connected to the RCA input (no sample clock present), it will automatically switch over and use the optic input. Since the switch is determined by the presence of a sample clock, you could leave a device connected to the RCA input, and simply turn its power off when you wish to use the optic input.

## 2.3 48 KHZ CLOCK OUT

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The 48kHz output signal is a 75 TTL level square wave output, and is provided via a BNC-type connector. If you are using the BRC Master Remote Control and plan to record onto ADAT from an AES/EBU or S/PDIF source, the 48kHz clock out must be connected to the BRC so that it can be synchronized with the source's clock rate.

## 2.4 POWERING-UP

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Normally, the AI-1 does not need to be powered up in any order for it to work with one or more ADATs. The system can even be connected while the power is on.

When using the BRC as the system's master, however, the order in which the devices are powered-up is important. After all connections have been made, turn on the power of each ADAT in the system, turn on the AI-1, and then turn on the BRC.

For more information on using the BRC, please refer to the BRC Reference Manual.

# CHAPTER 3: TRANSFERRING DIGITAL AUDIO

## 3.0 AI-1 TO ADAT

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Recording from an AES/EBU or S/PDIF source through the AI-1 onto ADAT involves a few very simple steps. First, put the ADAT(s) into Digital In mode by pressing the DIGITAL IN button (the button will be lit). Next, the digital source must be selected. Then, choose the tracks you wish to record to. Finally, adjust the sampling rate, if necessary, to suit your needs.

### 3.0A Source

On the AI-1, you must set the source to either AES/EBU or S/PDIF, depending on the actual source you are recording from. This is done by pressing either the AES/EBU or S/PDIF button in the SOURCE section of the AI-1 front panel. When pressed, the button will either light solid or flash to indicate the source you have selected. Only one of the Source buttons can be selected at a time.

- If the selected Source button's LED lights solid, it means that an AES/EBU or S/PDIF device is connected, and the AI-1 is receiving its clock information. Simultaneously, either the 48kHz or the 44.1kHz Destination Rate LED will light, indicating the source's incoming clock rate.
- If the selected Source button's LED flashes, it means that either no device is connected to the selected input, or the clock information is not being provided by the source to the AI-1, or the clock information provided by the source is neither 48kHz or 44.1kHz.

*Note:* If the Source button's LED flashes, neither one of the Destination Rate buttons will be lit, indicating that the AI-1 does not detect any clock information from the source to synchronize to.

*Note:* The AI-1 provides two types of connectors for S/PDIF devices. When the Source is set to S/PDIF, the AI-1 will first look at the

RCA input for a sample clock reference. If no sample clock is found (because no device is connected, or the connected device is turned off), the AI-1 will then use the fiber optic input.

### **3.0B Selecting Record Tracks**

Once the Source has been determined, the next step is to choose which ADAT tracks are to be used to record the information. This is done by pressing one of the four ADAT CHANNEL buttons on the AI-1 front panel: 1/2, 3/4, 5/6, or 7/8.

When an ADAT CHANNEL button is pressed, its LED will light to indicate that it has been selected. Pressing the 1/2 button selects tracks 1 and 2 as the destination, pressing the 3/4 button selects tracks 3 and 4, and so on.

Since the AI-1's output is always going to the first ADAT in a multiple ADAT system, the digital audio can be recorded onto two of the first eight tracks. In order to route the AI-1's output through the first ADAT to another ADAT in the system, a BRC Master Remote Control must be connected.

It is possible, however, to route digital audio information "through" the first ADAT to a second ADAT connected to it. To do this, you must put both ADATs into Digital Input mode (by pressing the DIGITAL IN button) and put all tracks on the first ADAT into record-ready. By doing so, the first ADAT will route any digital audio information it receives back out to the second ADAT, which in turn can record the information coming from the AI-1. There are two drawbacks to this method. First, a delay of 3 samples will be added to the audio on the second ADAT. Second, you will temporarily be unable to monitor what is on tape on the first ADAT (since it is monitoring the digital input, and not the tape). Using a BRC is the only way to route the AI-1's output to multiple ADATs without any delay.

*Tip:* If you are using a multiple ADAT system without a BRC, we recommend always using the first ADAT in the system to record from the AI-1. If you wish to record information coming from the AI-1 onto the tape in ADAT #2 or #3, etc., it is not necessary to reroute the cables. Instead, you should swap tapes with that ADAT and the first ADAT. This way, you can monitor the first

tape on another ADAT, and you avoid having to reconnect your system.

### **3.0C Destination**

To route the AI-1 to ADAT, set the AI-1's Destination to ADAT by pressing the DESTINATION ADAT button. The button's LED will be lit indicating it has been selected.

### **3.0D Converting Sample Rate**

If the source you are recording from is already using a 48kHz clock, the 48kHz DESTINATION RATE LED will be lit. This is the same clock that ADAT uses, so there is no need to convert the sample rate.

If the source's clock rate is 44.1kHz, the 44.1kHz DESTINATION RATE LED will be lit indicating that the ADAT(s) will synchronize to the source's clock. You now have the option of converting the source's clock rate to 48kHz, or leaving it at 44.1kHz. Either may be done by pressing the 48kHz button (the 48kHz DESTINATION RATE LED will be lit, indicating it has been selected), or simply by leaving it alone (the 44.1kHz LED will remain lit).

If the source's clock rate is something other than 48kHz or 44.1kHz, neither DESTINATION RATE LEDs will be lit, and no sample rate conversion will be permitted. In this case, the ADAT(s) will still synchronize to the incoming source's clock rate.

## **3.1 ADAT TO AI-1**

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The AI-1 can route up to two ADAT tracks at a time to other digital audio recording equipment from other manufacturers, including: multitrack digital recorders, hard disk recorders, digital effects devices, CD recorders and DAT machines. Since the ADAT digital bus is a proprietary multichannel interface, it is necessary to convert the digital audio of the optic bus into a standard that is compatible with other equipment. The two standards supported are AES/EBU and S/PDIF. It might also be necessary to convert the sample rate of the outgoing digital audio. The AI-1 can convert back and forth

between 48kHz and 44.1kHz.

### **3.1A Source**

To route the ADAT to the AI-1, set the AI-1's Source to ADAT by pressing the SOURCE ADAT button. The button's LED will be lit indicating it has been selected.

*Note:* When the AI-1's Source is set to ADAT, the AI-1 links the ADAT optic input to the ADAT optic output, so that digital audio is routed from one ADAT to another. This means that, in a two ADAT system, it is possible to make a digital backup of all eight tracks of ADAT #2 to ADAT #1, while simultaneously routing two tracks from ADAT #2 to either an AES/EBU or S/PDIF device.

### **3.1B Selecting Source Tracks**

You may select a pair of ADAT tracks by pressing one of the four ADAT CHANNEL buttons (1/2, 3/4, 5/6 or 7/8). If the AI-1's Destination is set to AES/EBU or S/PDIF, only one of these four buttons can be selected. If the Destination is set to ADAT, all four button's LEDs will be lit indicating that all eight tracks may be transmitted/received.

### **3.1C Destination**

To select the AI-1's output destination, press one of the three DESTINATION buttons (ADAT, AES/EBU or S/PDIF). The button will be lit to indicate it has been selected. Only one of the Destination buttons can be selected at a time.

*Note:* The AI-1 provides two types of connectors for S/PDIF devices. When the Destination is set to S/PDIF, the digital audio will be sent out both S/PDIF outputs (fiber optic and RCA). Therefore, it is possible to route the AI-1's output to two S/PDIF devices simultaneously.

### **3.1D Converting Sample Rate**

When the Source is set to ADAT, the AI-1's Destination Rate will automatically be set to 48kHz, since this is the sample rate of ADAT. If you wish to output the digital audio from the AI-1 at 44.1kHz, press the 44.1kHz DESTINATION RATE button (its LED will be lit). This can be used to route digital audio from ADAT to a DAT recorder or CD recorder which uses the lower sampling rate.

## 3.2 USING THE BRC

---

The Alesis BRC Master Remote Control can be used to control all of the AI-1's functions. The BRC's DIGITAL I/O button is used to activate and deactivate the AI-1 functions. When the DIGITAL I/O button is enabled, its LED will be lit and the current digital inputs can be recorded to ADAT (the analog inputs will be ignored). The type of digital input that is enabled by this button depends upon the type of digital input that is selected when this function is edited.

If you access the BRC's Edit mode (by pressing the EDIT button) and select DIGITAL I/O, you can control the AI-1's parameters (Source, Destination, Destination Rate, and ADAT tracks to be sent out of the AI-1). However, the DIGITAL I/O button must be enabled for any changes you make to affect the AI-1. If you make changes to the AI-1's settings from the BRC while the DIGITAL I/O button is off, the AI-1 will automatically be updated the next time the DIGITAL I/O button is turned on, so that its setup concurs with the BRC.

### 3.2A Digital Input

To select the type of digital input on the BRC:

1. Press the DIGITAL I/O button to enable the digital bus (the DIGITAL I/O button LED will go on to indicate it is enabled);
2. Press the EDIT button (the EDIT button LED will go on to indicate you are in Edit mode);
3. Press the DIGITAL I/O button;

The display will read:

Digital input: ADAT



... or ...

Digital input:  
AES/EBU

... or ...

Digital input: S/PDIF

4. Use the UP/DOWN buttons to select the digital input that is to be the source for recording: “ADAT”, “AES/EBU” or “S/PDIF” (the corresponding Source LED on the AI-1 will be lit to indicate the current selection);
5. To exit Edit mode, press the EDIT button (the EDIT LED will turn off).

*Note:* If you change the Digital Input setting while the DIGITAL I/O button is off, the AI-1 will not reflect the newly selected digital input. However, the change will automatically be sent to the AI-1 the next time the DIGITAL I/O button is turned on.

### 3.2B Bouncing Tracks Between ADATs

The BRC makes it possible to copy tracks between ADATs without leaving the digital domain. The BRC assumes you have connected the digital bus correctly between all ADATs in the system (see section 2.1C). Digital track bouncing is a feature available regardless of whether an AI-1 is connected, or not.

If the DIGITAL I/O button on the BRC is pressed again when its digital input display reads "ADAT", you advance to the next window where you may select which track(s) will be routed to the digital bus, and thereby sent to any ADAT tracks that are in record when the DIGITAL I/O button is enabled on the BRC. This allows for digital track copying and backups.

To digitally bounce tracks from the BRC:

1. Press the EDIT button (the EDIT button LED will go on to indicate you are in Edit mode);
2. Press the DIGITAL I/O button;

The display will read:

Digital input: ADAT

3. Press the DIGITAL I/O button again while the digital input display reads “ADAT”;

The display will show the following:

Select source with trk  
buttons

All the record and input track LEDs will turn off, as they no longer reflect the record/monitor status. The TRACK INPUT LEDs are now used to reflect the current source tracks.

4. Use the TRACK SELECT buttons to choose the source tracks (that is, the tracks to be assigned to the ADAT digital bus);
  - To select a single source track, press the desired TRACK SELECT button. The track will now be enabled and its green Input LED will be lit. Pressing the same button again will disable that track and turn off the LED. You may now select a different track.
  - If you select a track to be a source that was previously put into record-enable, it will automatically be taken out of record-enable. Once a track has been selected as a source, it cannot be put into record-enable while the DIGITAL I/O button is turned on.
  - If multiple track sources are desired, they must come from the same tape machine. This is because when one track is chosen, the entire machine becomes the transmitter, while all other connected ADATs become receivers. Only one ADAT can transmit over the digital bus at any given time. When a track is selected as a source, any tracks from other machines that were previously enabled as sources will be disabled automatically.
  - If no source tracks are selected, the ADATs' digital outputs will function as digital through connections. This allows for another digital audio device which uses the ADAT proprietary digital multichannel bus, such as the Alesis QuadraSynth, to be connected to the first ADAT's digital input and thus recorded

onto any ADAT connected to the digital bus.

5. Press the EDIT button to exit Edit mode;
  6. Press the DIGITAL I/O button to enable the digital bus (the DIGITAL I/O LED will go on to indicate it is enabled);
  7. Use the TRACK SELECT buttons on the BRC to record-enable the destination tracks;
  8. Initiate recording on the BRC.
- The source tracks will be recorded onto the destination tracks in ascending order.

*Example:*

If source tracks 1, 2, and 3 are selected and tracks 12, 17, and 24 are record enabled, then track 1 will be copied to track 12, track 2 to track 17, and track 3 to track 24.

- If more destination tracks are selected than source tracks, the source tracks will repeat (cycle).

*Example:*

If tracks 25 and 29 were added to the destination tracks of the previous example, then track 1 would be copied to track 25, as well as to track 12, and track 2 would be copied to track 29, as well as track 17.

This type of scheme also allows for copying a single track to multiple tracks.

- A digital source track cannot be selected as a digital destination track (i.e. digital source tracks will not be allowed to be record enabled when DIGITAL I/O is enabled).
- When copying digital tracks, any track delays and machine offsets will be in effect.

### **3.2C Recording from AI-1 onto ADAT**

If either AES/EBU or S/PDIF is selected as the Digital Input, any ADAT tracks that are record enabled while DIGITAL I/O is turned

on will record the selected Source input from the AI-1. Since only two inputs are available (left and right), these inputs will alternate assignment between all selected record tracks if more than two are selected.

To record from the AI-1 onto ADAT using the BRC:

1. Make sure the DIGITAL I/O button is enabled (its LED will be lit);
2. Press the EDIT button (the EDIT button LED will go on to indicate you are in Edit mode);
3. Press the DIGITAL I/O button;

The display will read:

Digital input: ADAT

4. Use the UP button to set the digital input to either “AES/EBU” or “S/PDIF”, depending on which connection you are using on the AI-1 (the corresponding Source LED on the AI-1 will either be lit solid or flash to indicate the current selection);

*Note:* If the selected Source button’s LED flashes, it means that either no device is connected to the selected input, or the clock information is not being provided by the source to the AI-1, or the clock information provided by the source is neither 48kHz or 44.1kHz.

The display will read:

Digital input:  
AES/EBU

... or ...

Digital input: S/PDIF

*Note:* If you change the Digital Input setting while the DIGITAL I/O button is off, the AI-1 will not reflect the newly selected digital input. However, the change will automatically be sent to the AI-1 the next time the DIGITAL I/O button is turned on.

5. Press the DIGITAL I/O button twice;

The display will show the following:

AI-1 Destination <u>A</u> DAT
----------------------------------

6. If the AI-1 Destination is set to either “AES/EBU” or “S/PDIF”, use the DOWN button to set the AI-1’s Destination to “ADAT”.
7. Press the DIGITAL I/O button again to access the AI-1’s clock rate;

The display will show the following:

AI-1 Dest Rate <u>4</u> 8K
-------------------------------

This determines the output sample rate of the AI-1. When the Digital Input is changed, the AI-1 automatically looks for the clock source. When it sees it, the clock rate is determined.

- If the source’s clock rate is 44.1kHz, then the 44.1kHz LED on the AI-1 will be lit. The Destination Rate can be set to either 44.1kHz or 48kHz.
  - If the source’s clock rate is 48 kHz, the 48kHz LED on the AI-1 will be lit. However, the Destination Rate will have no effect on the AI-1, since you can only record a 48kHz source to ADAT at 48kHz.
  - If the source’s clock is neither 48kHz nor 44.1kHz, neither LED will light and no conversion will take place. Therefore, the Destination Rate setting on the BRC will have no effect on the AI-1.
8. Use the UP/DOWN buttons to select the AI-1’s Destination Rate (48K or 44.1K).

*Important:* When recording audio from AES/EBU or S/PDIF, the ADAT(s) derive their clock source from the incoming digital audio via the optic digital bus, and are therefore perfectly in sync

with the incoming source. However, it is important to note that the BRC also requires a 48kHz clock in order to be synchronized to the incoming digital signal (see section 3.2D). Since the BRC has nothing to do with the ADAT's optic digital bus, you will need to route clock information from the AI-1 to the BRC by connecting the AI-1's 48kHz output to feed the BRC's 48kHz input (see section 2.1C).

9. Press the EDIT button to exit Edit mode (the EDIT LED will turn off);
10. Use the TRACK SELECT buttons on the BRC to record-enable the destination tracks;
11. Initiate recording on the BRC.
  - The source tracks will be recorded onto the destination tracks in ascending order (see previous section 3.2B regarding the guidelines for selecting record tracks).

### **3.2D BRC Synchronization**

It is important that, when recording from AES/EBU or S/PDIF, the BRC is receiving synchronization information from the AI-1's 48kHz clock out. When recording onto ADAT from an AES/EBU or S/PDIF source, the BRC's 48kHz, SMPTE, and MIDI outputs will not be usable if no timing reference is provided by the AI-1. While the BRC is synchronizing to the AI-1's 48kHz clock, all of the BRC's sync outputs will be usable. However, it is up to you to insure that the AES/EBU or S/PDIF digital audio signal is synchronous to the clock source that is connected to the BRC by providing it with clock information.

When the DIGITAL I/O button is turned on and the digital input has been set to either AES/EBU or S/PDIF, the EXT SYNC button on the BRC will automatically turn on and disable the pitch controls (the Pitch display will read " - - - "). The EXT SYNC's clock source will be set to 48kHz. It is possible, however, to disable the EXT SYNC button by pressing it without turning off the DIGITAL I/O button. This is not recommended, since the BRC would no longer be in perfect sync with the digital source's clock rate, which could

result in clicks in the audio.

For more information on 48kHz clock, see sections 2.1C and 2.3.

### **3.2E Output ADAT Tracks to AI-1**

If the BRC is in Edit mode (the EDIT button is lit), and the DIGITAL I/O button is pressed a third time when the Digital Input is set to "ADAT", (or if it is pressed a second time when set to "AES/EBU" or "S/PDIF"), you may select the source tracks that will output to the AI-1. When the DIGITAL I/O button is pressed again, you may select the AI-1 destination, which can be either "ADAT", "AES/EBU" or "S/PDIF". You may also set the destination clock rate for the AI-1 to either 48kHz or 44.1kHz, thus performing sample rate conversion.

To route ADAT tracks to the AI-1 from the BRC:

- 1.** Press the EDIT button (the EDIT button LED will go on to indicate you are in Edit mode);
- 2.** Press the DIGITAL I/O button;
- 3.** Use the UP/DOWN buttons to select "ADAT" as the Digital Input you wish to use as a source for recording;
- 4.** Press the DIGITAL I/O button twice;

The display will show the following:

Select tracks to output to AI-1
------------------------------------

All the record and input track LEDs will no longer reflect the record/monitor status. The TRACK INPUT LEDs will now reflect the current source tracks to be output to the AI-1.

- 5.** Use the TRACK SELECT buttons to select the tracks to output to the AI-1;
  - To select a single source track, press the desired TRACK SELECT button. The track will now be enabled and its green LED will be

lit. Pressing the same button again will disable that track and turn off the LED. You may now select a different track.

- A maximum of two tracks may be selected at a time, and they must come from the same tape machine.
- When a track is selected as a source, any tracks from other machines that were previously selected will become disabled. If no tracks are selected, the AI-1's digital output will be silent. If only one track is selected, it will be routed to the left output of the AI-1, and the right output will be silent.

While the Digital Input is set to “ADAT”, ADAT tracks can be output to the AI-1 even when the DIGITAL I/O button is off, allowing you to monitor through the ADATs analog inputs and out the AI-1. However, if the Digital Input is set to “AES/EBU” or “S/PDIF”, the selected tracks will only output to the AI-1 when the DIGITAL I/O button is turned off. This is because the AI-1 can only work one-way. Therefore, it cannot be sending audio from ADAT to S/PDIF while simultaneously converting AES/EBU onto ADAT.

**6.** Press the DIGITAL I/O button again;

The display will show the following:

AI-1 Destination <u>A</u> DAT
----------------------------------

**7.** Use the UP/DOWN buttons to select the AI-1's destination (AES/EBU or S/PDIF).

*Note:* Tracks selected to be output to the AI-1 will only be routed as such if the AI-1 destination is set to either “AES/EBU” or “S/PDIF”, since setting the destination to “ADAT” means you wish to bounce to other ADAT tracks.

**8.** Press the DIGITAL I/O button again;

The display will show the following:

AI-1 Dest Rate <u>4</u> 8K
-------------------------------

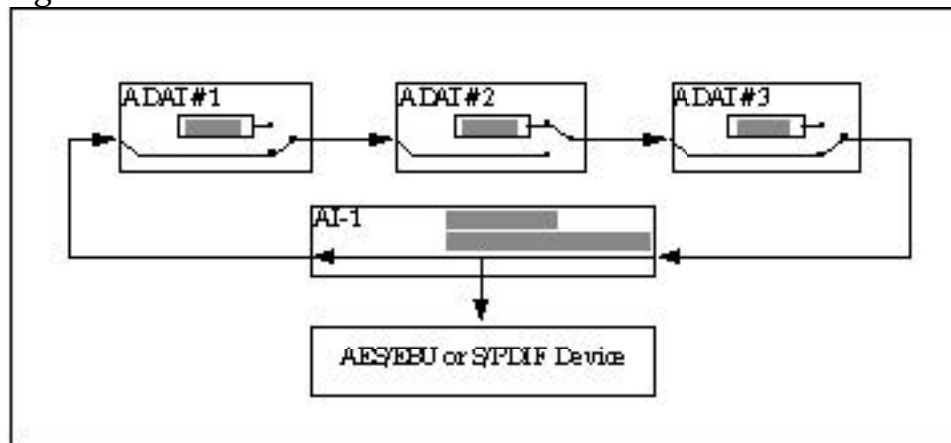


9. Use the UP/DOWN buttons to select the AI-1's Destination Rate (48K or 44.1K). This determines the output sample rate of the AI-1.

### 3.2F Bouncing Tracks While Outputting To AI-1

The digital output routed from ADAT to the AI-1 will always be active, whether DIGITAL I/O is turned on or off. However, if DIGITAL I/O is on and "ADAT" has been selected as the digital input, you are still capable of performing track bouncing among your ADATs. However, the tracks selected for output to the AI-1 must be the same or higher than the highest numbered track selected as source or record enabled. For example, if you have three ADATs (24 tracks) and you wish to output tracks 15 and 16 (from ADAT #2) through the AI-1 to an AES/EBU device, it is still possible to simultaneously bounce digital audio between ADAT tracks 1 and 14.

Figure 4



The reason for this restriction has to do with the fact that there is a single 8-channel digital audio bus. Each ADAT can either be sending its own tracks out on the digital bus, or "echoing" what it receives on its digital input. The digital connections of the slave units are serial (i.e. the units are chained together with unit #1's digital output connected to unit #2's digital input, unit #2's digital output connected to unit #3's digital input, and so on). When you have an ADAT become a source so it outputs its tracks on the digital bus, any other ADAT before it in the digital bus chain that is transmitting its tracks will not be routed to the ADATs connected

after it.

However, it is important to note that even though the AI-1's destination may be set to AES/EBU or S/PDIF, it is still sending all eight channels of the source ADAT back to the first ADAT in the chain. Therefore, it is possible to bounce tracks from the source ADAT onto the same track numbers on the first ADAT, while simultaneously routing two tracks from the source ADAT through the AI-1 to an AES/EBU or S/PDIF destination.

### 3.3 CONFIGURATIONS

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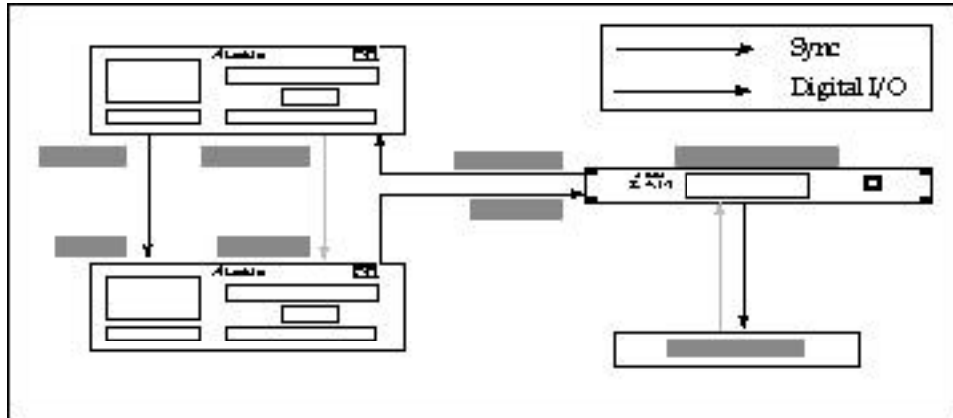
The ADAT CHANNEL buttons, the DESTINATION RATE buttons, and the SOURCE and DESTINATION buttons define the possible uses of the AI-1. Here are the various configuration possibilities for a two ADAT system.

#### **3.3A ADAT to AES/EBU (48kHz)**

In this configuration, the ADAT optic jacks and the AES/EBU XLR jacks are used. In the figure below, ADAT #2 is transmitting to an AES/EBU device using a 48kHz sampling rate. The proper control settings for this operation are as follows:

Source = ADAT  
Destination = AES/EBU  
Destination Rate = 48kHz

Figure 5



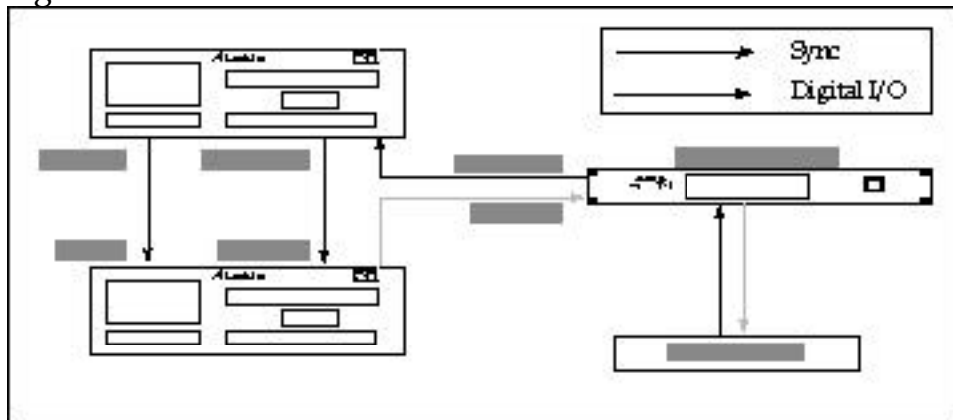
*Note:* Even when the AI-1's destination is set to AES/EBU, the digital bus being received from the last ADAT is routed through back to the first ADAT. Therefore, it is possible to bounce audio from the last ADAT back to the first ADAT, while simultaneously routing two tracks from the last ADAT to an AES/EBU device.

### 3.3B AES/EBU to ADAT (48kHz)

In this configuration, the ADAT optic jacks and the AES/EBU XLR jacks are used. In the figure below, ADAT #1 is receiving from an AES/EBU device using a 48kHz sampling rate. The proper control settings for this operation are as follows:

Source = AES/EBU  
 Destination = ADAT  
 Destination Rate = 48kHz

Figure 6

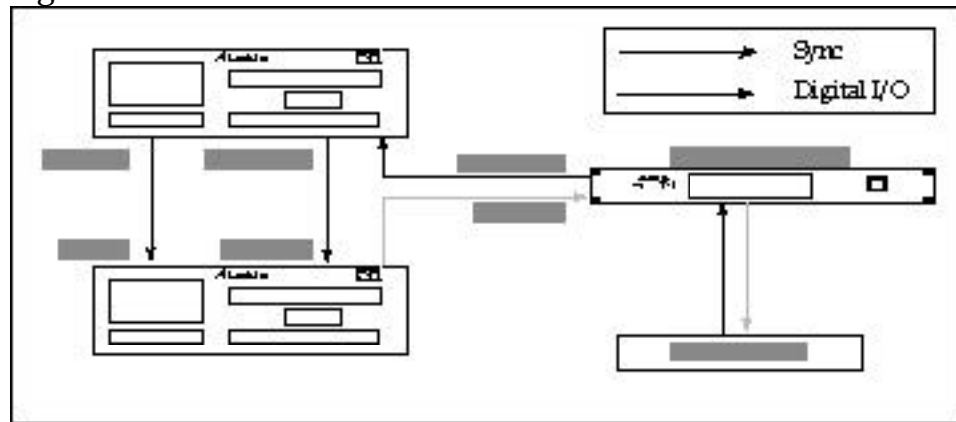


### 3.3C AES/EBU to ADAT (44.1kHz to 48kHz)

In this configuration, the ADAT optic jacks and the AES/EBU XLR jacks are used. In the figure below, ADAT #1 is receiving from an AES/EBU device using a 44.1kHz sampling rate being converted to 48kHz. The proper control settings for this operation are as follows:

Source = AES/EBU  
 Destination = ADAT  
 Destination Rate = 48kHz

Figure 7

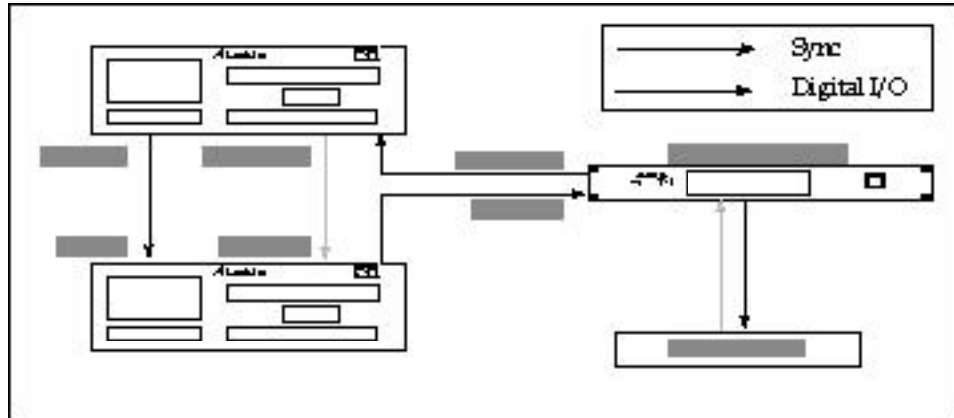


### 3.3D ADAT to AES/EBU (48kHz to 44.1kHz)

In this configuration, the ADAT optic jacks and the AES/EBU XLR jacks are used. In the figure below, ADAT #2 is transmitting to an AES/EBU device using a 44.1 kHz sampling rate. The proper control settings for this operation are as follows:

Source = ADAT  
 Destination = AES/EBU  
 Destination Rate = 44.1kHz

Figure 8

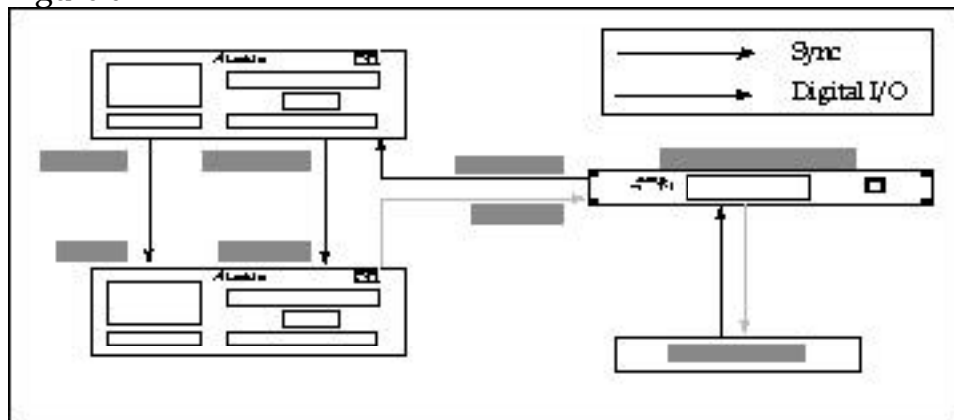


### 3.3E AES/EBU to ADAT (44.1kHz)

In this configuration, the ADAT optic jacks and the AES/EBU XLR jacks are used. In the figure below, ADAT #1 is receiving from an AES/EBU device using a 44.1kHz sampling rate without conversion. The proper control settings for this operation are as follows:

Source = AES/EBU  
 Destination = ADAT  
 Destination Rate = 44.1kHz

Figure 9

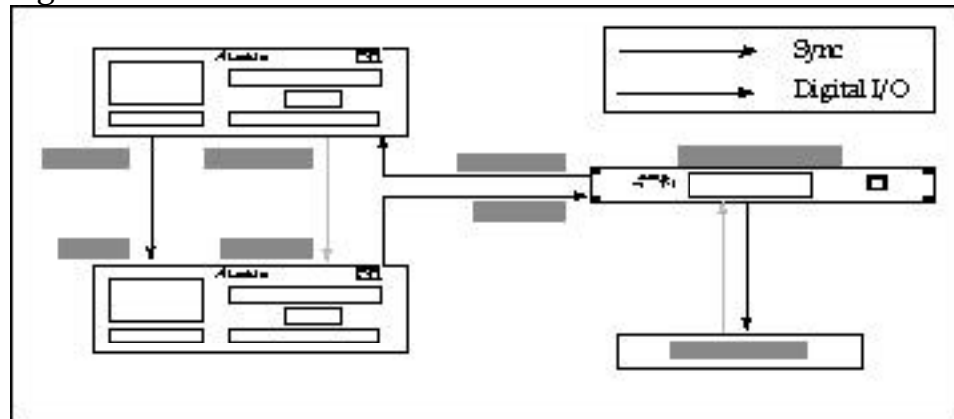


### 3.3F ADAT to S/PDIF (48kHz)

In this configuration, the ADAT optic jacks and the S/PDIF jacks are used. In the figure below, ADAT #2 is transmitting to an S/PDIF device using a 48kHz sampling rate. The proper control settings for this operation are as follows:

Source = ADAT  
Destination = S/PDIF  
Destination Rate = 48kHz

Figure 10



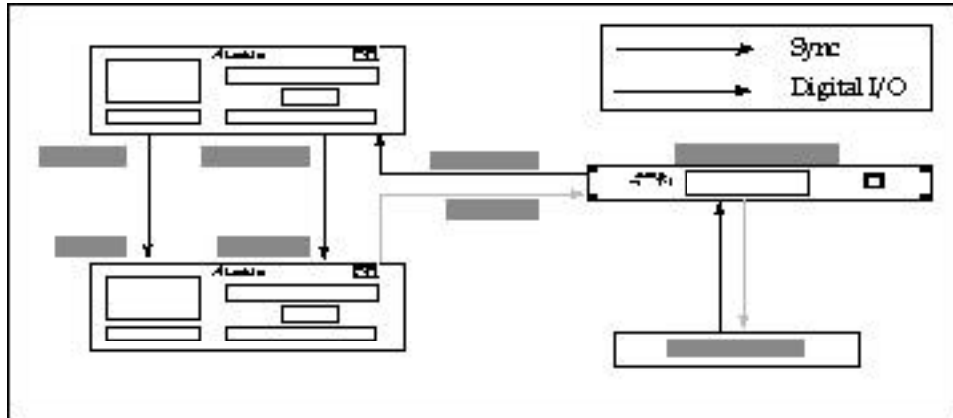
*Note:* Even when the AI-1's destination is set to S/PDIF, the digital bus being received from the last ADAT is routed through back to the first ADAT. Therefore, it is possible to bounce audio from the last ADAT back to the first ADAT, while simultaneously routing two tracks from the last ADAT to an S/PDIF device.

### 3.3G S/PDIF to ADAT (48kHz)

In this configuration, the ADAT optic jacks and the S/PDIF jacks are used. In the figure below, ADAT #1 is receiving from an S/PDIF device using a 48kHz sampling rate. The proper control settings for this operation are as follows:

Source = S/PDIF  
Destination = ADAT  
Destination Rate = 48kHz

Figure 11

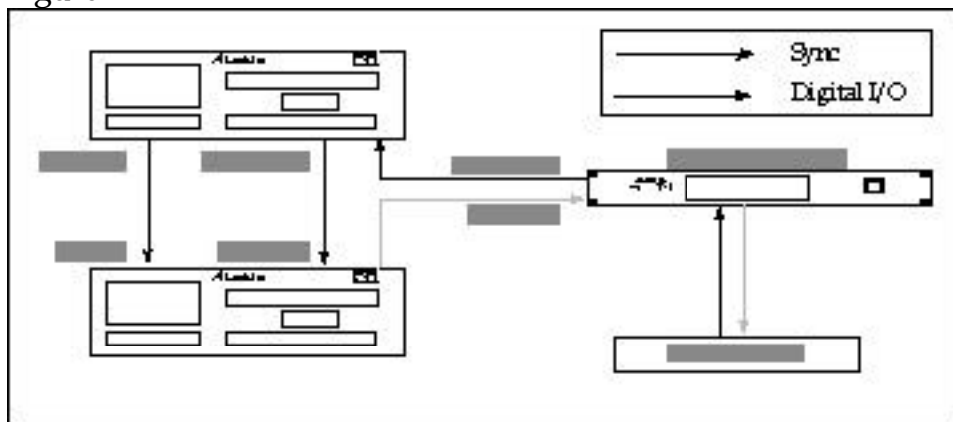


### 3.3H S/PDIF to ADAT (44.1kHz to 48kHz)

In this configuration, the ADAT optic jacks and the S/PDIF jacks are used. In the figure below, ADAT #1 is receiving from an S/PDIF device using a 44.1kHz sampling rate being converted to 48kHz. The proper control settings for this operation are as follows:

Source = S/PDIF  
 Destination = ADAT  
 Destination Rate = 48kHz

Figure 12



### 3.3I ADAT to S/PDIF (48kHz to 44.1kHz)

In this configuration, the ADAT optic jacks and the S/PDIF jacks are used. In the figure below, ADAT #2 is transmitting to an S/PDIF device using a 44.1kHz sampling rate. The proper control settings

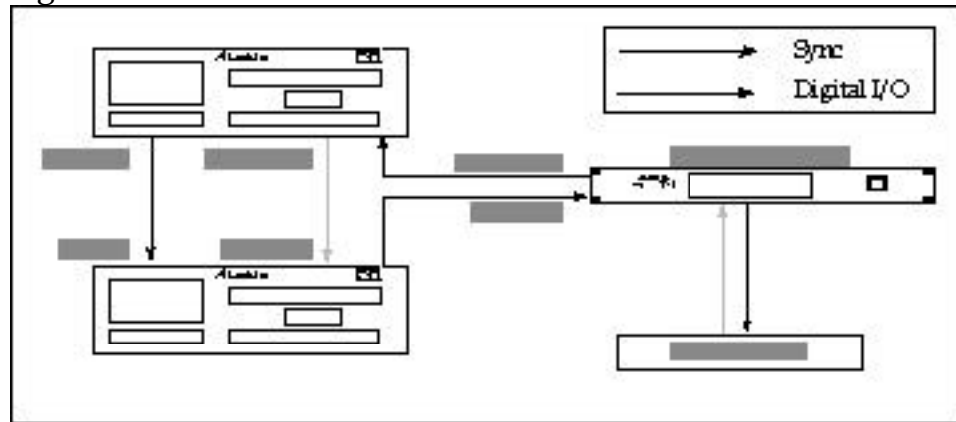
for this operation are as follows:

Source = ADAT

Destination = S/PDIF

Destination Rate = 44.1kHz

Figure 13



### 3.3J S/PDIF to ADAT (44.1kHz)

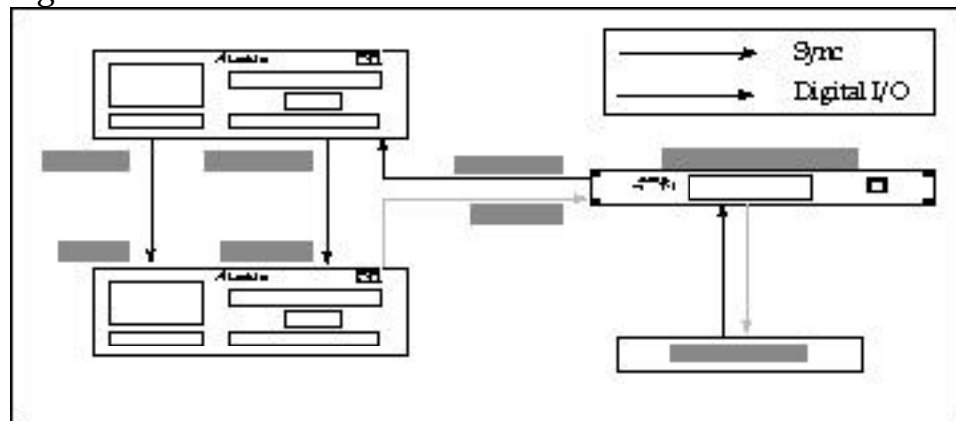
In this configuration, the ADAT optic jacks and the S/PDIF jacks are used. In the figure below, ADAT #1 is receiving from an S/PDIF device using a 44.1kHz sampling rate without conversion. The proper control settings for this operation are as follows:

Source = S/PDIF

Destination = ADAT

Destination Rate = 44.1kHz

Figure 14



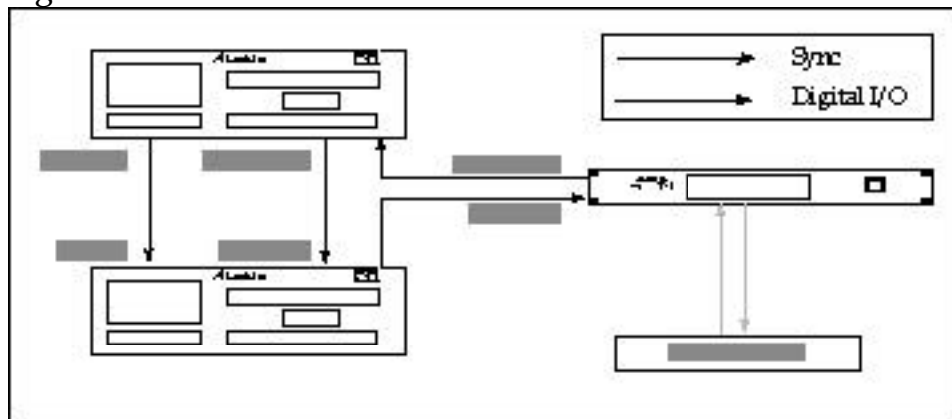


### 3.3K ADAT to ADAT

In this configuration, the AI-1 becomes a transparent link in a daisy-chain. In the figure below, ADAT #2 is transmitting all 8 tracks to ADAT #1, in addition to all 8 tracks of ADAT #1 being routed to ADAT #2. The sample rate is fixed at 48kHz, and cannot be changed to 44.1kHz. The proper control settings for this operation are as follows:

Source = ADAT  
Destination = ADAT  
Destination Rate = 48kHz

Figure 15



When bouncing tracks from ADAT #2 to ADAT #1, the first ADAT is the master and must provide sync information to ADAT #2. However, when the first ADAT is put into DIGITAL IN mode, it looks at the digital source for its clock information, instead of using its own internal clock. For this scenario to work, it is necessary that the first ADAT use its own internal clock. When the DIGITAL IN button is turned on, it can be set to one of two modes: either looking for sync information from the incoming digital audio (normal setting) or to ignore the incoming sync information and use its own internal clock. Therefore, when recording from ADAT #2 onto ADAT #1, you must switch the first ADAT's DIGITAL IN mode to the "internal clock" setting so that it ignores the digital source's clock and provides its own.

To set the master ADAT to use its internal clock while recording

from another digital source:

1. Press and hold the SET LOCATE button;
2. Press the DIGITAL IN button;

The ADAT's display will momentarily read "int" indicating it will use its own internal clock at all times, even when the DIGITAL IN button is enabled. When you wish to record from the AI-1 again (from an AES/EBU or S/PDIF source), you must set the master ADAT back so it synchronizes to the incoming digital source's clock. This is done by repeating the steps above (the ADAT's display will momentarily read "diG" indicating it will use the incoming clock from the digital source).

### 3.3L AES/EBU to AES/EBU

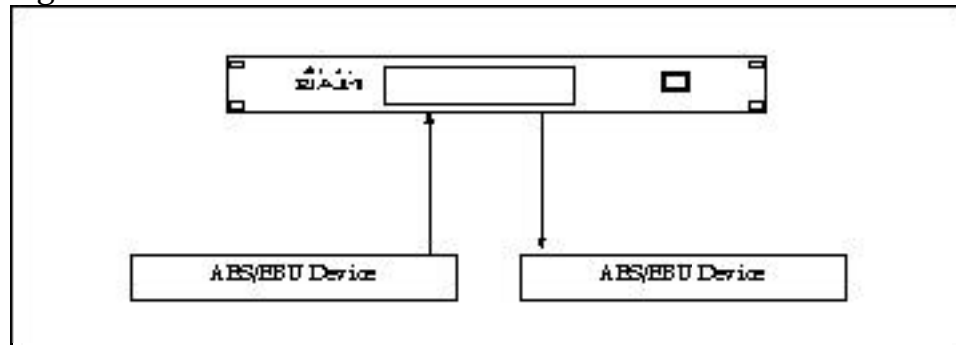
In this configuration, the AES/EBU jacks are used to connect two AES/EBU devices through the AI-1. This scenario would only occur when you wished to use the AI-1 to perform sample rate conversion between the source and destination devices. The proper control settings for this operation are as follows:

Source = AES/EBU

Destination = AES/EBU

Destination Rate = 48kHz or 44.1kHz (opposite from the source's sample rate)

Figure 16



### 3.3M S/PDIF to S/PDIF

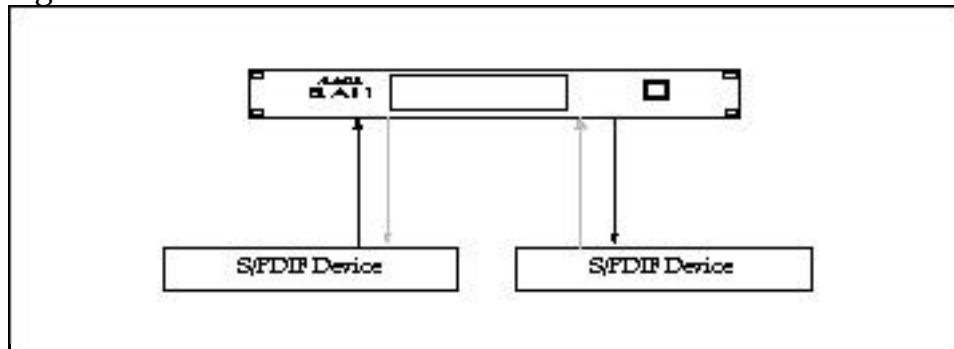
In this configuration, either the S/PDIF fiber optic jacks or RCA jacks (or both) are used to connect two S/PDIF devices through the AI-1. In the figure below, S/PDIF device #1 is connected to the RCA jacks of the AI-1, while S/PDIF device #2 is connected to the fiber optic jacks. This scenario would only occur when you wished to use the AI-1 to perform sample rate conversion between the source and destination devices. The proper control settings for this operation are as follows:

Source = S/PDIF

Destination = S/PDIF

Destination Rate = 48kHz or 44.1kHz (opposite from the source's sample rate)

Figure 17



# CHAPTER 4: APPENDICES

## 4.0 APPENDIX 1: SPECIFICATIONS

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Number of Digital Audio Channels:	
ADAT:	8
AES/EBU, S/PDIF:	2
Sample Clock Input range:	48 kHz nominal. User variable from 50.8 to 40.4kHz (+1, -3 semitones).
Digital Inputs/Outputs:	
Connectors:	Four EIAJ fiber optic jacks (2 inputs, 2 outputs); two RCA connectors (1 input, 1 output); two XLR connectors (1 input, 1 output)
Communications Protocol:	Alesis Fiber optic Multichannel (8 tracks); AES/EBU (2 channels); S/PDIF (2 channels)
Front Panel Controls and Indicators:	Push buttons with LED indicators for ADAT Channel (1/2, 3/4, 5/6, & 7/8), Destination Rate (48kHz, 44.1kHz), Source and Destination (ADAT, AES/EBU, S/PDIF); AC power switch
Rear Panel Controls and Connectors:	Two 9 pin D-Sub connectors for Sync In and Sync Out; Four EIAJ fiber optic jacks for ADAT Digital In and Out and S/PDIF Digital In and Out; Two RCA jacks for S/PDIF In and Out; Two XLR connectors for AES/EBU Digital In and Out; One BNC connector for 48kHz Word Clock Out; IEC-spec AC cord connector.
Power Requirements:	90-250 VAC, 50-60 Hz, 50 W max.

Dimensions (H x W x D):	1-3/4" x 19" x 6-1/4"
Weight:	4.5 lbs (2 kg)
Shipping Weight:	7 lbs (3.1 kg)
Accessories Included:	IEC style AC power cord Owner's Manual
Optional Accessories:	RMB Remote Meter Bridge BRC Master Remote Control

## 4.1 APPENDIX 2: MAINTENANCE/SERVICE INFORMATION

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### **4.1A Cleaning**

Disconnect the AC cord, then use a damp cloth to clean the AI-1's metal and plastic surfaces.

### **4.1B Maintenance**

Here are some tips for preventive maintenance:

- Periodically check the AC cord for signs of fraying or damage.
- Unplug the AI-1 when not in use for extended periods of time.

### **4.1C Servicing**

DO NOT ATTEMPT REPAIRS YOURSELF. THERE ARE NO USER SERVICEABLE PARTS INSIDE THE AI-1. Refer all servicing to Alesis. YOU MUST FIRST CONTACT ALESIS TO OBTAIN A RETURN AUTHORIZATION NUMBER BEFORE THE UNIT IS RETURNED TO ALESIS.