SM Pro Audio

Operating Manual - SM A08

8 channel 24-bit precision analog to ADAT® converter

Manual Version 1.0 Feb 2005

SAFETY INSTRUCTIONS

CAUTION: To reduce the risk of electrical shock, do not remove the cover or rear panel of this unit. No user serviceable parts inside. Please refer servicing to qualified personnel only.
WARNING: To reduce the risk of fire or electrical shock do not expose this appliance to rain or moisture.

DETAILED SAFETY INSTRUCTIONS:
All safety and operation instructions of this manual should be read and adhered to before operation.
Retain Instructions:
Please retain all safety and operating instructions for future reference.
Follow instructions:
All operation and user instructions should be followed.
Water, liquid and Moisture:
The appliance should not be used near water, rain or other liquids. Make sure that no liquid can leak, spill or otherwise seep into the appliance.
Ventilation:
Please place the appliance so no obstacles interfere or impede the flow of air through the ventilation openings.
Heat:
The appliance should be situated away from other heat sources such as heaters, radiators, ovens, or other appliances that produce heat.
Power Source:
Make sure your appliance is set to the correct voltage for the country in which it will be used.
Grounding and Polarization:
Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.
Power-Cord Protection:
Power supply cords should be routed so that they are not likely to be walked on, pinched, damaged, worn, or rubbed by any other device or obstacle.
Cleaning:
The appliance should be cleaned only with a light soft cloth. Do not use any damaging or corrosive products on the unit.
Periods of inactivity:
The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
Damage Requiring Service:
The appliance should be serviced by qualified service personnel when:
- The power supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped, or the enclosure damaged.

Servicing:
The user should not attempt to service the appliance beyond that is described in the Operating Instructions.

All other servicing should be referred to qualified service personnel.

SM Pro Audio A08 Main Features
Professional multi-channel analog to digital converter with ADAT® format output.
- 8 x 1/4" unbalanced audio line inputs
- 1 x 24-bit 8ch ADAT® format output interface
- Delta-sigma 24-bit/96kHz A/D converter
- Internal or external Sync (Master or Slave)
- Word clock BNC I/O connectors
- 44.1kHz or 48kHz selectable sample rates
- Low noise, wide bandwidth and superior transient response
- Rugged compact construction
- External power supply included

FOREWORD

Dear Customer,

Thank you very much for expressing your confidence in SM Pro Audio products by purchasing this unit. The SM Pro Audio A08 has been designed to be used as a standard tool for home/pro studios. With much experience in the audio industry over a long period of time, and along with valuable suggestions from our customers, our engineers have developed a product we know you will be satisfied with. We guarantee you uncompromising quality (manufactured under ISO9000 certified management system) as well as excellent technical and audio properties at an extremely affordable price.

Regards,

SM Pro Audio

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1. INTRODUCTION

In purchasing the new SM Pro Audio A08, you have acquired an ADAT® format multi-channel digital to analog converter of high class that meets many of the demands of the home/pro studio.

The market size for digital audio interfaces and computer based digital recording/editing has increased in a massive way. With systems available at very low prices, more and more users are utilizing this technology. Many current digital systems also feature ADAT® compatible connectivity to facilitate the simple connection between digital devices from different manufacturers.

About the ADAT® format...
The ADAT® protocol is a digital audio transfer protocol format developed by ALESIS Corporation. It allows 8 channels of digital audio data to be transferred through a single optical cable (light pipe). Since the development of ADAT® many professional companies have adopted this format as the defacto standard for the reliable transfer of high quality multi-channel digital audio between devices. You can now find ADAT® I/O (input and output) connections provided on a wide range of digital audio equipment from digital mixers, recorders, multi-channel microphone pre-amps and the like.

The SM Pro Audio A08 is an extremely portable multi-channel analog to digital audio converter. It reliably converts 8 channels of analog audio to pristine 24-bit digital audio while providing the output via the popular ADAT® format. This single rack unit can now solve many of the connectivity issues which are raised in a large range of situations.

The A08 is the perfect addition to your ADAT® compatible mixer, recorder, computer based audio interface, etc.

Add more connectivity and analog inputs to your ADAT® compatible devices!

2. THE DESIGN CONCEPT

2.1 High quality components and design
The philosophy behind SM Pro Audio products guarantees a no-compromise circuit design and employs the best choice of components.

Converters
4 x Cirrus Logic CS5333-KZ 24-bit, 96kHz stereo A/D converters

ADAT® controller
The ADAT® chip used in the A08 is supplied by ALESIS corporation, the developers of the ADAT® protocol. The chip used is the AL1401A-SO.

Hardware Chassis
The hardware chassis is manufactured out of sturdy black powder coated steel.

2.2 Inputs and ADAT® output
All analog inputs and the ADAT® optical output connector are secured firmly to the exterior chassis housing. This ensures robust quality and confidence in performance under all conditions.

3. INSTALLATION

Your SM Pro Audio A08 was carefully packed in the factory and the packaging was designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage, which may have occurred in transit.

+ If the unit is damaged, please do not return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.

3.1 Desktop usage
The SM Pro Audio A08 ships with four rubber feet screwed on to the base of the unit. Simply placing the unit on a desktop will allow safe and secure operation by providing enough ventilation to the unit whilst maintaining a low non slip profile position.

3.2 Rack mounting option
The SM Pro Audio A08 can be rack mounted with optional rack-mount ears. Rack units are very convenient for providing protection during transportation and use under demanding conditions. They are also useful in organizing your equipment in an easy to access and orderly manner in your studio. You will notice four small holes on both sides of the A08. These are provided for easy installation of the optional rack-mount ears. Please ask your dealer for more information on how to purchase the optional ears.

3.3 Power supply
The SM Pro Audio A08 has a 17V AC external power supply included. Before you connect your SM Pro Audio A08 to the power supply, please make sure that your local mains voltage matches the voltage required by the external plug pack power supply!

Simply connect the power adapter plug pack to both your local mains power at one end and to the SM Pro Audio A08 AC input on the rear of the unit. The on/off switch for the A08 is located on the front panel of the unit.

4. FRONT PANEL

SM Pro Audio A08 front panel
The SM Pro Audio A08 front panel houses the analog input connections and the power switch.

4.1 Analog inputs
Eight (8) unbalanced inputs are provided on the front panel of the SM Pro Audio A08. Use standard 1/4" audio cables to connect your analog source signal to the A08. The A08 is designed to function accepting -10dB line level signals.

4.2 Power switch and led indicator
A power switch and indicator led are located on the right hand side of the front panel. The unit will be powered on when the switch is configured in the down position. The led will illuminate to indicate that the power is switched on.

5. REAR PANEL

SM Pro Audio A08 rear panel
The SM Pro Audio A08 rear panel houses the AC power input, Word clock I/O connections, the ADAT optical output, and the sync & sample rate selector switches.

5.1 ADAT optical output
On the rear of the SM Pro Audio A08 there is 1 x ADAT® optical light-pipe output connector. It is covered with a small black plastic protector plug. Please remove the plastic connector plug before connecting your optical cable. Simply connect a standard optical cable from this output to your destination devices ADAT® input.

5.2 Word clock I/O
Word clock input and output
Two BNC connectors are provided on the rear panel for input and output of word clock signal. Word clock sync allows multiple digital devices to keep the audio in sync. Each device's internal clock operates at a sample frequency slightly different from its neighbor, even if all devices are set to the same nominal rate. As a result, audible pops and clicks may result when un-synchronized digital sources are mixed. We recommend using 75 Ohm coaxial cable for your connections.

5.3 Sync selector switch
The sync selector switch determines which word clock generator the A08 receives its sync from. If it is set to INT (internal/master), the A08 generates its own clock internally. It will also pass it's generated clock out the W/C output connector for connection to other devices. When set in the EXT (external/slave) position the A08 is set to operate using another devices generated word clock signal. The word clock signal is also passed through the W/C output for daisy chaining other devices. Daisy chaining word clock signal will also have it's own sync problems when using many devices or long cables. Termination at the end of your word clock chain is also necessary using a 75 Ohm resister. It is recommended if you have many devices that you use a dedicated master clock generator that individually supplies word clock to each device.

5.4 Sample rate selector switch
The SM Pro Audio A08 can operate at either 44.1kHz or 48kHz sample rate. This is the sample rates allowed by the ADAT® format. Please select the desired sample rate for your current project. Your selection should match the sample rates of all other digital equipment.

6. APPLICATION

6.1 Using the SM Pro Audio A08
It could not be simpler to use and operate the SM A08. Please check through the following operational checklist for a brief introduction to using the A08.

6.2 Operational checklist:
1. Firstly consider your audio project basics:
A) Clock/sync considerations! Do you need to clock/sync the A08 device to other digital devices? If so which device should be the master clock generator? How should I connect the word clock cable?

If you have more that one digital device functioning together that offer word clock sync connectors it is advisable to sync them via coaxial cable. There can be only one master clock generator device in a multi device configuration. All other devices becomes slave receivers. Your word clock coaxial cable should be connected from the word clock output of your chosen master clock generator device to the word clock input of the A08. If you need to to daisy chain additional connections simply connect the word clock output of the A08 to any further devices word clock inputs. The last device on your chain should be terminated with a 75 Ohm BNC T terminator plug connector.

Ensure that your chosen master clock generator device is configured as the to use INT Sync (Master). All other devices should be selected to EXT sync (Slave).

Your A08 has INT & EXT sync available via switches on the rear panel in addition to providing word clock input and output BNC connectors. Make your cable connections and INT/EXT sync selection based on your projects design.

B) What sample rate is your audio project going to be using?
The A08 sample rate selector switch on the rear panel allows for either 44.1kHz or 48kHz operation. Check the sample rate setting of your project and other digital devices you plan connecting together. Ensure the A08 is using the same chosen rate!

2. Make your physical analog and digital connections.
Connect your analog signals you wish to convert to ADAT® multi-channel (8ch) digital format to the inputs on the front of the A08.

Connect your ADAT optical cable from the A08's ADAT® output connector to your destination devices ADAT input connector.

Your A08 should now be fully configured for use. All incoming analog signals can now be converted to 24-bit digital audio at your selected sample rate and output via the ADAT® optical connector on the rear panel.

The A08 is the perfect addition to your ADAT® compatible mixer, recorder, computer based audio interface, etc.

Add more connectivity and analog inputs to your ADAT® compatible devices!

7. SPECIFICATIONS

Analog Stage

Connectors	1/4" TS
Type	unbalanced

A/D

Signal to Noise ratio:	107 dB RMS unweighted
THD:	< -110 dB, < 0.0012 %
THD+N:	< -104 dB, < 0.0021 %
Cross talk:	> 102 dB
Frequency response AD, -0.1 dB:	20 Hz – 20 kHz
Input impedance Line:	10 kOhm
Input level:	-10 dBV

Digital Stage

Connector:	Optical
Type:	ADAT (24 bit)
Internal resolution:	24 bit
Internal sample rates:	44.1 kHz, 48 kHz

POWER SUPPLY

Mains connection:	External power supply
Input:	AC220V 50Hz / AC110V 60Hz
Output:	AC17V 1000mA

PHYSICAL

Dimension	229 mm * 140 mm * 40 mm
Net weight	approx. 1.5 kg

SM Pro Audio is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or shown.

8. WARRANTY

1 WARRANTY CARD

To be protected by this warranty, the buyer must complete and return the enclosed warranty card (signed/stamped by retail dealer) within 14 days of the date of purchase to SM Pro Audio (see address below 3). Failure to return the card in due time (date as per postmark) will void any extended warranty claims.

2 WARRANTY

1. SM Pro Audio warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (3) years from the original date of purchase, in accordance with the warranty regulations described below. If any defects occur within the specified warranty period that are not caused by normal wear or inappropriate use, SM Pro Audio shall, at its sole discretion, either repair or replace the product.

2. If the warranty claim proves to be justified, the product will be returned freight prepaid by SM Pro Audio within Australia. Outside of Australia, the product will be returned at the buyer's expense.

3. Warranty claims other than those indicated above are expressly excluded.

3 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer must call SM Pro Audio during normal business hours BEFORE returning the product (Tel.: +61 3 9555 8081). All inquiries must be accompanied by a description of the problem. SM Pro Audio will then issue a return authorization number.

2. The product must be returned in its original shipping carton, together with the return authorization number, to the following address:

SM Pro Audio
Service Department
W25, 26-28 Roberna St
Moorabbin
Melbourne, Victoria
Australia 3189

4 WARRANTY REGULATIONS

1. Warranty services will be furnished only if the product is accompanied by an original retail dealer's invoice. Any product deemed eligible for repair or replacement by SM Pro Audio under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at SM Pro Audio.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship.

The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, SM Pro Audio shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections, maintenance/repair work and replacement of parts are expressly excluded from this warranty, in particular if caused by inappropriate use. Likewise, the warranty does not cover defects of expendable parts caused by normal wear of the product. Expendable parts are typically pots, potentiometers, switches and similar components.

4. Damages/defects caused by the following conditions are not covered by this warranty:
- Misuse, neglect or failure to operate the unit in compliance with the instructions given in the user or service manuals.
- Connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- Damages/defects that are caused by any other condition beyond the control of SM Pro Audio.

5. Any repair carried out by unauthorized personnel will void the warranty.

6. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. SM Pro Audio will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 4 weeks after notification, SM Pro Audio will return the unit C.O.D. with a separate invoice for freight and packing. Such cost will also be invoiced separately when the buyer has sent in a written repair order.

5 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of SM Pro Audio.

6 CLAIM FOR DAMAGES

Failure of SM Pro Audio to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of SM Pro Audio exceed the invoiced value of the product.

7 OTHER WARRANTY RIGHTS

This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

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