



# GDA-700

Digital-to-Analog  
Converter

**OWNER'S MANUAL**

## THE FOLLOWING PRECAUTIONS AND SAFETY INSTRUCTIONS ARE REQUIREMENTS OF UL AND CSA SAFETY REGULATIONS

**Warning:** To reduce the risk of fire or electric shock, do not expose this unit to rain or moisture.



The graphic symbol of a lightning flash with an arrow point within a triangle signifies that there is dangerous voltage within the unit and it poses a hazard to anyone removing the cover to gain access to the interior of the unit **Only qualified service personnel should make any such attempt.**



The graphic symbol of an exclamation point within an equilateral triangle warns a user of the device that it is necessary to refer to the instruction manual and its warnings for proper operation of the unit



Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury to a child or adult, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the unit. Any mounting of the device should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

Read all the safety and operating instructions before connecting or using this unit

Retain this notice and the owner's manual for future reference

All warnings on the unit and in its operating instructions should be adhered to

All operating and use instructions should be followed

Do not use this unit near water, for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool

The unit should be installed so that its location or position does not interfere with its proper ventilation. For example, it should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings, or placed in a built-in installation, such as bookcase or cabinet, that may impede the flow of air through its ventilation openings

The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat

The unit should be connected to a power-supply outlet only of the voltage and frequency marked on its rear panel

The power-supply cord should be routed so that it is not likely to be walked on or pinched, especially near the plug, convenience receptacles, or where the cord exits from the unit

Clean unit only as recommended in its instruction manual

The power-supply cord of the unit should be unplugged from the wall outlet when it is to be unused for a long period of time

Care should be taken so that objects do not fall, and liquids are not spilled, into the enclosure through any openings

- This unit should be serviced by qualified service personnel when
- A The power cord or the plug has been damaged, or
  - B Objects have fallen, or liquid has been spilled, into the unit, or
  - C The unit has been exposed to rain, or liquids of any kind, or
  - D The unit does not appear to operate normally, or exhibits a marked change in performance, or
  - E The device has been dropped, or the enclosure damaged

**DO NOT ATTEMPT SERVICING OF THIS UNIT YOURSELF.  
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**

### ATTENTION

POUR PRÉVENIR LES CHOCS ÉLECTRIQUES NE PAS UTILISER CETTE FICHE POLARISÉE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ÊTRE INSÉRÉES À FOND SANS EN LAISSER AUCUNE PARTIE À DÉCOUVERT

### CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE

### CAUTION

#### POWER LINES

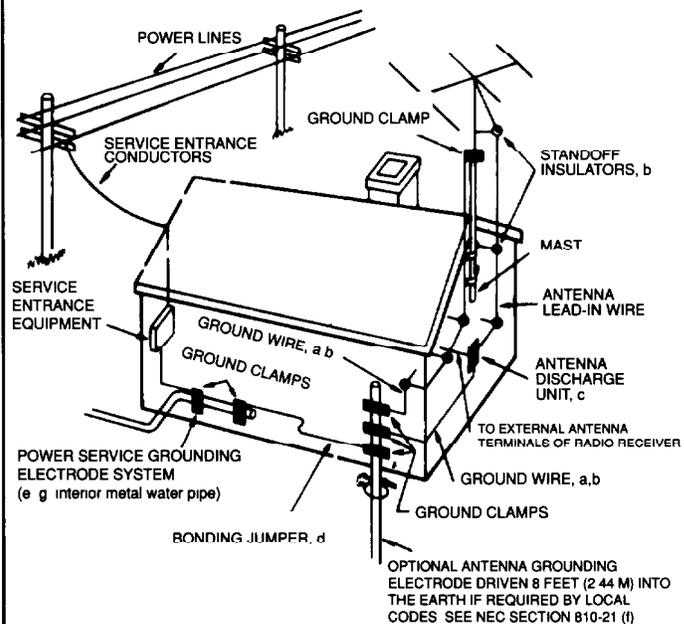
Any outdoor antenna must be located away from all power lines.

#### OUTDOOR ANTENNA GROUNDING

If an outside antenna is connected to your tuner or tuner-preamplifier, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode

- a. Use No.10 AWG (5.3 mm<sup>2</sup>) copper, No.8 AWG (8.4 mm<sup>2</sup>) aluminum, No.17 AWG (1.0 mm<sup>2</sup>) copper-clad steel or bronze wire, or larger, as a ground wire
- b. Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4-6 feet (1.22-1.83 m) apart
- c. Mount antenna discharge unit as close as possible to where lead-in enters house
- d. Use jumper wire not smaller than No.6 AWG (13.3 mm<sup>2</sup>) copper, or the equivalent, when a separate antenna-grounding electrode is used. See NEC Section 810-21 (j).

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED IN ARTICLE 810 - RADIO AND TELEVISION EQUIPMENT



#### NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the National Electrical Code that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical

## INTRODUCTION

Congratulations on your decision to purchase the GDA-700 Digital-to-Analog Converter. You have made a wise choice that will reward you with exceptionally accurate and musical sound reproduction for years to come. To realize the full potential of your new unit, please read these operating and installation instructions thoroughly before attempting to connect it. Furthermore, it is a good idea to keep this manual handy for future reference.

## FEATURES

- Pacific Microsonics HDCD® process decoder/filter.
- UltraAnalog AES21 receiver module.
- Dual Burr Brown 20-bit digital-to-analog converters.
- Class-A biased, direct coupled analog output stage.
- Over 13,000µF of power supply filter capacitance.
- Balanced and single-ended analog outputs.
- Toroidal transformer used for audio section.
- Independent transformer for digital section.
- Anodized aluminum front panel
- Heavy gauge steel chassis for greater durability

### IMPORTANT NOTICE ADCOM PROTECTION PLAN (USA ONLY)

ADCOM offers the enclosed valuable Limited Warranty. Please read the details on the Warranty Card carefully to understand the extent of the protection offered by the Warranty, its reasonable limitations, and what you should do in order to obtain its benefits.

Be sure to verify that the serial number printed on the rear panel matches the serial number on the outer carton. If any number is altered or missing, or if the ADCOM Warranty Card is not included in the carton, you should notify us immediately in order to ensure that you have received a genuine ADCOM product which has not been opened, mishandled, or tampered with in any way.

### NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the Federal Communications Commission rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions outlined in this manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- 1) Reorient the television or radio receiving antenna.
- 2) Increase the separation between the GDA-700 and the television or other equipment.
- 3) Plug the GDA-700 into an outlet on a circuit different from that to which the other equipment is connected.

Unauthorized circuit changes or modifications will void your warranty and may void your right to operate this equipment.

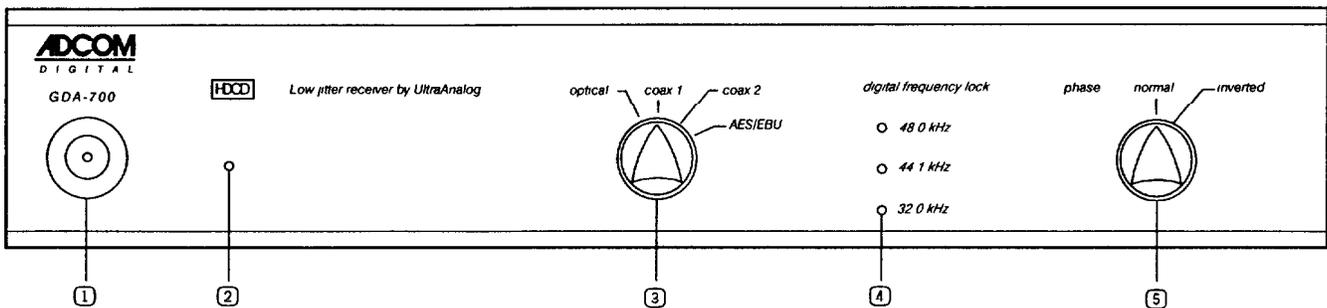
## UNPACKING

Before your new GDA-700 left our factory, it was carefully inspected for physical imperfections and tested for all electrical parameters as a routine part of ADCOM's systematic quality control. This, along with full operational and mechanical testing, should ensure a product flawless in both appearance and performance. After you have unpacked the GDA-700, inspect it for physical damage. Save the shipping carton and all packing material as they are intended to reduce the possibility of transportation damage should the unit ever need to be shipped again. In the unlikely event damage has occurred, notify your dealer immediately and request the name of the carrier so a written claim to cover shipping damages can be initiated.

THE RIGHT TO A CLAIM AGAINST A PUBLIC CARRIER CAN BE FORFEITED IF THE CARRIER IS NOT NOTIFIED PROMPTLY IN WRITING AND IF THE SHIPPING CARTON AND PACKING MATERIALS ARE NOT AVAILABLE FOR INSPECTION BY THE CARRIER. SAVE ALL PACKING MATERIALS UNTIL THE CLAIM HAS BEEN SETTLED.

## INSTALLING THE GDA-700

When installing your new GDA-700, please select a stable, vibration free location as close to your other audio and/or video source components as possible. The more massive and firmly anchored the supporting surface is the better as it will reduce the likelihood of encountering problems.



Front Panel Diagram

### AC ON/OFF SWITCH ①

The AC ON/OFF SWITCH controls power to the power transformer circuits of the GDA-700. Depress the push button switch to energize the GDA-700. Release the switch to turn the unit off. The LED will glow whenever the AC ON/OFF switch is turned on and the GDA-700 is energized.

### HDCD® PROCESS INDICATOR ②

This LED will light whenever the GDA-700 is decoding material that has been encoded using Pacific Microsonics' HDCD® (High Definition Compatible Digital®) format.

### INPUT SELECTOR ③

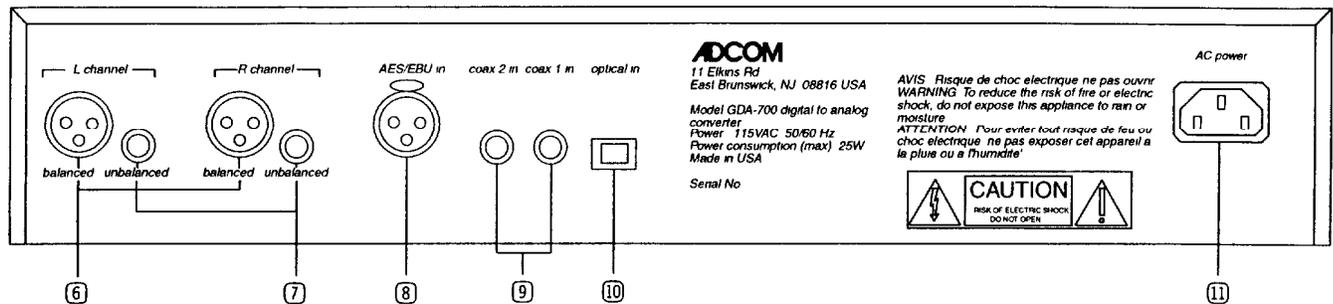
Use this rotary switch to select the desired input from one of the four options.

### DIGITAL FREQUENCY LOCK INDICATOR ④

One of three LEDs light whenever the GDA-700 detects a usable digital source "clock" or timing signal at the selected input corresponding to the frequency of the clock. This clock signal is not the same as digital audio data since a digital source will generally put out a clock signal whenever it is on. For example, the Digital Frequency Lock Indicator LED may light when a CD transport is turned on even though no CD is playing. Conversely, the LED may not go out when you stop or pause the transport, but will go out if you turn the transport off.

### PHASE INVERSION SWITCH ⑤

This control is used to digitally invert the phase of the audio signal being processed by the GDA-700. While a full description on the effects of phase inversion is beyond the scope of this manual, this feature has the potential to improve the sound quality on certain material depending on how it was originally recorded. Experimentation on your different source material will reveal which if any show this positive effect. This switch is also useful to correct phase inversion introduced by other components in the playback system.



**Rear Panel Diagram**

### BALANCED RIGHT/LEFT ANALOG OUTPUTS ⑥

The balanced outputs of the GDA-700 are through two high quality, three-pin, XLR jacks to minimize high frequency losses, noise, etc. They are compatible with any preamplifier that incorporates balanced inputs using similar three-pin XLR jacks. To preserve the correct stereophonic effects, please be certain to connect the left output of the GDA-700 to the left high- or line-level input on your preamplifier and the right output of the GDA-700 to the right input jack.

To ensure that the performance designed into the GDA-700 is realized, you should use the highest quality cables feasible. There are many cables that are designed specifically for these applications and your ADCOM dealer can be of help in selecting the best cable for your application.

### UNBALANCED RIGHT/LEFT ANALOG OUTPUTS ⑦

The unbalanced outputs of the GDA-700 are through two high quality, gold plated RCA jacks to ensure maximum signal transfer. Again, to preserve the correct stereophonic effects, please be certain to connect the left output of the GDA-700 to the left high- or line-level input on your preamplifier or tuner-preamplifier and the right output to the right input jack.

As with the balanced outputs, cable selection is just as important when using the unbalanced outputs of your new GDA-700. To obtain the maximum performance designed into your unit you should use the highest quality cables possible. Please see your ADCOM dealer for recommendations. Whatever cable you finally select, it should have low capacitance. This is particularly important if you use a long run between the preamplifier and Digital-to-Analog Converter. Generally speaking, a cable with a capacitance of less than 100 pF will work best.

### WARNING

WHENEVER CONNECTIONS TO OR FROM THE GDA-700 ARE BEING MADE, BE CERTAIN THAT THE AC ON/OFF SWITCH OF THE UNIT IS IN THE OFF POSITION, THE AC CORD OF THE UNIT IS DISCONNECTED FROM THE AC WALL OUTLET AND THAT ALL ASSOCIATED COMPONENTS ARE OFF

### AES/EBU IN ⑧

This input conforms to the Audio Engineering Society/European Broadcast Union standard for professional digital data transmission. It is a premium grade input with significant electrical and sonic advantages over other digital formats. ADCOM regards the AES/EBU format as the most desirable high quality digital data path available.

The three pin XLR connector provides a fully shielded transmission path which effectively isolates the digital data from external interference. When selecting an interconnecting cable for connection to this input please keep in mind that the AES/EBU standard specifies a 110 ohm transmission line to ensure minimum signal degradation. Again, your ADCOM dealer can provide specific cable recommendations for your situation.

Use this input with any high quality digital source that supports the AES/EBU format. When properly implemented, this input will provide the highest levels of data recovery.

## **COAX IN 1 & 2 <sup>(9)</sup>**

These RCA type inputs allow the connection of any digital source with an RCA output connector that is S/PDIF (Sony/Phillips Digital Interface Format) compatible.

### **NOTE**

The GDA-700 coax inputs are compatible with the S/PDIF and will work with a digital source that conforms to this common standard. However, to realize the full potential of your new unit, connections to these inputs should only be made using a 75 ohm digital-specific cable. While standard analog cables will not damage your equipment, they do not provide the reflection free data path ideal for digital transmissions and do not conform to the S/PDIF standard. Please contact your ADCOM dealer for recommendations on cables compatible with your GDA-700.

## **OPTICAL IN <sup>(10)</sup>**

This Toslink™ input is the optical equivalent of the coax S/PDIF inputs described earlier. It is provided for the convenience of owners whose digital sources have a Toslink™ optical digital output. This format is found on many CD players, DAT (Digital Audio Tape) recorders and video disc players.

### **NOTE**

Although most Toslink™ cables use an optical plastic conductor, a few use metal shielded glass conductors. Handle all cables carefully regardless of type being cautious to avoid sharp bends or twists when running the cable from your source to the GDA-700 as these can pinch the conductor and degrade data transmission. Also make sure that the tips of the cables are protected until they are inserted into the receptacle on the rear of the GDA-700. (Most manufacturers supply small plastic shields for this purpose that need to be removed before use.)

## **AC INLET/LINE CORD <sup>(11)</sup>**

The AC cord provides power to operate all the GDA-700's circuits. Insert the AC cord into the GDA-700 AC Inlet and plug the other end into a standard wall outlet provided the outlet supplies a voltage compatible with the "Power" requirements printed on the rear of the GDA-700.

### **NOTE**

The GDA-700's power cord is supplied with a grounded three prong AC plug as required by UL/CSA standards and the National Electrical Code. To minimize the risk of electrical shock and to ensure minimal hum from the system, do not defeat the ground feature of the plug. To prevent electrical shock, do not use this grounded plug with an extension cord or other outlet unless all three blades can be fully inserted to prevent blade exposure.

## **CARING FOR YOUR GDA-700**

Great care has been taken by ADCOM to ensure that your new Digital-to-Analog Converter is as flawless in appearance as it is electronically. The front panel is a heavy gauge, high grade aluminum extrusion carefully finished and anodized for durability. The chassis, top cover and rear panel are heavy gauge steel that has been powder coated and baked to ensure a lasting finish. If the front panel, top or sides become dusty or finger printed, they can be cleaned with a soft, lint free cloth, slightly dampened with a very mild detergent solution or glass cleaner.

### **WARNING**

**DO NOT SPRAY OR POUR LIQUIDS OF ANY KIND ON THE SURFACES OF THE GDA-700.**

## **SERVICING**

ADCOM has a Technical Service Department to answer questions pertinent to the installation and operation of your unit. In the event of difficulty, please contact us for prompt advice. If your problem cannot be resolved through our combined efforts, we may refer you to an authorized repair agency, or authorize return of the unit to our factory. To aid us in directing you to a convenient service center, it would be helpful if you indicate which major city is accessible to your home.

Please address mail inquires to:  
ADCOM Service Corporation  
11 Elkins Road  
East Brunswick, NJ 08816  
USA

Phone or fax inquires to:  
Telephone: 908-390-1130  
Fax: 908-390-9152  
Monday through Friday  
9:00 AM to 5:00 PM EST

For fax inquires, please include a return fax number for the reply.

When calling or writing about your GDA-700, be sure to note and refer to its model and serial numbers as well as the date of purchase and the dealer from whom it was purchased. In the event the unit must be returned to our factory for service, you will be instructed on the proper procedure when you call or write for a Return Authorization. **UNDER NO CIRCUMSTANCES SHOULD YOUR UNIT BE SHIPPED TO OUR FACTORY WITHOUT PRIOR AUTHORIZATION, OR PACKED IN OTHER THAN ITS ORIGINAL CARTON AND FILLERS.**

If the original shipping carton and its fillers have been lost, discarded, or damaged, a duplicate carton may be obtained from our Service Department for a nominal charge. If necessary, inquire about a box when requesting a Return Authorization Number.

Always ship **PREPAID VIA UNITED PARCEL SERVICE (UPS) OR OTHER APPROVED CARRIER. DO NOT SHIP VIA PARCEL POST**, since the packing was not designed to withstand rough Parcel Post handling. **FREIGHT COLLECT SHIPMENTS CAN NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES.**

# GDA-700 SPECIFICATIONS

## Digital

Input Format.....	S/PDIF, AES/EBU
Input Type.....	S/PDIF Optical (Toslink™ x 1) S/PDIF Coax (RCA x 2) AES/EBU (XLR x 1)
Input Isolation.....	Transformer Coupled
Input Decoding.....	UltraAnalog AES21
Digital Filter.....	Pacific Microsonics PMD-100 HDCD®
Resampling Rate.....	8 x (352.8 kHz for 44.1 kHz input)
DAC Type.....	Dual Burr Brown PCM-1702P
Resolution.....	20 Bits
Phase Inversion.....	Digital Domain (manual selection)

## Analog

Frequency Response.....	DC - 20 kHz +0, -0.5 dB
THD.....	0.009% (20 - 20 kHz, full scale)
Signal to Noise Ratio.....	102 dB (20 - 20 kHz, unweighted) >105 dB (20 - 20 kHz, "A" weighted)
Dynamic Range.....	98 dB
Channel-to-Channel Crosstalk.....	106 dB (20 - 20 kHz) 112 dB (20 - 20 kHz)
Output Voltage.....	2.234 V RMS (full scale)
Output impedance (Unbalanced).....	77 ohms
Output impedance (Balanced).....	150 ohms
Output Format.....	Balanced, Unbalanced
Output Type.....	Balanced (XLR x 2), Unbalanced (RCA Coax x 2)
Output Mute.....	Relay Activated (Power, Unlock)
Power Consumption (maximum).....	25 Watts

## General

Power (available in 230 VAC by special order).....	115 VAC, 50/60 Hz
Chassis Dimensions.....	3" (76mm) x 17" (423mm) x 10½" (267mm)
Maximum Dimensions.....	3" (76mm) x 17" (423mm) x 11½" (292mm)
Weight.....	10 lbs. (4.5 kg)
Weight, Packed.....	13 lbs. (5.9 kg)



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DM5069

Printed in USA