

MANLEY

LABORATORIES, INC.

OWNER'S MANUAL

MANLEY REFERENCE DIGITAL TO ANALOGUE CONVERTER

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INTRODUCTION

THANK YOU!...

for choosing the Manley Laboratories *REFERENCE 20 BIT DIGITAL TO ANALOGUE CONVERTER*. Please read over this manual carefully as it contains information essential to proper operation of this unit.

The MANLEY DIGITAL TO ANALOGUE CONVERTER features completely dual-mono analogue sections and power supplies, the heart of which is the only TRUE 20-BIT, 128x oversampling converter unit available today, custom made for us by ULTRAANALOG. By "TRUE 20-BIT" we mean that full 20 bit performance IS actually achieved from years of exhaustive research and engineering on the converter chip itself. While some converters claim to be 20 bit, or 18 bit, or 16 bit, seldomly is the 18th, 16th, or 14th bit performance ever reached. The 8x oversampling rate at which the ULTRAANALOG operates eliminates the need for steep anti-alias filters, and eliminates differential non-linearity and harmonic distortion for low amplitude signals. The AES-21 chip effectively removes incoming jitter from the digital inputs. For maximum fidelity and musical involvement the line amplifier is a low impedance all vacuum tube design.

GENERAL NOTES

LOCATION & VENTILATION

The MANLEY DIGITAL TO ANALOGUE CONVERTER must be installed in a stable location with ample ventilation. It is recommended, if this unit is rack mounted, that you allow enough clearance on the top and bottom of the preamp such that a constant flow of air can flow through the ventilation slots.

WATER & MOISTURE

As with any electrical equipment, this unit should not be used near water or moisture. If liquid enters the unit, it must be immediately returned to your dealer for servicing.

SERVICING

The user should not attempt to service this unit beyond that described in the owner's manual. Refer all servicing to Manley Laboratories.



WARNING!



**TO PREVENT THE RISK OF ELECTRIC SHOCK
DO NOT OPEN THE CABINET
REFER SERVICING TO
QUALIFIED PERSONEL**

MAINS CONNECTIONS

Your unit has been factory set to the correct mains voltage for your country. The voltage setting is marked on the serial badge, located on the rear panel. Check that this complies with your local supply.

Export units for certain markets have a moulded mains plug fitted to comply with local requirements. If your unit does not have a plug fitted the coloured wires should be connected to the appropriate plug terminals in accordance with the following code.

GREEN/YELLOW	EARTH	terminal
BLUE	NEUTRAL	terminal
BROWN	LIVE	terminal

As the colours of the wires in the mains lead may not correspond with the coloured marking identifying the terminals in your plug proceed as follows;

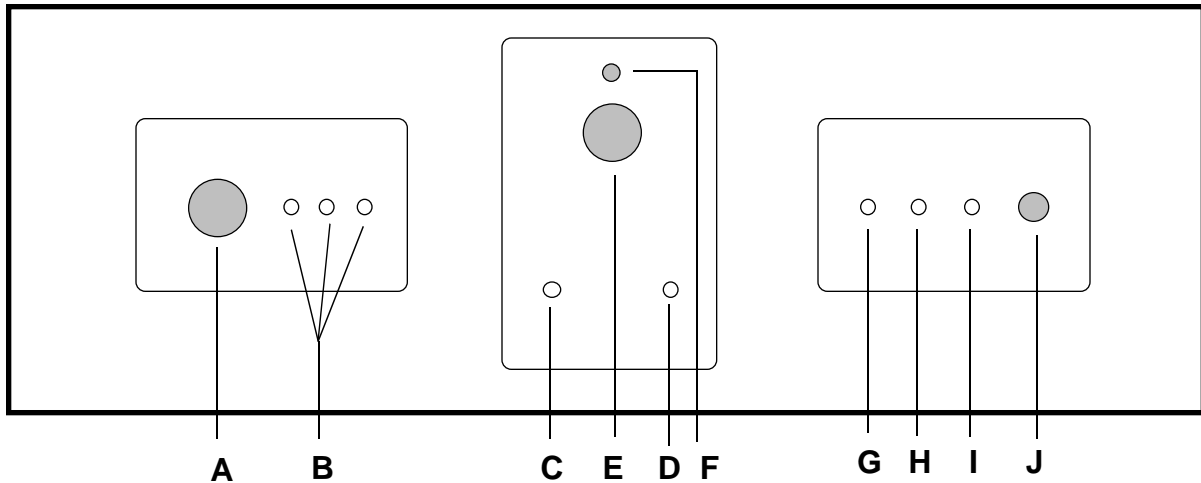
The wire which is coloured GREEN/YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol or coloured GREEN or GREEN and YELLOW.

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked by the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked by the letter L or coloured RED.

DO NOT CONNECT/SWITCH ON THE MAINS SUPPLY UNTIL ALL OTHER CONNECTIONS HAVE BEEN MADE.

FRONT PANEL CONTROLS



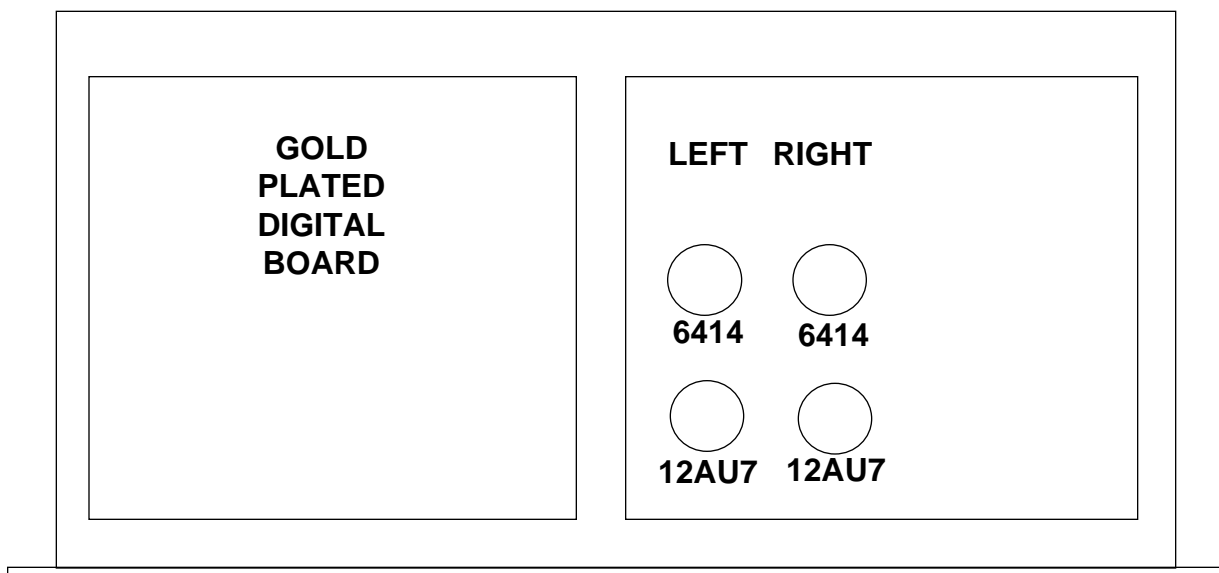
- A DIGITAL INPUT SELECT:** Selects any of the 4 digital inputs. Positions 1, 2 and 3 correspond to the RCA phono style SPDIF and the XLR AES / EBU inputs. Position 4 corresponds to the A.T.&T. Optical input. When the switch is changed the output mutes until "VALID DATA" is "LOCKED" onto by the AES 21 jitter reduction chip.
- B 32, 44.1, 48:** 3 red LEDs that indicate the sample rate of the incoming data. CD's are always 44.1 while the sample rate of DAT's may be any of the three.
- C VALID DATA LED:** Lit when the unit has a readable input that can be converted to audio.
- D PLL LOCK LED:** Lit when the Phase Lock Loop of the jitter removal system has synchronized to the digital input data. When input is lost as when changing the "INPUT SELECT" there will be a one second period before the AES 21 resynchronizes and the LED lights. If on the selected input the sample rate is changed or the LED seems to be "hunting" or flickering change the "INPUT SELECT" and back to restart the AES 21 chip into resync mode.
- E PHASE:** Switches the polarity of both channels. Often a subtle change depending on the music and symmetry of the waveforms. The typical recording process occasionally accidentally inverts the polarity and this little switch restores it.
- F VOLUME:** This is a precision dual stepped attenuator. Because some users prefer to feed the outputs of this unit directly to their power amps this VOLUME becomes their main volume control. Other users with a preamp can use this control to match the output of the D to A to their analogue sources avoiding level jumps.

MUTE ERROR LED. Red LED indicates when the Output Muting Circuit is activated. The output is reduced by over 60 dB :
When there is not "VALID DATA"
When the PLL is not yet "LOCKED"
For 30 seconds during "WARM UP" after first powering on the converter.
Immediately when the unit is "turned off".
For 1 second between "INPUT SELECTS"

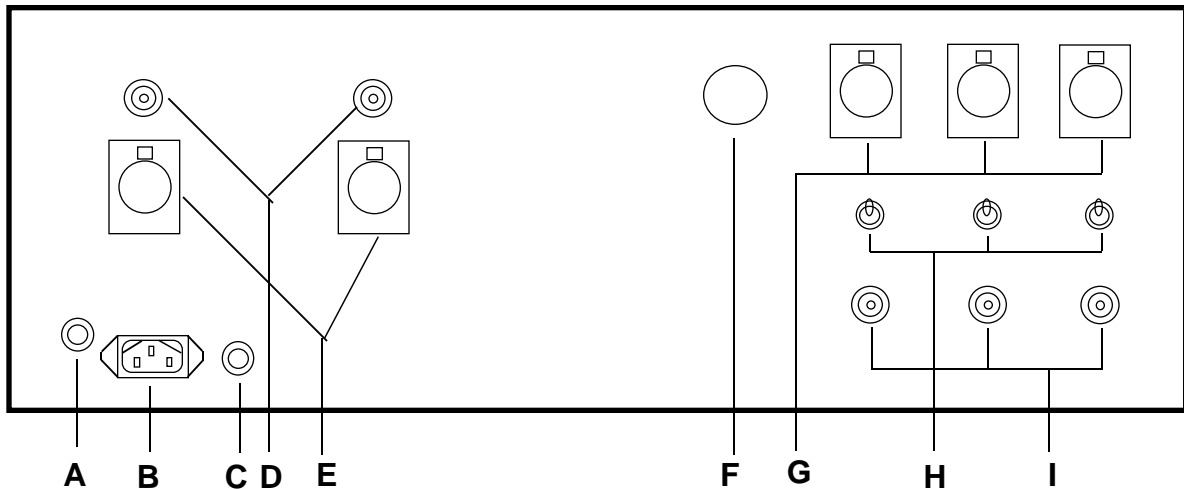
DEEMPHASIS LED: Lit only if the digital data has been pre-emphasized. There are very few CD's with Pre-Emphasis and it is unlikely that the deemphasis circuit (equalizer) will be switched in automatically.

POWER LED: Lit when the Converter is plugged into the wall and the power switch is on. If not lit check that the power cable is correctly plugged in and that the fuse is good.

POWER SWITCH: In one position the Converter will be dark and will filter all data from becoming audio at the outputs. In the up position LEDs will light up and the Converter will filter the data for 30 seconds before it lets music thru. Some users prefer only to use the up position so that the unit is always well warmed up and ready for serious listening. Others prefer the longer tube and capacitor life and lower utility bills of using both positions.



REAR PANEL



A VOLTAGE CHANGEOVER SWITCH: Set for the correct mains voltage for your area by rotating the centre section with a flat screwdriver.

B IEC MAINS SOCKET: Standard IEC mains socket (120/240 VAC)

C FUSE HOLDERS: Replace with 1A SLO-BLO fuse only.

D UNBALANCED LINE OUTPUTS. From tube line amp. Variable GAIN.

E BALANCED LINE OUTPUTS: PIN 2 HOT, PIN 3 LO, PIN 1 GROUND
6 dB more signal than at UNBALANCED OUTPUTS.

F AT&T AT OPTICAL INPUT. NOTE THERE IS A GREY PROTECTIVE COVER THAT MUST BE PULLED OFF BEFORE USING. THE CONNECTOR IS LOCKED WITH A QUARTER TURN CLOCKWISE. This is GLASS FIBER as opposed to plastic TOSLINK. Our opinion is that this is the best sounding input here but that CD transports with this type of output are too rare. Some CD transports and players can be upgraded (modded) for this.

G AES / EBU DIGITAL INPUTS. 110 Ω balanced and transformer isolated. Use special digital interconnects with gold plated contacts rather than "mic" cables.

H SPDIF / AES SELECT: This LOCKING switch will optimise either AES or SPDIF digital formats. To change the setting of this switch, PULL OUT the toggle before switching. Do not use both an AES and SPDIF line into one input.

I SPDIF INPUTS: Three individual 75 Ω transformer isolated inputs. Do not use audio interconnects. Use specialized high quality digital data cables to get the best data integrity. Gold plated connectors will mate best with these gold plated jacks.

2 CUSTOM 20 BIT ULTRA-ANALOG DIGITAL TO ANALOG CONVERTERS

1 ULTRA-ANALOG AES 21 JITTER REMOVAL CHIP

**VACUUM TUBE HIGH CURRENT LO-IMPEDANCE MANLEY LINE DRIVERS
4 TUBES (4 DIRECT COUPLED TRIODES PER CHANNEL)**

**15 SEPARATE POWER SUPPLY REGULATORS: 6 @ +5V (LT)
3 @ +12 V
3 @ +15 V (LT)
3 @ - 15 V (LT)**

**PRECISION DUAL STEPPED ATTENUATOR
4 WAY INPUT SELECTOR SWITCH
PHASE / POLARITY SWITCH**

**3 SPDIF INPUTS
3 AES / EBU INPUTS
AT&T OPTICAL INPUT
BOTH UNBALANCED AND BALANCED ANALOGUE OUTPUTS**

LED INDICATORS FOR VALID DATA, PLL LOCK AND AUTOMATIC MUTE

PRECISION MILLED BILLET 19' X 5.25 X 11.5 CHASSIS

**NEW ANTI-ALIAS FILTER OPTIMIZED FOR CRITICAL LISTENERS
AND SUPERB MUSIC REPRODUCTION SYSTEMS**

**PRECISION AUDIOPHILE COMPONENTS USED THROUGHOUT:
GOLD PLATED DIGITAL PC BOARD
MIT OUTPUT CAPS, CUSTOM FILM ON FOIL CAPS
LO Z PANASONIC ELECTROLYTICS IN POWER SUPPLIES
LINEAR TECHNOLOGY REGULATORS
OFC SILVER PLATED TEFLON INSULATED WIRE
GOLD PLATED CONNECTORS FOR LOW OXIDATION AND LONG LIFE
METAL FILM 1% RESISTORS**

WARRANTY

All Manley Laboratories equipment is covered by a limited warranty against defects in materials and workmanship for a period of 90 days from date of purchase to the original purchaser only. A further optional limited 5 year warranty is available to the original purchaser upon proper registration of ownership within 30 days of date of first purchase.

Proper registration is made by filling out and returning to the factory the warranty card attached to this general warranty statement, along with a copy of the original sales receipt as proof of the original date of purchase. Only 1 card is issued with each unit, and the serial number is already recorded on it.

If the warranty registration card has already been removed then this is not a new unit, and is therefore not warranted by the factory. If you believe this to be a new unit then please contact the factory with the details of purchase.

This warranty is provided by the dealer where the unit was purchased, and by Manley Laboratories, Inc. Under the terms of the warranty defective parts will be repaired or replaced without charge, excepting the cost of tubes. No warranty is offered on tubes, unless:

1. a Manley Laboratories preamplifier is used with a Manley Laboratories amplifier, and
2. the warranty registration card is filled out.

In such a case a 6 month warranty on tubes is available with the correct recording of the serial number of the preamplifier on your warranty registration card.

If a Manley Laboratories product fails to meet the above warranty, then the purchaser's sole remedy shall be to return the product to Manley Laboratories, where the defect will be repaired without charge for parts and labour. The product will then be returned via prepaid, insured freight, method and carrier to be determined solely by Manley Laboratories. All returns to the factory must be in the original packing, (new packing will be supplied for no charge if needed), accompanied by a written description of the defect, and must be shipped to Manley Laboratories via insured freight at the customer's own expense. Charges for unauthorized service and transportation costs are not reimbursable under this warranty, and all warranties, express or implied, become null and void where the product has been damaged by misuse, accident, neglect, modification, tampering or unauthorized alteration by anyone other than Manley Laboratories.

The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from failure of this product. Any and all warranties of merchantability and fitness implied by law are limited to the duration of the expressed warranty. All warranties apply only to Manley Laboratories products purchased and used in the USA.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

WARRANTY REGISTRATION

We ask that you please fill out this registration form and send the bottom half to:

MANLEY LABORATORIES
REGISTRATION DEPARTMENT
13880 MAGNOLIA AVE.
CHINO CA, 91710

Registration entitles you to product support, full warranty benefits, and notice of product enhancements and upgrades. You MUST complete and return the following to validate your warranty and registration. Thank you again for choosing Manley Laboratories.

MODEL _____ SERIAL No. _____

PURCHASE DATE _____ SUPPLIER _____

PLEASE DETACH THIS PORTION AND SEND IT TO MANLEY LABORATORIES

MODEL _____ SERIAL No. _____

PURCHASE DATE _____ SUPPLIER _____

NAME OF OWNER

ADDRESS

CITY, STATE, ZIP

TELEPHONE NUMBER

Serial #'s of Associated Manley Laboratories Equipment
