

User's Manual

α MICtube

STEREO TUBE PREAMP



www.altoproaudio.com
Version 1.0 April 2002

— English —

SAFETY RELATED SYMBOLS



This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure-voltage that may be sufficient to constitute a risk of shock.



This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Read the manual.



Protective grounding terminal.



Alternating current /voltage.



Hazardous live terminal.

ON: Denotes the apparatus turns on.

OFF: Denotes the apparatus turns off, because of using the single pole switch, be sure to unplug the AC power to prevent any electric shock before you proceed your service.

WARNING: Describes precautions that should be observed to prevent the danger of injury or death to the user.

CAUTION: Describes precautions that should be observed to prevent danger of the apparatus.

WARNING

• Power Supply

Ensure the source voltage matches the voltage of the power supply before turning ON the apparatus.

Unplug this apparatus during lightning storms or when unused for long periods of time.

• External Connection

The external wiring connected to the output hazardous live terminals requires installation by an instructed person, or the use of ready-made leads or cords.

• Do not Remove any Cover

There are maybe some areas with high voltages inside, to reduce the risk of electric shock, do not remove any cover if the power supply is connected.

The cover should be removed by the qualified personnel only.

No user serviceable parts inside.

• Fuse

To prevent a fire, make sure to use fuses with specified standard (current, voltage, type). Do not use a different fuse or short circuit the fuse holder.

Before replacing the fuse, turn OFF the apparatus and disconnected the power source.

• Protective Grounding

Make sure to connect the protective grounding to prevent any electric shock before turning ON the apparatus.

Never cut off the internal or external protective grounding wire or disconnect the wiring of protective grounding terminal.

• Operating Conditions

This apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on this apparatus. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

Do not use this apparatus near water.

Install in accordance with the manufacturer's instructions. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not block any ventilation openings.

No naked flame sources, such as lighted candles, should be placed on the apparatus.

IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Follow all instructions.
- Keep these instructions.
- Heed all warnings.
- Only use attachments/accessories specified by the manufacturer.

• Power Cord and Plug

Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

• Cleaning

When the apparatus needs a cleaning, you can blow off dust from the apparatus with a blower or clean with rag etc. Don't use solvents such as benzol, alcohol, or other fluids with very strong volatility and flammability for cleaning

the apparatus body.

Clean only with dry cloth.

• Servicing:

Refer all servicing to qualified personnel. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so .

Servicing is required when the apparatus has been damaged in any way , such as power supply cord or plug is damaged , liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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Preface

Dear Customer,

Thanks for choosing ▲LTO Stereo Tube Preamplifier and thanks for choosing one of the results of ▲LTO AUDIO TEAM job and researches.

For our ▲LTO AUDIO TEAM, music and sound are more than a job...are first of all passion and let us say ..our obsession!

We have been designing professional audio products for a long time in cooperation with some of the major brands in the world in the audio field.

The ▲LTO line presents unparalleled analogue and digital products made by Musicians for Musicians in our R&D centers in Italy, Netherlands, United Kingdom and Taiwan. The core of our digital audio products is a sophisticated DSP (Digital Sound Processor) and a large range of state of the art algorithms which have been developed by our Software Team for the last 7 years.

Because we are convinced you are the most important member of ▲LTO AUDIO TEAM and the one confirming the quality of our job, we would like to share with you our work and our dreams, pay attention to your suggestions and your comments.

Following this idea we create our products and we will create the new ones! From our side, we guarantee you and we will guarantee you also in future the best quality, and the best fruits of our continuous researches and the best prices.

Our α MICtube Stereo Preamplifier is the result of many hours of listening and tests involving common people, area experts, musicians and technicians.

The result of this effort is a half rack space unit, the heart of which is an extremely low-noise microphone pre-amp circuit that uses discrete components to produce a highly transparent sound.

Nothing else to add, but that we would like to thank all the people that made the ▲LTO α MICtube Stereo Preamplifier a reality available to our customers, thank our designers and all the ▲LTO staff, there to make possible the realization of products containing our idea of music and sound and there to support you , our customers, in the best way, conscious that you are our best richness.

Thank you very much.

▲LTO AUDIO TEAM

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1. INTRODUCTION

Thank you very much for expressing your confidence in ▲LTO products by purchasing our α MICtube Stereo Tube Preamplifier.

With the α MICtube you have acquired an extremely musical and flexible Stereo Microphone Preamplifier which is based on many years of experience and findings in amplifier technology and is used through the world in renowned studios, sound reinforcement systems as well as in broadcast and television studios. The ▲LTO α MICtube meets highest and no-compromise requirements in terms of operation, sound, specifications and workmanship.

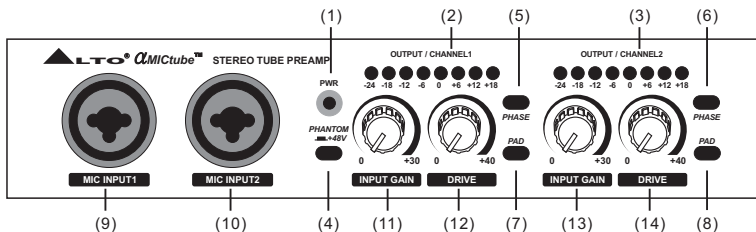
The ▲LTO α MICtube is a half rack space unit, the heart of the α MICtube is an extremely low-noise microphone pre-amp circuit that uses discrete components just like 12AX7WA Tubes and TL074CD J-FET Quad Operational Amplifier IC to produce a highly transparent sound ! The switchable +48V Phantom Power supply allows you to operate your condenser microphone more conveniently.

2. FEATURE LIST :

- Half rack space
- Robust and Compact design
- Dual Servo Microphone Preamplifier
- 20dB pad
- +48V phantom power
- Phase Reverse
- 8-Digit Output Level meter
- 12AX7WA Low Noise Tubes
- Output section includes XLR and 1/4" connectors for driving two separate signal paths
- 1/4" , high Z input on the front panel for instrument preamplification
- High quality and fidelity components
- SMD Technology for top performance
- Manufactured Under ISO9001 Certified management system

3. CONTROL ELEMENTS

3.1 The Front Panel :



a. Guidepost of the front panel

- (1) Power LED
- (2) CHANNEL 1 Output Level Display LED
- (3) CHANNEL 2 Output Level Display LED
- (4) Phantom Power Switch
- (5)(6) Phase Reverse Switch
- (7)(8) 20dB PAD
- (9)(10) Combination Microphone (XLR) and Instrument (1/4 inch) input
- (11)(13) Input Gain Control (0 to 30 dB)
- (12)(14) Drive Control (0 to 40 dB)

b. Supplementary Descriptions

■ Phantom Power Switch (4) :

This switch activates the +48 volts phantom power to supply condenser mics and any other devices requiring continuous power by means of the XLR cable. The +48V is applied both to the positive (pin2) and negative inputs (pin3) of the XLR connector :

XLR Connector	Phantom Power Supply
PIN1 (Ground)	GND
PIN2 (Positive)	+48V
PIN3 (Negative)	+48V

Caution: Please make sure that you are using an appropriate microphone before you activate this switch to supply the +48V phantom power. Read the operating instructions accompanying the microphone. Some condenser mics might need another type of power supply, old dynamic microphones could be damaged by the +48V voltage, and unbalanced microphones should never be operated in combination with a +48V power supply.

■ Phase Reverse Switch (5 for CHANNEL 1 and 6 for CHANNEL 2) :

This Phase Reverse Switch reverses the audio signal's phase by 180° , Normally, you won't need this switch, however, in some cases, it might be necessary, for example: the inversion of the pins of the XLR connector may be necessary to alter the audio phase of two link microphones to compensate for phase cancellation. It may be required that the wiring of a cable's XLR connector be switch to successfully utilize Phantom power.

■ 20dB Pad (7 for CHANNEL 1 and 8 for CHANNEL 2) :

A 20dB Pad is available on each channel to attenuate the incoming signal level to provide increased "headroom" for the operator.

■ Input Gain (11 for CHANNEL 1 and 13 for CHANNEL 2) :

This control sets the amount of boost to the signal being processed by this pre-amplifier . Use this control to adapt the α MICtube to either home recording level

(-10dBV) or professional level (+4dbu) . when the gain is too low, the tube effect becomes less audible and the S/N (Signal to Noise) ratio deteriorates. Generally, Dynamic mics and instruments without preamps will require more gain than condenser mics and instruments that have a built-in preamp. If you should require more signal out of the preamp for a hotter recording level, cranking up the gain should provide all the signal that you'll need.

To obtain the best possible S/N (Signal to Noise) ratio and subsequently the best transparent sound, keep an eye on the 8 Digit Output Level Meter .

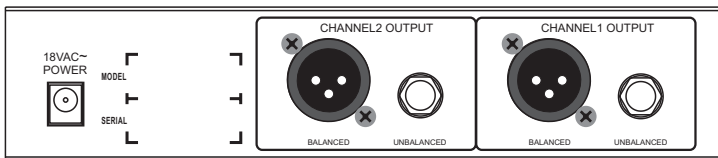
-Drive (12 for CHANNEL 1 and 14for CHANNEL 2) :

The effect achieved by this control can be subtle to extreme, depending on the settings being used.

A "warming up" of the sound can be noticed at lower settings. This desirable effect is especially good for microphones and on an electric bass and the resulting sound is infinitely richer and sweeter.

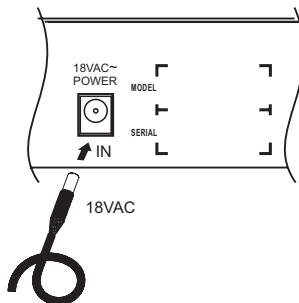
An over-driven signal can be achieved by significantly raising the level of the Drive control. This over-driven tube effect is extremely useful in providing cool guitar sounds and way cool for use with harmonicas for that authentic "Blues harp" vibe. The limits on the possibilities of the Drive control are up to you, your application and your imagination.

3.2 The Rear Panel



a. Power Supply Connection

Please use the 18VAC AC / AC Adaptor provided by ▲LTO to connect your α MICtube. Detail you can follow the illustration.



b. Analogue Inputs / Outputs

The Output XLR Connector is servo balanced and operates at +4dBu. The Output 1/4" Phone jack is unbalanced and operates at -10dBv.

4. INSTALLATION & CONNECTION :

4.1 Mains Connection

- Please ensure that the ▲LTO α MICtube Stereo Microphone Preamplifier is connected to the correct supply voltage before operating this unit.
- Only use the 18VAC AC/AC Adaptor provided by ▲LTO.

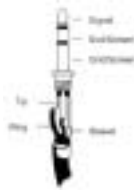
4.2 Audio Connection

The ▲LTO α MICtube Stereo Tube Preamp presents with balanced XLR connectors and 1/4" TRS phone jack and it can be interfaced by several ways to support a variety of applications without any signal loss.

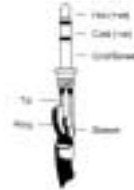
a. Wiring Configuration

Either the 1/4" TRS (Tip-Ring-Sleeve) phone jack or the XLR servo connector can be wired in balanced and unbalanced modes, which will be determined by the actual application status, Please wire your systems as the following examples:

- For 1/4" TRS jack

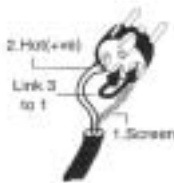


1/4"TRS jack
Unbalanced Input

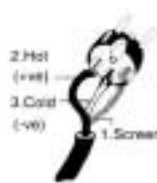


1/4"TRS jack
Balanced Input

- For XLR connector



XLR Unbalanced Input

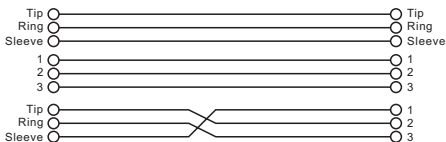
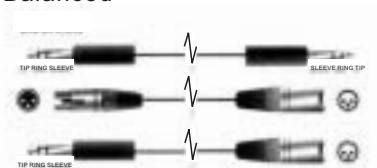


XLR Balanced Input

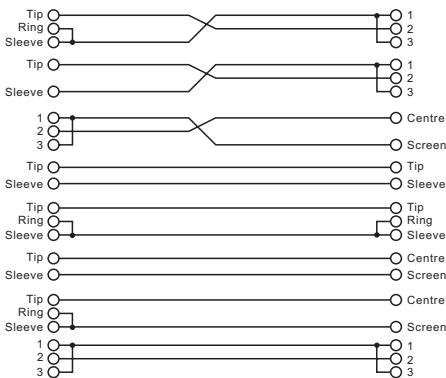
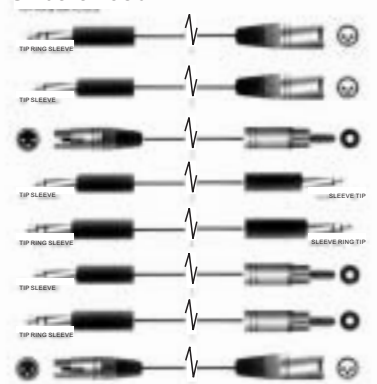
b. In Line Connection

For these applications, the α MICtube Stereo Tube Preamp provides XLR connectors and 1/4" TRS phone jack to easily interface with most professional audio devices. Follow the configuration examples below for your particular connection.

• Balanced

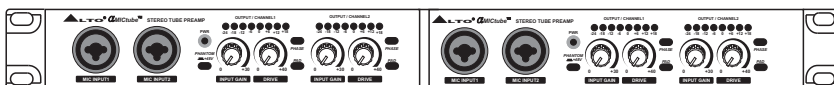


• Unbalanced



4.3. Rack Mounting

The most secure mounting is on a "universal" rack shelf, available from various rack manufacturers or your music dealer. The α MICtube Stereo Tube Preamplifier's height conforms to single-space mounting, and up to two α MICtube Stereo Tube Preamplifier may be mounted side-by-side in a standard universal EIA 19" equipment rack.



5. APPLICATIONS

This section presents some typical applications of our Δ LTO α MICtube Stereo Microphone Preamplifier. Please reserve your time to well understand the application examples, so as to be able to fully exploit the α MICtube and its versatile features.

5.1 The α MICtube as A Microphone Preamplifier

It is the basic application for α MICtube.

Before you can use the Δ LTO α MICtube as a Stereo Microphone Preamplifier, we recommend that you study the various functions of the unit first. The high gain factors (+30dB) provided by the microphone preamplifier can

produce extreme levels on the output side, which may damage subsequent devices, so you should turn down all the level controls beforehand, or you can press the 20dB Pad (7/8) to attenuate the incoming signal level about 20dB, then hook up a microphone to the XLR and 1/4" Combination Input (9 / 10), use either the jack or XLR output connectors to connect the audio system.

Now, power up the entire equipment, if you wish to use a condenser mic requiring +48V phantom power, please press the Phantom Power Switch (4) (to avoid electric damage, please read Control Elements " Phantom Power Switch " carefully) .

After that, please adjust your Input Gain Control and Drive Control to get the best result.

5.2 The α MICtube as A Direct-Injection Box (DI Box)

When audio signals produced by instruments such as guitars, keyboards, etc. are transported over long unbalanced lines, the transmission quality may be affected by Hum or other interference signals included in the cable.

So called DI Box are used to solve this issue: the DI Box converts the unbalanced signal coming from the instrument into a balanced signal that is sent over the line. Interference included in balanced cables is then eliminated by a subsequent balanced input stage.

Using the \blacktriangle LTO α MICtube as a Stereo Microphone Preamplifier for this application is very easy. Simply connect the line output of your instrument to the XLR and 1/4" TRS combination Input on the front panel of α MICtube, then use the α MICtube's balanced output to send the signal to the next stage.

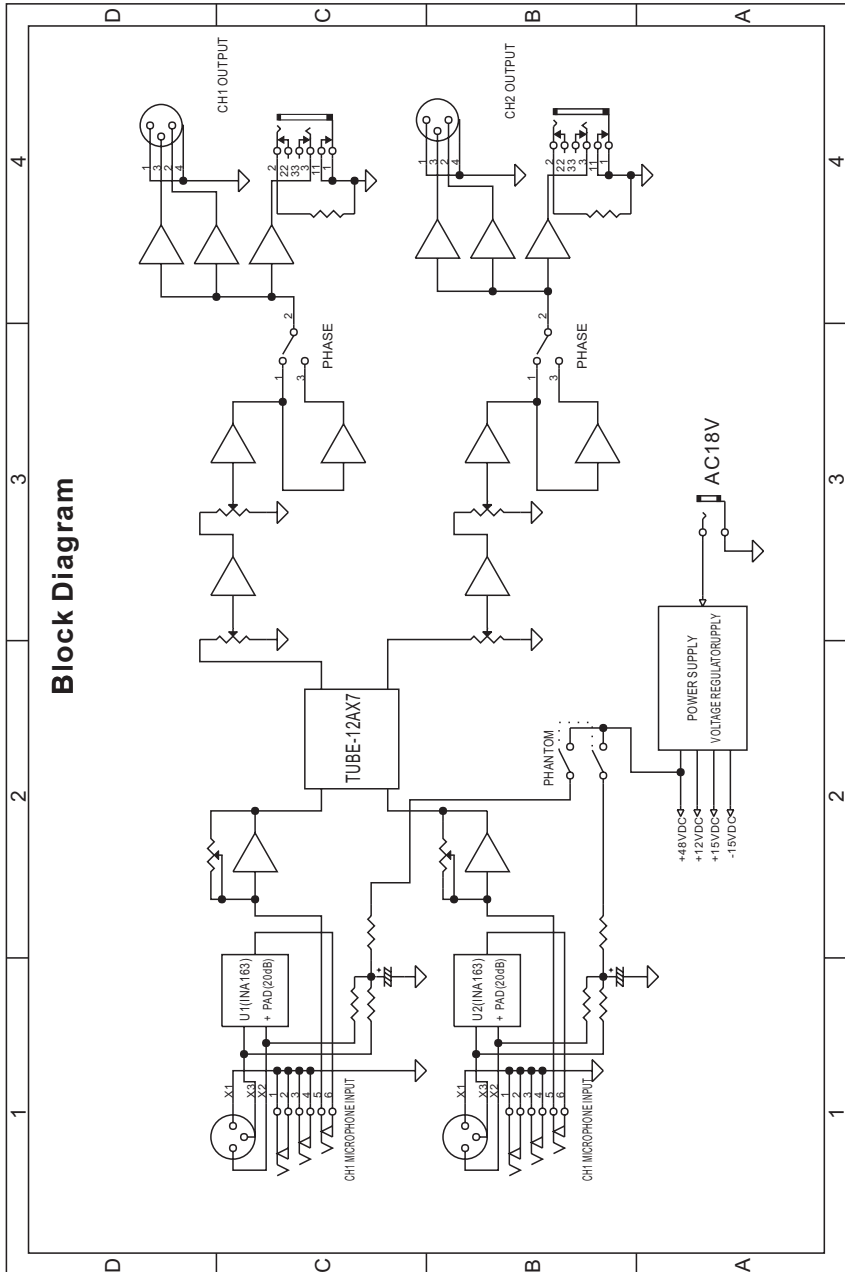
5.3 The α MICtube as A Level Translator

Semi-professional appliances in home recording system are normally operated with a nominal level of 10dBV, while the level used in studios and other professional application is 0dBu or +4dBu. So, when you connect devices of both types to each other, you should consider some kind of level translators of course.

The \blacktriangle LTO α MICtube as a Stereo Microphone Preamplifier is pretty suited for this application. The Input Gain control allows you to raise or lower your input signal level by as much as 30dB. The functions Phase Inversion is also enabled in this mode.

6. TECHNICAL SPECIFICATIONS

6.1 Block Diagram



6.2 Specifications

Input

XLR Impedance	5K Ohm
1/4" High Z	1M Ohm
Connectors	Neutrik™ Combo

Output

XLR Balanced	100 Ohms
1/4" Unbalanced	100 Ohms

Panel Controls

Tube Drive	0dB to +40dB
Gain	0dB to +30dB
Phase Reverse	
20dB Pad	
+48V Phantom Power	

Performance

THD + Noise	<0.5%
Signal To Noise	>90dB
Power Supply Rejection	>98dB
Amplifier Type	Dual Servo

Meter

8-Digit LED	-24dBu to +18dBu
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Physical

Weight	1.05Kg
Dimensions	199(W) × 153(D) × 45(H)mm
Chassis	Steel
Panel	Brushed Aluminum (▲LTO® Style)

Power Supply

Type	Servo controlled, stabilized
Input	18VAC
Power	14 Watts
Transformer	External Wall Mount

7. WARRANTY

1. WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date.

All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to purport a more effective and efficient after-sales warranty service.

Please fill out all the information carefully and genuinely, miswriting or absence of this card will void any of your warranty service.

2. RETURN NOTICE

- 2.1 In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.
- 2.2 Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.
- 2.3 A brief description of the defect will be appreciated.
- 2.4 Please prepay all the costs involved in the return shipping, handling and insurance.

3. TERMS AND CONDITIONS

- 3.1 ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.
- 3.2 The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.
- 3.3 During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.
- 3.4 This warranty does not apply to the damages to this product that occurred as the following conditions:
 - Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
 - Normal tear and wear
 - The product has been altered or modified in any way .
 - Damage which may have been caused either directly or indirectly by another product / force / etc.
 - Abnormal service or repairing by anyone other than the qualified personnel or technician.And in such cases, all the expenses will be charged to the buyer.