



User's Manual

ALTO MONITOR

PA MONITOR PROCESSOR



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English

IMPORTANT SAFETY INSTRUCTION



TO REDUCE THE RISK OF ELECTRIC SHOCK PLEASE DO NOT REMOVE THE COVER OR THE BACK PANEL OF THIS EQUIPMENT. THERE ARE NO PARTS NEEDED BY USER INSIDE THE EQUIPMENT. FOR SERVICE, PLEASE CONTACT QUALIFIED SERVICE CENTERS.

This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.

This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.

⊕ Protective Ground Terminal
~ AC mains (Alternating Current)
⚡ Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

CAUTION

Describes precautions that should be observed to prevent damage to the product.

1. Read this Manual carefully before operation.

2. Keep this Manual in a safe place.

3. Be aware of all warnings reported with this symbol.

4. Keep this Equipment away from water and moisture.

5. Clean it only with dry cloth. Do not use solvent or other chemicals.

6. Do not damp or cover any cooling opening. Install the equipment only in accordance with the Manufacturer's instructions.

7. Power Cords are designed for your safety. Do not remove Ground connections! If the plug does not fit your AC outlet, seek advice from a qualified electrician. Protect the power cord and plug from any physical stress to avoid risk of electric shock. Do not place heavy objects on the power cord. This could cause electric shock or fire.

8. Unplug this equipment when unused for long periods of time or during a storm.

9. Refer all service to qualified service personnel only. Do not perform any servicing other than those instructions contained within the User's Manual.

10. To prevent fire and damage to the product, use only the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

WARNING

To reduce the risk of electric shock and fire, do not expose this equipment to moisture or rain.



Dispose of this product should not be placed in municipal waste and should be separate collection.

11. Move this Equipment only with a cart, stand, tripod, or bracket, specified by the manufacturer, or sold with the Equipment. When a cart is used, use caution when moving the cart / equipment combination to avoid possible injury from tip-over.



12. Permanent hearing loss may be caused by exposure to extremely high noise levels. The US. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible exposure to noise level. These are shown in the following chart:

HOURS X DAY	SPL	EXAMPLE
8	90	Small gig
6	92	train
4	95	Subway train
3	97	High level desktop monitors
2	100	Classic music concert
1,5	102	
1	105	
0,5	110	
0,25 or less	115	Rock concert

According to OSHA, an exposure to high SPL in excess of these limits may result in the loss of heat. To avoid the potential damage of heat, it is recommended that Personnel exposed to equipment capable of generating high SPL use hearing protection while such equipment is under operation.

The apparatus shall be connected to a mains socket outlet with a protective earthing connection.

The mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

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 provide 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 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.

- 3.5 In no event shall ▲LTO be liable for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.
- 3.6 This warranty gives you the specific rights, and these rights are compatible with the state laws, you may also have other statutory rights that may vary from state to state.

7. TECHNICAL SPECIFICATION

Audio Input

Type	Active balanced XLR and 1/4" jack
Impedance	Balanced: 50k Ohm/Unbalanced: 25k Ohm
Operating level	+4 dBu/ - 10 dBV
Maximum input level	Balanced and Unbalanced: +19 dBm
CMRR	>55 dB @1k Hz

Audio Output

Type	XLR and 1/4" jack
Impedance	Balanced: 60 Ohm / Unbalanced: 30 Ohm
Maximum output level	+21 dBm

System Specifications

THD+N%	0.01% typ. 1k Hz, @+4 dBu
Noise	>-92 dBr unweighted 22 Hz to 22k Hz
Frequency response	10 Hz to 30k Hz, ± 3 dB
Low cut filter	Variable (15 Hz to 360 Hz)
High pass filter	40 Hz
Low pass filter	16k Hz
Notch 1 frequency	400~4k Hz/40~400 Hz
Notch 2 frequency	200~2k Hz/2k~20k Hz
Notch depth	Variable 0~-20 dB
Graphic EQ band separation	2/3 Octave 1x15 bandVariable 0~-20 dB

Indicators

Output level	8-segment LED display: -24/-18/-12/-6/0/+6/+12/+18 dB
Function switch	LED indicator of every switch

Power Supply

Main voltages	USA/Canada: 95 - 120 VAC~60 Hz Europe: 210 - 240 VAC~50 Hz U.K/Australia: 240 VAC~50 Hz
Power consumption	8 Watts
Fuse	95 - 120 V: T315mA 250VAC
Main connection	Standard IEC receptacle

Physical

Dimension(WxDxH)	483x194.1x44 mm
Weight	2.8 Kg

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1. INTRODUCTION

Thank you for purchasing the very powerful ▲LTO PA Monitor Processor.

It is really efficient for PA monitor. Your ▲LTO PA Monitor Processor is based on many years of experience and is designed to provide studio engineer and sound contractor with a precise equalization. It can be used to modify the frequency "contour" of a sound, eliminate the unwanted frequencies and suppress the feedback well.

Enjoy your ▲LTO MONITOR and make sure to read this Manual carefully before operation.

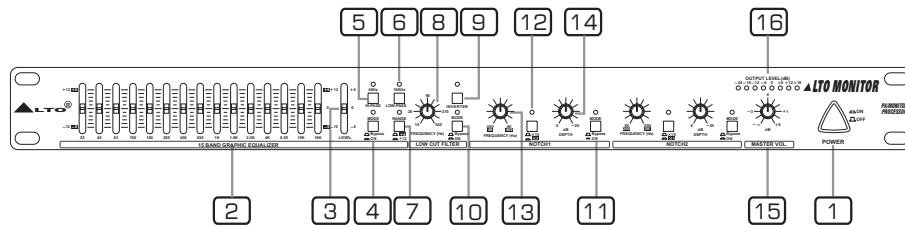
2. FEATURES

- ▲Illuminated Power Switch
- ▲Mountable in a 19" rack unit
- ▲1/4" TRS type jack and balanced XLR connectors available
- ▲LED Meter (8 LEDs) to read Output
- ▲Low Pass and High Pass filters available to cancel unwanted frequencies
- ▲Bypass function
- ▲15-band graphic equalizer, low cut filter and notch available
- ▲Inverter switch to compensate for phase cancellation
- ▲Accurately suppress the feedback



3. CONTROL ELEMENTS

Front Panel



1 POWER Switch

When you set this switch to "ON" position, the unit will be turned on; when you set it to "OFF" position, the unit will be turned off.

2 Graphic Equalizer

These controls will boost or attenuate (either 6 dB or 12 dB) the selected frequencies. When all slider potentiometers are set in center position, the frequency response is flat (no boost and attenuate).

3 LEVEL Fader

This fader is used to adjust the input level, which can be varied from -6 dB to +6 dB.

4 MODE Switch

Engage this switch, it will insert the 15 band graphic equalizer and HI/LOW Pass filter into signal path, and the next LED (green) will illuminate. When this switch is in bypass mode, the 15 band graphic equalizer and HI/LOW Pass will be bypassed.

5 HI-PASS Switch

Engage this switch, it will cut the low frequencies at 40 Hz (12 dB per octave), and the next LED (green) will illuminate.

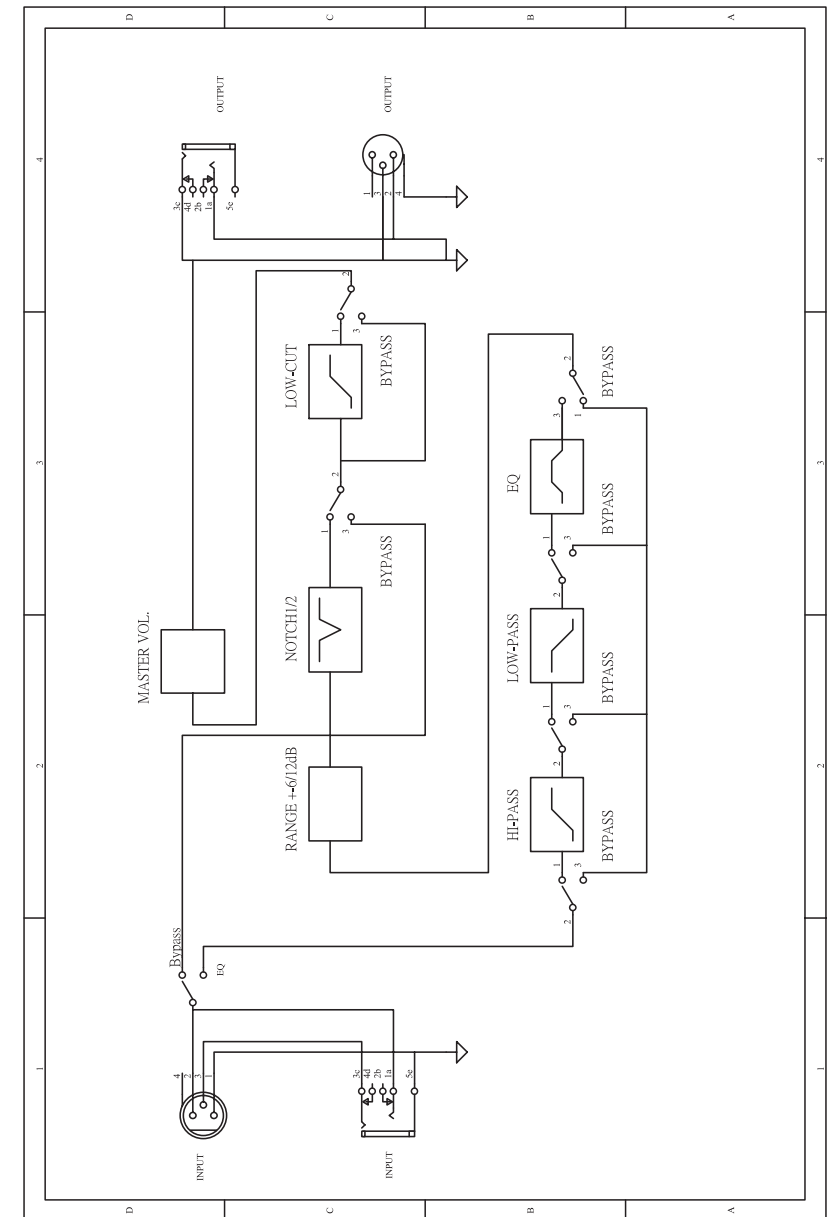
6 LOW-PASS Switch

Engage this switch, it will cut the high frequencies at 16k Hz (12 dB per octave), and the next LED (green) will illuminate.

7 RANGE Switch

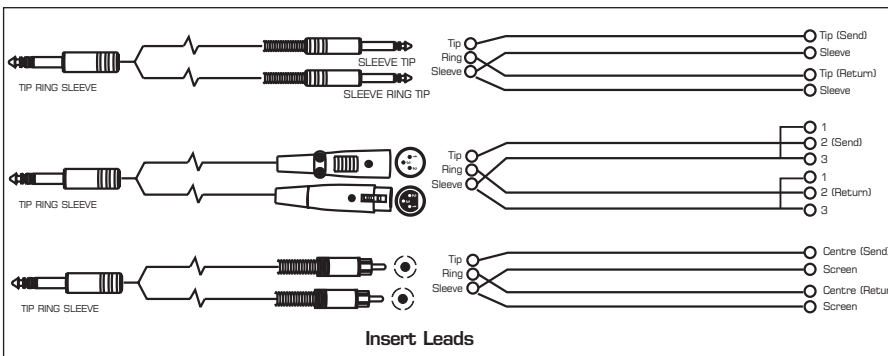
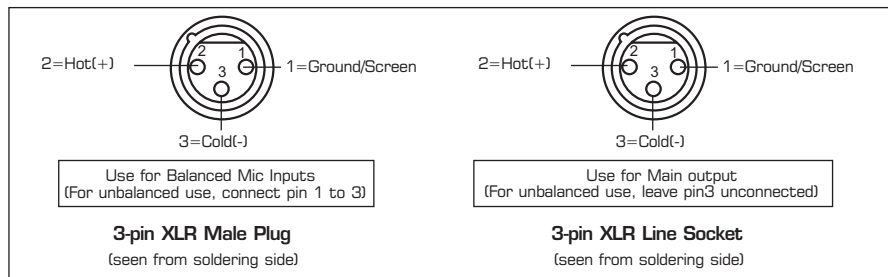
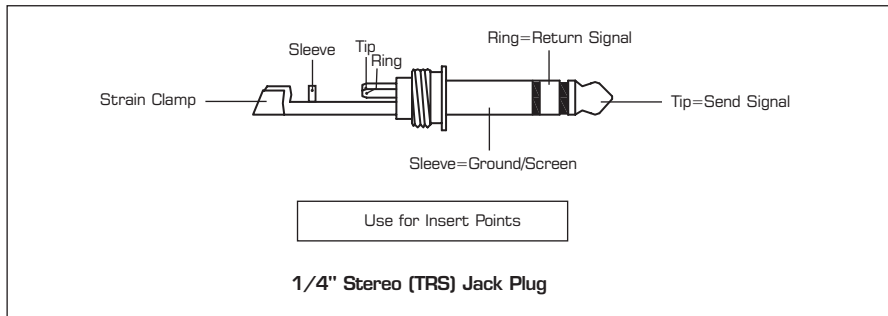
This switch is used to choose the gain range of the filter potentiometer either +6 dB or +12 dB. Up for +6 dB, down for +12 dB.

6. BLOCK DIAGRAM





5. INSTALLATION AND CONNECTION



5.3 Rack Mounting

The most secure mounting is on a universal rack shelf available from various rack manufacturers or your music dealer. The ▲LTO PA Monitor Processor fits into one standard 19" rack unit of space. Be sure that there is enough air space around the unit for sufficient ventilation and please do not place the ▲LTO Monitor PA/Monitor Processor on high temperature devices such as power amplifiers etc. to avoid overheating.



3. CONTROL ELEMENTS

8 FREQUENCY Control

Through this control, you can select the frequency that you want to cut off, the adjustable range goes from 15 Hz to 360 Hz.

9 INVERTER Switch

Engage this switch to reverse the audio signal's phase by 180°. In this case, it may alter the audio phase to compensate for phase cancellation. The next LED will display whether the function is active or not.

10 MODE Switch (LOW-CUT Filter Section)

Engage this switch to insert the Low-Cut filter into signal path, and the next LED (green) will illuminate. When this switch is in bypass mode, the Low-Cut filter will be bypassed.

11 MODE Switch (NOTCH Filter Section)

By engaging this switch, you will insert the Notch filter into the signal path, and the next LED (green) will illuminate. When this switch is in bypass mode, the Notch filter will be bypassed.

12 x1/x10 Selection Switch

This switch is used to change the selected range of the frequency. Engage the switch (x1), the adjustable frequency range goes from 40 Hz~400 Hz (Notch1) or 200 Hz~2k Hz (Notch2), and the next LED will illuminate. Otherwise, engage the switch (x10), and the adjustable frequency range goes from 400 Hz~4k Hz (Notch1) or 2k Hz~20k Hz (Notch2).

13 FREQUENCY Control (Notch Filter Section)

This control provides two frequency ranges. For the details, please refer to the above. Rotate this knob to control the howling resonance frequency response at room.

14 DEPTH Control

Rotate this control to adjust the variation, which can be varied from 0 dB to -20 dB.

15 MASTER VOL. Control

Rotate this knob to attenuate or boost the output level, which can be varied from -∞ to +6 dB.

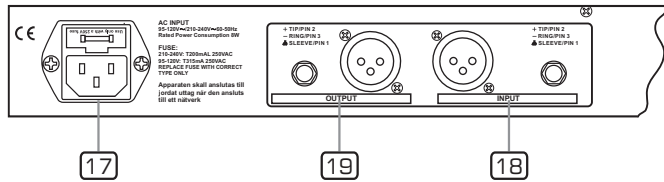
16 OUTPUT LEVEL Meter

The meter displays the output level, and the range is from -24 dB to +18 dB.



3. CONTROL ELEMENTS

Rear Panel



17 AC Inlet and Fuse Holder

Standard IEC receptacle. Connect your ▲LTO MONITOR to the AC with the supplied AC power cord. Before powering up your ▲LTO MONITOR for the first time, make certain the stated power requirement of the unit matches the voltage supplied by the AC socket.

If the fuse blows, replaced with a fuse of the correct type only.

18 Input Connectors

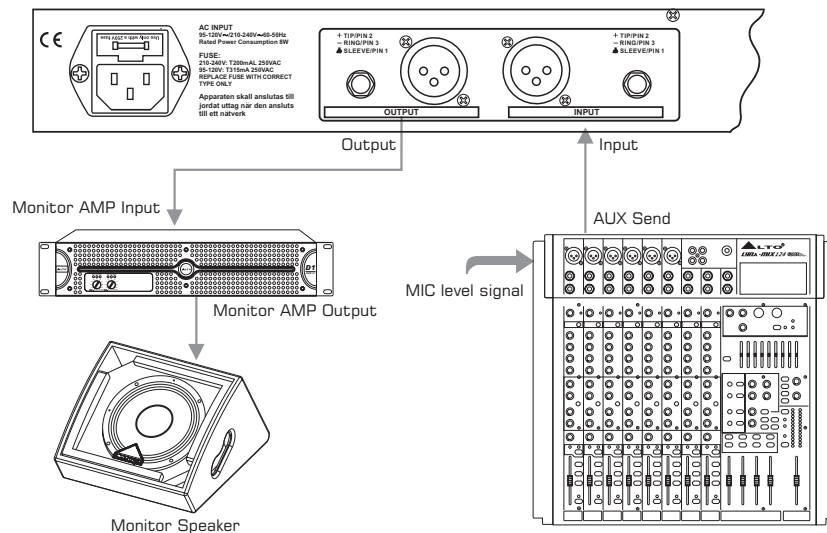
The input connectors are supplied with XLR and 1/4" TRS jack, it is used to input the signal.

19 Output Connectors

The output connectors are supplied with XLR and 1/4" TRS jack, it is used to output the signal.



4. APPLICATION IN MONITOR SYSTEM



5. INSTALLATION AND CONNECTION

Ok, you have got to this point and you are now in the position to operate your ▲LTO MONITOR successfully. However, we advise you to read carefully the following section to be the real master of your own unit. Not paying attention enough to the input signal level, to the routing of the signal and the assignment of the signal will result in unwanted distortion, a corrupted signal or no sound at all. So you should follow these procedures for every single channel:

5.1 Mains Connection

Please ensure that the ▲LTO MONITOR is set to the correct supply voltage before plugging the power cord into the wall outlet, use the same fuse as marked on the fuse holder at the AC power connection. The mains connection of the ▲LTO MONITOR is made by using the enclosed mains cord and a standard IEC receptacle. It meets all of the international safety certification requirements.

5.2 Audio Connection

The ▲LTO MONITOR presents with balanced XLR&1/4" TRS connectors. It can be interfaced in several ways to support a variety of applications without any signal loss. The ▲LTO MONITOR can be used on a single instrument by connecting to the mixing console's main inserts, or on an entire mix "in-line" between a mixing console's outputs and a power amplifier. The defective wiring may degrade the performance of ▲LTO MONITOR, so please use good quality screened audio cables only. Please follow the guide below to interface ▲LTO MONITOR without experiencing any noise or signal loss.

