



## *User's Manual*

# **ALTO Q**


## **5-BAND PARAMETRIC EQUALIZER**




# 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.

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## 1. INTRODUCTION

Thank you for your purchasing of the ▲LTO Q. The ▲LTO Q is a 5-band parametric equalizer. It provides precise audio signal control to fixed sound installation, live performance and studio application.

The ▲LTO Q includes 5 channels of equalization, the variable Q controls allow you to notch out unwanted frequencies while sweepable frequency control add maximum flexibility to your mix.

Enjoy your ▲LTO Q and make sure to read this Manual carefully before operation!

## 2. FEATURES

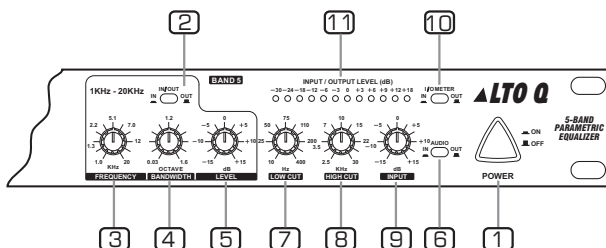
- ▲Illuminated Power Switch
- ▲Mountable in a 19" rack unit(1U)
- ▲1/4" TRS type jack and balanced XLR connectors available
- ▲LED Meter (12 LEDs) to read Input and Output
- ▲Low cut and High cut filters available to cancel unwanted frequencies
- ▲Bypass function to connect automatically Input and Output
- ▲Optimum transparency of the audio signal and minimum phase shift insured by the parallel architecture of the filters
- ▲IN/OUT Switch on every single band
- ▲Constant Q principle combination
- ▲5 bands of equalization fully parametric (gain, frequency, Q) for studio and live applications
- ▲The frequency range of the single 5-band is overlapping. This will allow extreme boost or attenuation



## 3. CONTROL ELEMENTS

Your ▲LTO Q includes 5 channels of equalization, 3 rotary controls and 1 switch are present in each channel. The Master Section includes the power switch, 2 push-on switches, 3 rotary controls and 12 LEDs.

### Front Panel:



#### 1 POWER Switch

When you set this switch to ON position (green light on), the unit will be turned on. When you set this switch to OFF position (green light off), the unit will be turned off.

#### 2 IN/OUT Switch

It activates/disactivates the correspondent band.

#### 3 FREQUENCY Control

This control is used to set the center frequency point of the filter.

#### 4 BANDWIDTH Control

This control adjusts the width and can be set from a minimum of 0.03 octaves to a maximum of 1.6 octaves.

#### 5 LEVEL Control

The level boost or attenuation is set by this control. The adjusting range goes from -15 dB to +15 dB.

#### 6 AUDIO IN/OUT Button

The input jack of your ▲LTO Q is directly connected to the output jack when this control is on "OUT" position or if the unit is not connected to the AC socket. It is used to cause a "hard-bypass" and disable the equalization process in the signal path.

#### 7 LOW CUT Control

When activate this control, it will cut the low frequencies with a slope of 12 dB per octave in a range of 10 Hz to 400 Hz. So if you set this control at the maximum position of 10 Hz, the audio signal will pass through without alteration.



## 3. CONTROL ELEMENTS

### 8. HIGH CUT Control

When activate this control, it will cut the high frequencies with a slope of 12 dB per octave in a range of 2.5 kHz to 30 kHz. So if you set this control at the maximum position of 30 kHz, the audio signal will pass through without alteration.

### 9. INPUT Control

You can control the amount of the audio signal fed into your ▲LTO Q via this control. The adjustable range goes from -15 dB to +15 dB.

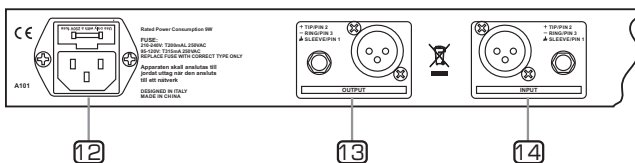
### 10. INPUT/OUTPUT Meter Button

If you engage in this button, the LED Meter will read the output level, and release this button, the LED Meter will read the input level.

### 11. INPUT/OUTPUT Level (LED Meter)

The readable range of this 12 segments LED display is -30 dB to +18 dB. As mentioned before it will read either the INPUT or the OUTPUT level depending on the position of the switch (10).

## Rear Panel



### 12. AC Inlet and Fuse holder

Standard IEC receptacle. Connect your ▲LTO Q to the AC with the supplied AC power cord. Before powering up your ▲LTO Q 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.

### 13. Output Connectors

The unit features Balanced XLR and 1/4" TRS jack output sockets which wired in parallel. The Balanced signals are less sensitive to hum generated by AC.

### 14. Input Connectors

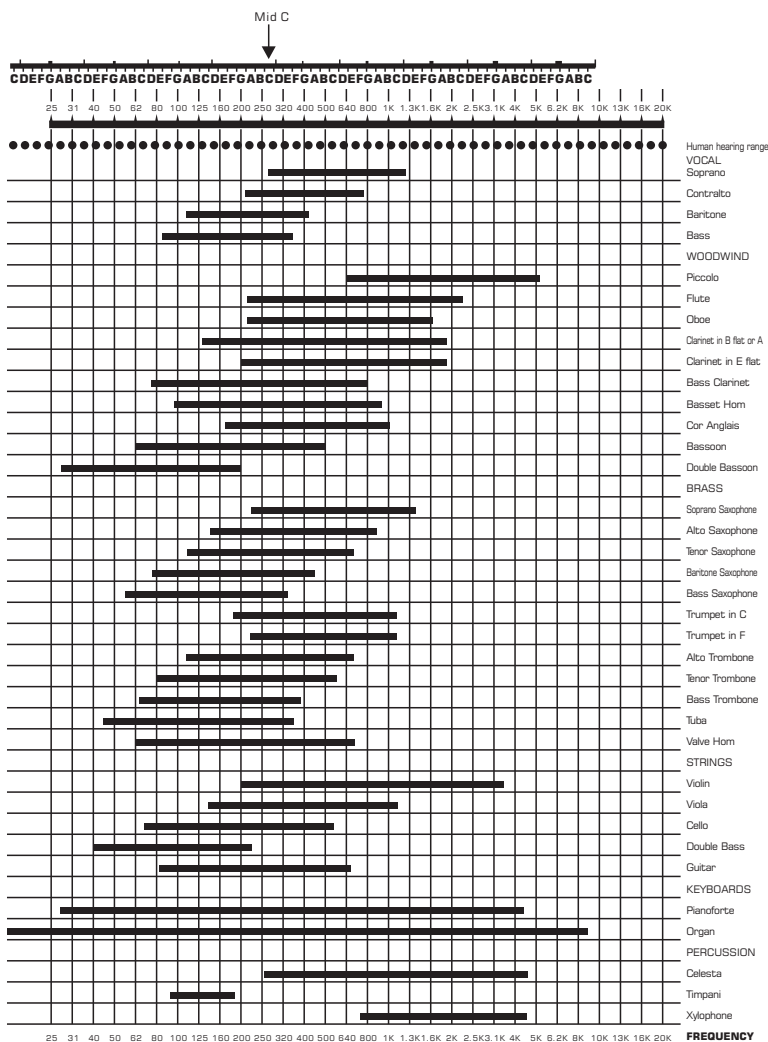
It also features Balanced XLR and 1/4" TRS jack input sockets which wired in parallel. The Balanced signals are less sensitive to hum generated by AC.



## 4. APPLICATION

### 4.1 The Frequency Range of Music Instruments

Please look at the following table. It gives you an idea of the frequency coverage of the main musical instruments and the human voice. Select a specific instrument and start to "play" with your ▲LTO Q applying the five bands available on the covered frequencies. Adjust GAIN first and then FREQUENCY and finally Q. See how much control your ▲LTO Q will give you allowing a perfect contour of your sound.

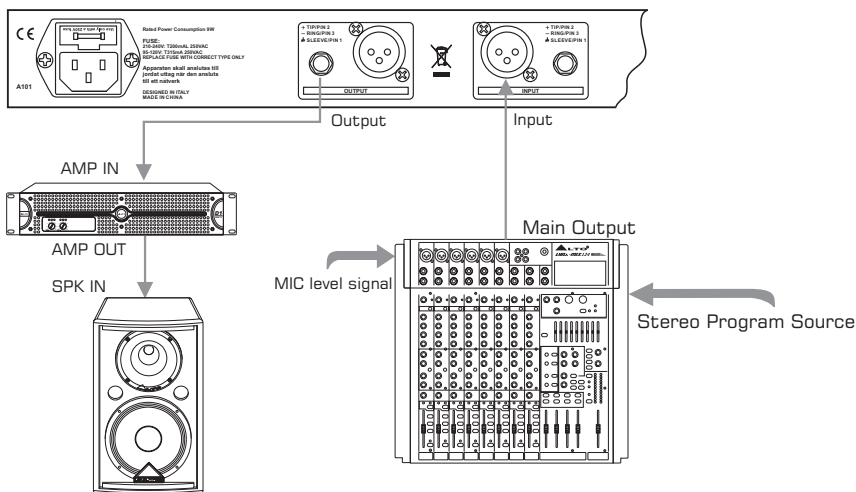




## 4. APPLICATION

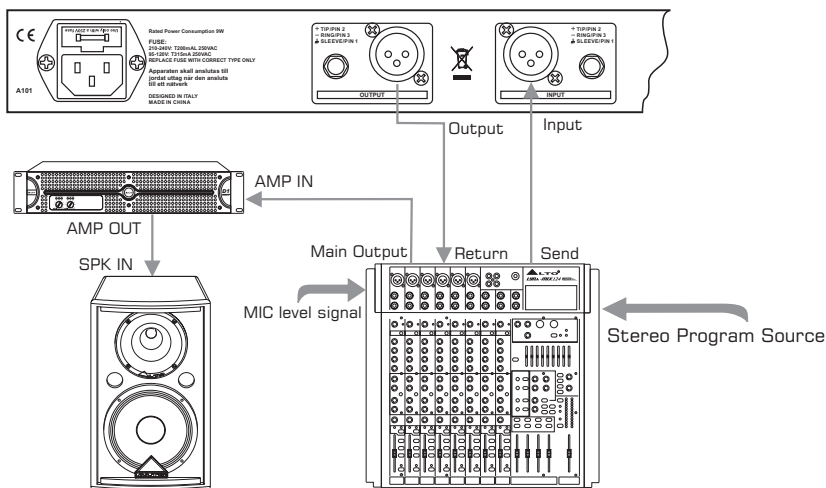
### 4.2 Application on Single Instrument

If you wish to use your ▲LTO Q as an "in line" processor and use it for single instrument equalization, you must connect the output of the instrument to the input of your ▲LTO Q and the output of the ▲LTO Q to the input of an amplifier.



### 4.3 Application on Main Mix

Follow this chart and you will use the total flexibility of your ▲LTO Q on the Main Mix.





## 5. INSTALLATION AND CONNECTION

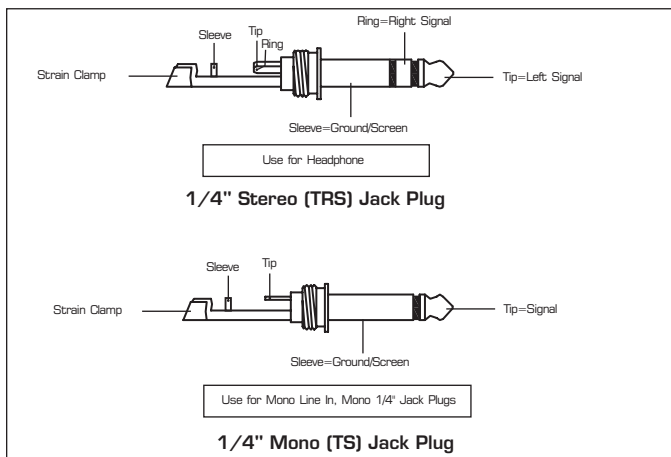
Ok, you have got to this point and you are now in the position to operate your ▲LTO Q successfully. However, we advise you to read carefully the following section to be the real master of your own mix. Not paying attention enough to the input signal level, to the routing of the signal and the assignment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

### 5.1 Mains Connection

Please ensure that the ▲LTO Q 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 Q 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

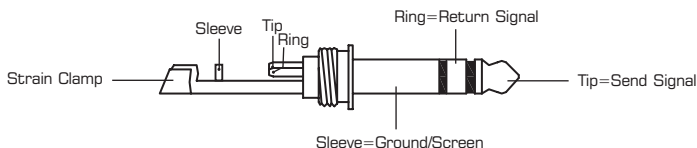
The ▲LTO Q presents with balanced XLR & 1/4" TRS connectors. It can be interfaced in several ways to support a variety of applications without any signal loss. The ▲LTO Q can be used on a single instrument by connecting to the mixing console's main inserts, or on an entire mix "in-line" between a mixing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





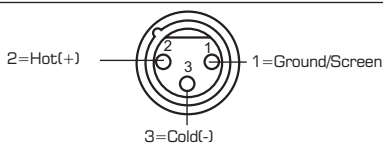


## 5. INSTALLATION AND CONNECTION



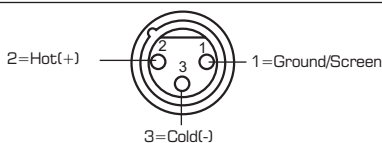
Use for Insert Points

**1/4" Stereo (TRS) Jack Plug**



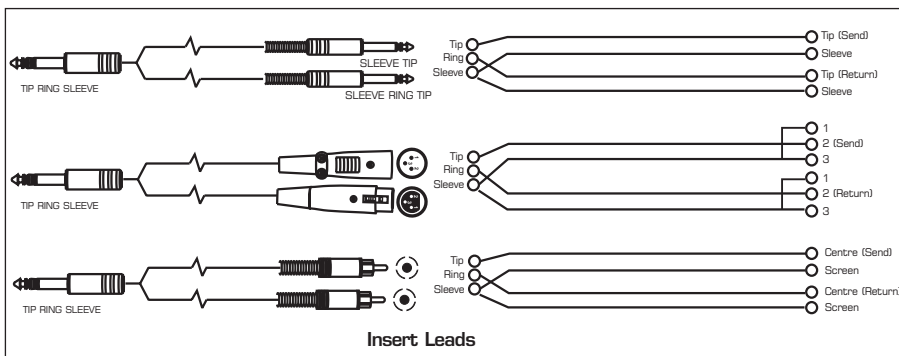
Use for Balanced Mic Inputs  
(For unbalanced use, connect pin 1 to 3)

**3-pin XLR Male Plug**  
(seen from soldering side)



Use for Main output  
(For unbalanced use, leave pin3 unconnected)

**3-pin XLR Line Socket**  
(seen from soldering side)



**Insert Leads**

### 5.3. RACK MOUNTING

The most secure mounting is on a universal rack shelf available from various rack manufacturers or your Dealer. The 5-Band Parametric Equalizer 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 your 5-Band Parametric Equalizer close to high temperature devices such as power amplifiers etc. to avoid overheating.

## 6. TECHNICAL SPECIFICATION

<b>Audio Input</b>	
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: +18dBV
CMRR	>55 dB @1k Hz
<b>Audio Output</b>	
Type	XLR and 1/4" JACK
Impedance	Balanced: 60 Ohm / Unbalanced: 30 Ohm
Maximum output level	+ 18 dBV
<b>System Specifications</b>	
Bandwidth	18 Hz to 30k Hz at $\pm 3$ dBV
THD+N%	0.02% typ. 1k Hz, @+4 dBu / 0.04% typ. 1k Hz, @ - 10 dBV
IMD	0.01% typ.
Noise	>-92 dB re unweighted 22 Hz to 22k Hz
Frequency response	18 Hz to 30k Hz, $\pm 3$ dB
Low cut	Variable (10 Hz to 400 Hz)
High cut	Variable (2.5k Hz to 30k Hz)
<b>Parametric Filter</b>	
Level	Variable ( $\pm 15$ dB)
Frequency	Band1: 20 Hz to 400 Hz/Band2: 60 Hz to 1k Hz Band3: 150 Hz to 2.5k Hz / Band4: 500 Hz to 8k Hz Band5: 1k Hz to 20k Hz
Bandwidth	Variable (0.03 to 1.6 octaves)
<b>Function Switches</b>	
Audio IN/OUT	Relay controlled hard - bypass
I/O meter IN/OUT	Switches the meter display from input to output
IN/OUT	Activates each filter band
<b>Indicators</b>	
Input/output level	12-segment LED display: -30/-24/-18/-12/-6/-3/0/+3/+6/+9/+12/+18 dB
Function switch	LED indicator of every switch
<b>Power Supply</b>	
Main voltages	AC: 210 - 240 VAC~50 Hz AC: 95 - 120 VAC~60 Hz
Power consumption	9 Watts
Fuse	210 - 240V: T200mA L 250VAC 95 - 120V: T315mA 250VAC
<b>Physical</b>	
Dimension	483(W)x194.1(D)x44(H) mm
Weight	3.23 kg

## 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.

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