

# User's Manual

# ALTO Q

## 5-BAND PARAMETRIC EQUALIZER



[www.altoproaudio.com](http://www.altoproaudio.com)

Version 2.1 Dec. 2002

— English —

## SAFETY RELATED SYMBOLS



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.

### WARNING

Describes precautions that should be observed to prevent the possibility of death or injury to the user.

### CAUTION

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

## WARNING

### • Power Supply

Ensure that the mains source voltage (AC outlet) matches the voltage rating of the product. Failure to do so could result in damage to the product and possibly the user. Unplug the product before electrical storms occur and when unused for long periods of time to reduce the risk of electric shock or fire.

### • External Connection

Always use proper ready-made insulated mains cabling (power cord). Failure to do so could result in shock/death or fire. If in doubt, seek advice from a registered electrician.

### • Do Not Remove Any Covers

Within the product are areas where high voltages may present. To reduce the risk of electric shock do not remove any covers unless the AC mains power cord is removed.

**Covers should be removed by qualified service personnel only.**

No user serviceable parts inside.

### • Fuse

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.

### • Protective Ground

Before turning the product ON, make sure that it is connected to Ground. This is to prevent the risk of electric shock.

Never cut internal or external Ground wires. Likewise, never remove Ground wiring from the Protective Ground Terminal.

### • Operating Conditions

Always install in accordance with the manufacturer's instructions.

To avoid the risk of electric shock and damage, do not subject this product to any liquid/rain or moisture. Do not use this product when in close proximity to water.

Do not install this product near any direct heat source.

Do not block areas of ventilation. Failure to do so could result in fire.

Keep product away from naked flames.

## IMPORTANT SAFETY INSTRUCTIONS

Read these instructions

Follow all instructions

Keep these instructions. Do not discard.

Heed all warnings.

Only use attachments/accessories specified by the manufacturer.

### • Power Cord and Plug

Do not tamper with the power cord or plug. These 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.

### • Cleaning

When required, either blow off dust from the product or use a dry cloth.

Do not use any solvents such as Benzol or Alcohol.

For safety, keep product clean and free from dust.

### • Servicing

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

## PREFACE

Dear Customer:

Thanks for choosing ▲LTO-Q 5-Band Parametric Equalizer 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 Centres 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 ▲LTO 5-Band Parametric Equalizer is the result of many hours of listening and tests involving common people, area experts, musicians and technicians.

The results of this effort is a high-end 5-Band Parametric Equalizer which will provide a permanent precise equalization to the musician, performer, studio engineer and sound contractor.

Nothing else to add, but that we would like to thank all the people that made the ▲LTO 5-Band Parametric Equalizer a reality available to our customers, thank our designers and all ▲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

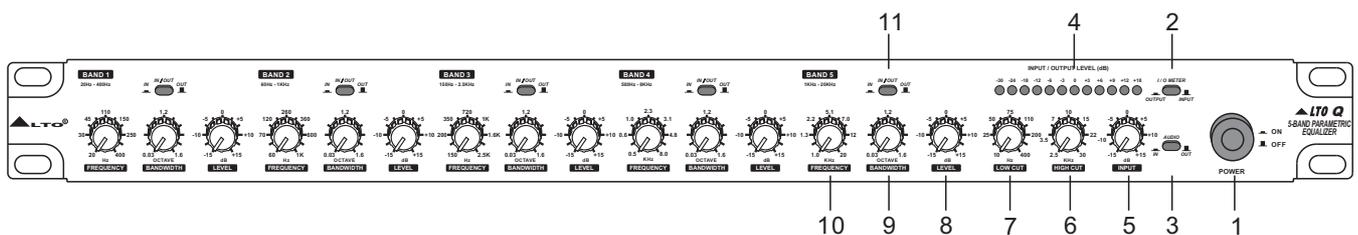
With ▲LTO-Q you have acquired an indispensable tool to add clarity and flexibility to your music. The ▲LTO-Q 5 bands parametric equaliser will provide precise audio signal control to fixed sound installation, live performance and studio applications. Thanks to the use of selected and expensive components the performances of ▲LTO-Q are worth much more than its price: Variable Q controls allow you to notch out unwanted frequencies while sweepable frequency control add maximum flexibility to your mix.

## 2. FEATURES

- Mountable in one standard rack unit 19"
- 1/4" TRS type jack and balanced XLR connectors available
- Led Meter (12 LED) 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
- Switch-on button on every single band
- Constant Q principle combination
- 5 bands of equalisation fully parametric (gain, frequency, Q) for studio and live applications
- The frequency range of the single 5 bands is overlapping. This will allow extreme boost or attenuation

## 3. ELEMENT CONTROLS

### 3.1 The Front Panel



Your ▲LTO-Q includes 5 channels of equalisation. 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 LED's.

#### 1. POWER switch

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

#### 2. The INPUT/OUTPUT control

With this control in ON position, the Led Meter will read the output level. With this control in OFF position, the Led Meter will read the input level.

#### 3. The AUDIO IN/OUT control

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

#### 4. The INPUT/OUTPUT LEVEL

The readable range of this 12 segments LED display is -30dB to +18dB. As mentioned before it will read either the INPUT or the OUTPUT level depending on the position of the switch (2).

### 5.The INPUT control

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

### 6.The HIGH CUT control

This control, when activated will cut the high frequencies with a slope of 12dB 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.

### 7.The LOW CUT control

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

### 8.The LEVEL control

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

### 9.The BANDWIDHT control

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

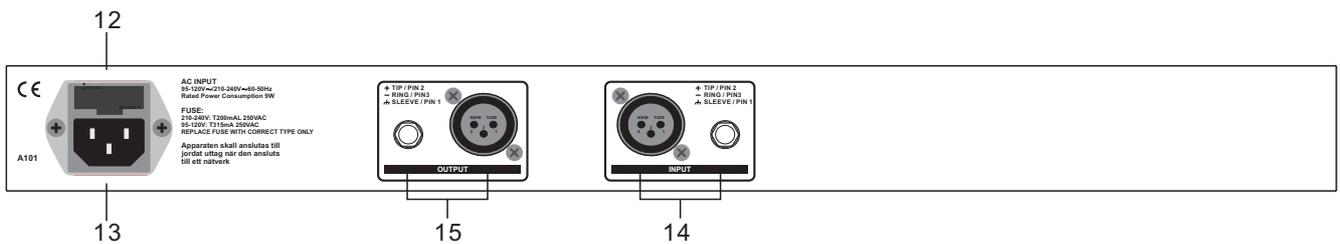
### 10.The FREQUENCY control

This control set the center frequency point of the filter.

### 11.IN/OUT switch

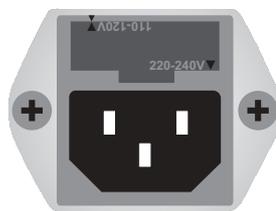
It activates/disactivates the correspondent band.

## 3.2 The Rear Panel

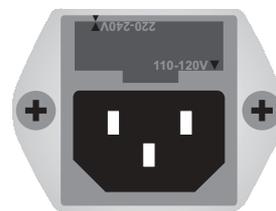


### 12.Voltage Selector and Fuse Holder

You must be sure of the Voltage available in your Country because this is a Dual Voltage Unit. Voltage operation can be changed through the fuse protecting the power supply but this operation must be performed by a qualified Engineer.



THIS IS SET FOR  
110V AC TO 120V  
AC OPERATION



THIS IS SET FOR  
220V AC TO 240V  
AC OPERATION

Please note the triangular markers on both sides of the fuse holder (See figure above), To change the voltage pull the fuse holder out, rotate it 180° and push it back again. The operating voltage will be indicated by one of the two triangular markers.

### 13.AC Inlet

After the correct voltage has been set you can connect the AC plug to the unit and in the AC power socket.

### 14.Input Connectors

Both XLR and 1/4" TRS jack input connectors are supplied in your ▲LTO-Q for maximum flexibility.

### 15.Output Connector

Both XLR and 1/4" TRS jack output connectors are supplied in your ▲LTO-Q for maximum flexibility.

## 4. INSTALLATION & CONNECTION

### 4.1 Mains Connection

A Main AC cable that meets all the international safety regulations is supplied with your ▲LTO-Q. Please make sure of the supply voltage available in your Country before plugging in the power cord into the AC socket.

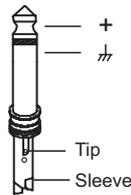
### 4.2 Audio Connection

Both XLR and 1/4" TRS connectors are available on your ▲LTO-Q. In this way you can interface your ▲LTO-Q in several different ways without experiencing any noise or signal loss. You can use your ▲LTO-Q with single instruments using the mixers main insert or on the complete mix connecting the ▲LTO-Q in between the mixer and the power amplifier.

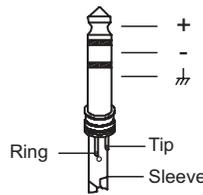
#### - Wiring Configuration

Either the 1/4" TRS phone jack or the XLR connector can be wired in balanced and unbalanced modes, which will be determined by the actual application status, please wire your system as the following wiring examples:

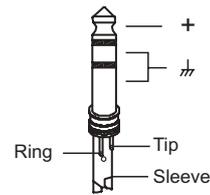
- For 1/4" Phone jack



TS Type Unbalanced

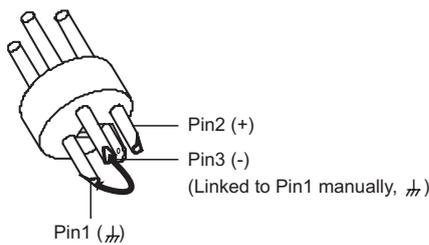


TRS Type Balanced

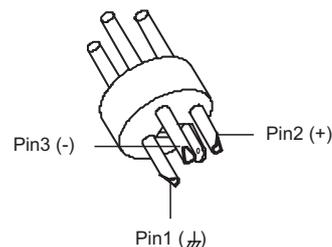


TRS Type Unbalanced

- For XLR connector



XLR Type Unbalanced

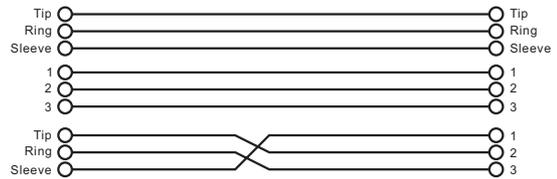
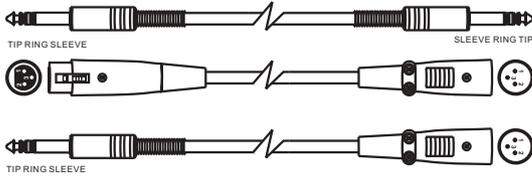


XLR Type Balanced

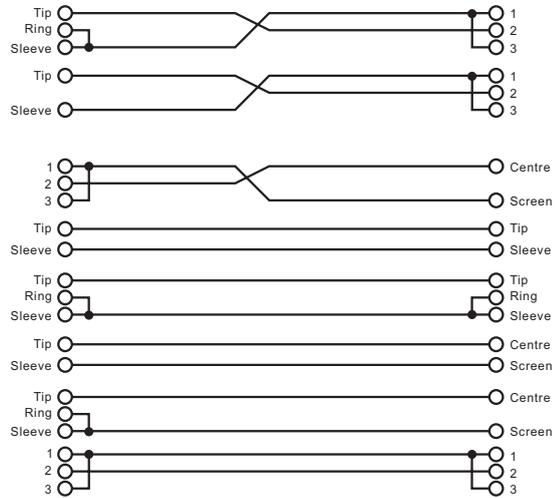
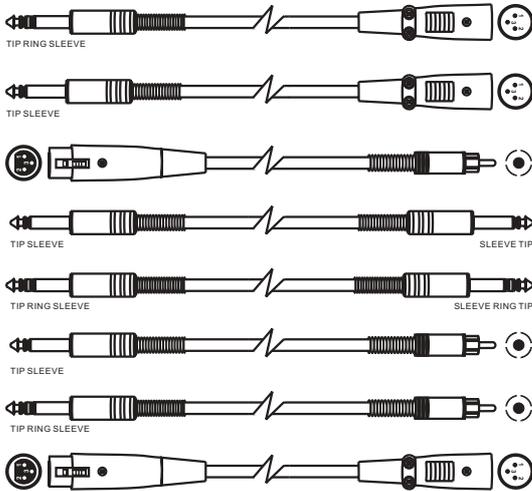
#### - In Line Connection

For these applications the 5-Band Parametric Equalizer provides 1/4" TRS connectors and XLR connectors to easily interface with most any professional audio device. Follow the configuration examples below for your particular connection.

• **Balanced**



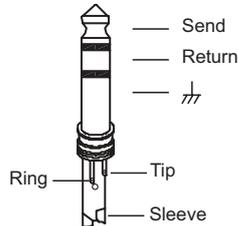
• **Unbalanced**



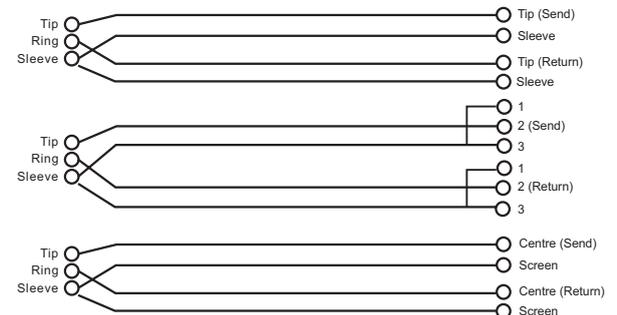
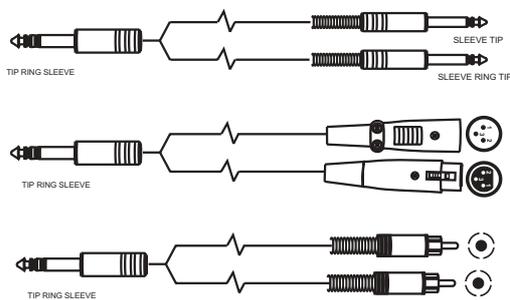
**- Insert Points Connection**

If you are connecting to a mixing console's main inserts, you may have a single TRS jack for Send & Return, in this case, use an insert "Y" cable that configured like the examples below.

• **1/4" TRS insert**



• **Insert Leads**



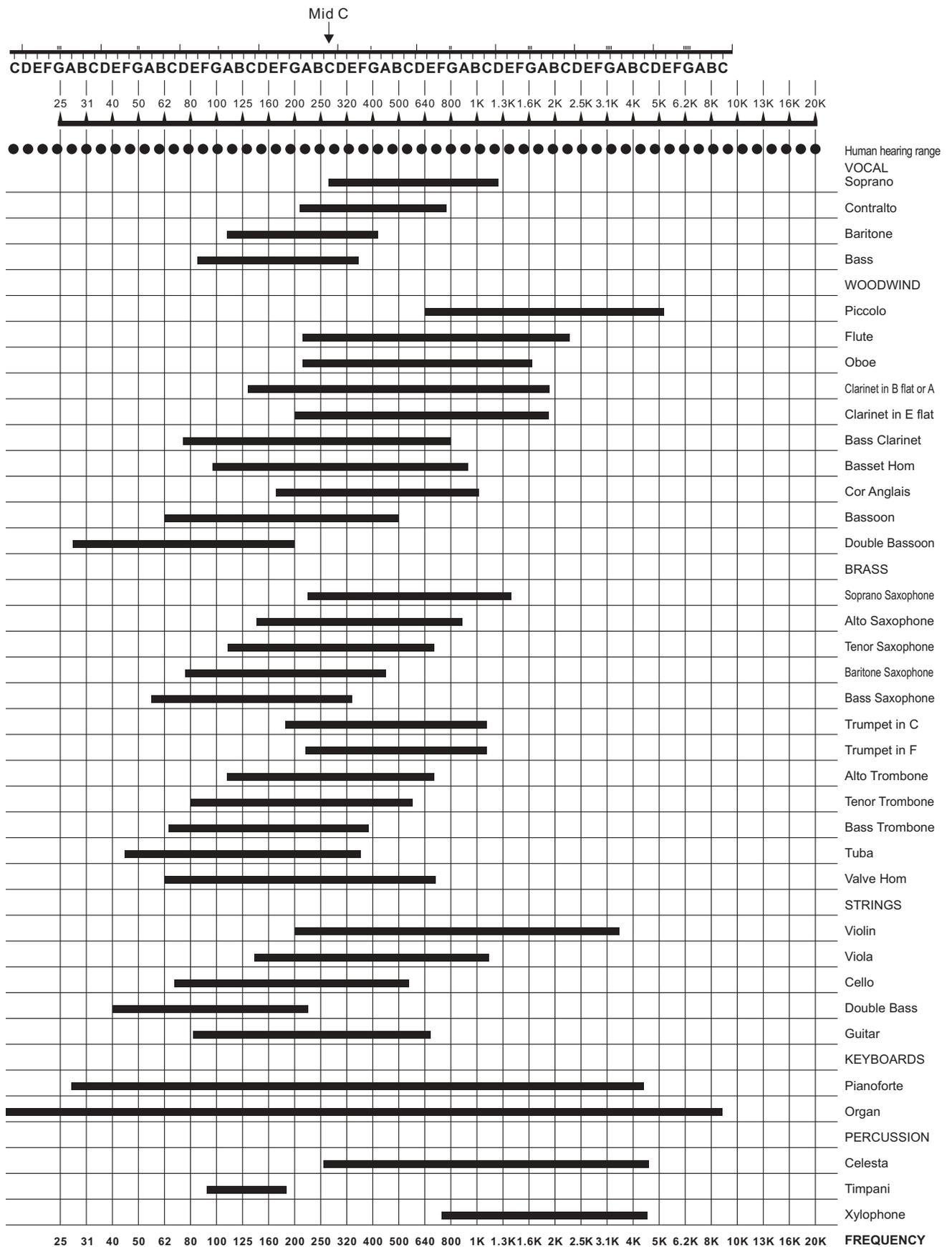
**4.3 Rack Mounting**

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

## 5. APPLICATION

### 5.1 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.



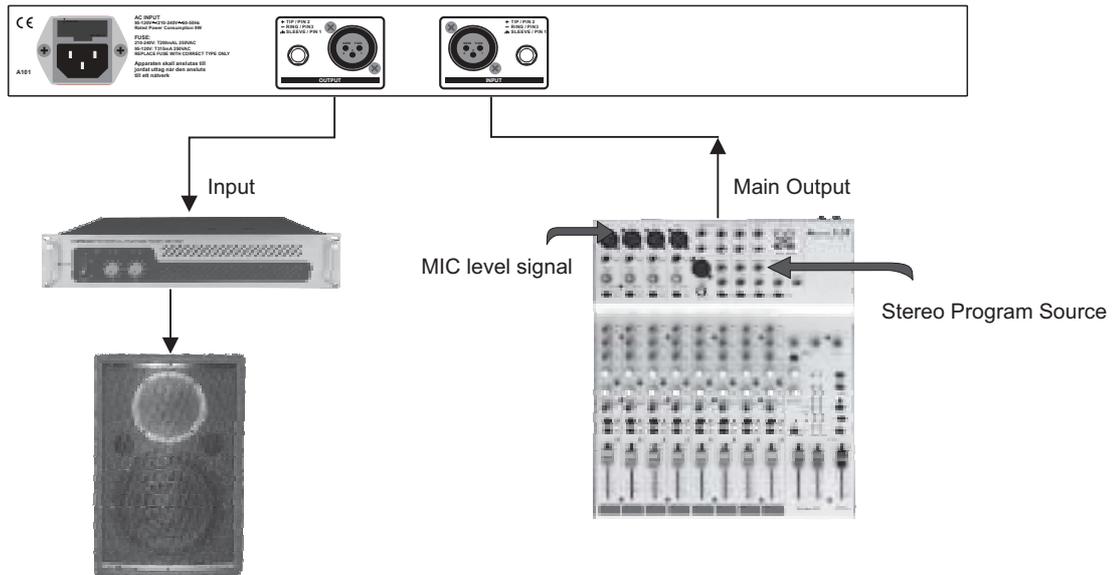
## 5.2 Using your ▲LTO-Q in a sound reinforcement system

You can successfully use your ▲LTO-Q in a sound reinforcement system in order to:

- Cut out undesirable frequencies such as tape hiss and/or floor rumble.
- Create sounds effects enlarging the stereo image.
- Eliminate feedback using very sharp Q control on selected frequencies.
- Overboost or overattenuate selected frequencies thanks to the overlapping frequency range of the five bands available.

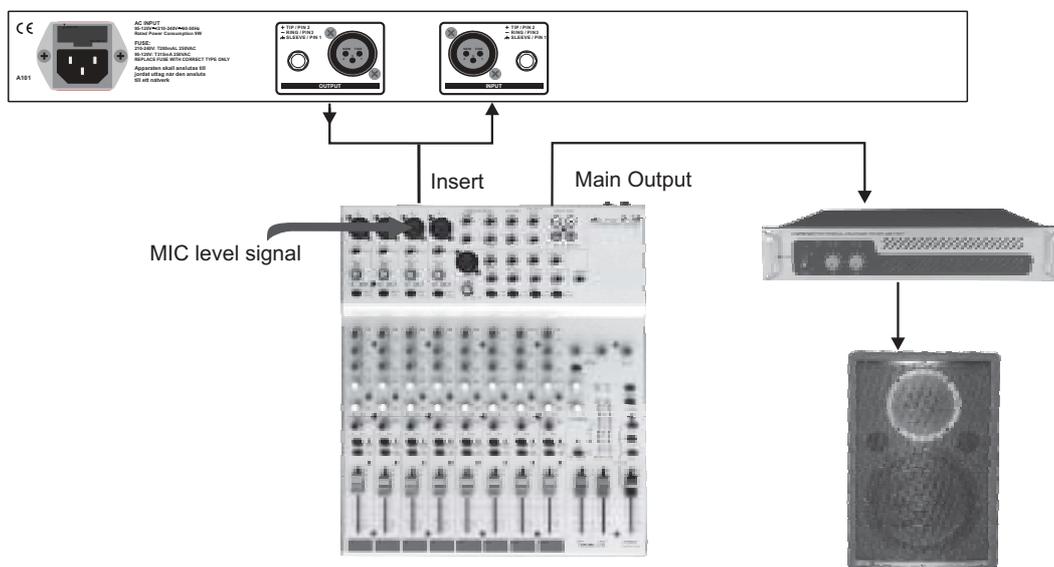
## 5.3 Application on single instrument

If you wish to use your ▲LTO-Q as an "in line" processor and use it for single instrument equalisation, 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.



## 5.4 Application on main MIX

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



## 6. TECHNICAL SPECIFICATIONS

AUDIO INPUT		
	Type	Active balanced XLR and 1/4" JACK
	Impedance	Balanced: 50kOhm Unbalanced: 25kOhm
	Operating level	+4dBu/ - 10dBV
	Maximum input level	Balanced and Unbalanced: +18dBV
	CMRR	>55dB @1kHz
AUDIO OUTPUT		
	Type	XLR and 1/4" JACK
	Impedance	Balanced: 60Ohm Unbalanced: 30Ohm
	Maximum output level	+18dBV
SYSTEM SPECIFICATIONS		
	Bandwidth	18Hz to 30kHz at $\pm 3$ dBV
	THD+N%	0.02% typ. 1kHz, @+4dBu
		0.04% typ. 1kHz, @ - 10dBu
	IMD	0.01% typ
	Noise	>-92dB <sub>r</sub> unweighted 22Hz to 22kHz
	Frequency response	18Hz to 28kHz, $\pm 3$ dB
	Low cut	Variable (10Hz to 400Hz)
	High cut	Variable (2.5kHz to 30kHz)
PARAMETRIC FILTER		
	Level	Variable ( $\pm 15$ dB)
	Frequency	Band1: 20Hz to 400Hz
		Band2: 60Hz to 1kHz
		Band3: 150Hz to 2.5kHz
		Band4: 500Hz to 8kHz
		Band5: 1kHz to 20kHz
	Bandwidth	Variable (0.03 to 1.6 octaves)
FUNCTION SWITCHES		
	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
INDICATORS		
	Input/output level	12-segment LED display: -30/-24/-18/-12/-6/-3/0/+3/+6/+9/+12/+18dB
	Function switch	LED indicator of every switch
POWER SUPPLY		
	Main voltages	AC: 210 - 240VAC~50Hz
		AC: 95 - 120VAC~60Hz
	Power consumption	9watts
	Fuse	210 - 240V: T200mA 250VAC
		95 - 120V: T315mA 250VAC
PHYSICAL		
	Dimension	483(W) × 194.1(D) × 44(H)mm
	Weight	3.23kg

## 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 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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