

User's Manual

ALTO MONITOR

PA/MONITOR
PROCESSOR



www.altoproaudio.com
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— 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.



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

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 Monitor PA/Monitor Processor and thanks for choosing one of the results of ▲LTO AUDIOTEAM 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 Monitor PA/Monitor Processor is based on many years of experience and is designed to provide a precise equalization to studio engineer and sound contractor. It can be used to modify the frequency "contour" of a sound, eliminate the unwanted frequencies and suppress the feedback well.

Nothing else to add, but that we would like to thank all the people that made the ▲LTO Monitor PA/Monitor Processor 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

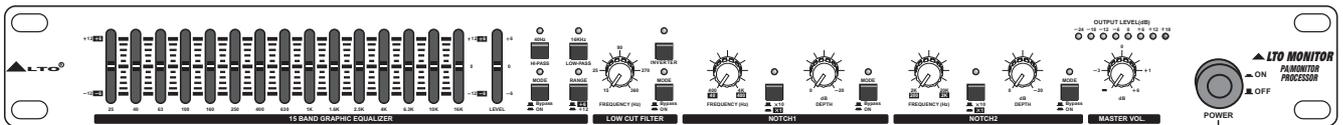
Congratulations on your purchasing the very powerful ▲LTO Monitor PA Processor. It is really efficient for PA monitor. Your ▲LTO Monitor PA Processor is based on many years of experience and is designed to provide studio engineer and sound contractor with a precise equalization. It can be used to modify the frequency "contour" of a sound, eliminate the unwanted frequencies and suppress the feedback well. For more information, please read this manual carefully.

2. FEATURES

- Mountable in one standard unit 19"
- Illuminated power switch
- 1/4" TRS type jack and balanced XLR connectors available
- LED meter (8 LEDs) to read output
- Output level control
- 15 band graphic equalizer, low cut filter and notch available
- Bypass function
- Low cut and high cut filters available to cancel unwanted frequencies
- Inverter switch to compensate for phase cancellation
- Variation adjust control
- Accurately suppress the feedback

3. ELEMENT CONTROLS

3.1 The Front Panel

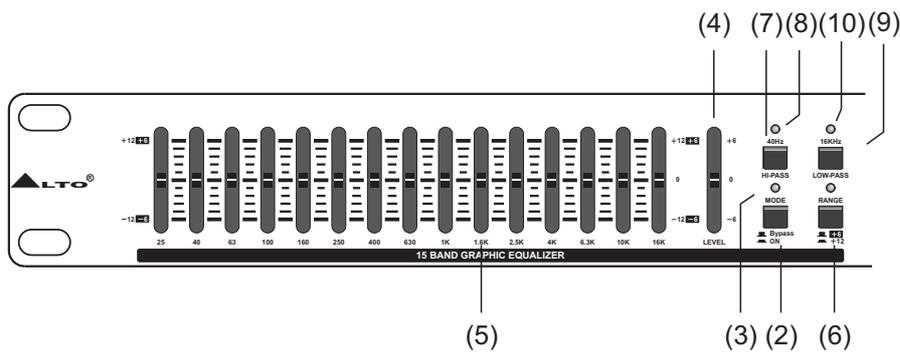


(1)

3.1.1 POWER switch (1)

Turns the apparatus ON and OFF.

3.1.2 15 BAND GRAPHIC EQUALIZER



• MODE switch (2)

Engage this switch to insert the 15 Band Graphic Equalizer and HI/LOW PASS to signal path, and the corresponding LED (3) will illuminate. When this switch is in bypass mode, the 15 Band Graphic Equalizer and HI/LOW PASS will be bypassed.

• LEVEL control (4)

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

- **FILTER GAIN controls** (5)

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

- **RANGE switch** (6)

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

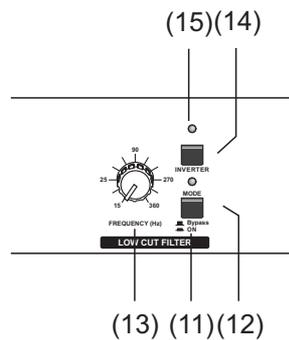
- **HI-PASS switch** (7)

To press this switch will cut the low frequencies at 40Hz (12dB per octave), and the LED (green) (8) illuminates.

- **LOW-PASS switch** (9)

To press this switch will cut the high frequencies at 16kHz (12dB per octave), and the LED (green) (10) illuminates.

3.1.3 LOW CUT FILTER



- **MODE switch** (11)

Engage this switch to insert the Low Cut Filter to signal path, and the LED (green) (12) will illuminate. When this switch is in bypass mode, the Low Cut Filter will be bypassed.

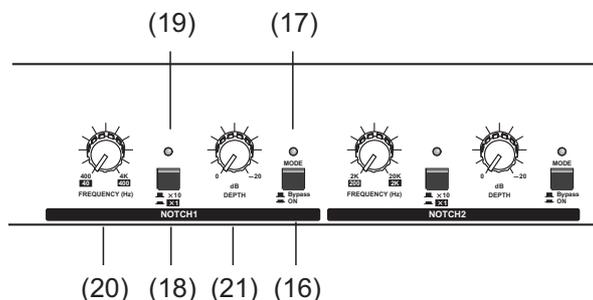
- **FREQUENCY control** (13)

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

- **INVERTER switch** (14)

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 LED (15) will show you when the function is active or not.

3.1.4 NOTCH



The apparatus provides with NOTCH 1 and NOTCH 2. You can suppress the feedback via each variation of separated 2 Notch filter frequencies.

- **MODE switch** (16)

Through pressing this switch you will insert the Notch filter to signal path, and the LED (green) (17) will illuminate. When this switch is in bypass mode, the Notch filter will be bypassed.

- **x1/x10 selection switch** (18)

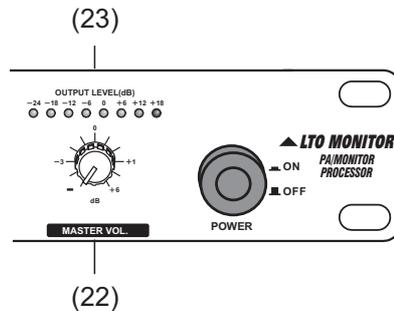
This switch is used to change the selecting range of frequency. Engage the switch (x1), the adjustable frequency range is 40Hz- 400Hz (NOTCH 1) or 200Hz- 2kHz (NOTCH 2), and the LED (19) illuminates. Otherwise (x10), the adjustable frequency range is 400Hz- 4kHz (NOTCH 1) or 2kHz - 20kHz (NOTCH 2).

- **FREQUENCY control** (20)

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

- **DEPTH switch** (21)

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



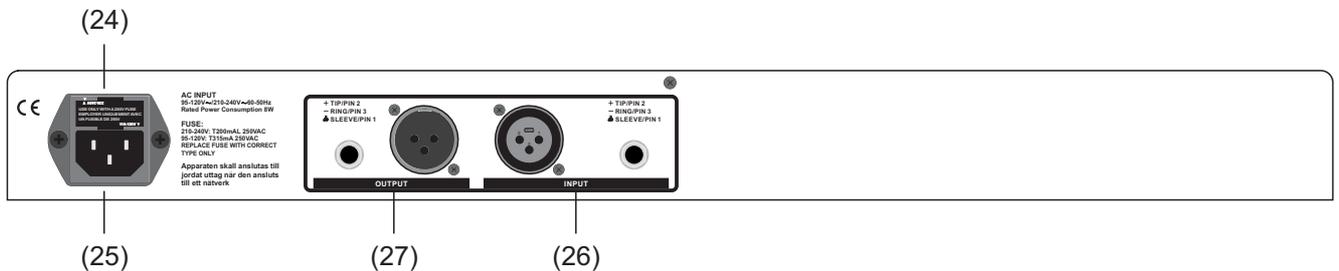
3.1.5 MASTER VOL. control (22)

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

3.1.6 OUTPUT LEVEL meter (23)

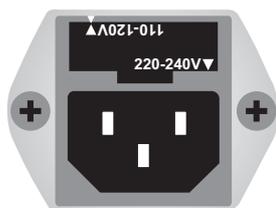
The meter informs you the output level, with a range from -24dB to +18dB.

3.2 The Rear Panel

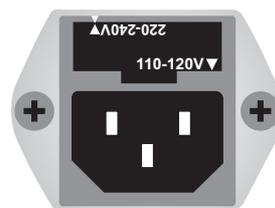


3.2.1 Fuse Holder/Voltage Selector (24)

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. We recommend that the operation will 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 above figure). To change the voltage pull the fuse holder out, rotate it 180° and push it back again. The operating voltage will be that indicated by one of the two triangular markers.

3.2.2 AC Inlet (25)

After the correct voltage has been set you can connect the AC plug to the unit.

3.2.3 Input Connectors (26)

Either XLR or unbalanced 1/4" TRS jack input connector is used to input the signal.

3.2.4 Output Connector (27)

Either XLR or unbalanced 1/4" TRS jack output connector is used to output the signal.

4. INSTALLATION & CONNECTION

4.1 Mains Connection

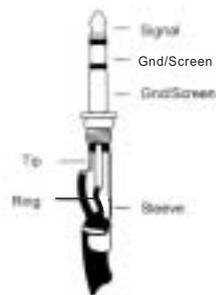
A Main AC cord that meets all the international safety regulations is supplied with your ▲LTO Monitor. Please make sure of the supply voltage available in your Country before plugging in the power cord into the AC socket.

4.2 Audio Connection

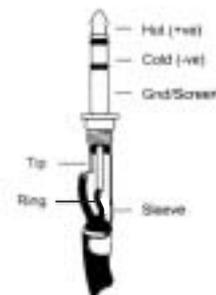
Balanced XLR plus 1/4" TRS connectors are available on your ▲LTO Monitor PA/Monitor Processor. In this way you can interface your ▲LTO Monitor in several different ways without experiencing any noise or signal loss. You can use your ▲LTO Monitor with single instruments using the mixers main insert or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

- Wiring Configuration

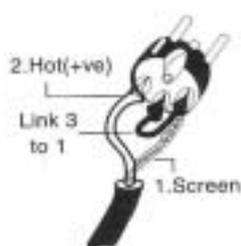
Either the 1/4" TRS phone jack or the XLR connector can be wired in balanced and unbalanced modes, which will be determined by the actual application status, please wire your system as the following wiring examples:



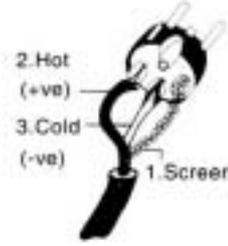
1/4" TRS jack
Unbalanced Input



1/4" TRS jack
Balanced Input



XLR Unbalanced Input

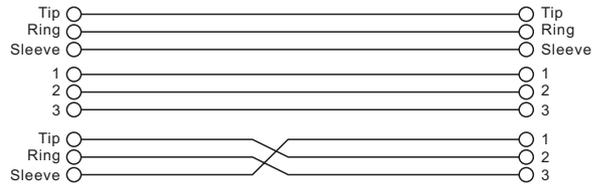
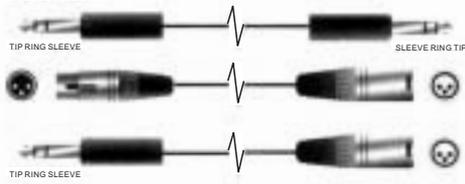


XLR Balanced Input

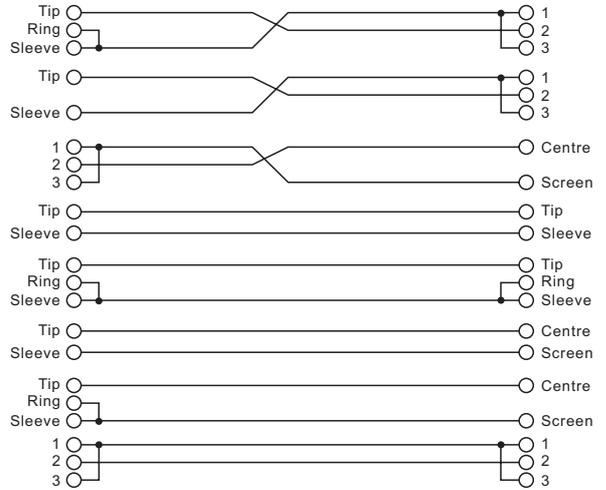
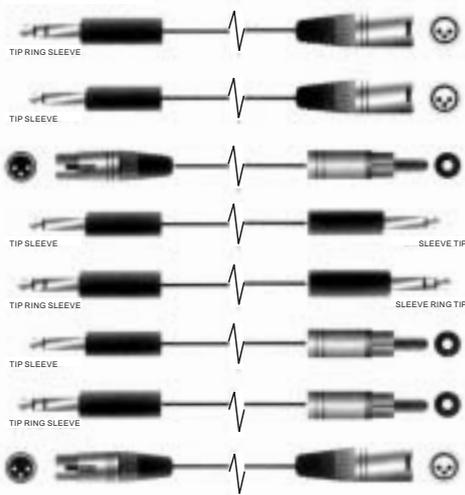
- In Line Connection

For these applications the ▲LTO Monitor PA/Monitor Processor provides 1/4" TRS connector and XLR connector to easily interface with most any professional audio device. Follow the configuration examples below for your particular connection.

• **Balanced**



• **Unbalanced**

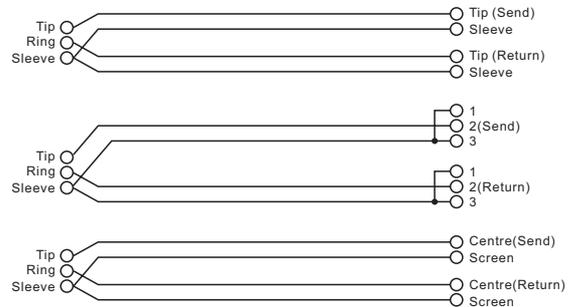
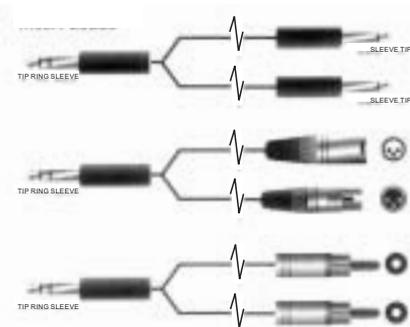
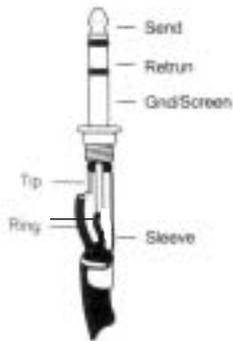


- **Insert Points Connection**

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 ▲LTO Monitor PA/Monitor Processor 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 ▲LTO Monitor PA/Monitor Processor on high temperature devices such as power amplifiers etc. to avoid overheating.

5. APPLICATION

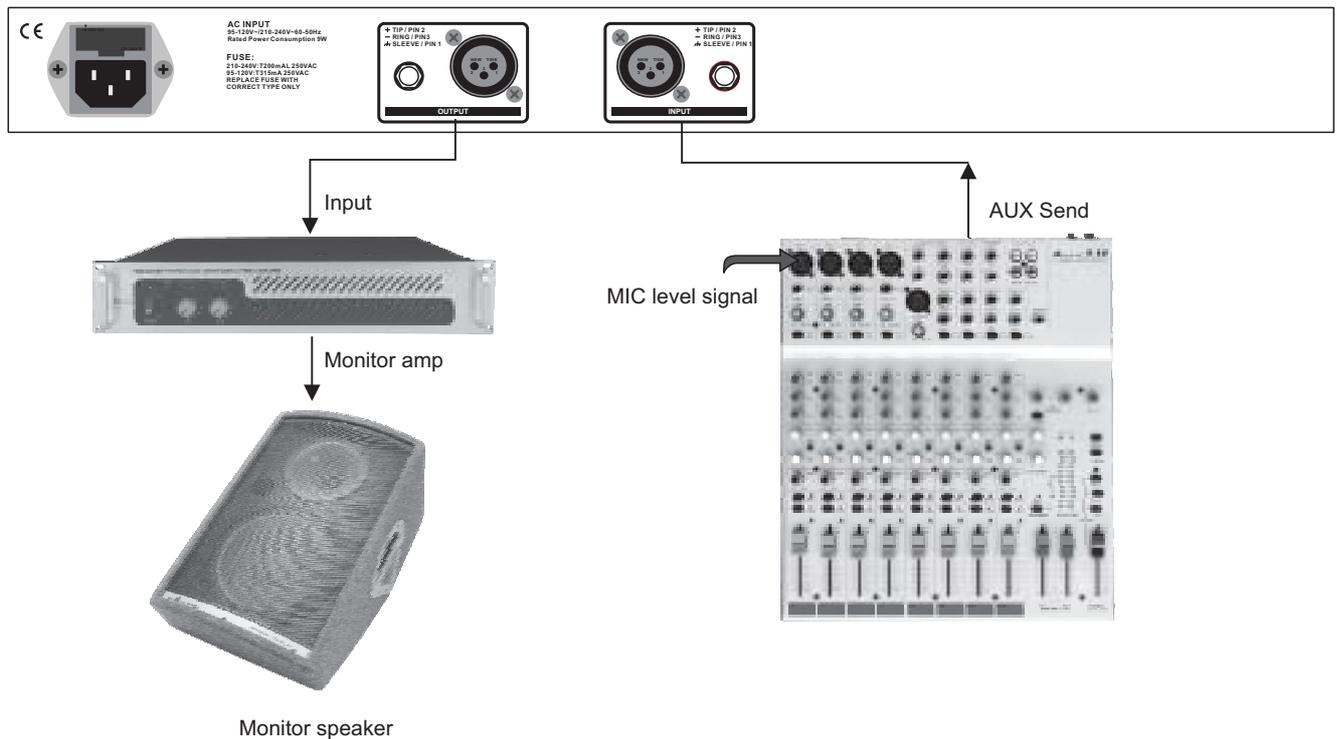
5.1 Using your ▲LTO Monitor PA Processor in a Monitor system

In monitor system, how to get the pure and natural sound? How to get the sufficient gain before feedback occurs? How to eliminate the noise? Many top music engineers and performers have been searching for the solution for a long time... Fortunately, you own the ▲LTO PA Monitor Processor now, it will help you solve the problems.

In particular circumstance, you need to depend upon the position and distance of the performer or singer, microphone and monitor speaker to arrange your system. You can use your ▲LTO Monitor as an "in line" processor or use it for single instrument equalization.

This is one possible configuration of PA Monitor system. Using the multi-channels mixer, accurate Monitor processor, monitor amplifier and monitor speaker.

The detail is as follows:



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: +19dBm
CMRR	>55dB @1kHz

AUDIO OUTPUT

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

SYSTEM SPECIFICATIONS

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

INDICATORS

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

POWER SUPPLY

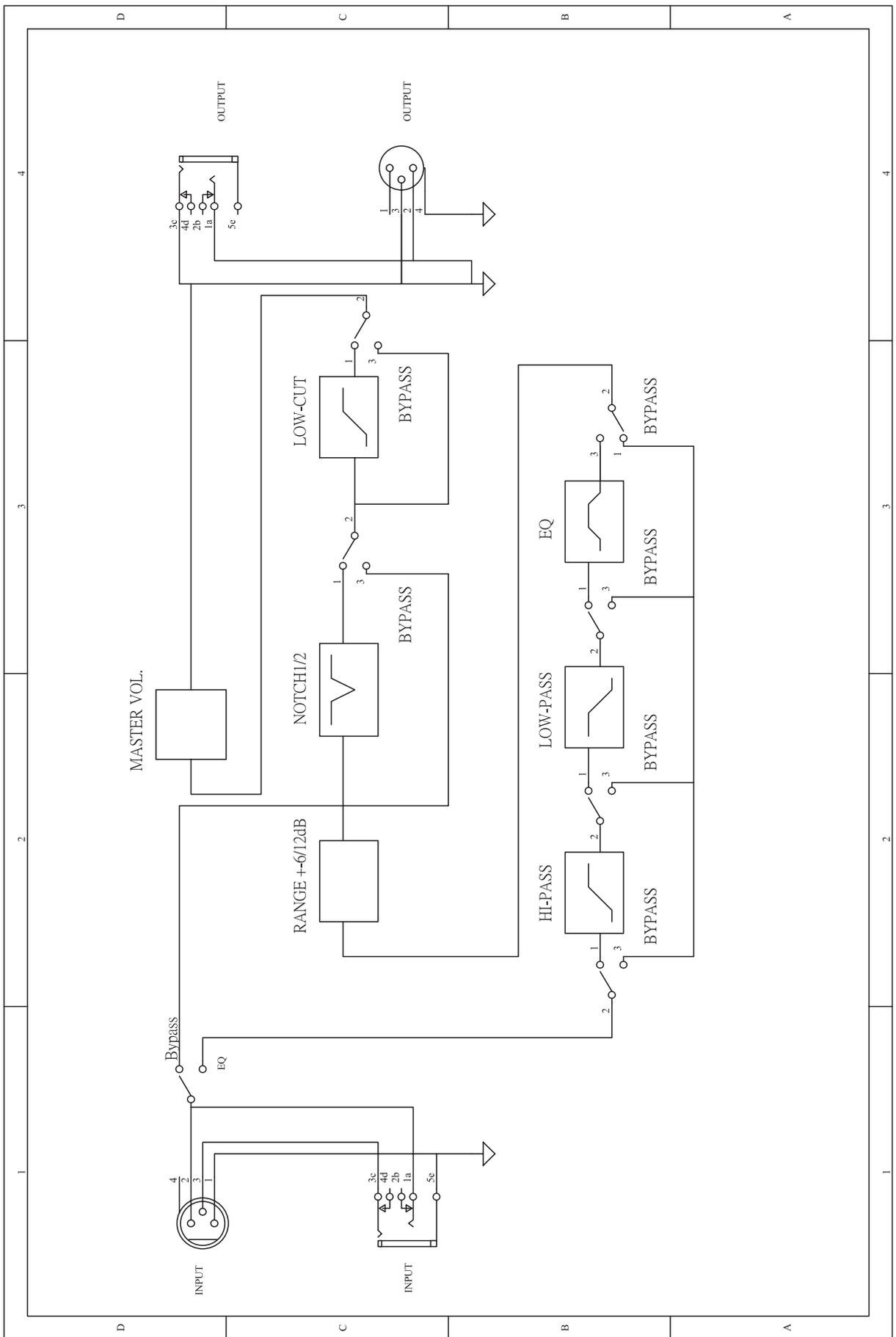
Main voltages	USA/Canada 95 - 120V ~, 60Hz Europe 210 - 240V ~, 50Hz U.K./Australia 240V ~, 50Hz
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Power consumption	8W
Fuse	95 -120V: T315mAL 250VAC 210-240V: T200mAL 250VAC
Main connection	Standard IEC receptacle

PHYSICAL

Dimension	483(W) \times 194.1(D) \times 44(H)mm
Weight	2.8kg

7. BLOCK DIAGRAM



8. 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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