



User's Manual

MISTRAL 2500/4000/6000 **STEREO POWER AMPLIFIER**




www.altoproaudio.com
Version 1.0 NOV. 2007


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.

IN THIS MANUAL:

1. INTRODUCTION.....	1
2. FEATURES.....	1
3. CONTROL ELEMENTS.....	2
4. APPLICATION.....	5
5. TECHNICAL SPECIFICATIONS.....	13
6. WARRANTY.....	14

1. INTRODUCTION

Thank you for purchasing one of our MISTRAL stereo power amplifier.

The MISTRAL 2500/4000/6000 are the line of high power, low profile, professional power amplifiers with advanced features and great reliability. An automatic speed fan matches cooling capacity with heat requirements. The amplifiers contains two independent channels, with separate AC transformer secondaries, power supplies and protections system. Each channel has independent protective circuitry against open circuit, short circuit, mismatched loads and over temperature and LED indicators for operating/protection, limit, power on and clip. The power outputs employ standard power connectors and all the inputs are electronically balanced.

Enjoy your MISTRAL stereo power amplifier and make sure to read this Manual carefully before operation.

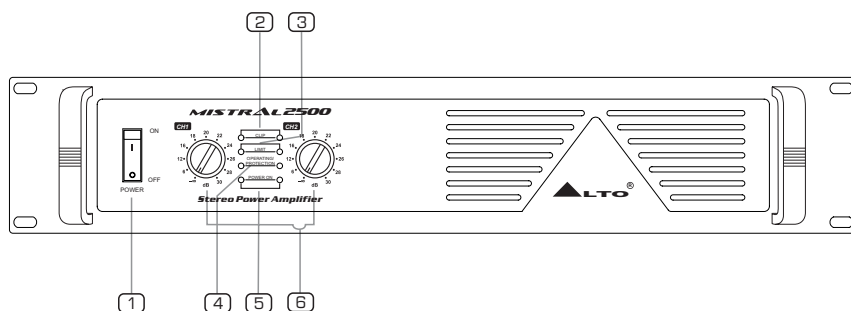
2. FEATURES

- ▲ Mountable in a 19" rack unit, stereo high power amplifier
- ▲ Fantastic audio quality even with extremely high volume levels
- ▲ Solid and durable can be mounted into a cabinet
- ▲ User-controllable clip limiter
- ▲ 2 × 700 watt EIAJ on 4 ohms for MISTRAL 2500
- ▲ 2 × 1000 watt EIAJ on 4 ohms for MISTRAL 4000
- ▲ 2 × 1400 watt EIAJ on 4 ohms for MISTRAL 6000
- ▲ Stereo (dual-channel) or bridge mono operating modes
- ▲ Balanced XLR inputs/parallel outputs to ensure noiseless long wiring
- ▲ Binding post and Neutrik Speakon connectors for output
- ▲ Single channel, bridge and bi-amp output wiring possibility
- ▲ Front panel LED indicators for operating/protection, limit, power on and clip
- ▲ Accurate gain control
- ▲ Independent DC and thermal overload protection on each channel automatically protects amplifier and speakers
- ▲ Over-heat protection for each channel
- ▲ Manufactured under QS9000, VDA6.1 certified management system



3. CONTROL ELEMENTS

Front panel



1. POWER SWITCH

It switches the MISTRAL stereo power amplifier ON and OFF.

2. CLIP LED

When the signal distortion reaches or surpasses 0.5% , the LED lights up. This means the output level of signal source is too high and it is time to reduce the input level until the LED turns off.

3. OUTPUT LIMITER LED

When the unit limits the output signal, the LED lights up.

4. OPERATION AND PROTECTION LED

In normal operation, the LED is green; If the LED is red, it means the unit is in heat protection, no signal output at the time and over-heat inside the unit (the surface temperature of power transistor is 110°C), the temperature must be lowered through better ventilation and decrease the signal level etc. After the temperature dropped, the protection stop and meanwhile the LED turns off with the unit recover normal work.

5. POWER LED

This LED lights up when the unit is powered on.

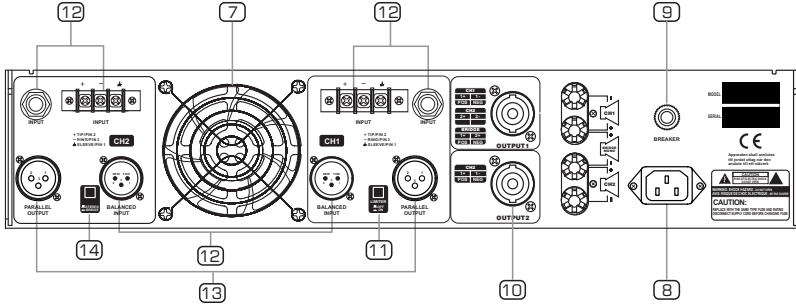
6. LEVEL CONTROL (For CH 1 & CH 2)

Adjust the output signal level to avoid signal distortion.



3. CONTROL ELEMENTS

Rear panel



7 COOLING FAN

This fan secures enough cooling for your amplifier. The fan speed is electronically regulated depending on the temperature of the power devices.

※ **NOTE:** For MISTRAL 2500/4000, the fans are on the rear panel.

For MISTRAL 6000, the fan is on the front panel.

8 a. IEC SOCKET FOR AC POWER CABLE (For MISTRAL 2500/4000)

Connect the supplied main cord. Do not insert the power cord into the MISTRAL stereo power amplifier and into the AC Outlet until voltage has been correctly set.

b. POWER CORD (Only for MISTRAL 6000)

This is an IEC power cord. You can connect the plug of power cord to the mains. Please make sure the voltage accepted by the unit.

9 CIRCUIT BREAKER (Manual reset button)

This is an electronic fuse for protecting the unit from possible damage. When the unit is overloaded or the temperature inside the unit is too high, this push type button will spring out and disconnect the power supply. Push the Breaker to restore normal working conditions.

10 OUTPUT CONNECTOR

These connectors have two kinds: Binding post and Neutrik connector. You can choose proper connectors according to practical need. For your safety, please be careful when do connecting work.



3. CONTROL ELEMENTS

11 LIMITER SWITCH

Set the switch at "ON" position, once the output level is above maximum, the clip begins, thus keeping consistent output level for protecting apparatus. If the switch is set at "OFF" position, this clip function doesn't work.

12 BALANCED INPUT CONNECTOR

These connectors connect the input signal of CH 1 and CH 2 separately.

13 BALANCED OUTPUT CONNECTOR

These two output connectors are paralleled inside with input connectors. It enables the unit work under paralleled mode. Please also refer to wiring diagram for paralleled mode.

14 MODE SELECTOR

The MISTRAL stereo power amplifiers present two operating modes:

- Stereo Mode

In this mode, CH 1 and CH 2 operate independently (as a normal stereo amplifier). The CH 1 input signal will be output from the CH 1 output connector, and CH 2 input signal will be output from the CH 2 output connector.

- Bridge Mode

In this mode, CH 1 input signal will be output from the bridge-mono output connector. On the other hand, the output level control of CH 2 should be turn to the minimum.

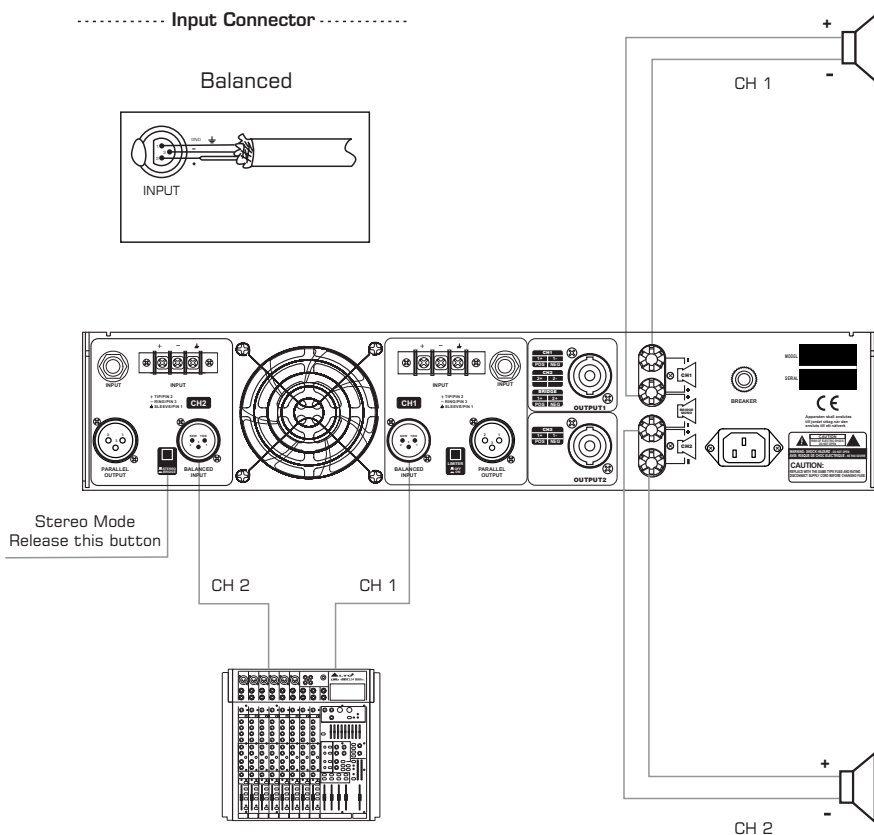


4. APPLICATION

The MISTRAL stereo power amplifiers provide two operating modes: stereo mode and bridge mode, you can decide each specific operating mode according to your actual application circumstance. Please see following diagram for connecting the power amplifier into your audio system.

- Stereo Mode

In this mode, CH 1 and CH 2 operate independently (as a conventional stereo amplifier). The CH 1 input signal will be output from the CH 1 output connectors, and the CH 2 input signal will be output from the CH 2 output connectors.



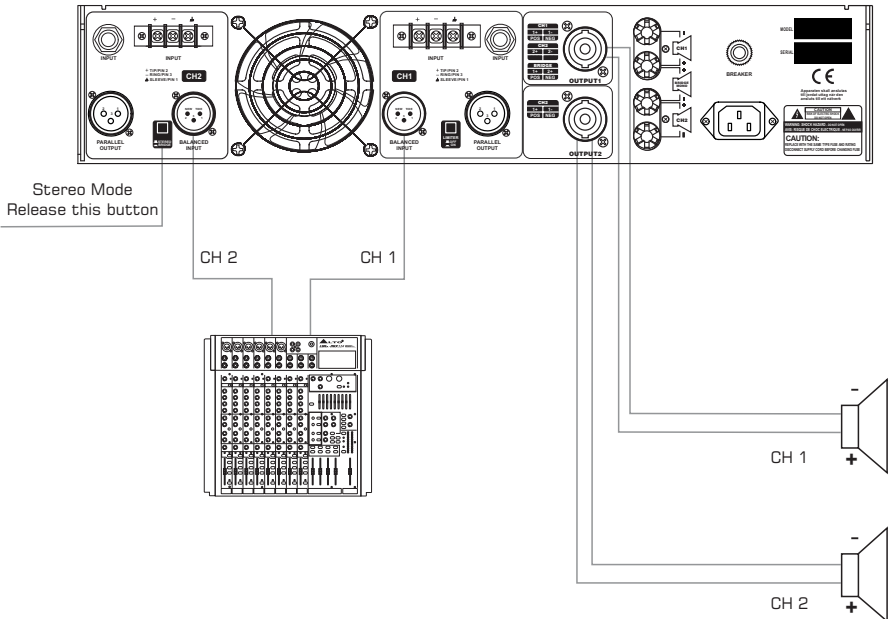
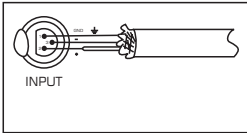


4. APPLICATION

- Stereo Mode

..... Input Connector

Balanced

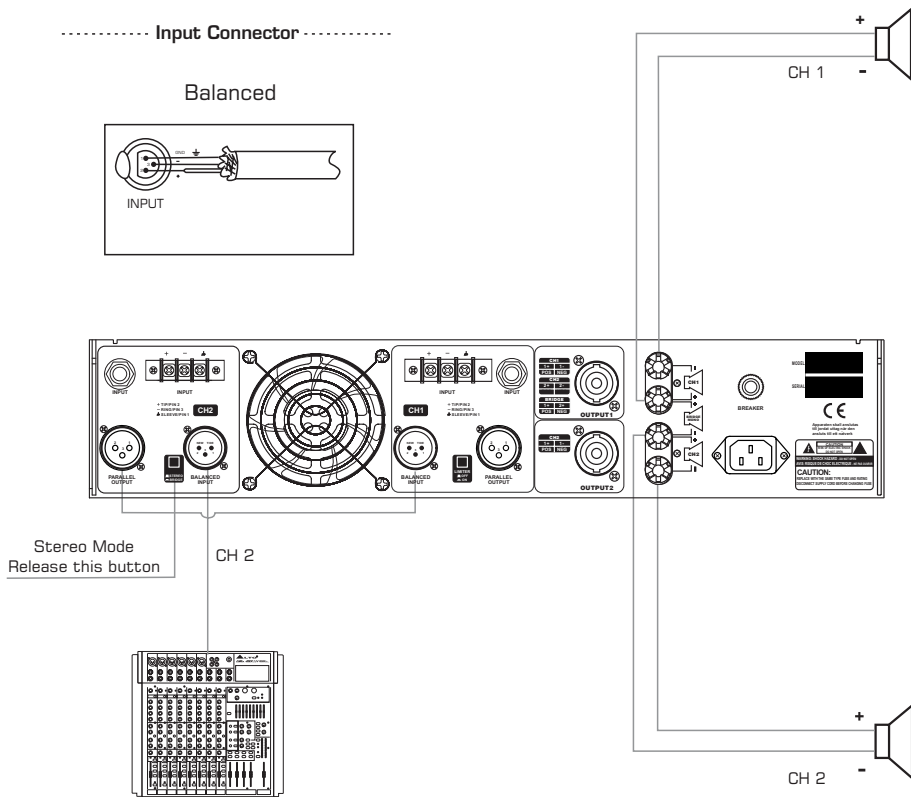




4. APPLICATION

- Stereo Mode

You can also operate the paralleled mode via outside wiring, so the signal input from CH 1 or CH 2 will be output from both CH 1 and CH 2 simultaneously. The volume of CH 1 or CH 2 can be controlled separately.



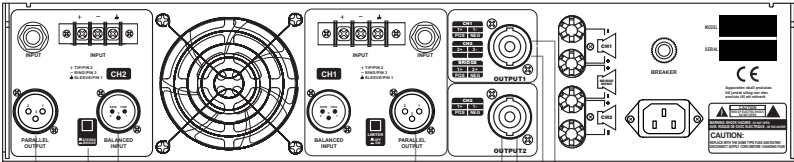
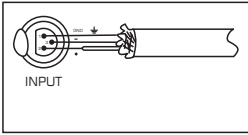


4. APPLICATION

- Stereo Mode

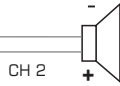
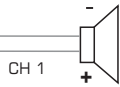
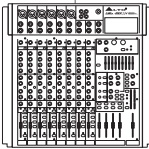
..... Input Connector

Balanced



Stereo Mode
Release this button

CH 2



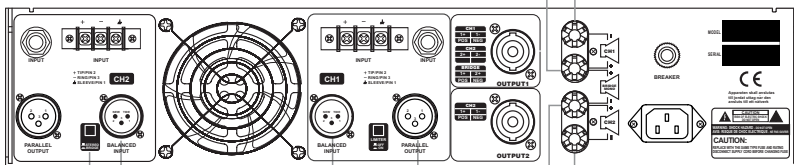
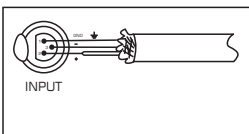


4. APPLICATION

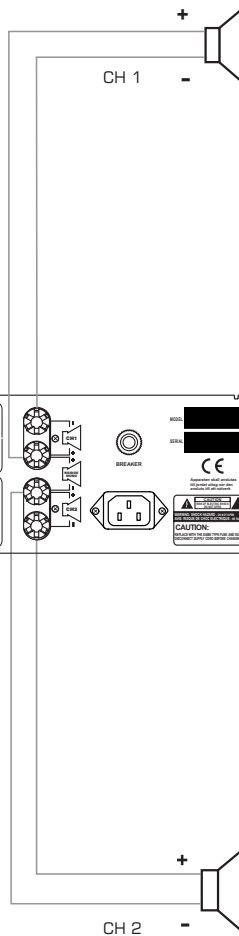
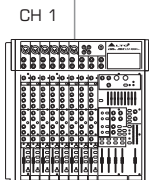
- Stereo Mode

..... Input Connector

Balanced



Stereo Mode
Release this button



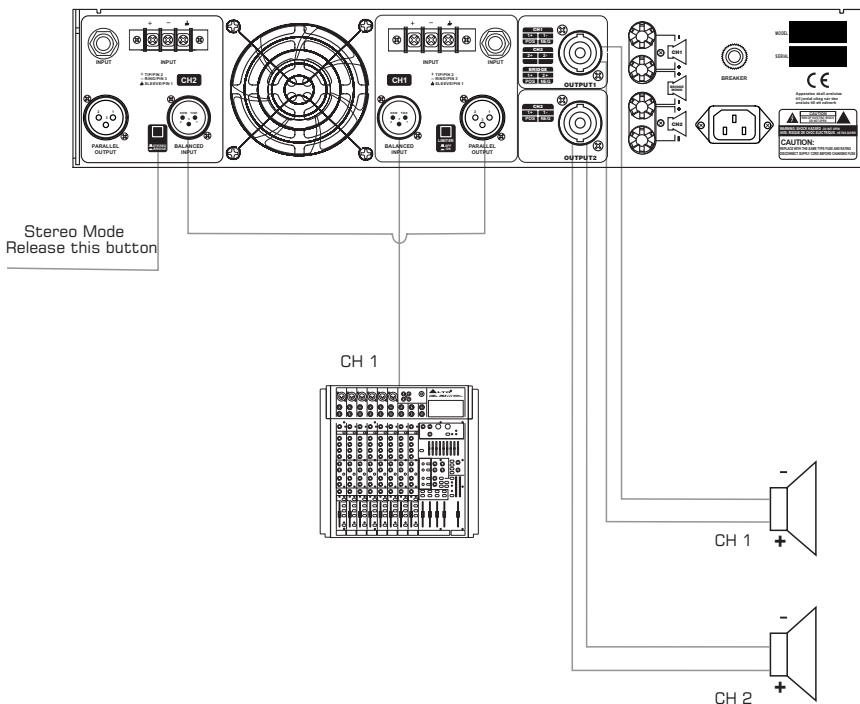
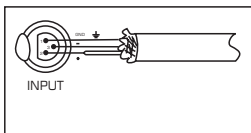


4. APPLICATION

- Stereo Mode

..... Input Connector

Balanced





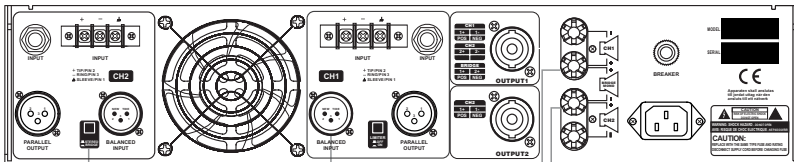
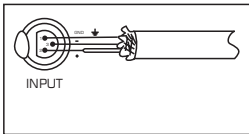
4. APPLICATION

- Bridge Mode

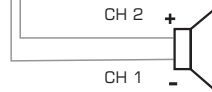
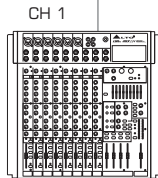
In this mode, the CH 1 input signal will be output from the bridge output connector. On the other hand, the output level control of CH 2 should be turned down to minimum (turn the volume control at counterclockwise). Only the volume control of CH 1 is used to control the volume of the whole system.

..... Input Connector

Balanced



Bridge Mode
Press this button



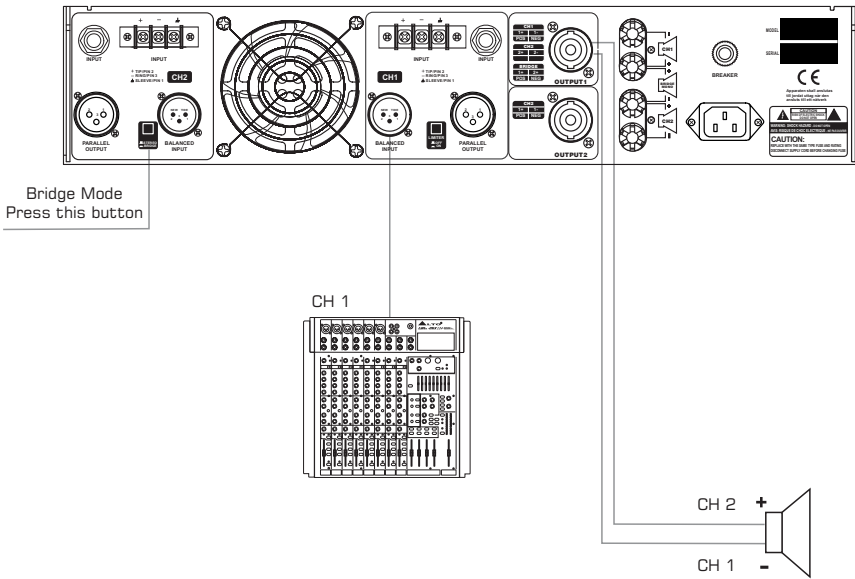
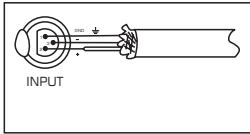


4. APPLICATION

- Bridge Mode

..... Input Connector

Balanced



5. TECHNICAL SPECIFICATIONS

TYPE	MISTRAL 2500	MISTRAL 4000	MISTRAL 6000
Stereo Mode - (4 ohms - E/A/J)	800W x 2	1100W x 2	1600W x 2
Stereo Mode - (4 ohms - R/M/S)	610W x 2	810W x 2	1170W x 2
Stereo Mode - (8 ohms - E/A/J)	440W x 2	600W x 2	900W x 2
Stereo Mode - (8 ohms - R/M/S)	310W x 2	530W x 2	780W x 2
Bridge Mode - (8 ohms - E/A/J)	1500W x 1	2300W x 1	3100W x 1
Bridge Mode - (8 ohms - R/M/S)	1150W x 1	1640W x 1	2300W x 1
Distortion (30VTC IN)	<0.01%	<0.01%	<0.01%
Frequency Response	20 Hz-20 kHz \pm 1 dB, -3 dB points: 10 Hz-60 kHz		
Damping Factor (8 ohms) 1 kHz and below	>900	>500	>400
Signal to Noise, 20 Hz-20 kHz	102 dB	102 dB	110 dB
Voltage Gain	40 x (32 dB)	40 x (32 dB)	40 x (31 dB)
Input Sensitivity @ 4 ohms	1 Vrms	1 Vrms	6 Vrms
Input Clipping	10 Vrms (+22 dB)	10 Vrms (+22 dB)	10 Vrms (+22 dB)
Input Impedance	10 K Ohms unbalanced, 20K ohms balanced 50 (35 dB)		
Controls	FRONT: AG SWITCH, CH1 & CH2 GAIN KNOBS REAR: LIMITER, BRIDGE SELECTOR		
Indicators (1 per channel)	Power-On: Blue LED Operational-Protection: Dual Color (Green/Red LED) Limit: Red LED Clip: Red LED		
Connectors, each channel	Input: Active balanced XLR Parallel Output: XLR Output: NEUTRIK Speaker and Binding posts		
Cooling	Continuously variable speed fan, rear to front air flow		
Load Protection	On/off muting, DC-fault load grounding relay, internal fault fuses		
Power Requirements	200-240 (100-120) Vac, 50-60 Hz		
Dimensions(L×W×H)	400×483×89 mm	400×482×89 mm	452×483×133 mm
Net Weight	15.1 Kg	20.3 Kg	27.5 Kg

6. 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.

SEIKAKU TECHNICAL GROUP LIMITED
NO. 1, Lane 17, Sec. 2, Han Shi West Road, Taichung 40151, Taiwan
<http://www.altoproaudio.com> Tel: 886-4-22313737
email: alto@altoproaudio.com Fax: 886-4-22346757

All rights reserved to ALTO. All features and content might be changed without prior notice. Any photocopy, translation, or reproduction of part of this manual without written permission is forbidden. Copyright ©2007 Seikaku Group