User’s Manual

MISTRAL 400
STEREO POWER AMPLIFIER
IMPORTANT SAFETY INSTRUCTION

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

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.

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:

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

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.

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

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.
Thank you for your purchasing the MISTRAL 400. The MISTRAL 400 is a line of high power, low profile, professional Power Amplifiers with advanced features and great reliability. It delivers tremendous power in only one rack space, providing high level performance under the most demanding conditions. The amplifier contains two independent channels, each channel with separate AC transformer secondaries and LED indicators for limit, power on and clip. The Power outputs employ standard power connectors and all the inputs are electronically balanced.

Enjoy your MISTRAL 400 and make sure to read this Manual carefully before operation.

2. FEATURES

- Mountable in a 19" unit (1U), 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 × 100 Watt EIAJ on 4 ohms for MISTRAL 400
- Stereo (dual-channel) or bridge mono operating modes
- Balanced XLR inputs to ensure noiseless long wiring
- Neutrik Speak-on connectors for output
- Single channel, bridge and bi-amp output wiring possibility
- Front panel LED indicators for limit, power on and clip
- Accurate gain control
- Manufactured under QS9000, VDA 6.1 certified management system
3. CONTROL ELEMENTS

Front panel

1. **POWER SWITCH**
   It switches the 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. **POWER LED**
   This LED lights up when the unit is powered on.

5. **LEVEL CONTROLS (For CH 1 & CH 2)**
   Adjust the output signal level to avoid signal distortion.
6. AC INLET AND FUSE HOLDER
   Connect the supplied main cord. Do not insert the power cord into the MISTRAL 400 amplifier and into the AC Outlet until voltage has been correctly set. If the fuse blows, replaced with a fuse of the correct type only.

7. OUTPUT CONNECTOR
   These connectors have two kinds: 1/4 TRS jack and Neutrik connector. You can choose proper connectors according to practical need. For your safety, please be careful when do connecting work.

8. LIMITER SWITCH
   Set the switch at "ON" position, if a very high level signal is driven into the amplifier, 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.

9. BALANCED INPUT CONNECTOR
   These connectors are used to connect the input signal of CH 1 and CH 2 separately.

10. MODE SELECTOR
    The MISTRAL 400 power amplifier presents 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 turned to the minimum.
4. APPLICATION

The MISTRAL 400 amplifier provides 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 normal 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

![Stereo Mode Diagram]

Stereo Mode
Release this button

CH 2
CH 1

CH 1

CH 2

AC INPUT 1 0 120V 50 0Hz
FUSE T3 15AL 25 VAC
Rated Power Consumption 200W

REPLACE FUSE WITH CORRECT TYPE ONLY

Apparatus shall not be used
outside its intended use

5
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.
## 5. Technical Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>MISTRAL 400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stereo Mode - (4 ohms EIAJ)</td>
<td>100W x 2</td>
</tr>
<tr>
<td>Stereo Mode - (4 ohms RMS)</td>
<td>70 W x 2</td>
</tr>
<tr>
<td>Stereo Mode - (8 ohms EIAJ)</td>
<td>60 W x 2</td>
</tr>
<tr>
<td>Stereo Mode - (8 ohms RMS)</td>
<td>50 W x 2</td>
</tr>
<tr>
<td>Bridge Mode - (8 ohms EIAJ)</td>
<td>200W x 1</td>
</tr>
<tr>
<td>Bridge Mode - (8 ohms RMS)</td>
<td>100W x 1</td>
</tr>
<tr>
<td>Distortion (SMPTE-IM)</td>
<td>&lt;0.05%</td>
</tr>
<tr>
<td>Frequency Response</td>
<td>20 Hz-20 kHz ±0.1/-3 dB</td>
</tr>
<tr>
<td>Damping Factor, 1 kHz and below</td>
<td>&gt;300 at 8 ohms</td>
</tr>
<tr>
<td>Signal to Noise, 20 Hz-20 kHz</td>
<td>102 dB</td>
</tr>
<tr>
<td>Voltage Gain</td>
<td>40 x (32 dB)</td>
</tr>
<tr>
<td>Input Sensitivity @ 4 ohms</td>
<td>1 Vrms</td>
</tr>
<tr>
<td>Input Clipping</td>
<td>10 Vrms (+22 dB)</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>10K ohms unbalanced, 20K ohms balanced 56 (36 dB)</td>
</tr>
<tr>
<td>Controls</td>
<td>FRONT: AC SWITCH, CH1 &amp; CH2 GAIN KNOBS REAR: LIMITER, BRIDGE SELECTOR</td>
</tr>
<tr>
<td>Indicators (1 per channel)</td>
<td>Power-On: Blue LED Limit: Yellow LED Clip: Red LED</td>
</tr>
<tr>
<td>Connectors, each channel</td>
<td>Input: Active balanced XLR and 1/4&quot; TRS jack Output: NEUTRIK Speakon and 1/4&quot; TRS jack</td>
</tr>
<tr>
<td>Load Protection</td>
<td>On/off muting, DC-fault load grounding relay, internal fault fuses</td>
</tr>
<tr>
<td>Power Requirements</td>
<td>220-240 (110-120) Vac 50-60 Hz</td>
</tr>
<tr>
<td>Dimensions</td>
<td>19&quot; (48.3 cm) rack mounting, 1.7&quot; (4.4 cm) tall (1 rack spaces) 11&quot; (28 cm) deep (rack mounting to rear support ears)</td>
</tr>
<tr>
<td>Net Weight</td>
<td>6.5 Kg</td>
</tr>
</tbody>
</table>
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.