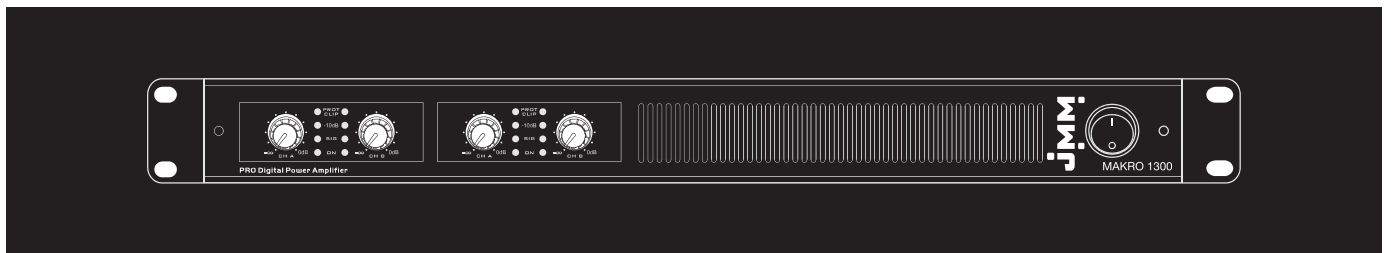




# Professional Power Amplifier

MAKRO 350/MAKRO 800/MAKRO 1300



## Owner's Manual

## IMPORTANT SAFETY INSTRUCTIONS

Please read the basic protective measure as below before using.

1. Read these instructions before use.
2. Heed all warnings.
3. Follow all instructions.
4. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
5. Be sure to connect to an appropriate outlet with a protective grounding connection. Improper grounding can result in electrical shock.
6. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

**WARNING-Improper grounding can result in electrical shock.**

7. Keep this unit away from the following locations:
  - (1) Locations exposed to oil splashes or steam, such as near cooking stoves, humidifiers, etc.
  - (2) Unstable surfaces, such as a wobbly table or slope.
  - (3) Locations exposed to excessive heat, such as inside a car with all the windows closed, or places that receive direct sunlight.
  - (4) Locations subject to excessive humidity or dust accumulation.
8. Always lower the volume control to minimum before turning on the power to this unit. A sudden blast of sound may damage your hearing.
9. This unit has ventilation holes at the front and rear to prevent the internal temperature rising too high. Do not block them. Blocked ventilation holes are a fire hazard. In particular, do not:
  - (1) Place the unit on its side or upside down.
  - (2) Place the unit in any poorly-ventilated location such as a bookcase or closet (other than on the dedicated rack).
  - (3) Cover the unit with a table cloth or place it on a carpet or bed.
10. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
11. Connect this unit's power cord only to an AC outlet of the type stated in this Owner's Manual or as marked on the unit. Failure to do so is a fire and electrical shock hazard.

12. Do not scratch, bend, twist, pull, or heat the power cord. A damaged power cord is a fire and electrical shock hazard.


### 13. In case an abnormality occurs during operation:

(1) If the power cord is damaged (i.e., cut or a bare wire is exposed), ask your dealer for a replacement. Using the unit with a damaged power cord is a fire and electrical shock hazard.

(2) Should this unit be dropped or the cabinet be damaged, turn the power switch off, remove the power plug from the AC outlet, and contact your dealer. If you continue using the unit without heeding this instruction, fire or electrical shock may result.

(3) If you notice any abnormality, such as smoke, odor, or noise, or if a foreign object or liquid gets inside the unit, turn it off immediately. Remove the power cord from the AC outlet. Consult your dealer for repair. Using the unit in this condition is a fire and electrical shock hazard.

14. Always turn the power off when the amplifier is not in use. Illustrations in this manual are for explanatory purposes only, and may not match the actual appearance of the product during operation.

<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<b>CAUTION:</b> TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.	



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



Applies only to altitudes below 2000m area safety.



Applies only in Non-tropical area safety.

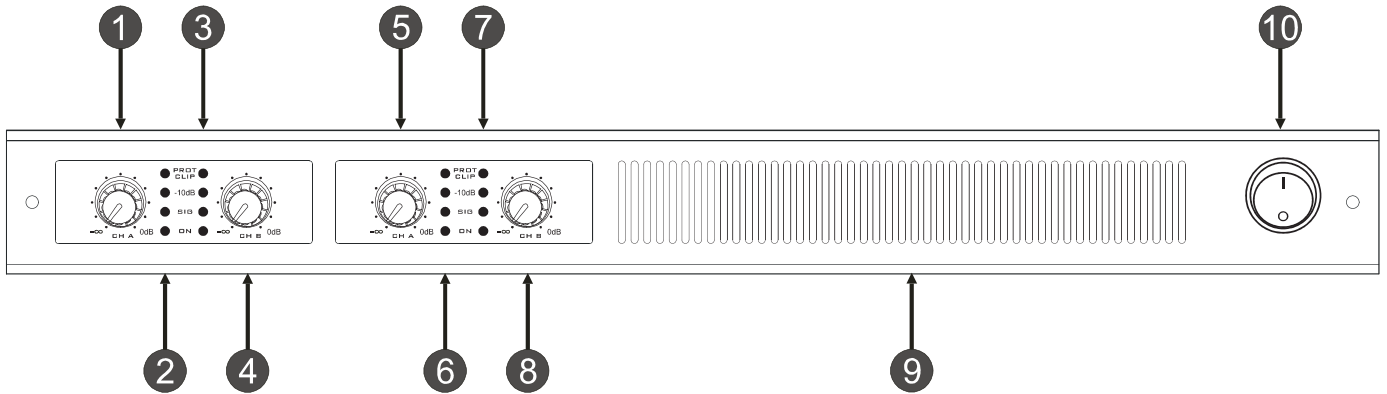
# 1. Introduction

Thank you for your purchase of the Series Power Amplifier. These series amplifiers fully incorporate renowned technological expertise, and offer high reliability, rock-solid stability, and superb acoustic characteristics—all in a trim, 1U-sized package.

## Features:

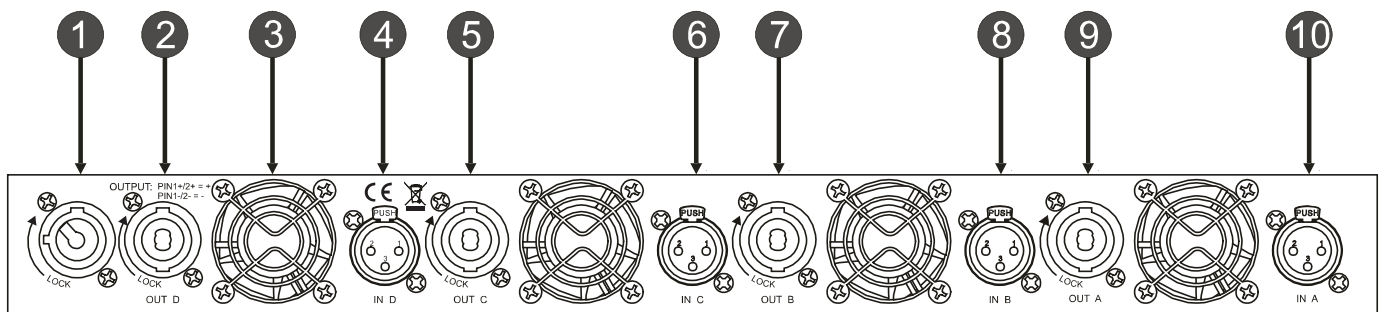
- a. Modular design, each channel is fully separately and without any interference to other channels.
- b. 1U Rack design with small dimension, light weight and high output power.
- c. Switch mode power supply, intelligent Limiter and full protection circuitry.
- d. Selected material used with high-frequency capacitively, imported variable-speed fan etc.

## 1-1 Front Panel Controls and functions



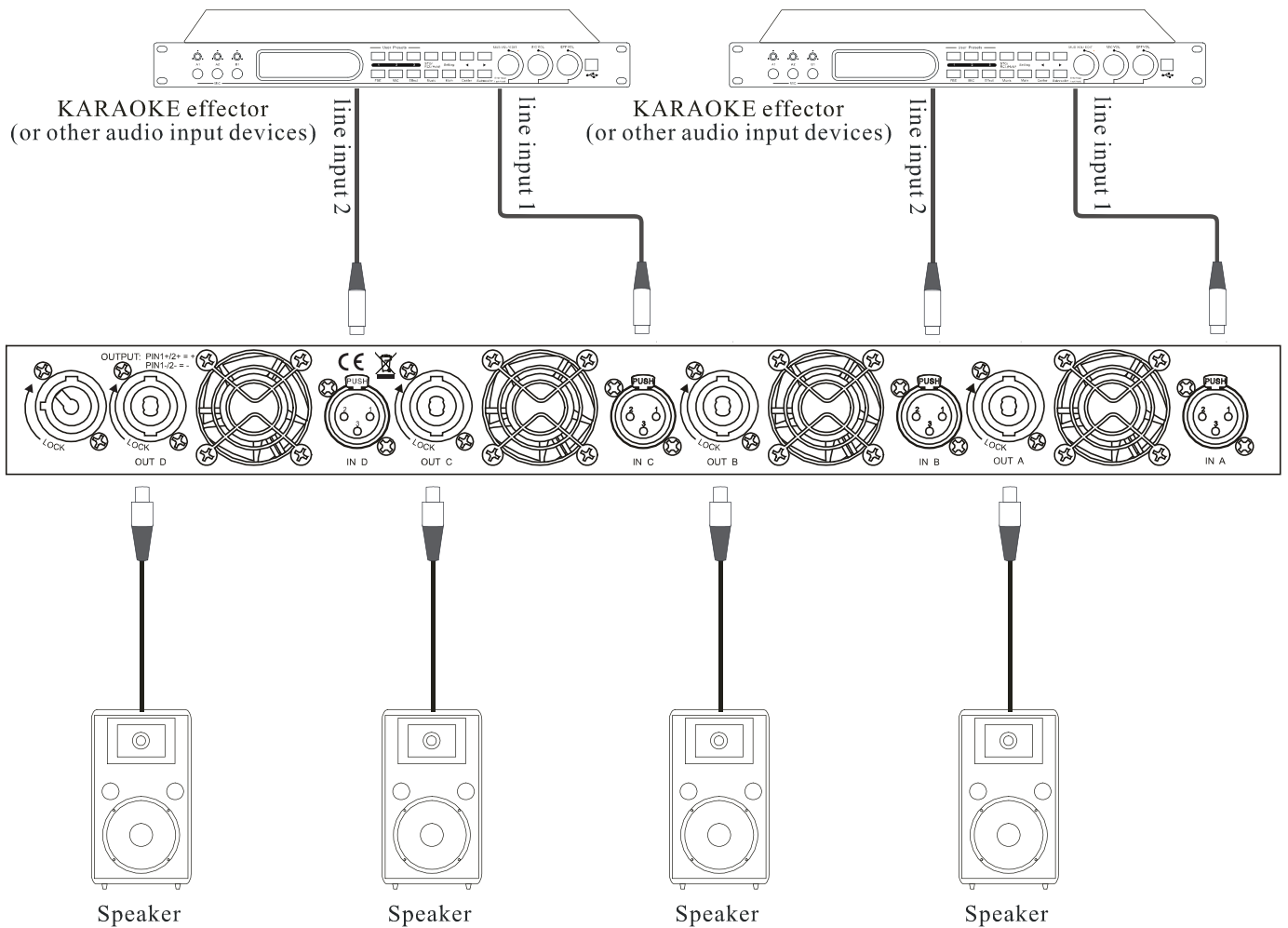
- 1. Channel A Volume Control Knob
- 2. Channel A Power level Indicator
- 3. Channel B Power level Indicator
- 4. Channel B Volume Control Knobs
- 5. Channel C Volume Control Knobs
- 6. Channel C Power Level Indicator
- 7. Channel D Power Level Indicator
- 8. Channel D Volume Control Knobs
- 9. Air Inlet
- 10. Power Switch

## 1-2 Rear Panel Controls and functions



- 1. AC in Connector
- 2. Channel D signal output connector
- 3. Cooling fan outlet
- 4. Channel D signal input connector
- 5. Channel C signal output connector
- 6. Channel C signal input connector
- 7. Channel B signal output connector
- 8. Channel B signal input connector
- 9. Channel A signal output connector
- 10. Channel A signal input connector

## 1-3 Systems Connections



## 2. Operation Instructions

### 2-1 Starting steps:

1. Setting and connect the lines correctly.
2. Check out if output short circuit with input lines
3. Check out if local power system is corresponding with the products power.
4. Make sure the Power Switch is on OFF position. Turn down the volume to the minimum.
5. Power on, turn on the Audio source, Switch on the Amplifier Power; Turn the Volume Control Knobs clockwise.

### 2-2 Turn off steps:

1. Turn the Volume Control Knobs counterclockwise to the minimum.
2. Power off and the Power Switch is on the OFF position.

### 2-3 Troubleshooting:

Indicator(s)	Possible cause
All the lines are connected, but no sound output	<ol style="list-style-type: none"> <li>1. No power or socket connection is bad.</li> <li>2. Burn out a fuse.</li> <li>3. Volume is not turned on</li> <li>4. No input signal</li> </ol>
Boot correctly, there is alarm when use.	<ol style="list-style-type: none"> <li>1. Short-circuit load or damaged</li> <li>2. Supply voltage is not stable, too low or too high.</li> <li>3. Heavy load</li> </ol>
No sound output when in normal use.	<ol style="list-style-type: none"> <li>1. The temperature is too high, the device is under protection.</li> <li>2. Poor electrical connection</li> </ol>

### 3. General Specifications

Model	MAKRO 350	MAKRO 800	MAKRO 1300
Number of channels	4	4	4
Output Power (All Channels driven output power, THD=1%)			
8Ω	350W×4	800W×4	1300W×4
4Ω	500W×4	1500W×4	2400W×4
2Ω	600W×4	1800W×4	2600W×4
Frequency Response (@8Ω)	20Hz-20kHz, ±0.3dB		
Slew Rate	50V / us		
THD+N	< 0.3%		
IMD-SMPTE	< 0.3%		
SNR	> 105dB		
Crosstalk	> 75dB		
Damping Factor	> 800 (8Ω, 20Hz ~ 200Hz)		
Sensitivity	1V		
Input Impedance	20k (Balance), 10k (Unbalance)		
Voltage Gain	35dB	38dB	40dB
Efficiency	> 85%		
Cooling	Forced air cooling, air flow from the front to the rear.		
Height	1U		
Product Dimensions	483×375×44 (W×D×H, mm)		
Packing Dimensions	530×530×90 (W×D×H, mm)		
Net Weight	7.5 kg	9.5 kg	10.5 kg
Gross Weight	9.2 kg	11.2 kg	12.2 kg