PUBLIC ADDRESS SYSTEM

OPERATION MANUAL

TC-4500B
MIXER AMPLIFIER

Please follow the instructions in this manual to obtain the optimum results from this unit.
We also recommend that you keep this manual handy for future reference.

TABLE OF CONTENTS

1. SAFETY PRECAUTIONS

- Be sure to read the instructions in this section carefully before use.
- Make sure to observe the instructions in this manual as the conventions of safety symbols and messages regarded as very important precautions are included.
- We also recommend you keep this instruction manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety

⚠ **WARNING**	Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.
⚠ **CAUTION**	Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

⚠ WARNING

When Installing the Unit

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.
- Be sure to replace the unit's terminal cover after connection completion. Because high voltage is applied to the speaker terminals, never touch these terminals to avoid electric shock.
- Be sure to ground to the safety ground (earth) terminal to avoid electric shock. Never ground to a gas pipe as a catastrophic disaster may result.
- Avoid installing or mounting the unit in unstable locations, such as on a rickety table or a slanted surface. Doing so may result in the unit falling down, causing personal injury and/or property damage.

When the Unit is in Use

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest itc dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  - If you detect smoke or a strange smell coming from the unit.
  - If water or any metallic object gets into the unit
  - If the unit falls, or the unit case breaks
  - If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  - If it is malfunctioning (no tone sounds.)
- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to your nearest itc dealer.
- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.
- Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.

⚠ CAUTION

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.
- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.
- Do not block the ventilation slots in the unit's cover. Doing so may cause heat to build up inside the unit and result in fire.
- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.

When the Unit is in Use

- Do not place heavy objects on the unit as this may cause it to fall or break which may result in personal injury and/or property damage. In addition, the object itself may fall off and cause injury and/or damage.
- Make sure that the volume control is set to minimum position before power is switched on. Loud noise produced at high volume when power is switched on can impair hearing.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Contact your itc dealer as to the cleaning. If dust is allowed to accumulate in the unit over a long period of time, a fire or damage to the unit may result.
- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.
- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

An all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated in the electrical installation of the building.

Due to product upgrades, while some of the features and specification in the user manual does not match the actual functions, sorry for any inconvenience and thanks for your kind understanding!

2. GENERAL DESCRIPTION

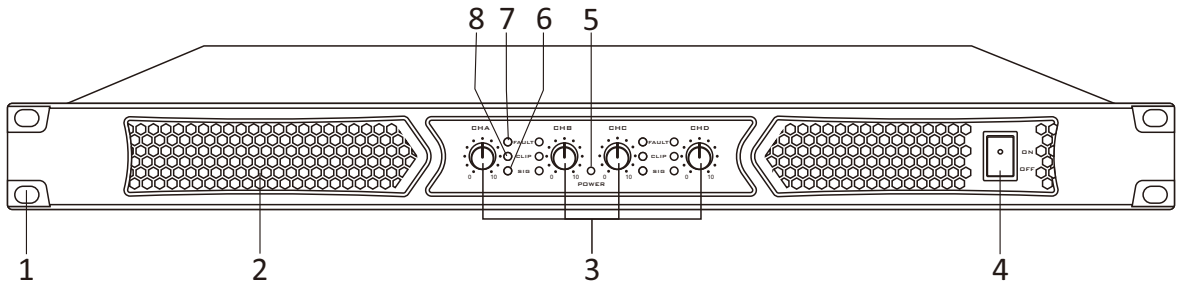
It is a new generation of high-power professional digital amplifier, which is characterized by high efficiency, stability and excellent sound quality. It has broken through the traditional technology in power technology, modulation technology and control technology, so as to substantially improve the overall performance. The application of variable oscillator modulation technology, multiple feedback control technology and innovative output power control technology endow the amplifier with over 95% ultra-high efficiency and excellent stability. And it is specially applicable to large-scale sound reinforcement venues, tour performance multipurpose halls, etc.

3. FEATURES

1. 1U chassis design, small size and light weight.
2. Using high-efficiency power amplifier circuit, the output can be bridged to 8 ohms.
3. Adopt switching power supply to supply power, with overvoltage protection function.
4. Support voltage limit, over temperature protection, over current protection, output DC protection, output short circuit protection and other functions.
5. Support XLR balanced input and SPEAKON audio socket output.
6. Support optional three modes: MONO/STEREO/BRIDGE.
7. The normal load is 8Ω, and the minimum load is 4Ω.

4. NOMENCLATURE AND FUNCTIONS

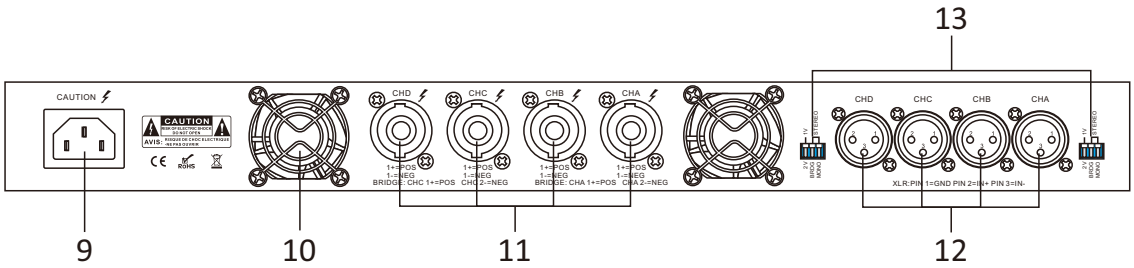
4.1 FRONT PANEL



1. Cabinet fixing holes: used to fix the equipment when placed in the cabinet;
2. Air inlet: When the equipment is working normally, do not use objects to block air from entering the equipment;
3. CHA/CHB/CHC/CHD: Volume gain control, adjust the output amplitude of the power amplifier;
4. Power switch: used to turn the power on/off. When pressed to "ON", the power is turned on; when pressed to "OFF", the power is turned off;
5. POWER: Power indicator light. When the power switch is turned on, the indicator light will light up blue;
6. SIGNAL: Signal indicator light. When there is signal input, the indicator light will light green;
7. FAULT: Fault indicator light. When the protection circuit is activated, the indicator light will light up in red;
8. CLIP: Limit indicator light. When the signal amplitude reaches about 90%, the indicator light will light orange.

4. NOMENCLATURE AND FUNCTIONS

4.2 REAR PANEL

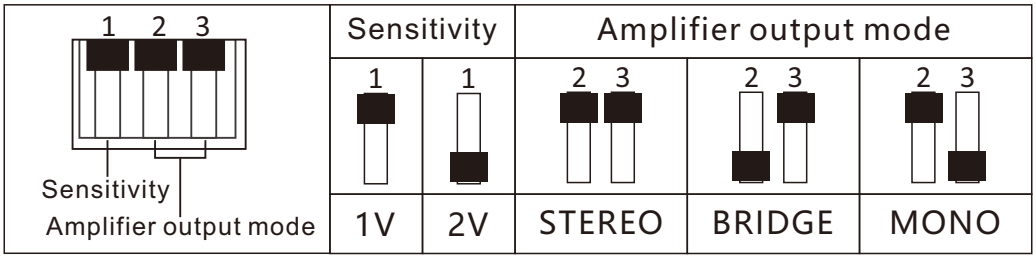


9. AC power input;
10. Cooling fan outlet;
11. Power amplifier output, four-core SPEAKON speaker socket:

①Stereo/mono mode output is CHA/CHB/CHC/CHD: 1+, 1-;

②The bridge mode output is CHA/CHC: 1+, 2-.

12. Signal input, input female XLR: balanced signal input plug;
13. Sensitivity/MONO/STEREO/BRIDGE mode switch:



①When the sensitivity switch is turned to 1V, the amplifier sensitivity is 2.2dB;

②When the sensitivity switch is turned to 2V, the amplifier sensitivity is 8.2dB;

③When the mode switch is set to STEREO, it is stereo mode, and CHA, CHB, CHC, CHD channels work independently. The input signal of channel A is output through the output port of channel A; the input signal of channel B is output through the output port of channel B; the input signal of channel C is output through the output port of channel C; the input signal of channel D is output through the output port of channel D;

④When the mode switch is turned to MONO/BRIDGE, it is mono mode/bridge mode; the signal input from the input port of channel A will be output through the output ports of channel A and B; the signal input from the input port of channel C will be output through the output ports of channel C and D.

5. OPERATION ILLUSTRATION

Before installation, please confirm that the device power cord is not connected to the power socket; the device switch is in the off position; and the volume knob is completely closed (rotate counterclockwise to the limit).

1. Power line

The ground terminal on the AC power cord needs to be well grounded, otherwise there is a risk of electric shock! !

The AC power cord must have sufficient overcurrent capability, the AC power voltage must be within ±10% of the equipment's nominal operating voltage, and the AC power frequency must be within the equipment's nominal frequency range (the nominal value is on the rear panel of the equipment).

2. Input and output lines

Connection knowledge:

Try to use shielded wires for input signals. The higher the density of the shielding layer, the better.

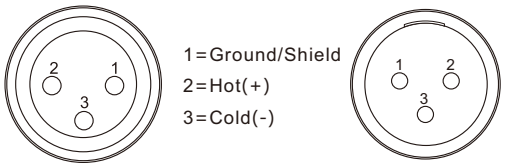
Try to choose a balanced connection for input signals to help reduce noise interference.

If an unbalanced connection is used, the shorter the line, the better. It is best not to exceed 3m.

Weak signals should avoid running together with strong signal lines such as power lines and power amplifier output lines, otherwise noise may be generated.

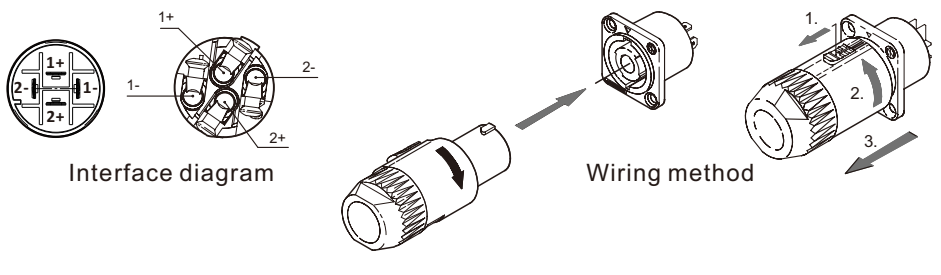
Please turn off all equipment before changing any connections, otherwise it may cause damage to your hearing and speakers.

The balanced connection of the three-core XLR plug is as shown in the figure below:



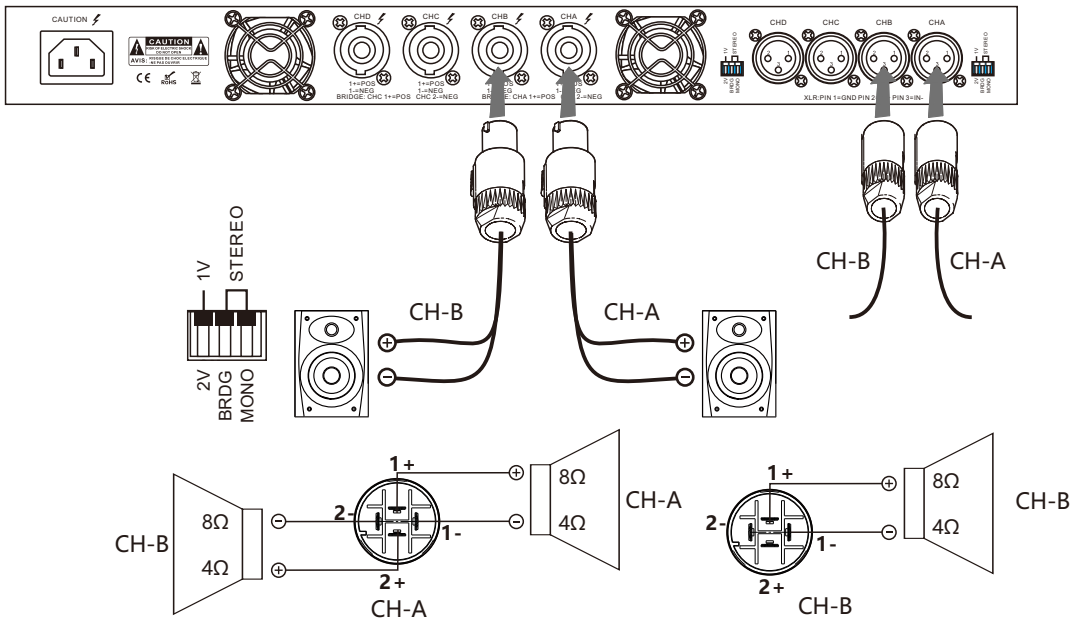
* Pole 1and Pole 3 must be switched on for unbalanced operation.

Four-core SPEAKON socket connection, as shown in the figure below:

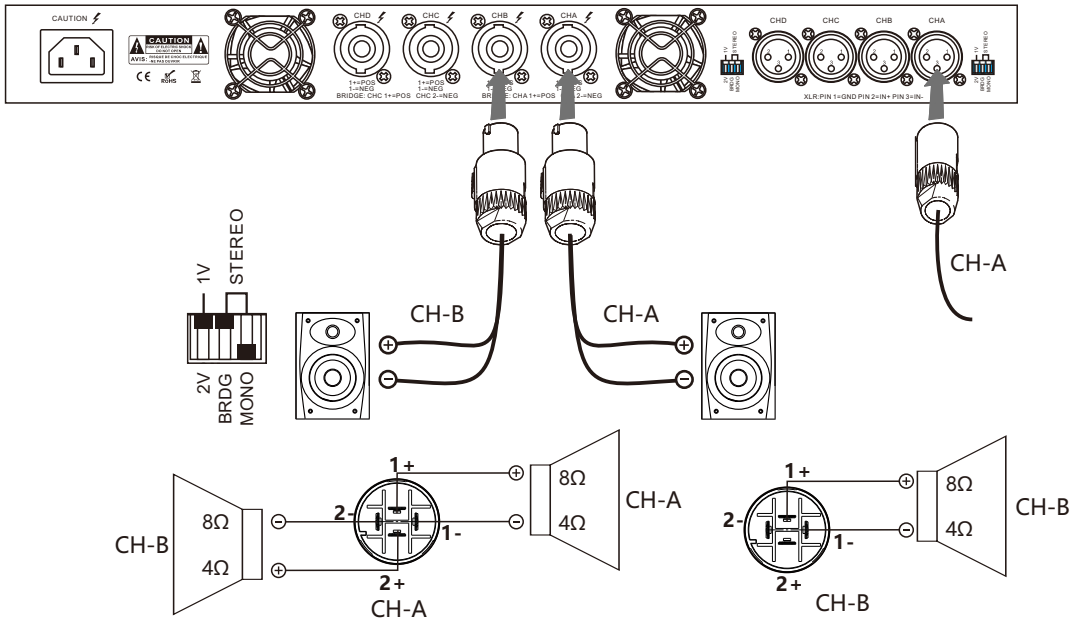


5. OPERATION ILLUSTRATION

2.1 Stereo Mode

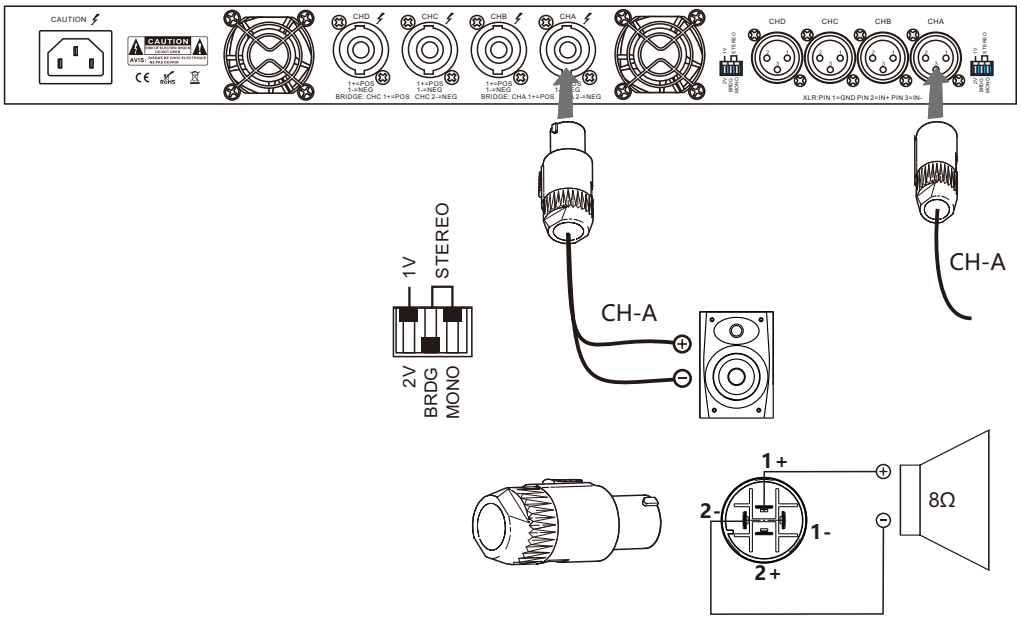


2.2 Mono Mode



5. OPERATION ILLUSTRATION

2.3 Bridge Mode



3. Speaker protection

Clipping not only worsens the sound quality, but also damages the tweeter (once clipping occurs, the CLIP light on the amplifier panel will light up, and you can use this indicator light to determine whether clipping has occurred), which can reduce the input signal to avoid clipping. Strong infrasonic signals will cause the speaker drive circuit to burn out. High-level, low-frequency signals caused by breathing sounds and microphone drops are typical infrasound signals. To prevent infrasound signals, one of the following methods can be used:

a. Install a high-pass filter between the mixer output and amplifier input;

b. Turn on the high-pass filter in the mixer. Set the filter frequency as high as possible without affecting use. For example: set to 35Hz for music signals and 75Hz for microphones. For each mixer input channel, set the filter frequency below the lowest fundamental frequency of the associated channel device.

4. Usage precaution

Although the amplifier will be protected under abnormal conditions, in order to achieve the best performance and highest safety of the amplifier, please pay attention to the following when using it:

1. Before use, the amplifier needs to be configured, including the connection of input and output lines. Improper wiring can cause the device to not function properly.
2. Use caution when making connections, selecting input signals, and controlling output levels. This avoids unnecessary trouble.

3. Do not short-circuit the ground wire of the output cable and the ground wire of the input signal. This can create a ground loop and cause oscillations.
4. Do not connect the output to a power supply, battery or mains supply, as this may result in electric shock.
5. Tampering with circuits and unauthorized modifications to circuits can be dangerous and invalidate all services provided by the agent.
6. Do not use the power amplifier when the CLIP indicator light continues to flash.
7. Do not overload the mixer as this will send a clipping signal to the power amplifier. The power amplifier will reproduce such signals accurately and the speakers may be damaged.
8. Do not use the power amplifier below its nominal load. Too low a load may cause power amplifier output protection and premature clipping, damaging the speaker.
9. After the amplifier is turned on and signals are passed through, there may be fatal voltage in the output interface.

5. Cooling instruction

The heat dissipation method of this device is: cold air is sucked in from the front panel vent, flows through the heat sink inside the machine and takes away the heat, and is discharged from the rear panel fan port. To ensure good heat dissipation, please place the device in an environment of 0℃-40℃, and ensure that the air ducts on the front and rear panels are smooth. If the temperature of the heat sink inside the machine exceeds 70°C, the power limit function will be activated and the output power of the amplifier will be reduced to avoid temperature ise. If the radiator temperature continues to rise above 85°C, the power amplifier will be protected and the output will be shut down. When the temperature drops to a safe temperature, the power amplifier will automatically restart.

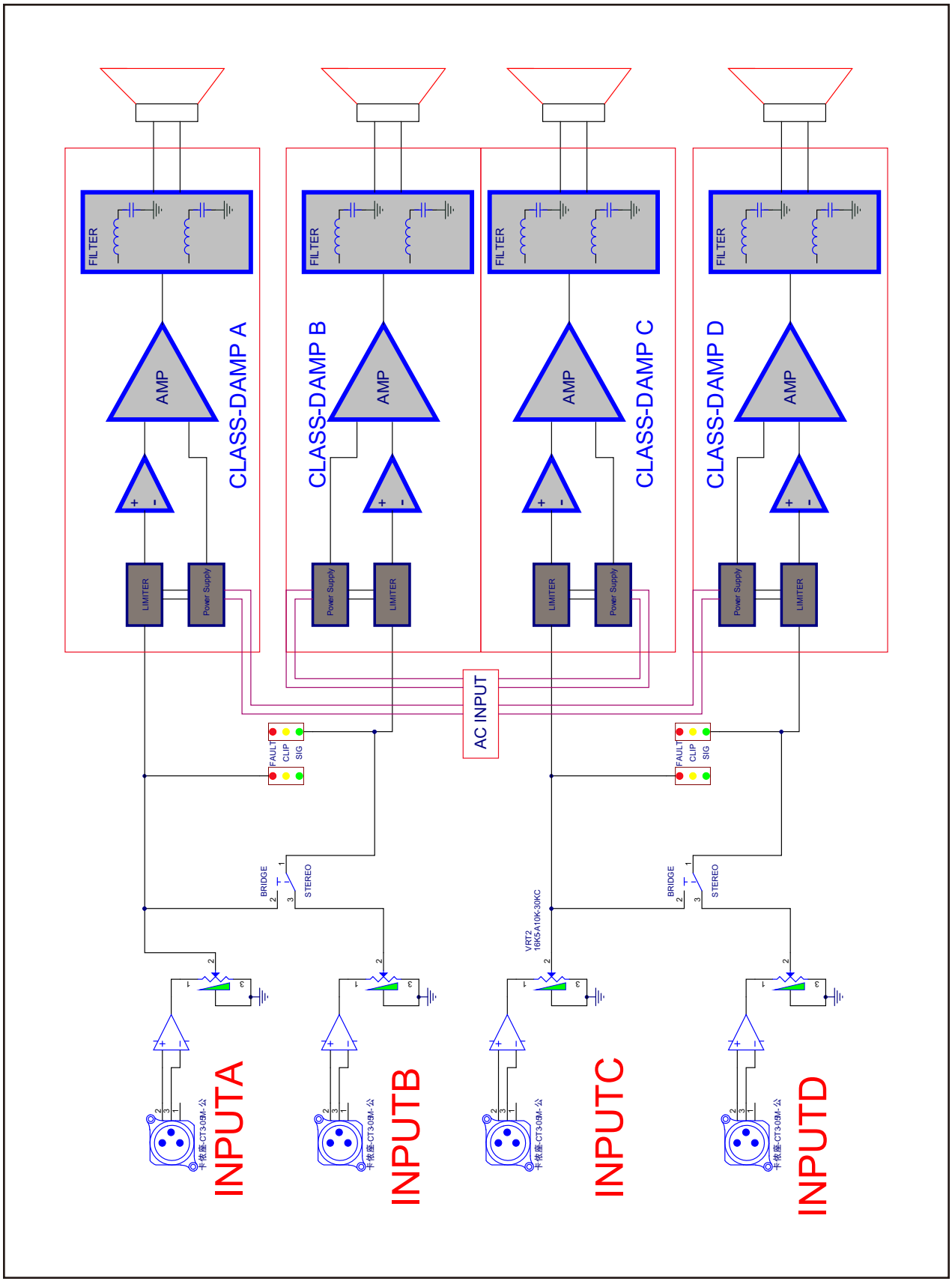
After using the device for a period of time (even if it is not turned on), if the fan runs at high speed for a long time but the heat dissipation effect is poor, please turn off the device and remove the grille to clean the dust (for devices designed with a grille).

Due to the high power density of this device, there is a strong magnetic field around the device. Please keep devices sensitive to weak signals as far away as possible (preferably not less than 20cm), otherwise noise may be generated.

6. TROUBLESHOOTING

Failure phenomena	Failure cause
1. Power switch is not opened	1. Power line is cut off 2. The protection function of the equipment is not activated
2. All lines are connected, but there is no sound.	1. No power or poor contact of the plug 2. Burned fuse 3. The volume knob is not turned on or switched to a too low level 4. No audio signal input 5. Speaker cable is short-circuited 6. The device is set to a high-impedance connection, but the connected speakers adopt low-impedance inputs or too many speakers are connected
3. Low sound	The device is set to a low-impedance connection, but the connected speakers adopt high-impedance inputs.
4. Sound is distorted	The input level of the microphone or external device is too high.
5. The protection light is on	1. The internal temperature of the device is too high 2. Output channel short circuit protection

7. BLOCK DIAGRAM

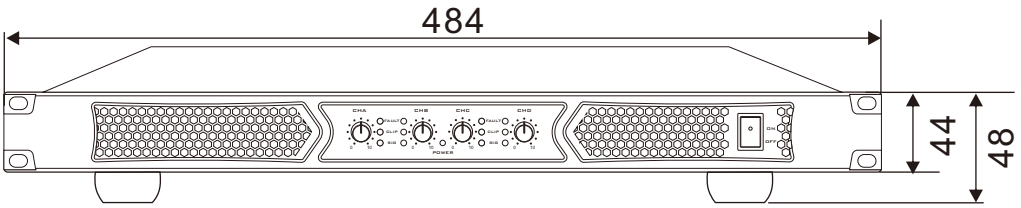


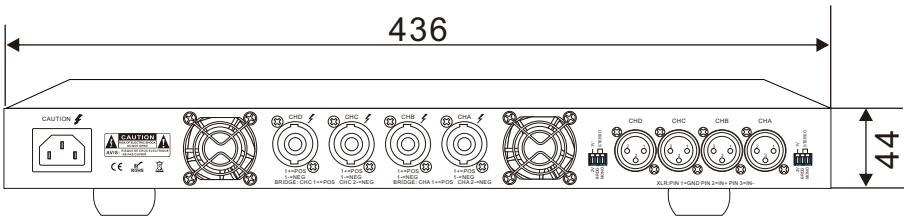
8. SPECIFICATIONS

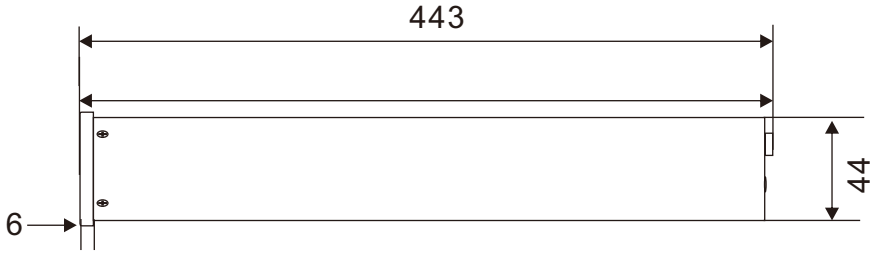
Specification \ Model		TC-4500B
Output power (1kHz/THD≤1%)	Stereo 8Ω	4×500W
	Stereo 4Ω	4×850W
	Bridge 8Ω	1700W
Input sensitivity		2.2dBu(1V)/8.2dBu(2V)
Input impedance		10KΩ
Frequency response (@1W power)		20Hz-20KHz/±1dB@8Ω
THD+N (@1/8 power)		≤0.01%
SNR(A-weighted)		≥100dB
Damping coefficient (@ 1KHz)		≥200@8 Ohms
Separation (@1KHz)		≥80dB
Power supply		☐ ~110V 50Hz ☐ ~110V 60Hz ☐ ~120V 50Hz ☐ ~120V 60Hz ☐ ~220V 50Hz ☐ ~220V 60Hz ☐ ~230V 50Hz ☐ ~230V 60Hz ☐ ~240V 50Hz ☐ ~240V 60Hz
Maximum power consumption		600W
Dimension (L×W×H)		484x443x44mm
Weight		8.7Kg
*This power is measured according to the CEA-2006-B/CEA-490-A standard using a 20ms pulsed 1KHz sine wave at 1% total harmonic distortion.		

9. DIMENSIONAL DIAGRAM

UNIT:mm

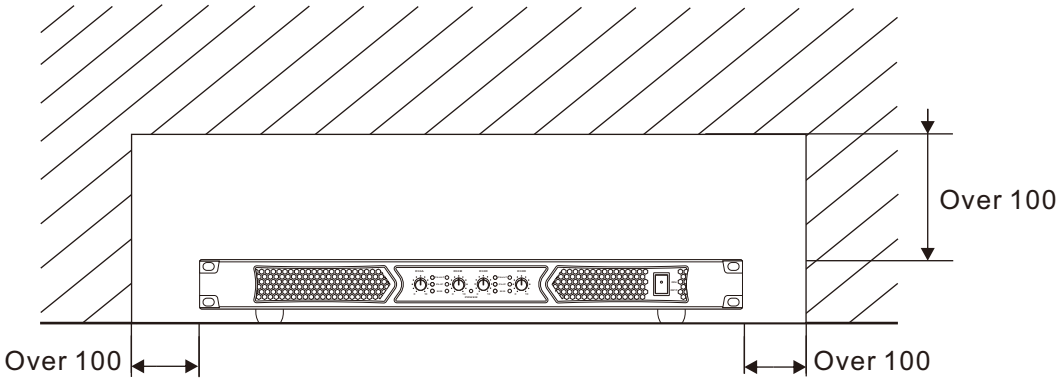






Keep the unit's all sides over 10 cm away from objects that may obstruct air flow to prevent the unit's internal temperature rise.

UNIT:mm



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