



PUBLIC ADDRESS SYSTEM

## T-2120DS/2240DS/2350DS/2500DS CLASS-D 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.

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## 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 Installing the Unit

- 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.
- 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!

#### When Installing the Unit

- 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.

## 2. PRODUCT OVERVIEW

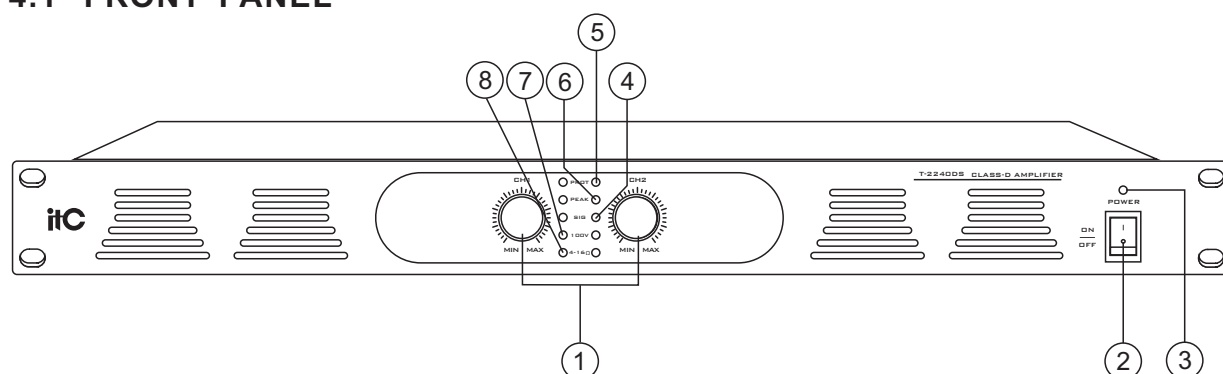
DS series Class-D amplifiers rated output power is various from 120W to 500W, with high performance switching power supply & Class D type power amplifier chip combination. It adopts 1U chassis design, which has high efficiency, light weight and beautiful appearance.

## 3. FEATURES

1. It adopts high-efficiency class D amplifying circuit and built-in high-efficiency switching power supply, making the whole machine efficiency up to 85%. It adopts reasonable heat dissipation layout to keep the working status even in extremely harsh working environment, which greatly extending the life span of the equipment.
2. With 1U standard design 19-inch industrial chassis, and the output power: 120W, 240W, 350W and 500W. With 2 channel output for speakers, and with 1 channel phoenix terminal for remote monitoring of the working state of the equipment. With short circuit, overload and overheat protection.
3. Each channel is with 4~16 $\Omega$  and 100V switch, which can be connected to constant resistance and 100V speakers to reach more flexible application.
4. With acrylic panel design to make it look more distinctive and artistic .

## 4. NOMENCLATURE AND FUNCTIONS

### 4.1 FRONT PANEL



#### 1. Volume potentiometer (CH1~CH4)

The potentiometer controls the input power of the amplifier, and the normal adjustment range -30db ~+40dB. When the potentiometer is rotated clockwise, the volume will be gradually increased. In reverse, the output level will decrease.

#### 2. POWER SWIT (power switch)

Switch up, power on, switch down, power off.

#### 3. POWER (power indicator)

When the power is turned on, the power indicator lights up to indicate that the machine is in working state. When the power is turned off, the power indicator goes off.

#### 4. Signal indicator (SIG)

When there is a music signal input, this signal indicator lights up and the volume potentiometer is turned on; its brightness changes according to input music signal sensitivity.

#### 5. PROT (protection indicator)

This indicator lights on when the protection function is open. If the speaker wire is short-circuited or the sum of the connected speaker power is bigger than 1.5 times of the rated power, it will cause the circuit protection and disconnection of the amplifier output and the protection indicator will be on (The signal indicator is only used to indicate the input of the music signal. In the protection state, the signal indicator still lights up according to the input signal sensitivity.) This indicator is off when the machine is working normally.

#### 6. Signal peak indicator (PEAK)

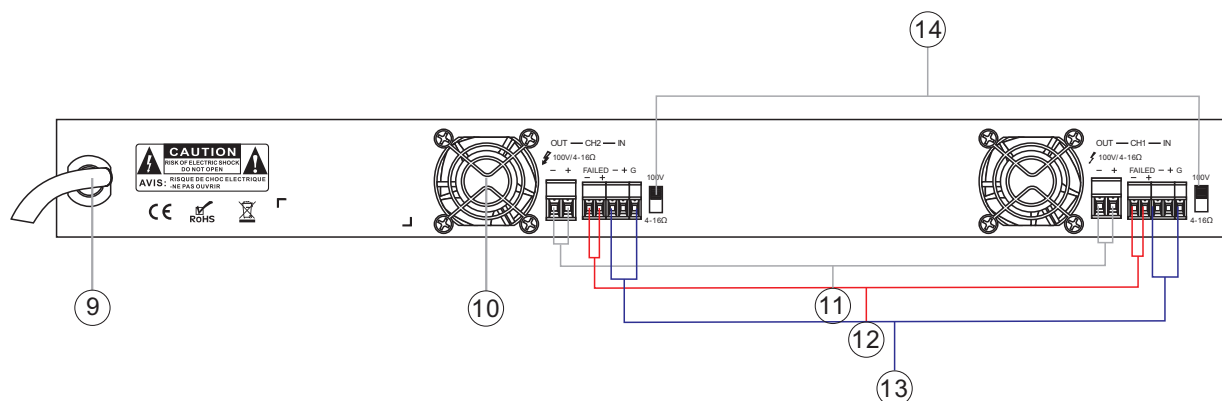
When the indicator light is on, the machine has reached the peak of rated power output. In order to avoid serious distortion or peak clipping, the potentiometer should be appropriately adjusted to reduce the volume.

#### 7. 100V: 100V mode status indicator.

#### 8. 4~16Ω: Constant resistance 4~16Ω mode status indicator.

## 4. NOMENCLATURE AND FUNCTIONS

### 4.1 FRONT PANEL



9. AC power input is connected to the local power system.

Please check whether the operating voltage is consistent with the marked voltage.

10. The cooling port and fan are for heat dissipation.

Please keep the it to be good Ventilation to avoid overheat protection.

11. With 100V /4~16Ω speaker output port

It is used to 100V or 4~16Ω speakers

(The sum of the total power of all speakers is not more than 80% of the rated power of the amplifier).

12. Remote monitor port for the device working status by connecting with external device,

13. Balance signal input interface. Input sensitivity of this product is default setting to be 0dB(0.775v).

14. Switch buttons for 100V and 4~16Ω mode

## 5. MACHINE OPERATION

### Read Before Using The Amplifier

#### Volume Control

The volume depends on the performance of the speaker, position and some other factors. Pls avoid to use the amplifier in the status of high volume for a long time.

#### Choice Of The Audio Source

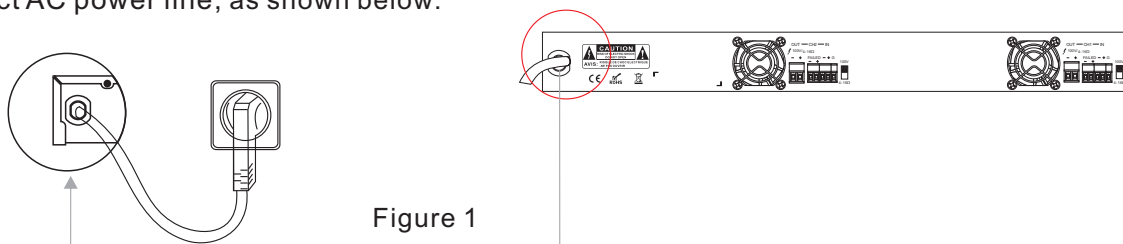
In order to play the best performance of this device, please select the balanced signal sources after processing by the preamplifier. Local input sensitivity is set to be 0dB (0.775V).

#### Connection Method

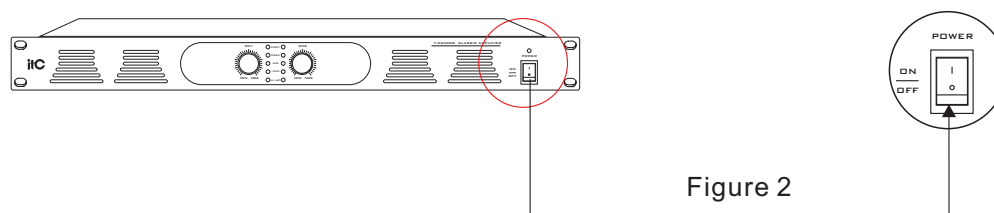
Please do not power on until all connections are completed. The audio cable connection need to be fixed properly, otherwise it will reduce the sound quality, produce noise, or even damage the device. 100V/4~16Ω speaker are paralleled connected with the device. In a supermarket, there is dozens or hundreds of speakers after an amplifier, these speakers are on a wire. See wiring diagram of the device for the connection method, the load with 100V/4~16Ω speaker, all of the speakers the power is not greater than the power of the amplifier's rated output power.

### ● Key operation on the panel

Connect AC power line, as shown below:

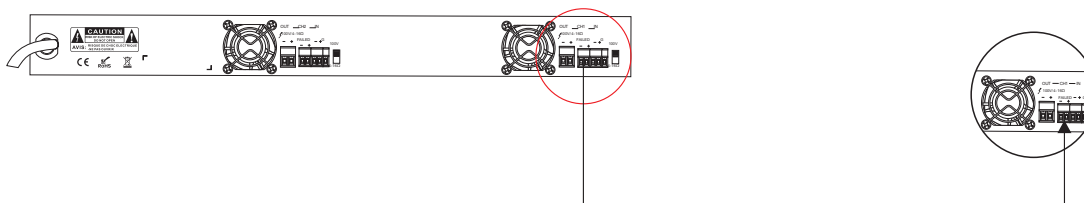


Turn the power switch button, after connecting the device to AC power, the front panel power indicators, protection indicators and remote power indicators and remote protection indicators lit at the same time, after about 3 seconds the light turns off. The amplifier built-in protection relay closed, power amplifier and the output connection is regular. After device enters to the working status, it has completed the device local power on operation. Press the power switch, after power off, power indicators are off. Device power off operation is completed.



After the device enter to working status, input balanced audio source signal in the rear panel, adjust the volume potentiometer to select the appropriate volume. At this point, it has completed the basic operation of the device.

### ● Remote operation



### ● Select the input channel

Connecting "INPUT" at CH1, music signal source of balanced input 775mV,0dB at audio cable, after connecting speaker with output terminal, then turn up volume knob, you could hear the music.

And the operation of CH1, CH2 input method is the same.



- **Function Operation of the Panel**

Turning master volume control knob on the panel to adjust the volume. Turning clockwise slowly, volume gets higher; anti-clockwise, volume gets lower until zero level.

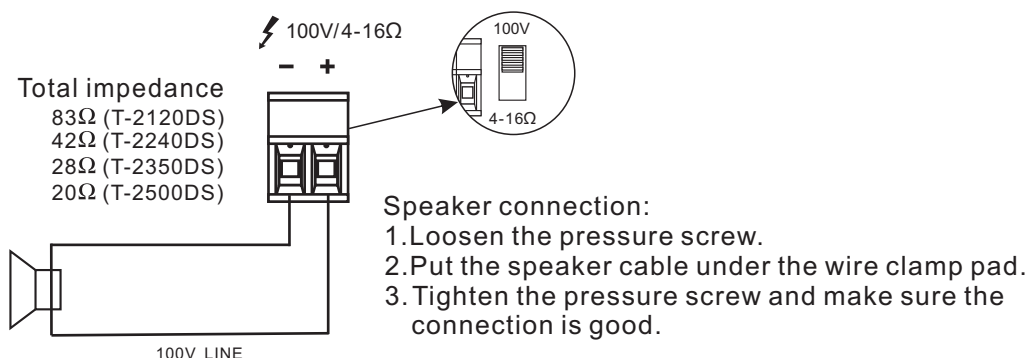
- **Indicator instruction of the panel**

- "POWER" Blue power indicator, If this signal light is on, the power source is connected.
- "SIN" Green signal indicator ,When input audio source and turn on master volume control knob, the indicator is gleaming. Turning up the volume, the indicator becomes more bright,which means the signal output is greater.
- "PEAK" Orange topping indicator ,When input audio source exceeds input standard voltage,turn up the master volume control to the max level and turn on the voltage limitation function. At 100V output of constant voltage, if the indicator lightens, it means the amplifier is at clip state. It is proposed that the amplifier should not work in clip state for a long time or it will be easily damaged.
- "PROT" Red protection indicator ,When the amplifier is in the protection state of short-circuit, overloading, overheating or fault, the indicator will lighten and cut off the output at same time.

**Attention:** Under condition of overloading or unventilated environment, the amplifier will get overheating. If the amplifier operates in such kind of state for a long time, to protect the amplifier and speaker, it will automatically trigger thermal protection circuit and cut off the output of amplifier or the power. After the temperature inside lowers to normal one, it will recover automatically.

## 6. CONNECTIONS

### Speaker connections



#### NOTE:

100V output must be connected in parallel with the speakers, and should be connected with the constant voltage speakers, constant voltage speaker is with built-in transformer, there marked input voltage in back; if it connects with the constant resistance speakers, it will be easy to damage the speakers .

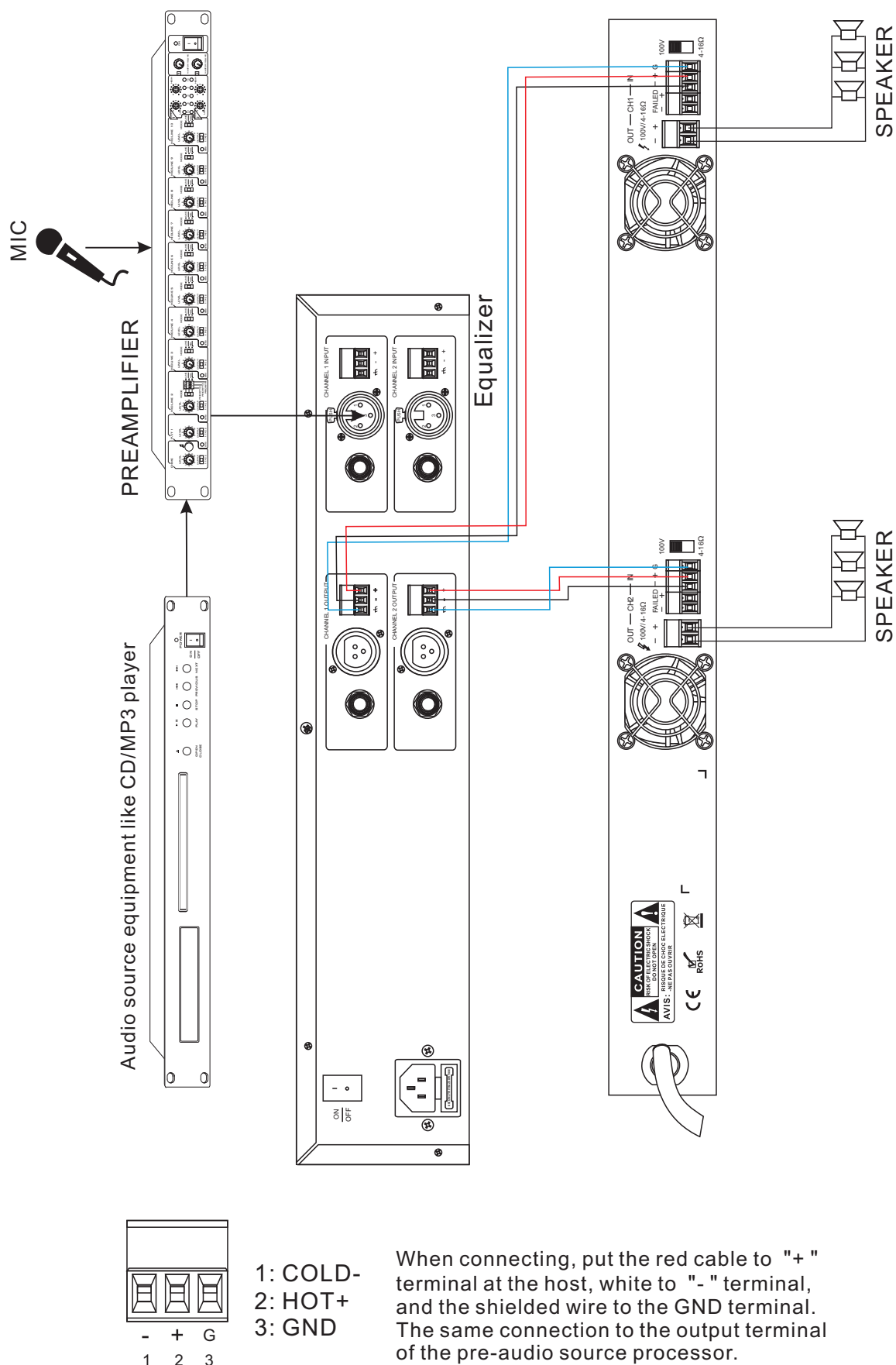


When use the device, please do not directly touch the 100V speaker output interface of the exposed metal parts in the rear panel to avoid electrical shock.

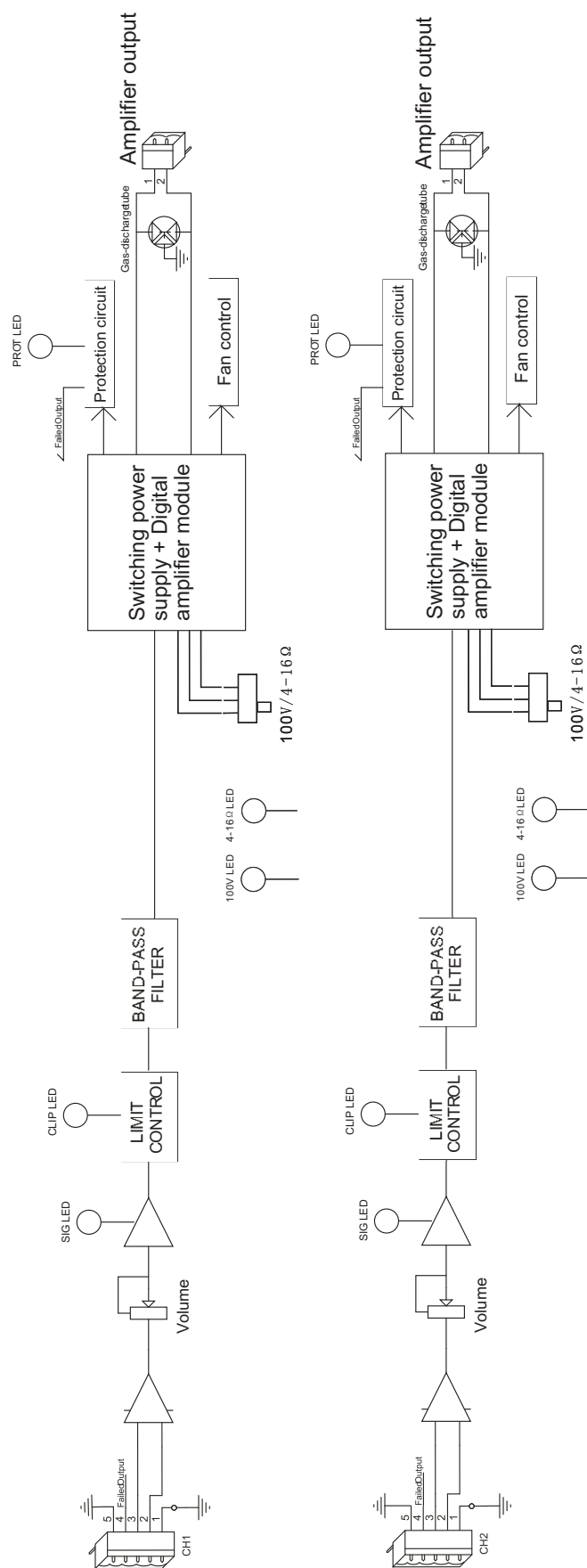
#### Attention:

- Connect cable with the speaker, then with the host.
- Speaker Selection: Constant Voltage 100V Speaker.
- Please use black and red wire for the speaker line, connect black wire to speakers terminal; the red wire connect with speakers' 100V " marked at back, the other end connect with the " 100V "terminal in the rear panel.
- Avoid to operate the amplifier in full power state for a long time.
- Do not connect the two speaker wires by short circuit way, to avoid damage the equipment.

## 7. APPLICATIONS



## 8. BLOCK DIAGRAM



## 9. SPECIFICATIONS

MODEL	T-2120DS	T-2240DS	T-2350DS	T-2500DS
RATED POWDR OUTPUT	2×120W	2x240W	2x350W	2x500W
SPDADER OUTPUTS	100V/4~16Ω			
INPUT SENSITIVITY AND IMPEDANDCE	±385mV/20KΩ, balanced input			
OVERLOAD SOURCE ELECTROMOTIVE FORCE	>11dB			
FREQUENCY RESPONSE	80Hz~16KHz(+1dB,-3dB)			
S/N RATIO	≥95dB			
THD	≤0.1% at 1KHz, 1/3 rated power			
CONTROL	Remote power control and fault indication			
INDICATOR LIGHT	Signal, peak clipping, protection and power supply			
PROTECTION	High temperature, overload, short circuit			
POWDR CONSUMPTION	320W	600W	900W	1200W
POWER SUPPLY	<div> <input type="checkbox"/> ~110V 50Hz <input type="checkbox"/> ~110V 60Hz </div> <div> <input type="checkbox"/> ~120V 50Hz <input type="checkbox"/> ~120V 60Hz </div> <div> <input type="checkbox"/> ~220V 50Hz <input type="checkbox"/> ~220V 60Hz </div> <div> <input type="checkbox"/> ~230V 50Hz <input type="checkbox"/> ~230V 60Hz </div> <div> <input type="checkbox"/> ~240V 50Hz <input type="checkbox"/> ~240V 60Hz </div>			
DIMENSIONS	484X315X44mm			
WEIGHT	4.6Kg	4.7Kg	4.8Kg	4.9Kg

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