

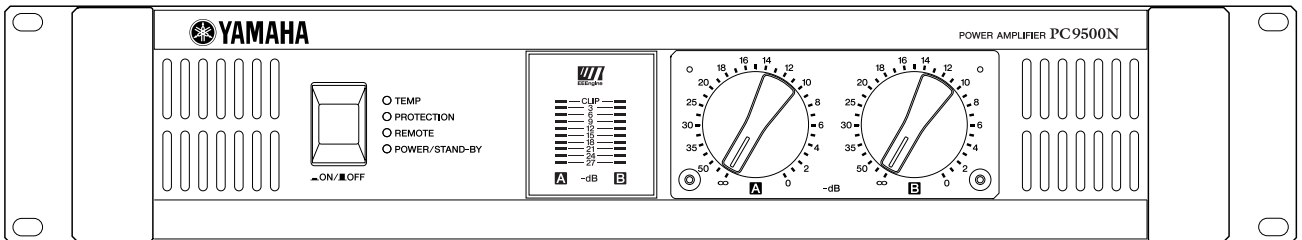


POWER AMPLIFIER

PC9500N

PC4800N

Owner's Manual



FCC INFORMATION (U.S.A.)

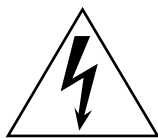
- IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!** This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.
- IMPORTANT:** When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.
- NOTE:** This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures: Relocate either this product or the device that is being affected by the interference. Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s. In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable. If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA 90620

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.



The above warning is located on the top of the unit.

• Explanation of Graphical Symbols



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.

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT

THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:

GREEN-AND-YELLOW : EARTH
 BLUE : NEUTRAL
 BROWN : LIVE

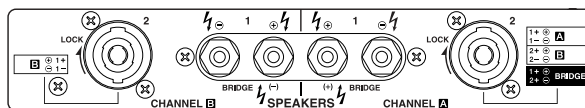
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN and YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol \perp or coloured GREEN and YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

* This applies only to products distributed by YAMAHA KEMBLE MUSIC (U.K.) LTD.



European Specifications Only

This lightning bolt symbol indicates a dangerous electrically live terminal. When connecting an external wire to this terminal, it is necessary either to have "a person who have received appropriate guidance on handling" make the connection or to use leads or a cord that have been manufactured in such a way that the connection can be made simply and without problem.

Precautions

WARNING

Installation

- 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.
- Do not allow water to enter this unit or allow the unit to become wet. Fire or electrical shock may result.
- Do not place a container with liquid or small metal objects on top of this unit. Liquid or metal objects inside this unit are a fire and electrical shock hazard.
- Do not place heavy objects, including this unit, on top of the power cord. A damaged power cord is a fire and electrical shock hazard. In particular, be careful not to place heavy objects on a power cord covered by a carpet.
- Use only the included power cord for this unit. Using other types may be a fire and electrical shock hazard.

Operation

- Do not scratch, bend, twist, pull, or heat the power cord. A damaged power cord is a fire and electrical shock hazard.
- Do not remove the unit's cover. You could receive an electrical shock. If you think internal inspection, maintenance, or repair is necessary, contact your dealer.
- Do not modify the unit. Doing so is a fire and electrical shock hazard.
- If lightning begins to occur, turn off the power switch of the unit as soon as possible, and unplug the power cable plug from the electrical outlet.
- If there is a possibility of lightning, do not touch the power cable plug if it is still connected. Doing so may be an electrical shock hazard.

In case an abnormality occurs during operation

- 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.
- 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.
- 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.

CAUTION

Installation

- Keep this unit away from the following locations:
 - Locations exposed to oil splashes or steam, such as near cooking stoves, humidifiers, etc.
 - Unstable surfaces, such as a wobbly table or slope.
 - Locations exposed to excessive heat, such as inside a car with all the windows closed, or places that receive direct sunlight.
 - Locations subject to excessive humidity or dust accumulation.
- Hold the power cord plug when disconnecting it from an AC outlet. Never pull the cord. A damaged power cord is a potential fire and electrical shock hazard.
- Do not touch the power plug with wet hands. Doing so is a potential electrical shock hazard.
- This unit has ventilation holes at the rear to prevent the internal temperature rising too high. Do not block them. Blocked ventilation holes are a fire hazard.
- To relocate the unit, turn the power switch off, remove the power plug from the AC outlet, and remove all connecting cables. Damaged cables may cause fire or electrical shock.
- Allow enough free space around the unit for normal ventilation. This should be: 5 cm at the sides, 10 cm behind, and 10 cm above.

For normal ventilation during use, remove the rear of the rack or open a ventilation hole.
If the airflow is not adequate, the unit will heat up inside and may cause a fire.
- To mount several of these units in an EIA-compliant rack, refer to the rack mounting instructions on page 10.

Operation

- Use only speaker cables when connecting speakers to amplifier outputs. Using other types of cables is a fire hazard.
- Do not use this amplifier for any purpose other than driving loudspeakers.

PRECAUTIONS FOR OPERATION

Connector pin assignments

- XLR-type connectors are wired as follows: pin 1: ground, pin 2: hot (+), and pin 3: cold (-).

– FOR CORRECT OPERATION –

Influence on cell phone usage

- Using a cell phone (mobile telephone) near this unit may induce noise. If noise occurs, use the telephone away from the unit.

Introduction

Thank you for purchasing a Yamaha PC9500N, or PC4800N Series Power Amplifier.

The PC Series of power amplifiers was developed from Yamaha's wealth of experience in building PA equipment and its tradition of careful attention to every detail of circuit design. These power amplifiers feature high power and superb quality together with superior reliability and stability, guaranteeing the highest possible audio performance.

Main features include

- Three modes are provided to support a broad range of applications: **STEREO** mode which can be driven by two independent sources, **PARALLEL** mode in which a monaural source drives both channels, and **BRIDGE** mode in which the two internal amps function as a single mono amp.
- Balanced **XLR** connector and **Euroblock** connector inputs, and **Speakon** connector and five-way binding post outputs are provided.
- A high pass filter switch that cuts frequencies below 40 Hz, and detented attenuators and level meters for channels A and B are provided.
- Metering and indicators include easily visible two-channel level meters, a **PROTECTION** indicator that shows the state of various protection systems (power on/off detection, output protection, DC detection), a **TEMP** indicator that indicates heat sink overheating, and a **REMOTE** indicator that indicates the external remote status.
- Variable-speed, low-noise cooling fan system ensures high reliability even under the most demanding conditions.

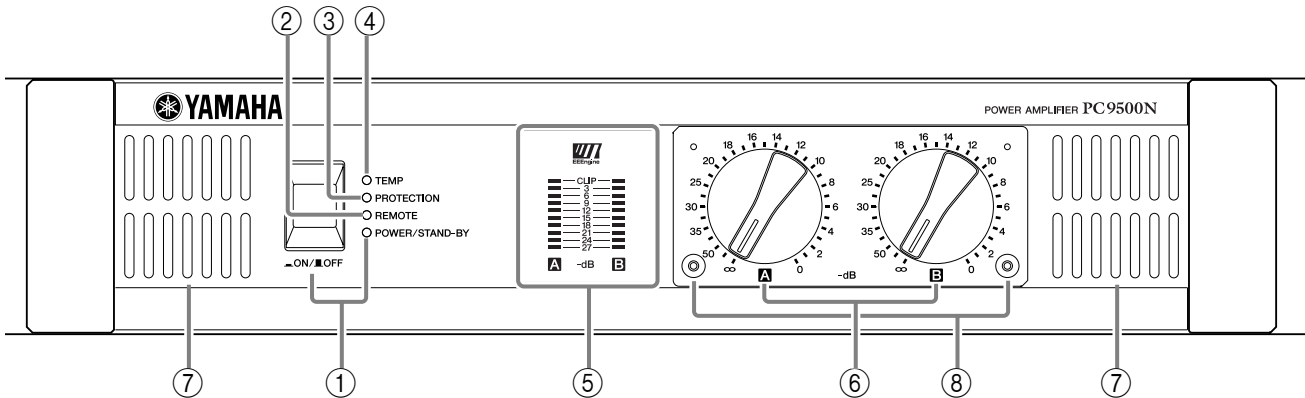
This Owner's Manual applies to the PC9500N and PC4800N power amplifier. In order to take full advantage of your power amplifier and enjoy long and trouble-free operation, please read this Owner's Manual carefully before using your Power Amplifier.

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Controls and Functions

■ Front Panel



① **POWER/STAND-BY switch and indicator**

This turns the power of the amplifier on/off. When you press the switch to turn on the power, the indicator will light green.

If the amplifier is connected to an external control unit and the amplifier has been commanded to enter STAND-BY mode, this indicator will light orange.

② **REMOTE indicator**

This indicator will light green if the amplifier is being controlled from an external device connected to the DATA port located on the rear panel.

③ **PROTECTION indicator**

This indicator lights up red when the protection circuit is operating. During this time, the amp will be disconnected from the speaker system, and no sound will be output from the speaker. The protection system activates in the following situations:

- **When the amplifier is turned on**

The protection system activates for approximately ten seconds when the amplifier is turned on. After ten seconds, the protection system deactivates automatically and the amplifier is ready for normal operation.

- **If a DC voltage is detected at the amplifier's outputs**

Turn off the power, and then turn the power back on again.

- **If the amplifier overheats**

When this occurs, the TEMP indicator will be lit. You should turn off the amplifier and allow it time to cool down. See the Precautions section of this Owner's Manual for ways to prevent the amplifier overheating.

④ **TEMP indicator**

This indicator will light red if the heat sink temperature exceeds 85 degrees Celsius.

⑤ **Level meters**

These are nine-segment level meters that indicate the output level of output jacks A and B. If the distortion of the output signal exceeds 1%, the red CLIP indicator will light.

⑥ **Volume knobs**

These are detented volume knobs that attenuate the input signals of channels A and B over a range of $-\infty$ – 0 dB.

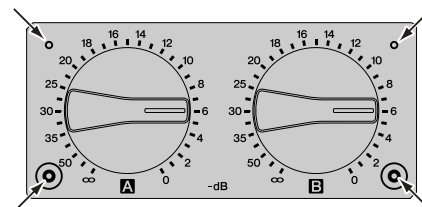
In BRIDGE mode, only the channel A knob is used.

⑦ **Air intakes**

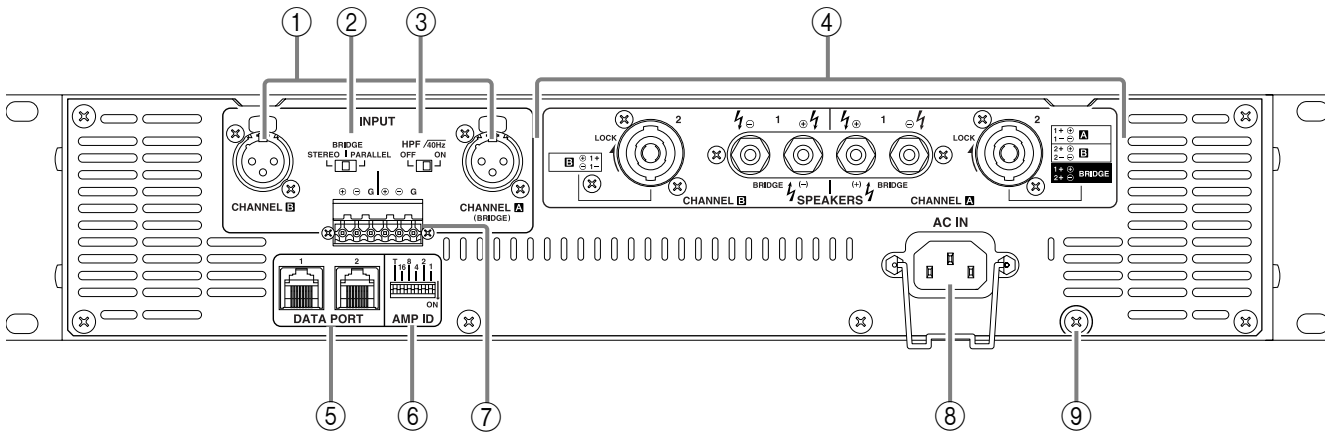
The amplifier has a forced-air cooling fan that takes in air from the front and exhausts it from the rear. You must make sure that these intakes are not obstructed.

⑧ **Security cover**

If you want to keep the volume settings from being modified, attach the included security cover using the screw holes shown below, so that the volume controls are inaccessible.

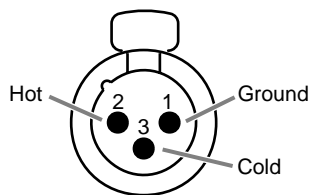


■ Rear Panel



① XLR inputs

These balanced XLR-3-31 type connectors are used to connect input signals. They are wired pin 1–ground, pin 2–hot (+), and pin 3–cold (–).



In Bridge mode, only the XLR input of the channel A is active.

② MODE switch

• STEREO mode

Channels A and B will operate independently.

• PARALLEL mode

In PARALLEL mode, the channel A input signal will be sent to the channel A power amp and to the channel B power amp. The channel B input jack is not used.

• BRIDGE mode

In BRIDGE mode, channels A and B will operate simultaneously, functioning as a single mono amp.

③ HPF/40 switches

These switches are used to turn on and off the HPF (High Pass Filter) for each channel. When set to ON, frequencies below 40 Hz are filtered using a 12 dB/octave high pass filter.

④ SPEAKERS jacks

- These are Speakon type output jacks. Speakon type cable plugs can be connected here.
- These are five-way binding post output jacks.

⑤ DATA ports

An external control unit or interface box can be connected here to monitor or control the amplifier from the external device.

⑥ AMP ID switch

When an external control unit is connected to the DATA port ⑤, this DIP switch is used to set the system ID.

⑦ Euroblock connector

This is a balanced input jack. The included Euroblock connector can be used to make connections here.

⑧ AC inlet

Connect the socket of the included AC cable to this inlet. Connect the plug of the AC cable to an AC outlet that meets the power supply conditions printed below this inlet.

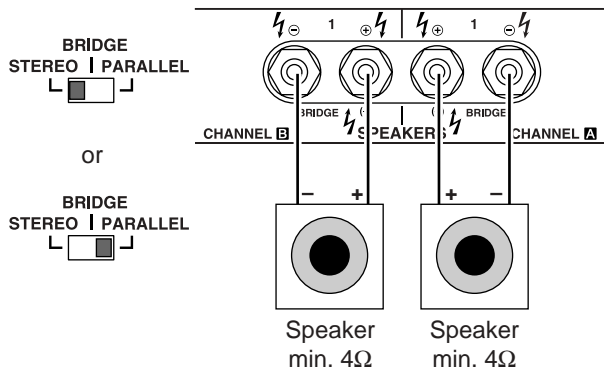
⑨ GND terminals

This is the grounding screw terminal. If hum or noise occurs, ground (earth) the unit via this jack, or try connecting it to the chassis of the mixer or preamp, etc.

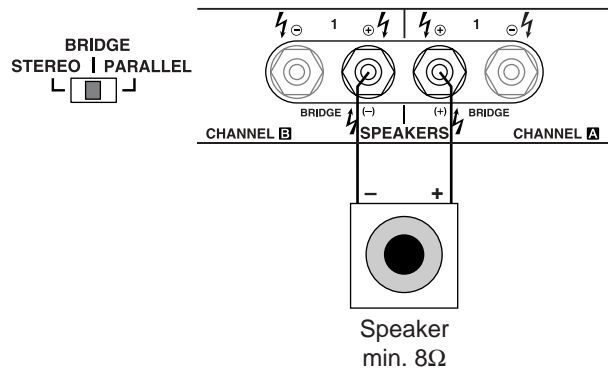
■ Speaker connections

Speakers can be connected to this amplifier in the following two ways. The speaker impedance will depend on the connection method and on the number of speakers that are connected. Refer to the following diagrams, and make sure that the speaker impedance is not less than the value prescribed for each type of connection.

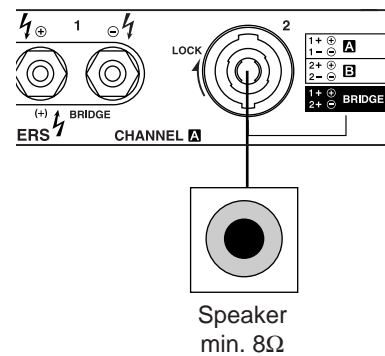
Connections in STEREO/PARALLEL modes



Connections in BRIDGE mode



When using the Speakon connector

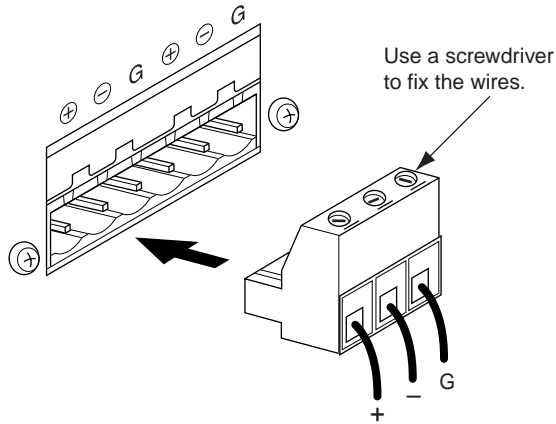


* Use the 1+(+) and 2+(-) pins of the **A** 2 jack.

Connection

■ Using a Euroblock connector

1. If the wire insertion ports are closed, turn the screws on top of the connector counterclockwise to open the ports.
2. Insert the wires into the appropriate ports, following the indication of the pole on the input terminal, turn the screws on top of the connector clockwise to fix the wires.
3. Attach the Euroblock connector to the input terminal on the unit.



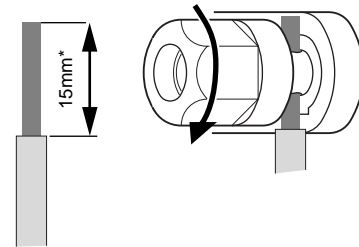
■ Speaker Connection

Five-way binding post

1. Turn off the POWER switch.
2. Remove the cover attachment screws and remove the protective cover from the speaker terminals.

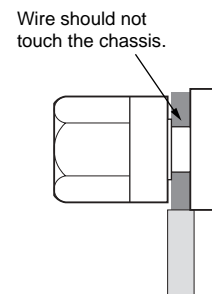


3. After removing approx. 15 mm of insulation from the ends of the speaker cables, pass the bare ends of the speaker wires through the holes in the corresponding speaker terminals and tighten the terminals to securely clamp the wires. Refer to page 8 for speaker polarity.



* Shown actual size.

At this time make sure that the bare ends of the speaker cables do not extend from the terminals in such a way that they touch the chassis.



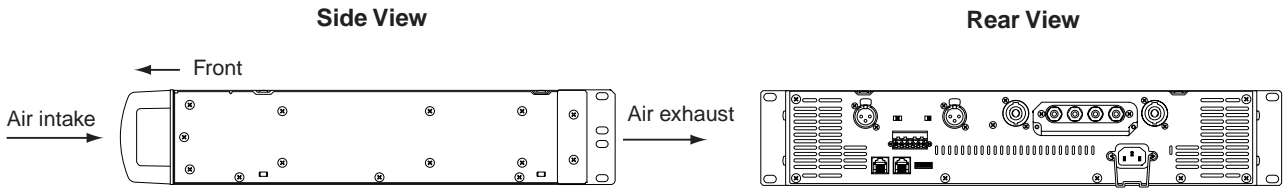
4. Reattach the protective cover over the speaker terminals.

Speakon type jack

1. Turn off the POWER switch.
2. Insert the Speakon plugs into the Speakon type jacks on the rear of this amplifier, then turn them clockwise to lock.

Air Flow

This unit uses a forced cooling system in which air comes in through the front opening and goes out the rear.



Rack Mounting

If multiple high-power amp units are mounted in a rack with poor ventilation, the heat from the amps will cause the interior of the amp to become very hot, causing the performance of the amps to be impaired. In particular, when mounting in a rack whose back can not be left open, mount according to the following instructions.

Rack: Leave a gap of 10 cm or more between the rear panel of the rack and the rear panel of the amplifier.

Fan: Use a fan with 1.5 m³/min or more maximum wind and 5 mmH₂O or more maximum static pressure.

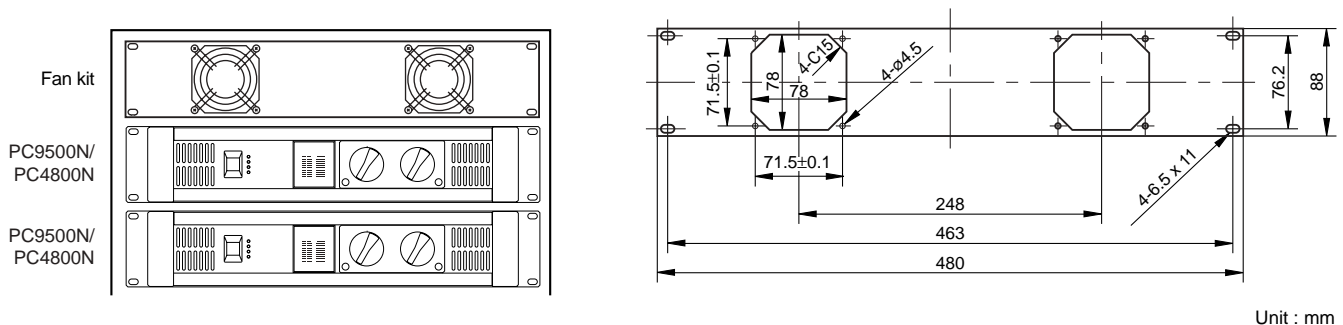
Mounting: Install the fan kit on the top slot or the top panel of the rack and install a blanking panel between two amps.

If the unit is rack mounted and transported frequently, we recommend that the rear of the unit be supported by fitting a pair of metal brackets, one each side.

Example of mounting

The figure on the left below shows an example of a fan kit (panels and two fans) on the top slot of the rack. The fans are Minebia 3115PS-12T-B30 (with 0.9 m³/min maximum wind and 5 mmH₂O maximum static pressure).

The figure on the right below is a dimensional diagram of a panel on which two 3115PS-12T-B30 are installed.



Specifications

■ General Specifications

		PC9500N		PC4800N	
		120 V (US)/ 240 V (A)	230 V (EU)	120 V (US)/ 240 V (A)	230 V (EU)
Power Output Level (Rated Power) 1 kHz THD+N= 1%	8Ω/STEREO	1000 W x 2	1050 W x 2	550 W x 2	500 W x 2
	4Ω/STEREO	1600 W x 2	1650 W x 2	850 W x 2	800 W x 2
	8Ω/BRIDGE	3200 W x 1	3300 W x 1	1700 W x 1	1600 W x 1
20 Hz~20 kHz THD+N= 0.1%	8Ω/STEREO	925 W x 2	950 W x 2	475 W x 2	450 W x 2
	4Ω/STEREO	1400 W x 2	1500 W x 2	725 W x 2	700 W x 2
	8Ω/BRIDGE	2800 W x 1	3000 W x 1	1450 W x 1	1400 W x 1
1 kHz 20mS nonclip	2Ω/STEREO	2300 W x 2	2300 W x 2	1200 W x 2	1200 W x 2
	4Ω/BRIDGE	4600 W x 1	4600 W x 1	2400 W x 1	2400 W x 1
Power Bandwidth	Half Power	10 Hz~40 kHz (THD+N= 0.5%)			
Total Harmonic Distortion (THD + N) 20 Hz~20 kHz, Half Power		≤0.1%			
Frequency Response	RL= 8Ω, Po= 1 W	0 dB, 0.5 dB, -1 dB f=20 Hz~50 kHz			
Intermodulation distortion (IMD) 60 Hz:7 kHz, 4:1, Half Power		≤0.1%			
Channel Separation	Half Power, RL= 8Ω, 1 kHz Vol. max., input 600Ω shunt	≥70 dB			
Residual Noise	Vol. min. 20 Hz~20 kHz (DIN AUDIO)	≤ -70 dB			
SN Ratio	20 Hz~20 kHz (DIN AUDIO)	106 dB		103 dB	
Damping Factor	RL=8Ω, f= 1 kHz	≥800			
Sensitivity (Vol. max.) Rated Power into 8Ω		+9 dB		+6 dB	
Voltage Gain (Vol. max.)		32 dB			
Input Impedance		30 kΩ/Balanced, 15 kΩ/Unbalanced			
Controls	Front Panel	POWER switch (ON/OFF) Volume (31 position) /ch			
	Rear Panel	MODE switch (STEREO/BRIDGE/PARALLEL) HPFswitch (ON/OFF) fc=40 Hz 12dB/octave DIP switch (6P)			
Connectors	Input	XLR-3-31 type/ch Euroblock connector /ch			
	Output	SPEAKON /ch, 5-way binding posts			
	NETWORK	RJ45 x 2			
	POWER	AC INLET			
Indicators	POWER/STAND-BY	Green/Orange			
	PROTECTION	Red			
	TEMP	Red (heatsink temp ≥ 85°C)			
	REMOTE	Green			
Meters		10 points LED meter			
Load protection		POWER switch ON muting, DC detection			
Amp. protection		Temp. detection (heatsink temp ≥ 90°C), VI limiter (RL ≤ 1 Ω)			
Limiter		Comp. : THD ≥ 0.5%			
Cooling		Dual Variable-speed fan			
Power Requirements	US & Canada	120 V, 60 Hz			
	Europe	230 V, 50/60 Hz			
	Other	240 V, 50/60 Hz			
Power Consumption	Idling	55 W		40 W	
	Output power, 4Ω	120 V 750 W	230 V 1100 W	120 V 450 W	230/240 V 600 W
		240 V 1000 W			
Dimensions (W x H x D)		480 x 88 x 456 mm			
Weight		13 kg		12.5 kg	
Accessories		Power cord, Security cover, Owner's Manual, Euroblock connector (2)			

0 dB=0.775 Vrms, Half Power=1/2 Power Output Level (Rated Power)

Specifications subject to change without notice.

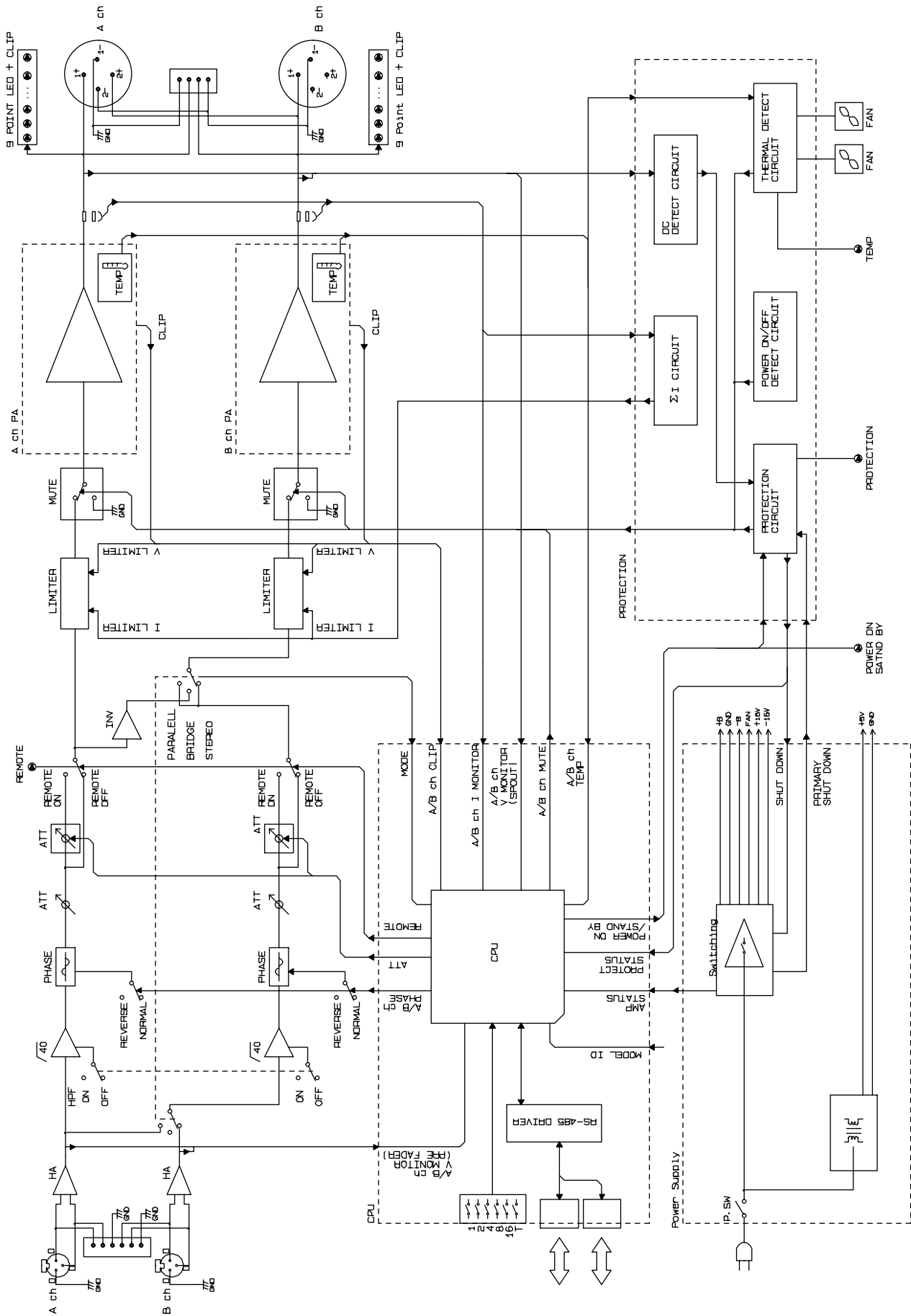
For European Model

Purchaser/User information specified in EN55103-1 and EN55103-2.

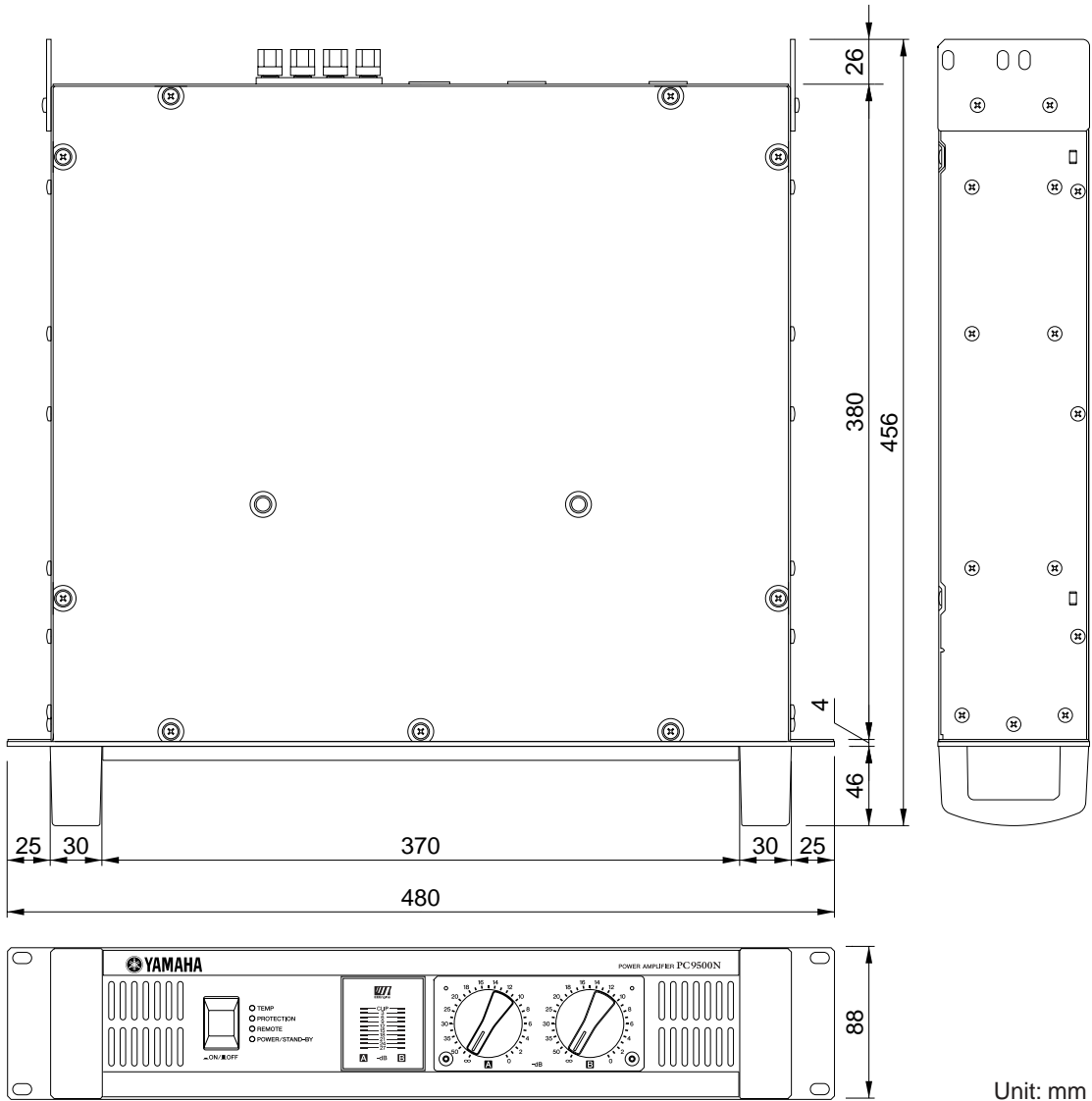
Inrush Current: 20A (PC9500N) / 25A (PC4800N)

Conformed Environment: E1, E2, E3 and E4.

Block Diagram



■ Dimensions



Unit: mm

Troubleshooting

The following table lists the main causes of abnormal operation and the corrective measures required as well as the protective circuit operation in each case.

Indicator	Possible Cause	Remedy	Protection Circuit
CLIP indicator lights up	There is a short at the amplifier's speaker outputs, the speaker's inputs, or in the wiring.	Locate and remove the short.	The PC limiter circuit activates to protect the power transistors.
	The impedance of the connected speaker is too low.	Use a speaker with a minimum impedance of 4Ω (8Ω in Bridge mode).	
PROTECTION indicator lights up	The heat sink temperature has exceeded 90°C.	Check the ventilation around the amplifier and improve the airflow if necessary.	The thermal protection circuit activates to protect the power transistors.
	A DC voltage of ±2 V or greater was detected in the amplifier's output circuit.	Consult your dealer or a Yamaha service center.	The output relay activates to protect the speaker system.

Performance graph

