

9000 SERIES AMPLIFIERS

P-9060DH

P-9120DH

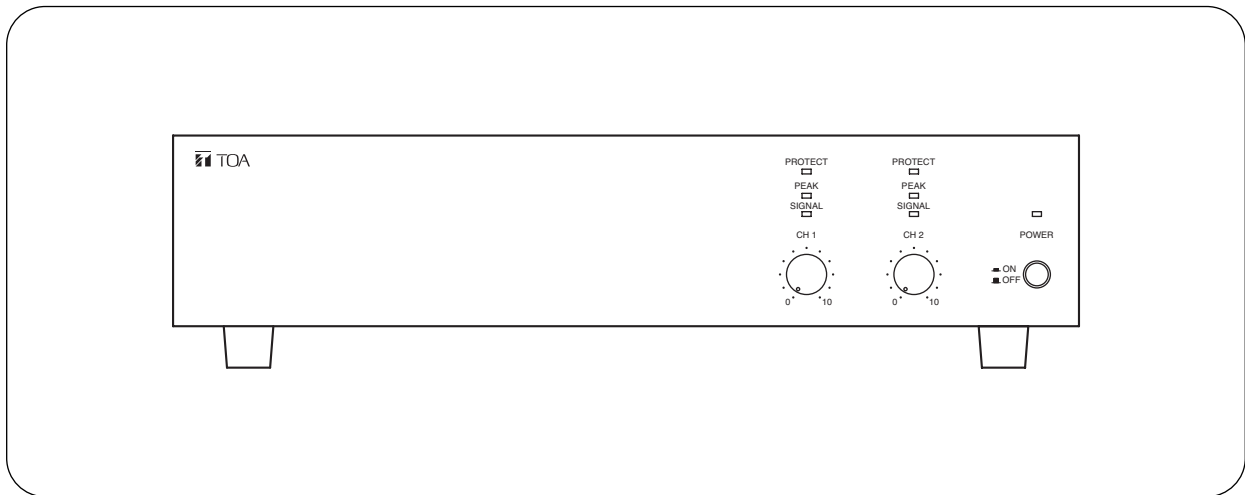


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Thank you for purchasing TOA's 9000 series Amplifier.

Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

1. IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 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.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

2. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this 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 hazards.



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



WARNING

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

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 attach the supplied terminal cover after connection completion. Because high voltage is applied to the speaker output terminals, never touch these terminals to avoid electric shock.
- 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 and causing personal injury and/or property damage.
- External wiring connected to the terminals marked with ⚡ requires installation by an instructed person.
- The apparatus shall be connected to a mains socket outlet with a protective earthing connection.
- The socket-outlet shall be installed near the equipment and the plug shall be easily accessible.
- Use the supplied rack mounting bracket when mounting the unit in an equipment rack. Remove four M4 x 8 screws on both sides of the unit, and mount the bracket there using the supplied M4 x 16 screws instead.

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 TOA 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 TOA 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.

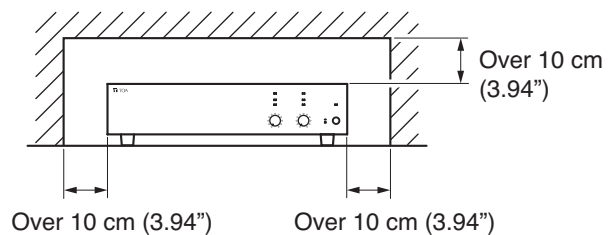


CAUTION

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

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.
- 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.
- To avoid electric shocks, be sure to unplug the unit's power supply cord when connecting speakers.
- Be sure to follow the instructions below when rack-mounting the unit. Failure to do so may cause a fire or personal injury.
 - Install the equipment rack on a stable, hard floor. Fix it with anchor bolts or take other arrangements to prevent it from falling down.
 - When connecting the unit's power cord to an AC outlet, use the AC outlet with current capacity allowable to the unit.
 - No rack-mounting screws are supplied with the unit. Separately prepare the appropriate screws for the rack.
- Keep the amplifier over 10 cm (3.94") away from objects that may obstruct air flow to prevent the unit's internal temperature rise.



When the Unit is in Use

- 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.
- 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.



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.



ATTENTION

L'appareil ne doit pas être exposé aux éclaboussures ou écoulements et tous objets remplis de liquide, tels que vases, ne doivent pas être sur l'appareil.

3. GENERAL DESCRIPTION

TOA's P-9060DH Power Amplifier is a 2-channel amplifier providing 60 W per channel at 83 Ω (70 V line output). TOA's P-9120DH Power Amplifier is also a 2-channel amplifier providing 120 W per channel at 41 Ω (70 V line output).

Both amplifiers can be used as power amplifiers for the M-9000 (Matrix Mixer Pre-Amplifier) and the T-001T (Audio Output Expansion) and as expansion amplifiers for the A-9000 series (Matrix Mixer Power Amplifiers). Besides, they can be used as power amplifiers for other line output devices, thus covering wide range of applications.

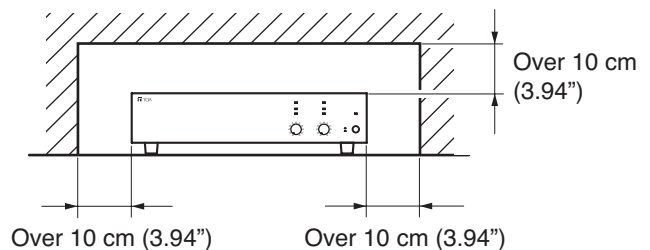
4. FEATURES

- Mountable in a standard 19" equipment rack (2 unit size) using the supplied rack mounting bracket.
- Input level selector switch (-20 dB/0 dB)
- An input signal to Channel 1 can be transmitted to both channels 1 and 2, and the output volume adjusted using the input volume control for each channel.
- Electronically-balanced inputs.
- Input terminals employ removable terminal blocks to provide maximum connection ease.
- Front-mounted LEDs to show status of protection, peak, and input signal level for each channel.
- Built-in protection circuitry disconnects the power amplifier's output from the load when unusual temperature rise occurs.

5. INSTALLATION PRECAUTIONS

5.1. When Installing the Unit on the Desk

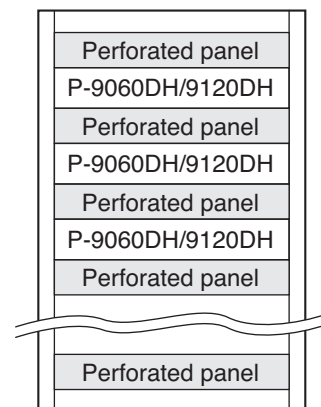
Keep the amplifier over 10 cm (3.94") away from objects that may obstruct air flow to prevent the unit's internal temperature rise.



5.2. When Mounting the Unit on an Equipment Rack

- Use the supplied rack mounting bracket.
(Refer to p. 11 "Rack Mounting Bracket Attachment.")
- When mounting the unit in an equipment rack, the inside of the rack must be sufficiently ventilated. To achieve sufficient ventilation, also mount TOA's Perforated Panels (1U* or 2U):
 - (1) at the top and the bottom of the rack, and
 - (2) above and below the unit.

* 1U size = 44.5 mm or 1.75" (reference size)

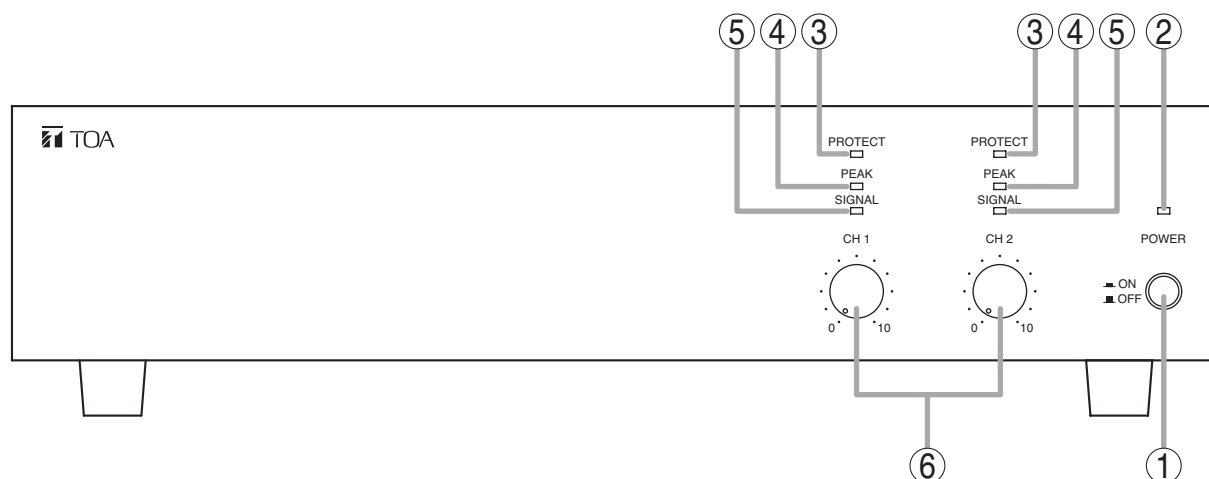


6. HANDLING PRECAUTIONS

- The supplied power supply cord is designed for exclusive use with this unit. Never use it with other equipment.
- Use the unit in locations where the temperature is between -10°C and +40°C (14°F and 104°F), and the humidity is less than 80%RH (no condensation should be formed).
- The unit is a precision audio component. To prevent failure, avoid locations where it may be exposed to strong shocks or vibrations.
- To clean, be sure to first disconnect the power supply plug from the AC outlet, then wipe with a dry cloth. When extremely dirty, use a soft cloth dampened in neutral detergent. Never use benzene, thinner, alcohol or chemically-treated towels, which may damage the unit's finish.

7. NOMENCLATURE AND FUNCTIONS

[Front]



1. Power switch [ON, OFF]

Power is switched on and off with each depression of this switch.

2. Power indicator [POWER]

Lights blue when the Power switch (1) is turned on.

3. Protection indicators [PROTECT]

Light red when the protection circuitry is activated. (Refer to p.12 "Protection Operation List.")
When the Power switch (1) is turned on, both indicators light for about 5 seconds and then extinguish.

4. Peak indicators [PEAK]

Light red if an output signal approaches clipping level. If steady lit, the Input volume controls (6) should be turned down until the indicators flash only intermittently.

5. Signal indicators [SIGNAL]

Show the output signal levels of CH 1 and CH 2.
Adjust the CH 1 or CH 2 Input volume control (6) so that the corresponding signal indicator lights green.

6. Input volume controls [CH 1, CH 2]

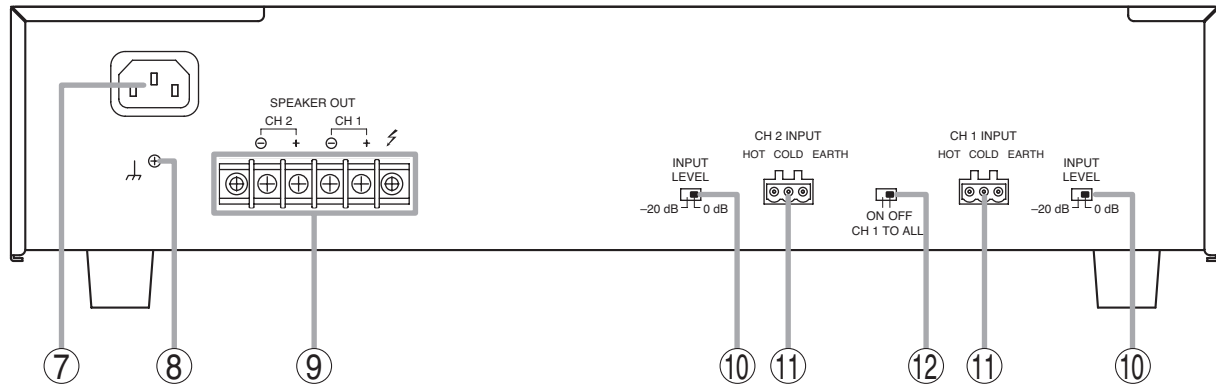
Adjust the input volume of each channel.

Note

An input volume can be fixed by removing the input volume control knob from the front panel and attaching the supplied volume control cover instead.

Keep the removed input volume control knob aside for future use. (Refer to p. 12 "Volume Control Cover Attachment.")

[Rear]



7. AC inlet

Connect the supplied power cord to this inlet.

8. Functional earth terminal

Hum noise may be generated when external equipment is connected to the unit. Connecting this terminal to the functional earth terminal of the external equipment may reduce the hum noise.

Note

This terminal is not for protective ground.

9. Speaker output terminals [SPEAKER OUT]

Connect speaker cables to these terminals.

10. Input level selector switches [INPUT LEVEL]

Select either -20 dB or 0 dB for the Line input sensitivity level.

When using the unit in conjunction with the optional A-9000 series Amplifier, select 0 dB for easier adjustment of the sound volume.

The switches are factory-preset to 0 dB.

Note

Be sure to first turn off the Power switch (1) when changing this switch setting.

11. Input terminals [CH 1 INPUT, CH 2 INPUT]

Electronically-balanced inputs of 3-pin removable terminal block type.

12. CH 1 mode ON/OFF switch [CH 1 TO ALL]

Setting this switch to ON transmits the Channel 1 input signal to both channels 1 and 2.

Note that output signal levels can be individually adjusted with each channel's Input volume control (6).

Setting this switch to OFF transmits each channel's input signal to each corresponding channel.

The switch is factory-preset to OFF.

Note

Be sure to first turn off the Power switch (1) when changing this switch setting.

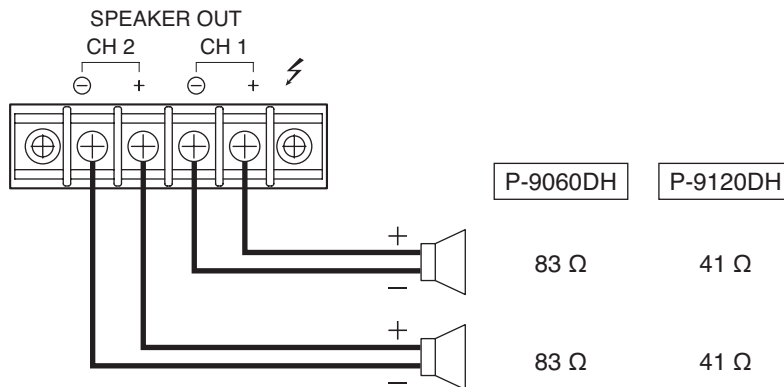
8. CONNECTIONS

8.1. Speaker Output Terminal Connections

The speaker output terminal is designed for 70 V line applications. Both CH 1 and CH 2 outputs are provided on the 4-pin screw terminal. Connect the speaker cables to each positive terminal (+) and negative terminal (-) individually.

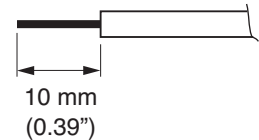
Notes

- Impedances indicated in the figures represent the total speaker system (load) impedances.
- Do not connect negative terminal (-) together. The outputs of CH 1 and CH 2 cannot be connected in parallel, as this will cause the unit failure.
- Do not connect the outputs of CH 1 and CH 2 in BTL configuration, as this will cause the unit failure.



[Connection of speaker cable]

Step 1. Strip 10 mm (0.39") of insulative jacket from the end of the speaker cable, as shown in the figure at right.



Step 2. Connect speaker cables to the speaker output terminals.

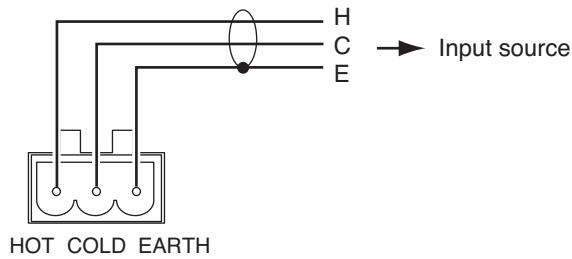
Step 3. Attach the supplied terminal cover to the speaker output terminals.

WARNING

Be sure to attach the supplied terminal cover after connection completion. Because high voltage is applied to the speaker output terminals, never touch these terminals to avoid electric shock.

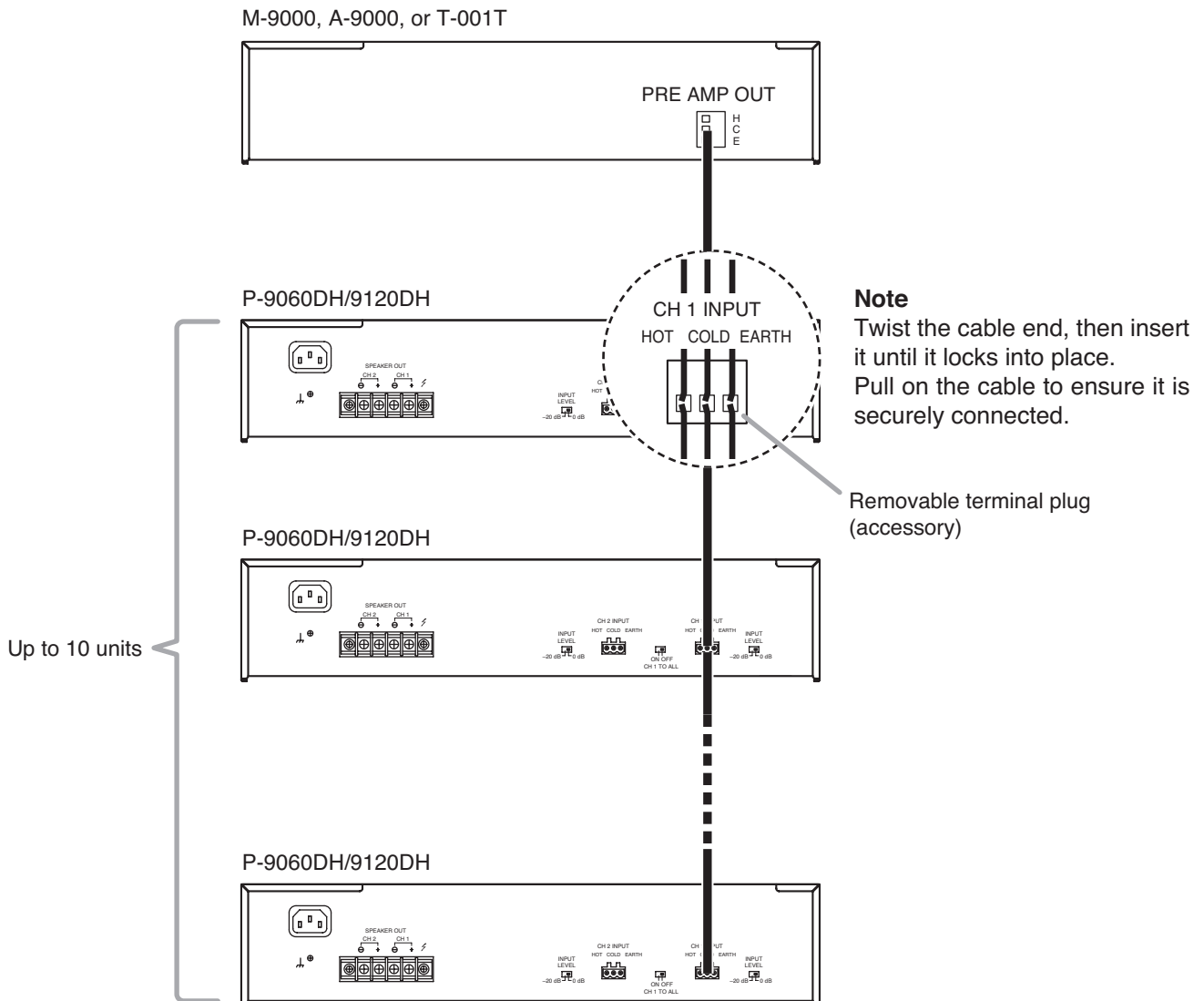
8.2. Input Terminal Connections

Electronically-balanced inputs of 3-pin removable terminal block type.



When connecting the units' inputs in parallel, connect each removable terminal plug using a daisy chain wiring.

Up to 10 units can be connected to the PRE AMP OUT terminal for each channel of the M-9000, A-9000, or T-001T.



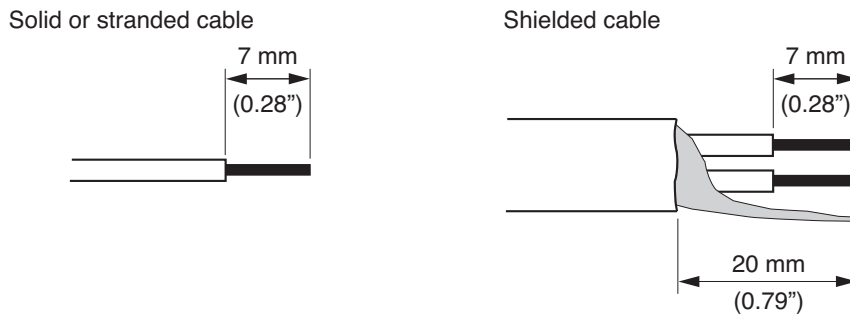
8.3. Removable Terminal Plug Connection

Be sure to use the supplied removable terminal plugs for connections to the removable terminal blocks.

Cautions

- Be sure to use shielded cables for audio signal lines.
- Avoid soldering stranded or shielded cable, as contact resistance may increase when the cable is tightened and the solder is crushed, possibly resulting in an excessive rise in joint temperatures.
- Use cables of AWG 12 – 24.

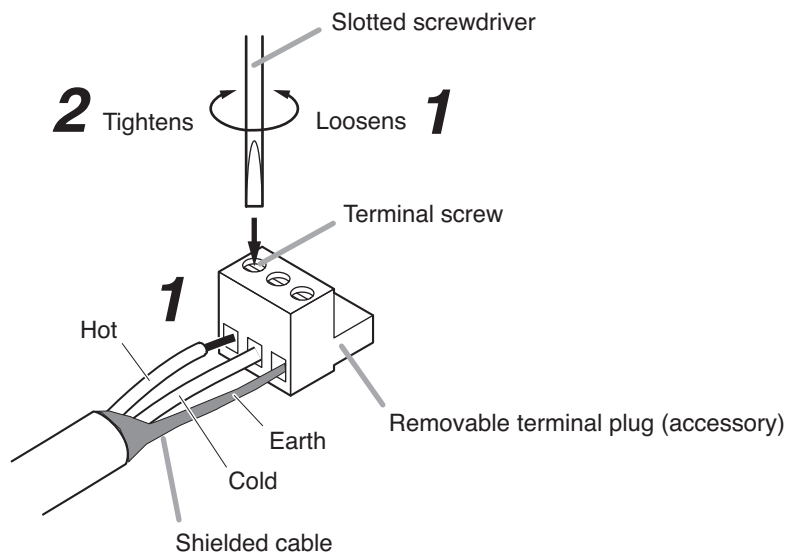
[Cable end treatment]



[Connector connections]

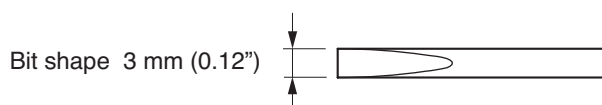
Step 1. Loosen the terminal screw, then insert the cable.

Step 2. Retighten the terminal screw. (Pull on the cable to ensure it is securely connected.)



Tip

Recommended slotted screwdriver type: Screwdriver with 3 mm (0.12") blade width

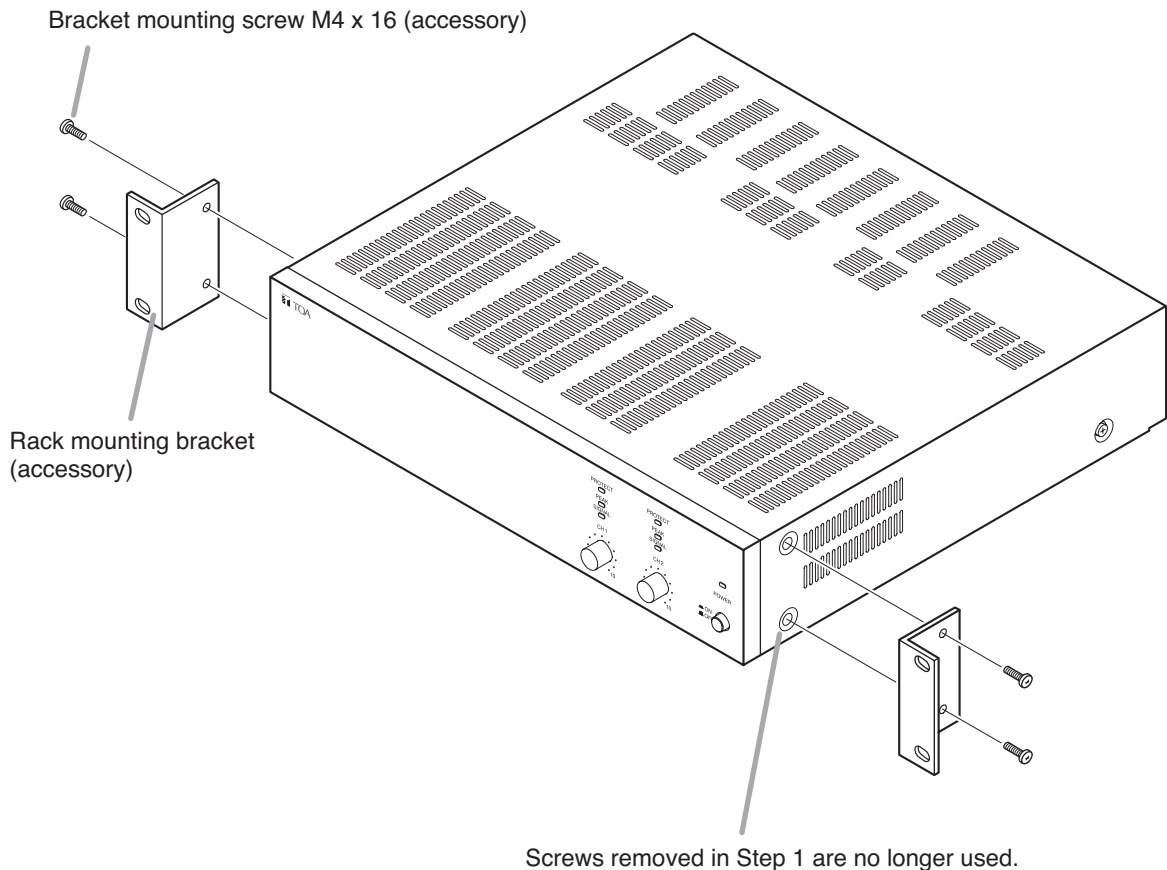


9. RACK MOUNTING BRACKET ATTACHMENT

Use the supplied rack mounting bracket when mounting the unit in a standard 19" equipment rack (2 unit size).

Step 1. Remove four M4 x 8 screws on the sides.
The removed screws are no longer used.

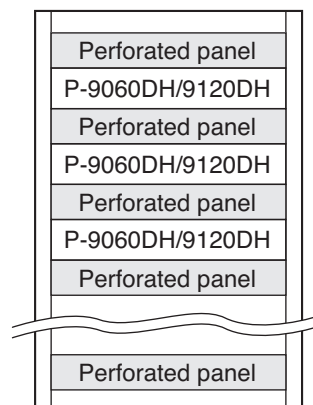
Step 2. Attach the rack mounting bracket to the unit using the supplied four M4 x 16 bracket mounting screws.



Notes

- Remove 4 plastic feet on the bottom surface when mounting the unit in a rack.
- Rack mounting screws are not supplied with the unit. Use the screws that are appropriate for the rack.
- When mounting the unit in an equipment rack, the inside of the rack must be sufficiently ventilated. To achieve sufficient ventilation, also mount TOA's Perforated Panels (1U* or 2U):
 - (1) at the top and the bottom of the rack, and
 - (2) above and below the unit.

* 1U size = 44.5 mm or 1.75" (reference size)



10. OPERATION

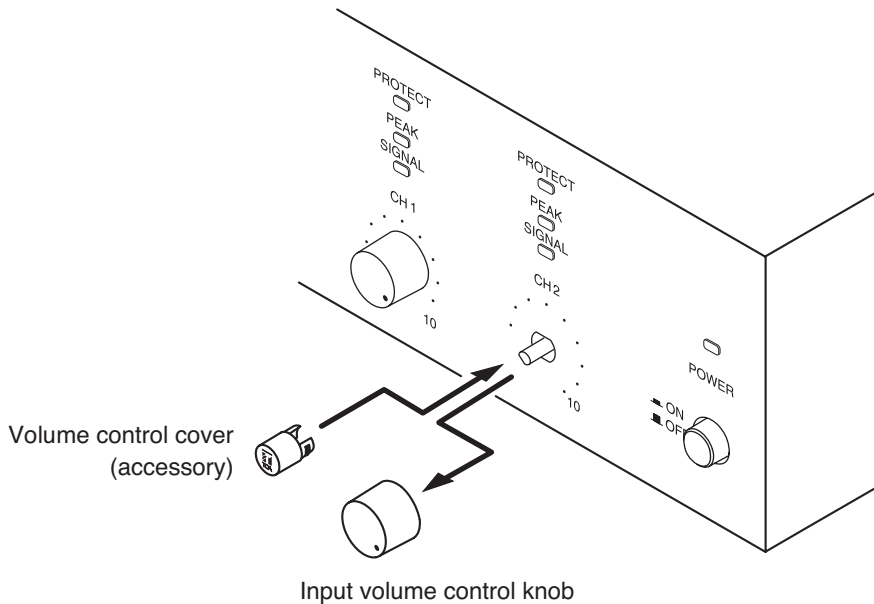
After all connections are made, turn power switch ON, and the Power Indicator lights. The amplifier comes into operation about 5 seconds after the power is turned on.

11. VOLUME ADJUSTMENT

Obtain desired output level by adjusting the individual input volume controls. For normal music playing or announcement, adjust volume using their controls until the signal indicator intermittently lights. Sound quality is deteriorated when the peak indicator remains lit.

12. VOLUME CONTROL COVER ATTACHMENT

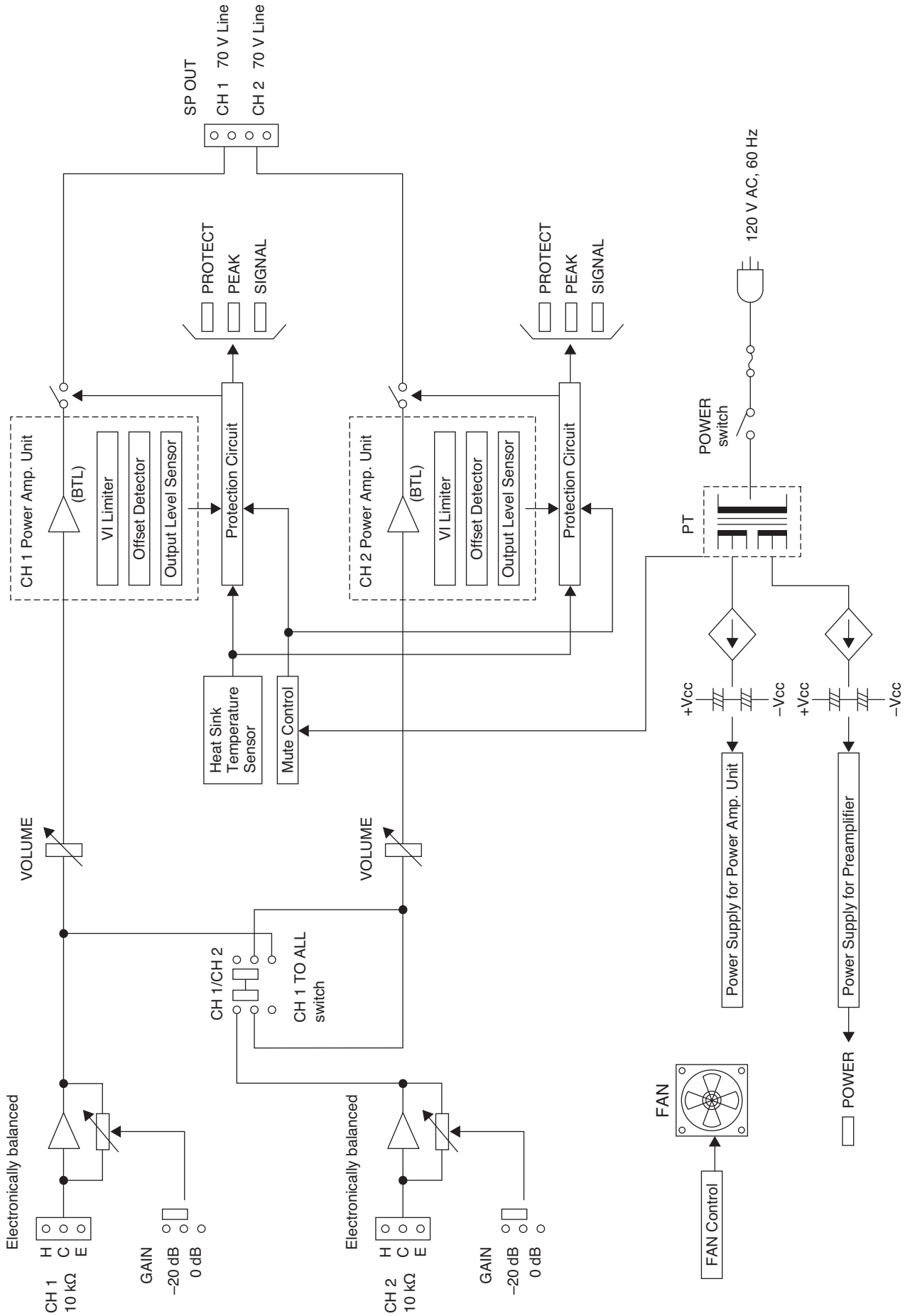
To protect the input volume control from accidental operation, it is recommended to replace the control knob with the supplied volume control cover as illustrated.



13. PROTECTION OPERATION LIST

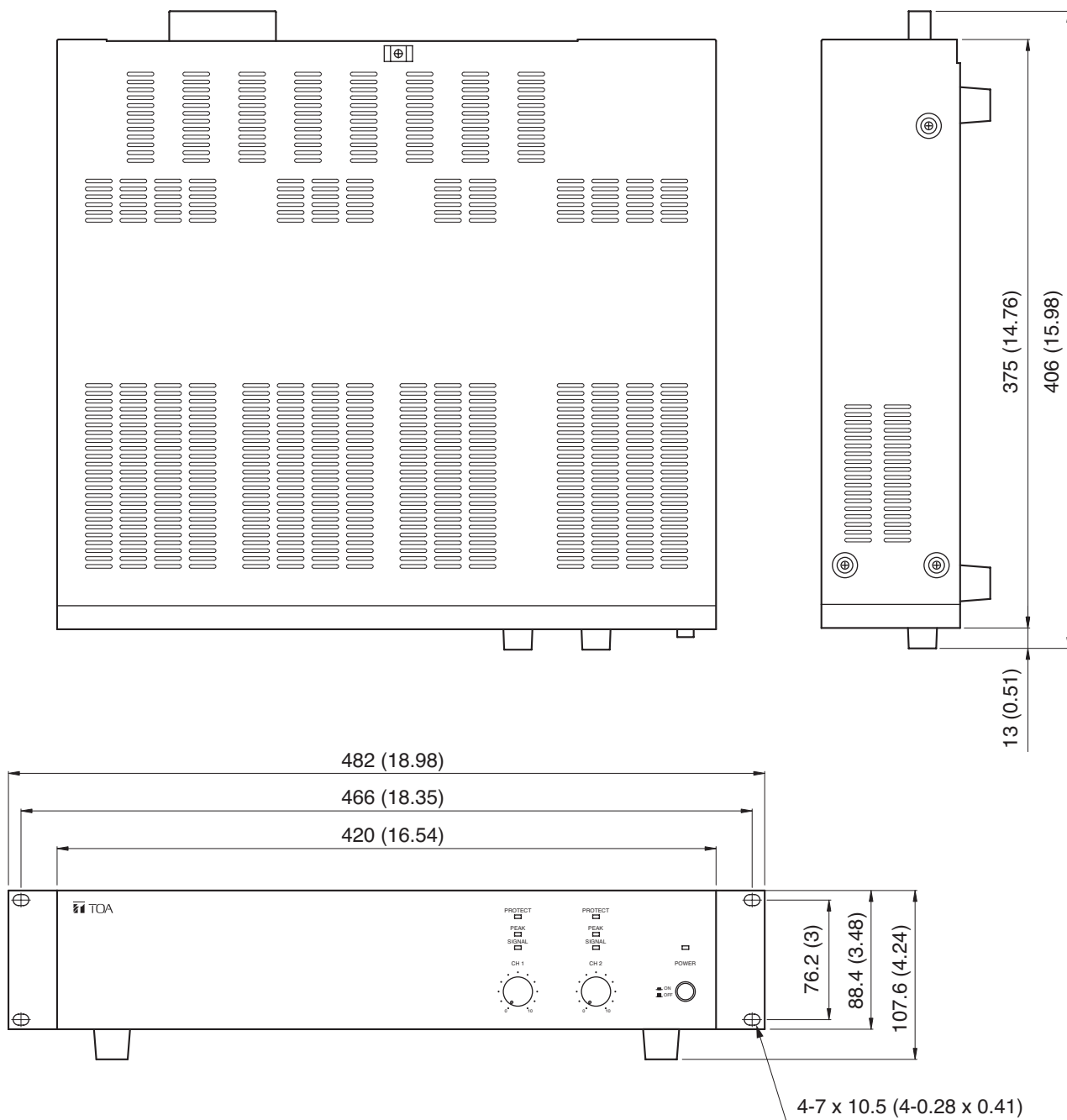
Symptom	Action	Indicator	Remedy	Reset
Temperature rise at power amp. heat sink (over 105°C or 212 °F)	Speaker loads cut by output relay.	Protection indicator lights.	Check ventilation and overload.	Automatically reset if temperature drops.
Unusual DC voltage output	Speaker loads cut by output relay.	Protection indicator lights.	Contact your TOA dealer.	Switch power off.

14. BLOCK DIAGRAM



15. DIMENSIONAL DIAGRAM

Unit: mm (inches)



16. SPECIFICATIONS

16.1. P-9060DH

Power Source	120 V AC, 60 Hz
Power Consumption	225 W (rated output), 106 W (UL60065)
Input	CH 1, CH 2 input: -20 dB* or 0 dB* (switchable), 10 k Ω , electronically-balanced, removable terminal block (3 pins), CH 1 mode ON/OFF switch (ON: CH 1 to All ch, OFF: Each ch)
Output	Speaker output CH 1, CH 2: 60 W, 83 Ω x 2, BTL output (70 V line), M4 screw terminal, distance between barriers: 9 mm (0.35")
Power Band Width	20 – 20,000 Hz, 0.08% T.H.D.
Frequency Response	20 – 20,000 Hz (-3 dB, +1 dB)
S/N Ratio	At Input short, 20 – 20,000 Hz, Input level selector switch in 0 dB* position Output volume min.: 105 dB, Output volume max.: 97 dB
Total Harmonic Distortion	0.008% (22 kHz LPF, 1 kHz, rated output, input level selector switch in 0 dB* position)
Function	Output disconnected for approx. 5 s after switching power on
LED Indicator	Power (blue) x 1, Protect (red) x 2, Peak (red) x 2, Signal (green) x 2
Ventilation System	Forced air cooling (fan speed: variable with temperature)
Operating Temperature	-10°C to +40°C (14°F to 104°F)
Operating Humidity	35% to 80% RH (no condensation)
Finish	Panel: Aluminum, hair-line, black Case: SECC, black, paint
Dimensions	420 (w) x 107.6 (h) x 406 (d) mm (16.54" x 4.24" x 15.98")
Weight	8.2 kg (18.08 lb)

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Power cord (2 m or 6.56 ft)	1
Rack mounting bracket	2
Bracket mounting screw (M4 x 16)	4
Removable terminal plug (3 pins)	2
Terminal cover	1
Terminal cover mounting screw (M4 x 8)	2
Volume control cover YA-920	2

16.2. P-9120DH

Power Source	120 V AC, 60 Hz
Power Consumption	404 W (rated output), 208 W (UL60065)
Input	CH 1, CH 2 input: -20 dB* or 0 dB* (switchable), 10 k Ω , electronically-balanced, removable terminal block (3 pins), CH 1 mode ON/OFF switch (ON: CH 1 to All ch, OFF: Each ch)
Output	Speaker output CH 1, CH 2: 60 W, 83 Ω x 2, BTL output (70 V line), M4 screw terminal, distance between barriers: 9 mm (0.35")
Power Band Width	20 – 20,000 Hz, 0.08% T.H.D.
Frequency Response	20 – 20,000 Hz (-3 dB, +1 dB)
S/N Ratio	At Input short, 20 – 20,000 Hz, Input level selector switch in 0 dB* position Output volume min.: 105 dB, Output volume max.: 97 dB
Total Harmonic Distortion	0.008% (22 kHz LPF, 1 kHz, rated output, input level selector switch in 0 dB* position)
Function	Output disconnected for approx. 5 s after switching power on
LED Indicator	Power (blue) x 1, Protect (red) x 2, Peak (red) x 2, Signal (green) x 2
Ventilation System	Forced air cooling (fan speed: variable with temperature)
Operating Temperature	-10°C to +40°C (14°F to 104°F)
Operating Humidity	35% to 80% RH (no condensation)
Finish	Panel: Aluminum, hair-line, black Case: SECC, black, paint
Dimensions	420 (w) x 107.6 (h) x 406 (d) mm (16.54" x 4.24" x 15.98")
Weight	10 kg (22.05 lb)

* 0 dB = 1 V

Note: The design and specifications are subject to change without notice for improvement.

• Accessories

Power cord (2 m or 6.56 ft)	1
Rack mounting bracket	2
Bracket mounting screw (M4 x 16)	4
Removable terminal plug (3 pins)	2
Terminal cover	1
Terminal cover mounting screw (M4 x 8)	2
Volume control cover YA-920	2



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