

PA AMPLIFIER

A-230 HV

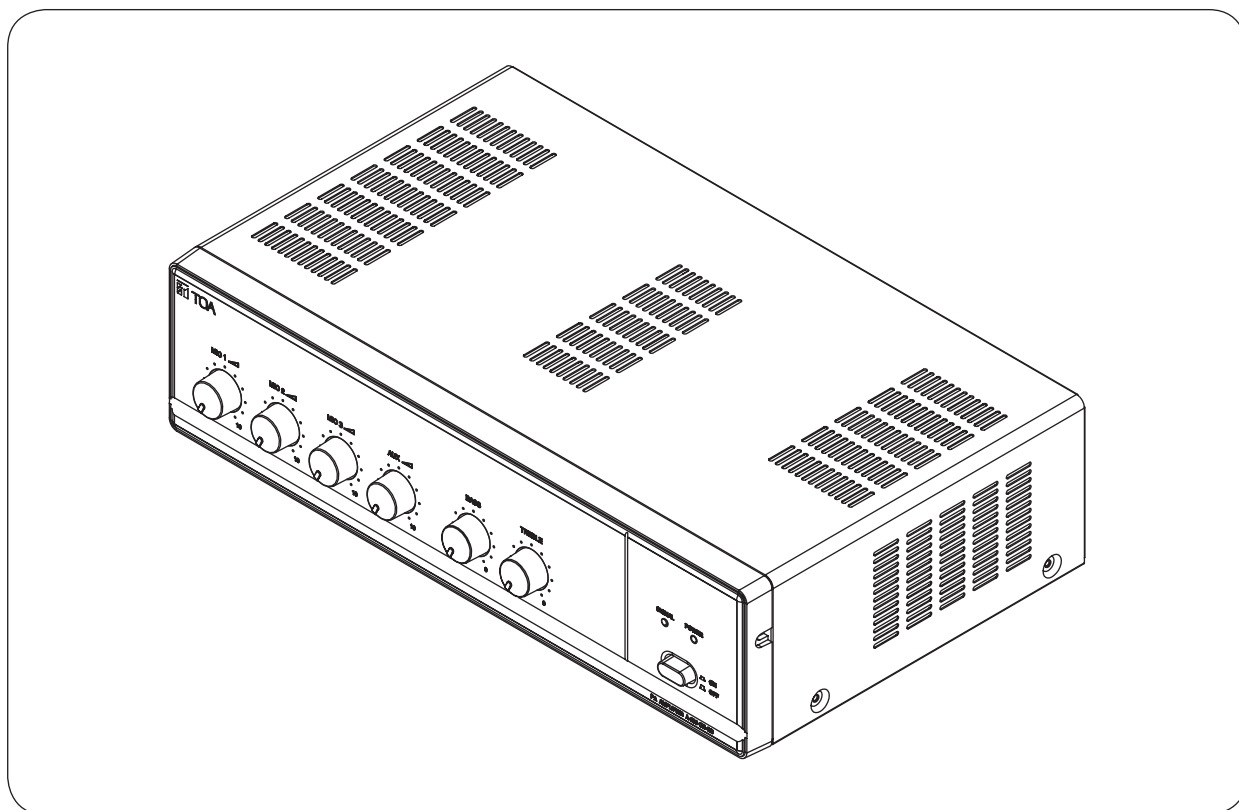


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Thank you for purchasing TOA's PA Amplifier.

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

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 hazards.



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.
 - The terminals marked with the symbol ⚡ are hazardous live. The external wiring to these terminals requires installation by an instructed person.
 - The socket-outlet shall be installed near the equipment and the plug (disconnecting device) shall be easily accessible.
 - Be sure to replace the unit's terminal cover after connection completion. Because the voltage of up to 100 V is applied to the high impedance 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.
- 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 you 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.
 - Do not insert nor drop metallic object 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 the Unit is in Use

- Should the following irregularity be found during use, immediately switch off the power, disconnect

- 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 upper panel 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.

2. GENERAL DESCRIPTION

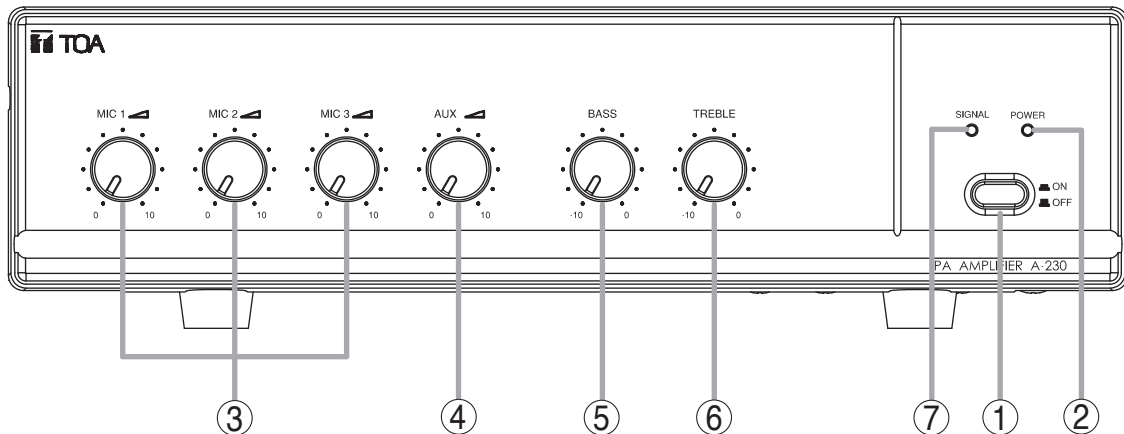
TOA's PA Amplifier A-230 is a high cost-performance mixer power amplifier suited for paging announcement or background music in schools, offices, shops, factories, mosques, churches, and small rooms.

3. FEATURES

- High durability, high reliability, and high performance
- Three microphone inputs and one AUX input
- Speaker output of constant voltage distribution system (100 V) and low impedance (4 Ω)
- Operates on AC or DC power
- Muting function
- Independent input volume controls
- Independent tone controls of cut type for both high and low frequencies
- Current limiter circuitry protects transistors against a failure due to overheat.

4. NOMENCLATURE AND FUNCTIONS

[Front]



1. Power switch

Press to turn on the power.
Press again to turn off the power.

2. Power indicator

Lights green when power is switched ON.

3. Microphone volume controls

Adjust the microphone level.

4. AUX volume control

Adjusts the AUX level.

5. Bass control

Adjusts bass response. Rotate counterclockwise to reduce it. The maximum position "0" provides flat characteristics.

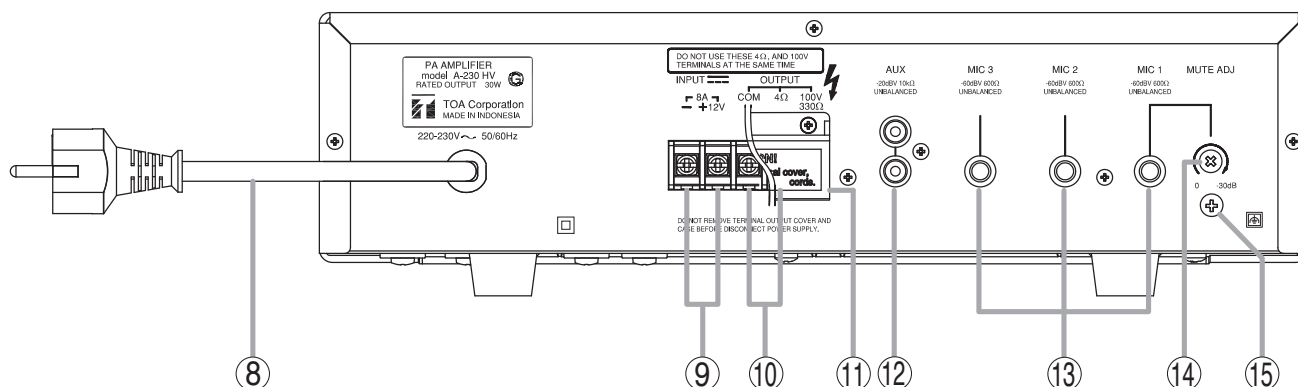
6. Treble control

Adjusts treble response. Rotate counterclockwise to reduce it. The maximum position "0" provides flat characteristics.

7. Signal indicator

Lights green when power is switched ON, and indicates an output signal level.

[Rear]



8. AC power cord

Connects to an AC power source.

9. DC terminals

Connect to a DC power supply of 12 V.

10. Output terminals

Connect to speakers. When connecting speakers, use only one of the speaker output terminals, low or high impedance.

11. Terminal cover

To avoid electric shock due to high voltage from output terminals, replace the terminal cover after connection completion.

12. AUX input terminals

–20 dB* (100 mV), 10 kΩ, unbalanced, monaural RCA pin jacks. Accept external equipment output signals. (Refer to "Input Connections" on p. 7.)

13. MIC 1, MIC 2 and MIC 3 inputs

–60 dB* (1 mV), 600 Ω, unbalanced.

Because microphone input is unbalanced type, use a single pole phone plug. (Refer to "Input Connections" on p. 7.)

14. Muting level control

Adjusts the background music level 0 to 30 dB to be automatically reduced when priority function is operated.

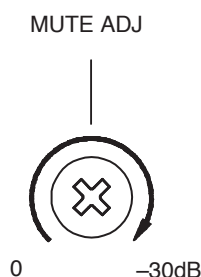
15. Ground terminal

Connects to ground (earth) to avoid electric shock.

* 0 dB = 1 V

5. MUTING FUNCTION

Mic 1 input is provided with a voice-activated muting function that overrides other Mic inputs 2 and 3, and AUX input. (Factory default: –30 dB)

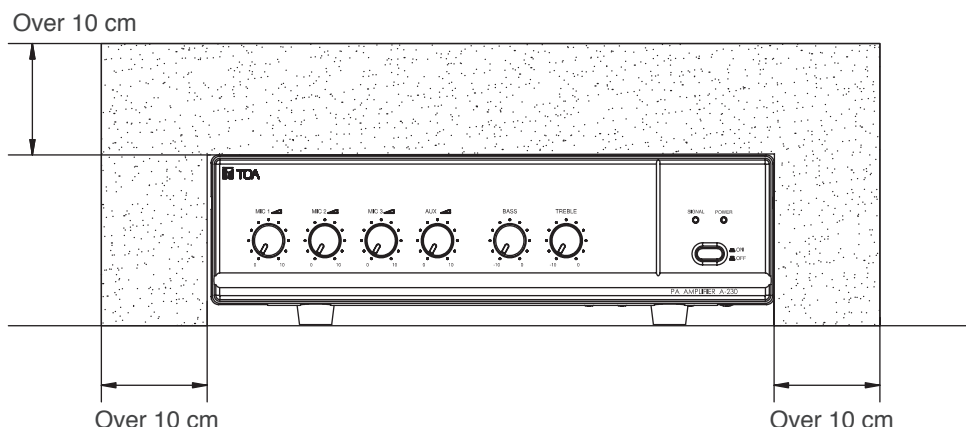


Remark: About Mute function

- When the audio signal is input to Mic 1, the mute circuit works promptly.
- When the signal disappears, it returns to the previous state after 3 seconds.

6. INSTALLATION

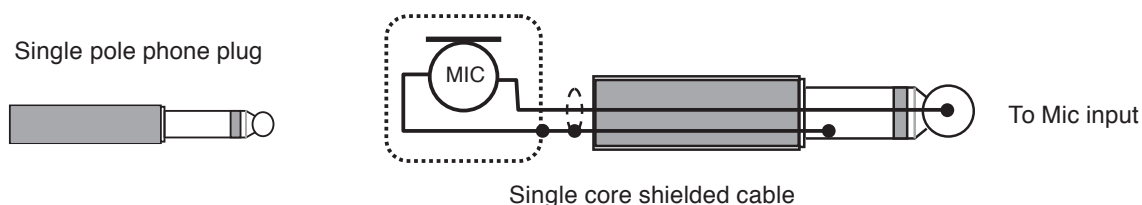
Keep the unit over 10 cm away from objects that may obstruct air flow to prevent the unit's internal temperature rise.



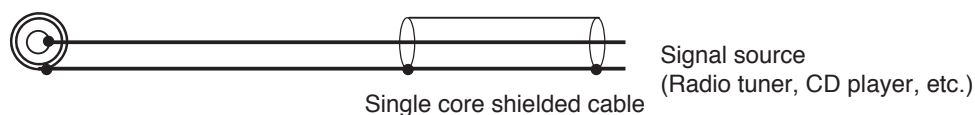
7. CONNECTION

7.1. Input Connections

• Mic 1, Mic 2, Mic 3 connection (Phone plug)



• AUX input connections (RCA pin jack)

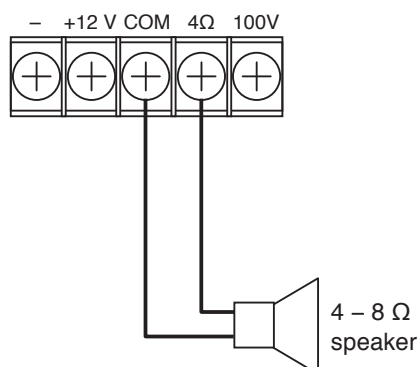


7.2. Output Connections

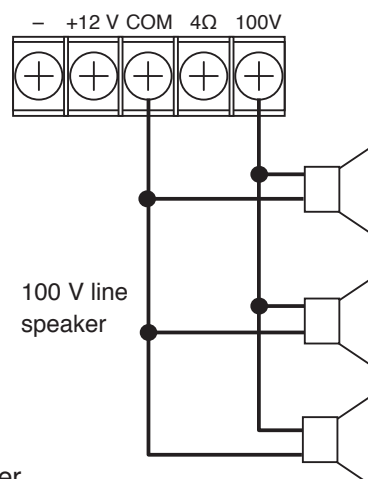
CAUTION

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

• Low impedance speaker



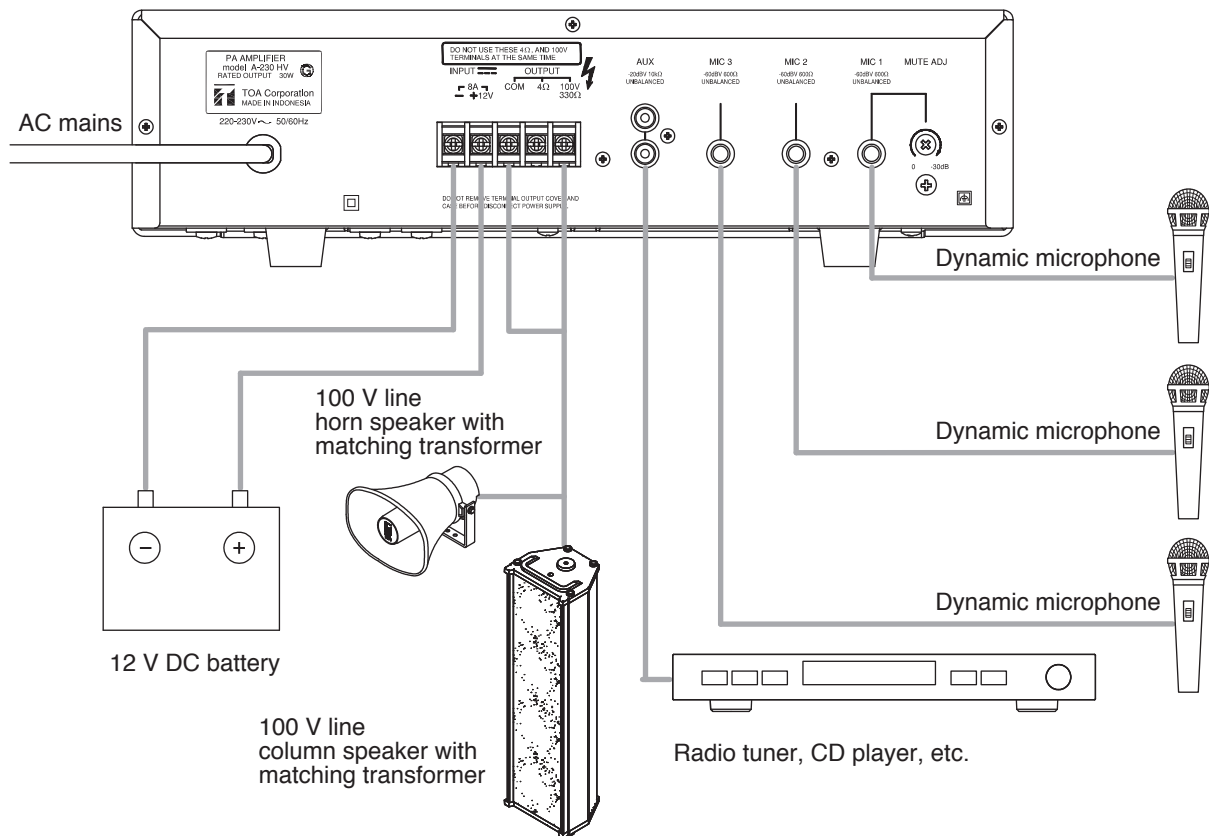
• 100 V line speaker



Notes

- The 4 Ω and 100 V terminals cannot be used at the same time.
- Impedance indicated above the terminal represents the total speaker (load) impedance.
Total impedance of 100 V line is 330 Ω .

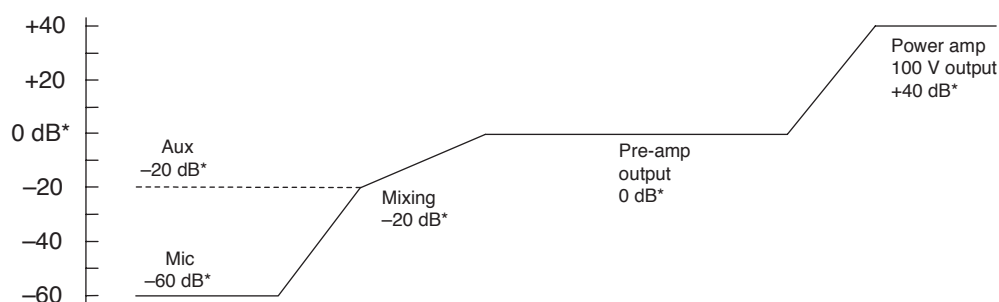
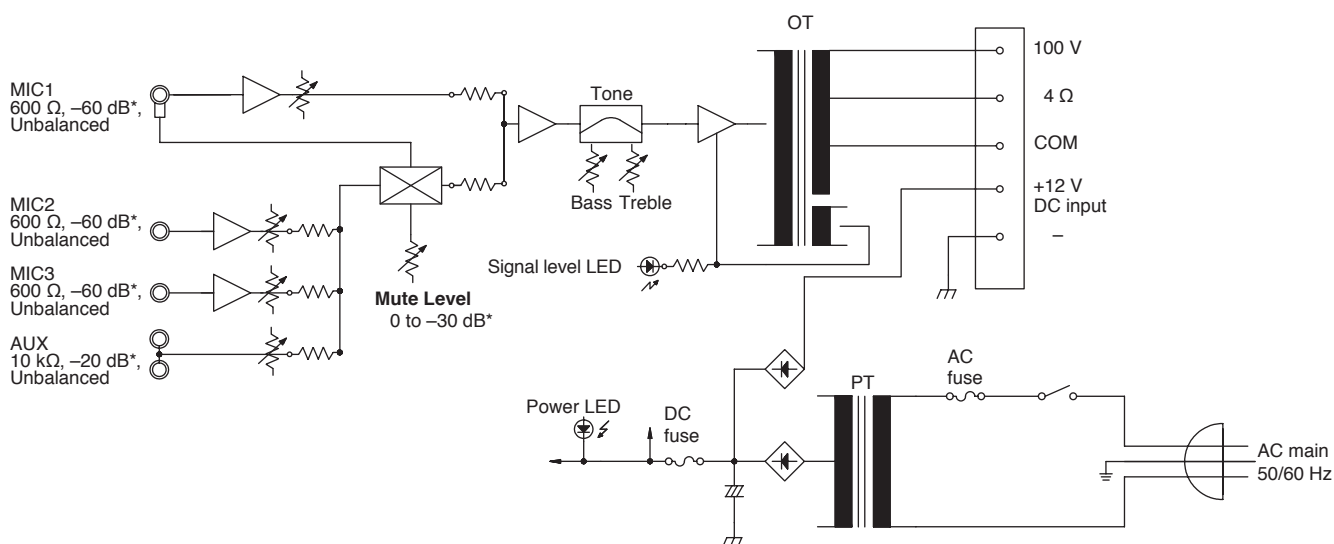
7.3. Example of External Equipment Connections



8. VOLUME CONTROL SETTINGS

Output levels are adjustable with individual volume controls. For music play or announcement, adjust the corresponding volume control so that the signal output is not distorted. Note that the sound quality is downgraded when the output is distorted.

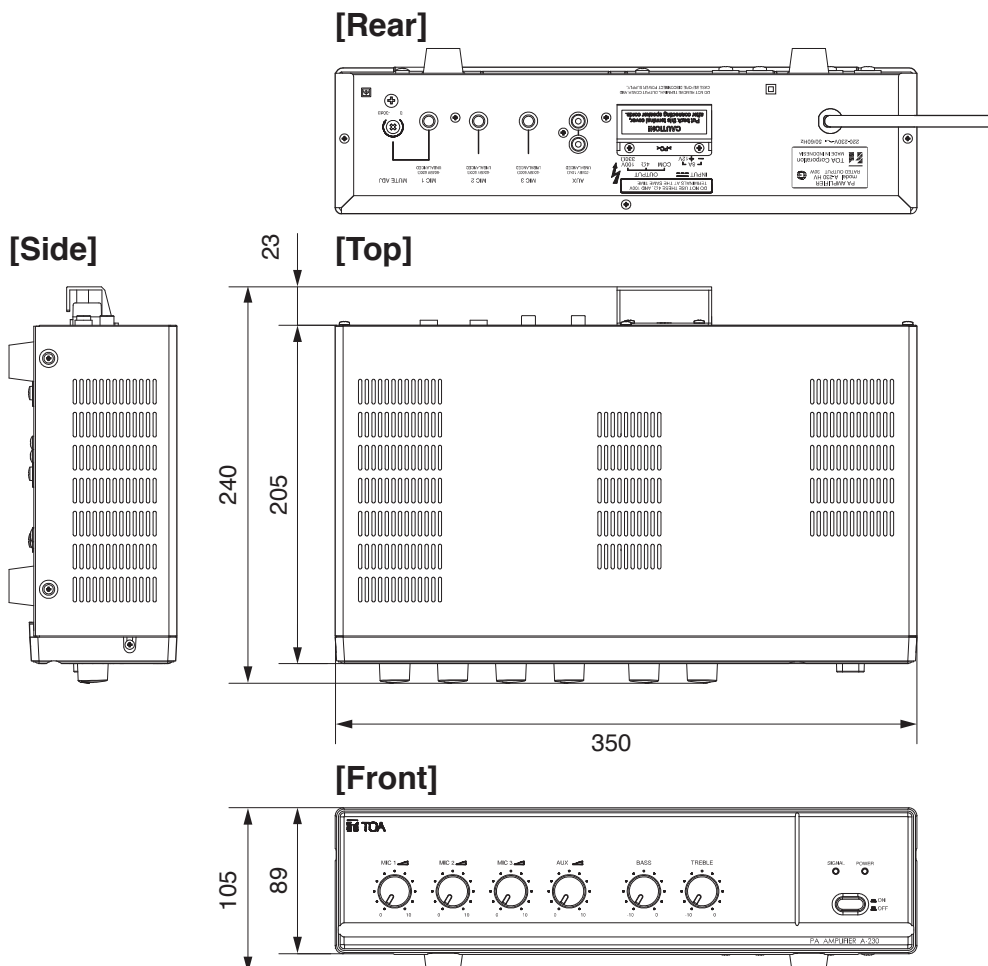
9. BLOCK AND LEVEL DIAGRAM



* 0 dB = 1 V

10. DIMENSIONAL DIAGRAM

Unit: mm



11. SPECIFICATIONS

Power Source	220 – 230 V AC or 12 V DC
Rated Output	30 W
Power Consumption	34 W (AC operation at IEC60065)
Current Consumption	4.5 A (DC operation at rated output)
Frequency Response	50 Hz – 20 kHz
Distortion	1% or less at 1 kHz, 1/3 rated power
Input	MIC 1 to 3: –60 dB* (1.0 mV), 600 Ω , unbalanced, phone jack AUX: –20 dB* (100 mV), 10 k Ω , unbalanced, RCA pin jack
Output	Speaker Out: Floating balanced High impedance: 330 Ω (100 V) Low impedance: 4 Ω (11 V)
Signal to Noise Ratio	60 dB or more (MIC 1 to 3) 70 dB or more (AUX)
Tone Control	Bass: –10 dB at 100 Hz Treble: –10 dB at 10 kHz
Muting	MIC 1 overrides other MIC inputs and AUX input with 0 to 30 dB attenuation by MIC 1 input
Indicator	Power LED, Signal LED
Operating Temperature	–10 to +40 °C
Finish	Panel: ABS resin, black, hairline Case: Steel plate, black, paint
Dimensions	350 (w) x 100 (h) x 240 (d) mm
Weight	3.5 kg

* 0 dB = 1 V

Notes

- Specifications are measured on 230 V AC.
- The design and specifications are subject to change without notice for improvement.