

MIXER AMPLIFIER

MX-5348-AS 1

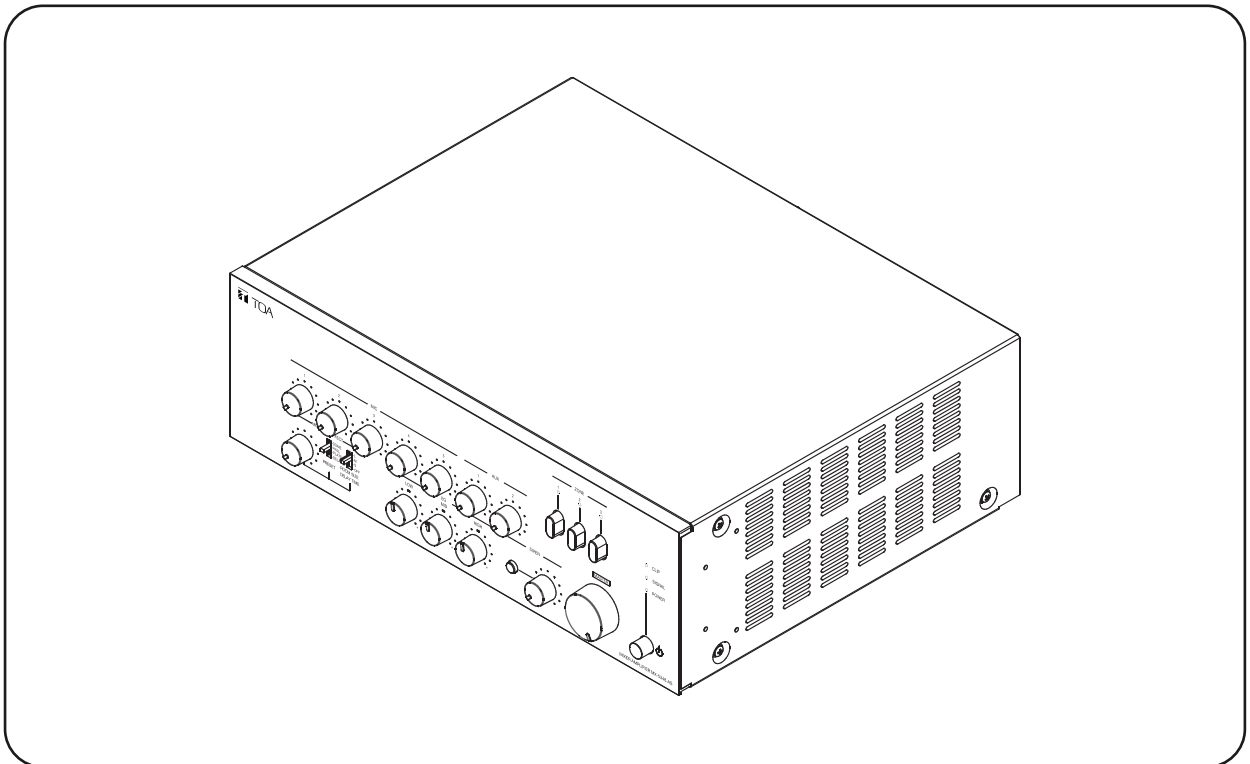


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Thank you for purchasing TOA's Mixer Amplifiers.

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

1. 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.



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 100V 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.

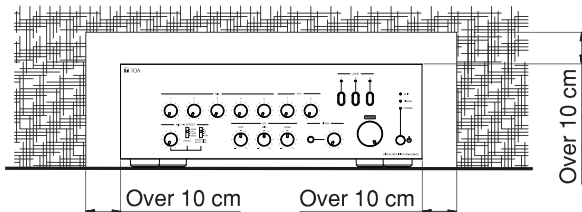
When The Unit is in Use

- 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.
- 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.
- Class I construction shall be connected to a main socket outlet with a protective earthing connection.
- The ventilation should not be impeded by covering the ventilation openings with items, such as newspaper table-cloths, curtains, etc.
- No naked flames source such as lighted candles, should be placed on the apparatus.

⚠ 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. Also periodically clean the ventilation slots of dust.
- Avoid installing the unit in humid or dusty location, in location exposed to direct sunlight, near the heaters, or in location generating sooty smoke or steam as doing otherwise may result in fire or electric shock.
- To avoid electric shocks, be sure to switch off the unit's power when connecting speaker.
- Keep the distance for all side of units 10 cm away from the object that may obstruct air flow for internal units temperature rise prevention.



When The Unit is In Use

- Do not place heavy object 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.
- Switch OFF the unit's power before turning the phantom power switch ON or OFF. Operating the switch without switching OFF the main power could result in a large transient noise through the speakers, potentially resulting in speaker failure.
- Avoid using Phantom power when connecting the dynamic microphone to MIC1 and/or MIC 2, as the microphone fails.
- Do not operate the unit for an extended period of time with the sound distorting. Doing so may cause the connected speakers to heat, resulting in a fire.
- 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.
- Contact your TOA 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.
- 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.

2. GENERAL DESCRIPTION

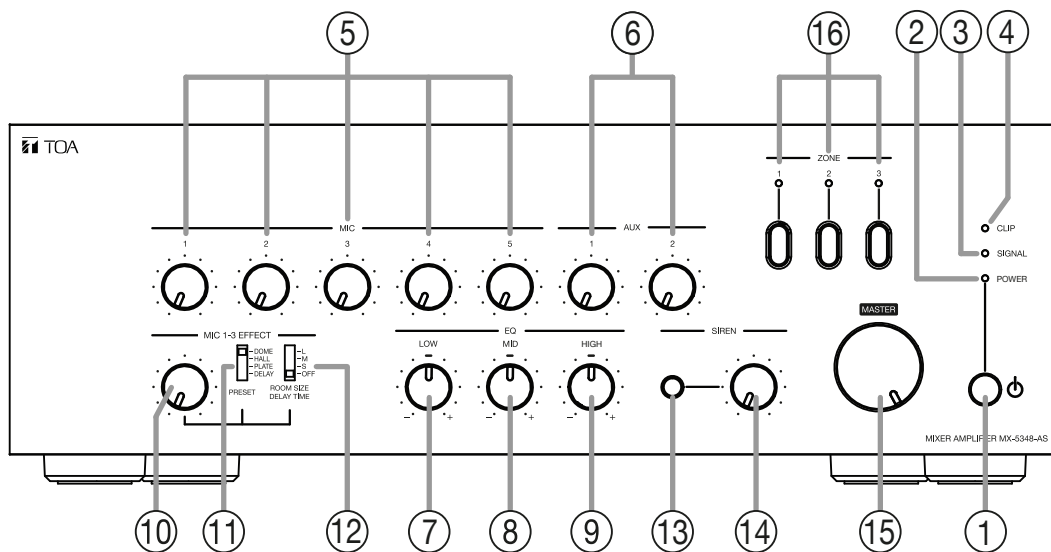
TOA's MX-5348-AS is Mixer Power Amplifier equipped with 5 microphone inputs, 2 auxiliary inputs and designed for 3-zone Public address system suitable for small to middle sized mosques application, also suited for paging announcement or BGM application in schools, offices, shops, churches and large rooms.

3. FEATURES

- High durability, high reliability and high performance.
- Five microphone inputs, two auxiliary inputs and one line output.
- Independent input volume control and master volume control.
- Independent tone control of boost and cut type for both high, middle and low frequency.
- MIC 1 and MIC 2 equipped with phantom power for condenser microphone.
- All MIC inputs are electronically-balanced input.
- Excess current limit to prevent damage due to current overload.
- Excess heat limit to protect the transistor and power transformer.
- DSP multi effect (4 type of Dome, Hall, Plate and Delay)
- Built-in 3 Zone Selectors and Siren.

4. NOMENCLATURES AND FUNCTIONS

[Front Panel]



1. Power Switch

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

2. Power Indicator

Light green when power is switch on.

3. Signal Indicator

Light green to indicate the presence of an output signal.

4. Clip Indicator

Light red to indicate the output signal has exceeded its rated. The sound start to distorted. In such case, adjust each volume control so that the clip indicator is not light ON.

5. Volume Control for MIC

Adjust the microphone level input.

6. Volume Control for AUX

Adjust the AUX level input.

7. Low Frequency Control

Turn the control knob clockwise to enhance low frequency and counterclockwise to weaken them. The frequency is flat at the center position.

8. Middle Frequency Control

Turn the control knob clockwise to enhance middle frequency and counterclockwise to weaken them. The frequency is flat at the center position.

9. High Frequency Control

Turn the control knob clockwise to enhance high frequency and counterclockwise to weaken them. The frequency is flat at the center position.

10. MIC 1 - 3 Effect Control

Adjusts effect response.

Turn the control knob clockwise to strengthen the response on the effect selected by the Effect Present type selection switch (11) and counterclockwise to weaken it.

Turning the control fully counterclockwise provides no effect response.

11. Effect Preset type Selection Switch

Select the type of the sound effect from "DOME", "HALL", "PLATE" and "DELAY".

12. Effect Room size/Delay time Selection Switch

Select the reverberation / delay of effect from "S" (Short time), "M" (Medium time), "L" (Long time). When set to OFF, the effect function is disabled.

13. Siren Switch

Push the switch to activate the sound of a siren. When the siren is active then all input will be muted, but all input still be active on line output terminal. One push is one cycle sound of the siren.

Note

No sound of the siren out from the line output terminal.

14. Volume Control for Siren

Adjust the siren level.

15. Master Volume Control

Adjust overall signal level.

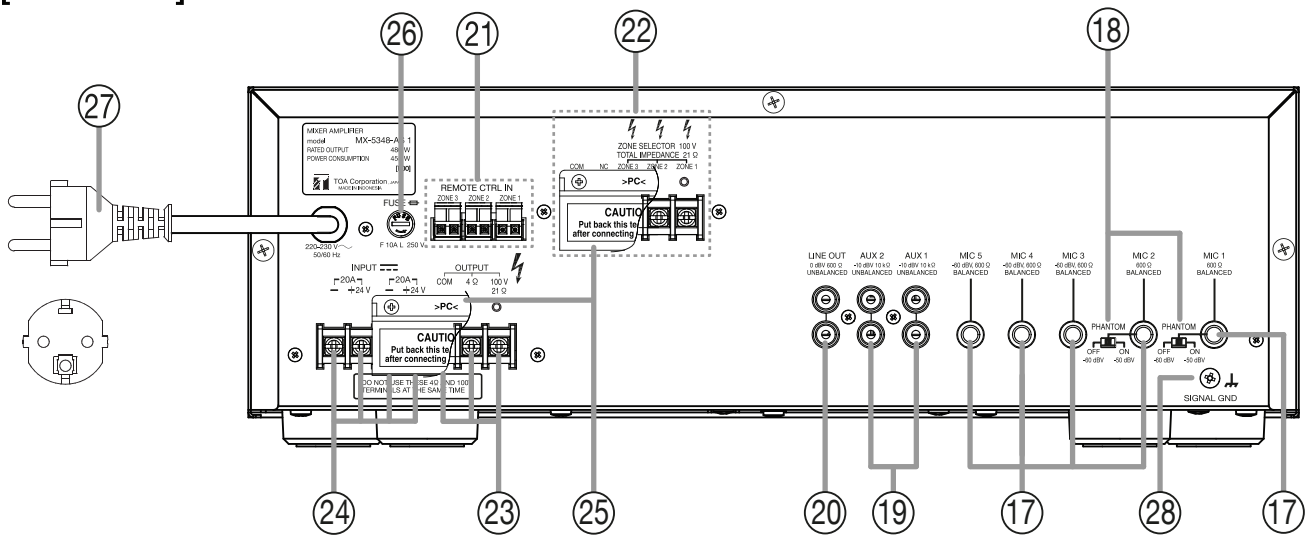
Note

This master volume control will not affect to the sound of a siren level.

16. Zone Selector Knob

Push the knob to activate each correspondent Zone Terminal.

[Rear Panel]



Note.
NC : not connected.

17. MIC 1 - 5 Input Terminal

-60 dB*, 600 Ω, electronically balanced. Because microphone input is a balance type, the phone plug uses double pole type but can also use even a single pole.

18. MIC 1 - 2 Phantom Switch

When switched ON, phantom power is supply to the MIC input. Microphone connected to the MIC input depends on the switch setting as follows.
ON : -50 dB* (21 V Phantom powered). Balanced type phantom powered condenser microphone can be connected. (a lavalier or gooseneck microphone is recommended).
OFF : -60 dB* (phantom power OFF). Balanced type dynamic microphone can be connected.

Note

Before switching on the phantom power, be sure to turn MIC Volume Control fully counterclockwise. Otherwise a switching noise may be produced, possibly damaging the unit.
Be sure to select Phantom OFF when using microphone that can not operated on phantom power.

FACTORY PRESET : OFF

19. AUX 1 - 2 Input Terminal

-10 dB*, 10 kΩ, Unbalanced. Monaural RCA pin jack. Accept external equipment output signal.

20. Line Out

0 dB*, 600 Ω, Unbalanced. Output all input signals before the Master Volume Control. Connect to a cassette deck, etc when recording the broadcast content or other input amplifier.

Note

No sound of a siren out from the Line Out Terminal.

21. Remote CTRL IN Terminal

To select a zone(s) by plug in the green terminal for the desired broadcast zone(s)

22. Zone Selector Output Terminal

Connect output terminal to speaker. When connecting to the speaker please use only High Impedance speaker only.

23. Output Terminal

Connect output terminal to speaker. When connecting to the speaker please use only one output terminal, either High or Low Impedance.

24. DC Input Terminal

Connect input terminal to a DC power source or Battery. Connect negative (-) terminal of DC source or battery to all (-) DC Input Terminal and positive (+) terminal of DC source or battery to all (+) DC Input Terminal. (For detail please see page 8)

25. Terminal Cover

To avoid shock by high voltage from output terminal. Please put back terminal cover after connecting

26. Fuse

Replace only the same type of fuse. (F10A 250V)

27. AC Power Cord

Connect to an AC power source.

28. Functional Ground Terminal

Noise may be generated when external equipment is connected to the unit. In this case, connect this terminal to the functional ground terminal of the external equipment, and the noise may be reduced.

Note

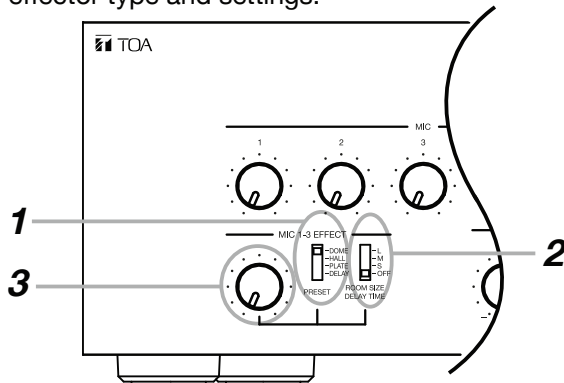
This ground is not for protective ground.

* 0 dB = 1V

[Effector Settings]

This unit built-in effector function offers a range of settings. The effector is enabled whenever the Effect Room Size/Delay Time Selection switch is set to any other position than OFF . When enabled, the effector is applied only to input MIC1 – MIC3.

- Using effector type and settings.



Step 1. Select the type of effect to be used with the Effect Preset Type Selection switch. Refer to the following table for the types of effects that can be selected :

Effect Name	Effect Description
DOME	Creates an effect of stone with semi-domed ceiling.
HALL	Creates an effect of wooden walls with carpeted floors.
PLATE	Creates an effect of metal reverberation as by a metal plate hung from the ceiling, accompanied by an extended high frequency band.
DELAY	Creates an effect of sound being repeatedly reflected following delay.

Step 2. Enable or Disable (ON/OFF) the effector and select the reverberation time and delay time condition using the Effect Room Size / Delay Time Selection switch :

	DOME, HALL or PLATE settings	DELAY settings
L	Long reverberation time.	Long delay time.
M	Medium reverberation time.	Medium delay time.
S	Short reverberation time.	Short delay time.
OFF	Effector disabled.	Effector disabled.

Note : The effector is enabled after 3 seconds [Room size/Delay time] is selected.

Step 3. Adjust the effector's response strength.

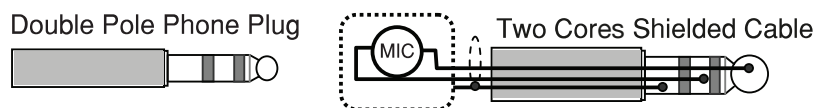
To adjust, rotate the Effector Control Knob. The effect becomes more pronounce as the knob rotated clockwise and weakens as the knob rotated counterclockwise.

5. CONNECTIONS

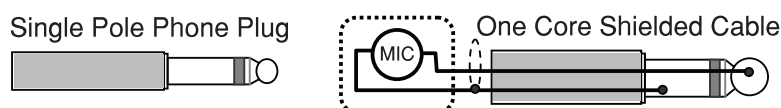
5.1. Input Connections

- MIC 1 - 5 Connection (Phone Plug)

Because MIC input is electronically balanced type, it uses double pole phone plug.



However, the microphone input circuit is in a condition of unbalance when using single pole type. Since the state of unbalance is more vulnerable for noise generation, the recommended length of microphone cable is at less than 10 meters.

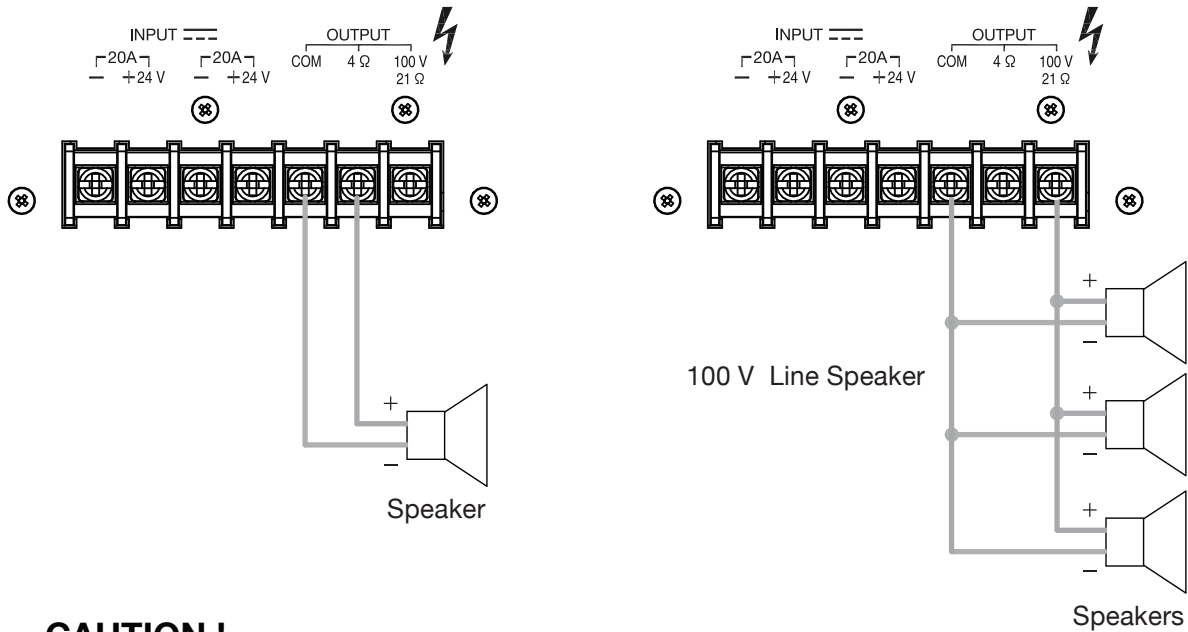


- AUX Input Connection (RCA Pin Jack)



5.2. Speaker Connections

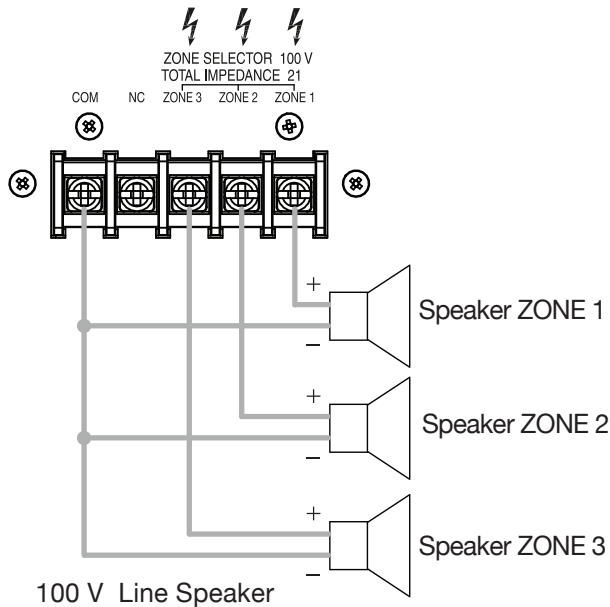
- Using Terminal Output.



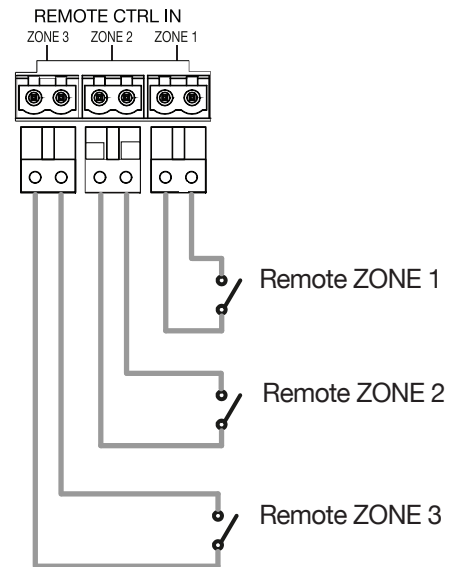
CAUTION !

- Impedances indicate at the terminal represent the total impedance (load) of the speaker system.
 - Total impedance in “4 Ω Line” must same or over than 4 Ω.
 - Total impedance in “100 V Line” must same or over than 21 Ω.
- Terminal 4 Ω and 100 V cannot be use together.

- Using Zone Selector Terminal



- Using Remote CTRL IN Terminal

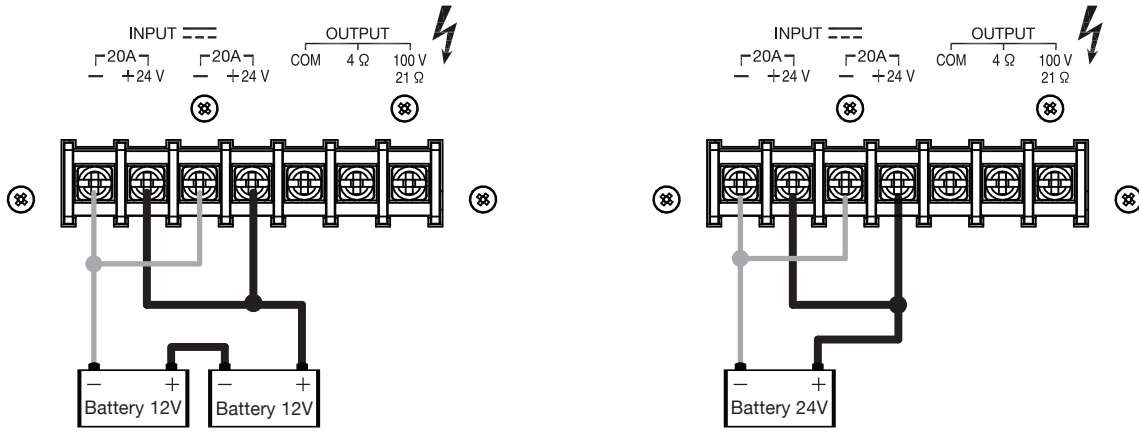


- Switch Remote ZONE 1 to activate the Speaker ZONE 1
- Switch Remote ZONE 2 to activate the Speaker ZONE 2
- Switch Remote ZONE 3 to activate the Speaker ZONE 3

⚠ CAUTION

Please put the terminal cover in place after installing the speaker cable. Due to the voltage on the speaker terminal which may cause electric shock, you must not touch the terminal.

5.3. Terminal DC Input Connections

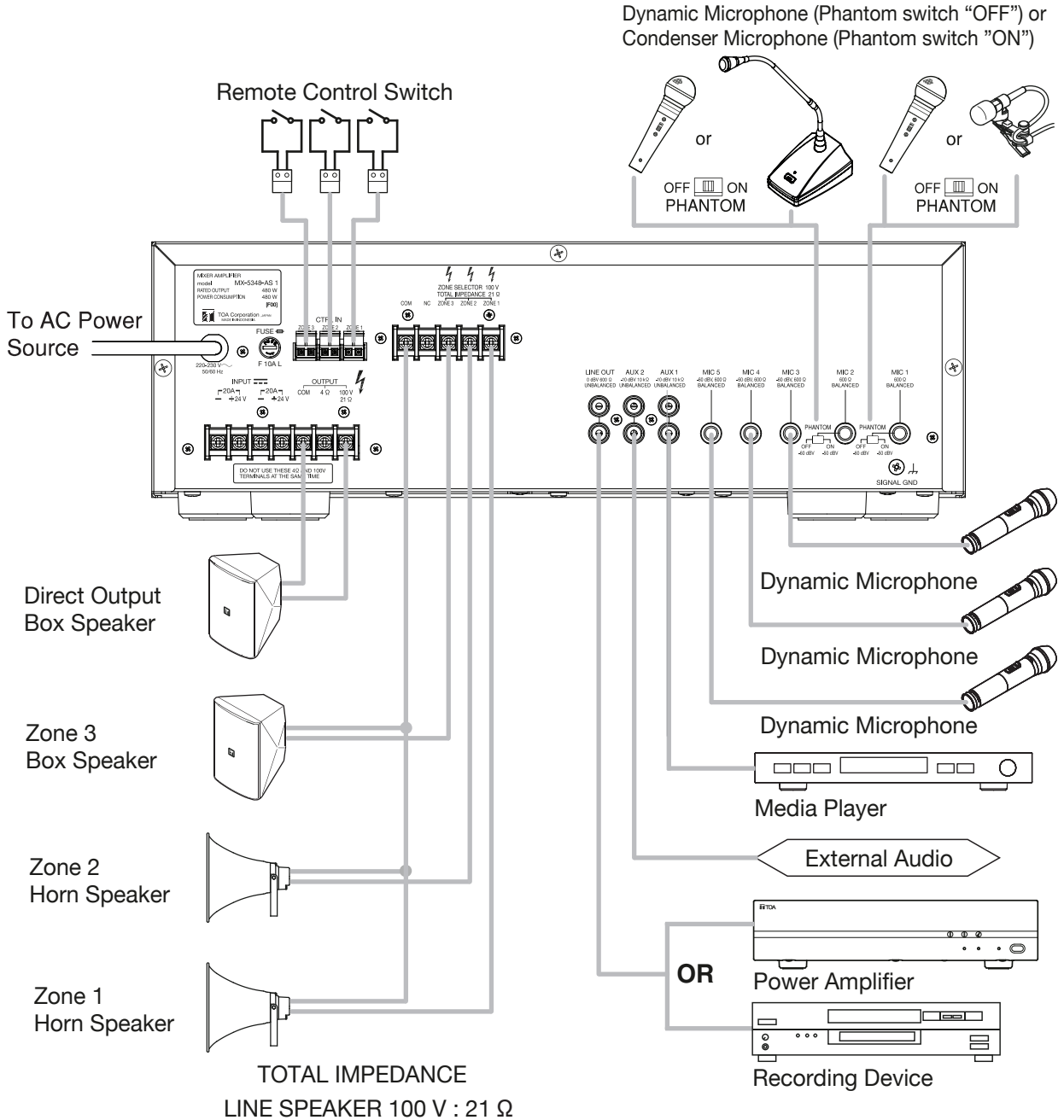


Note :

Connections that are not in accordance with the picture above, can cause damage to the components.

All Terminal DC OUTPUT Must be connected to the DC Supply/Battery Terminal.

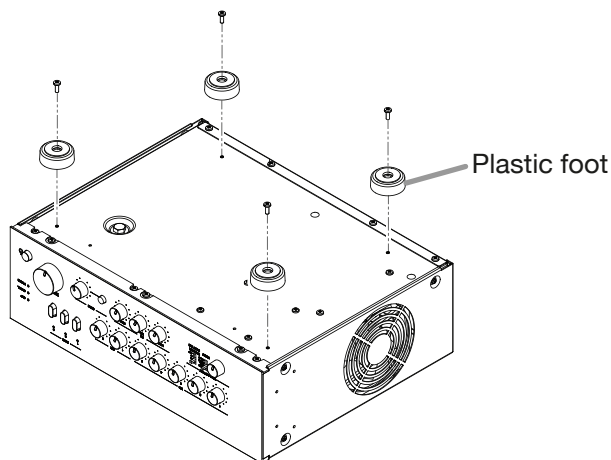
5.4. Example of External Equipment Connections



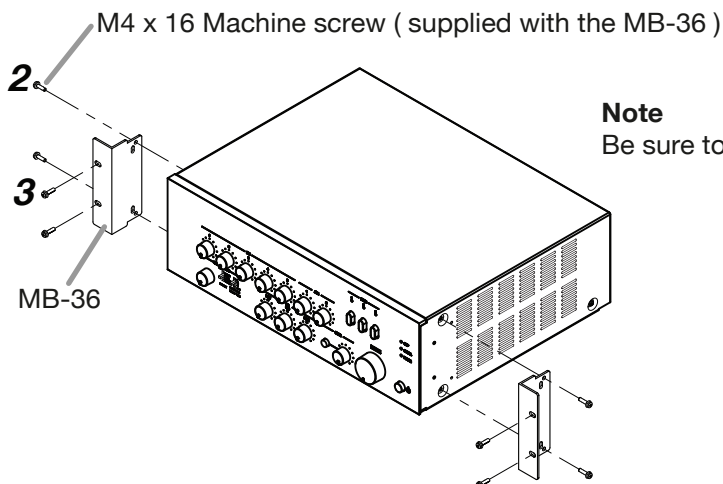
6. RACK MOUNTING

To mount the unit in an equipment rack, use the optional MB-36 Rack mounting bracket.

Step 1. Remove the 4 plastic feet attached to the bottom surface of the unit.



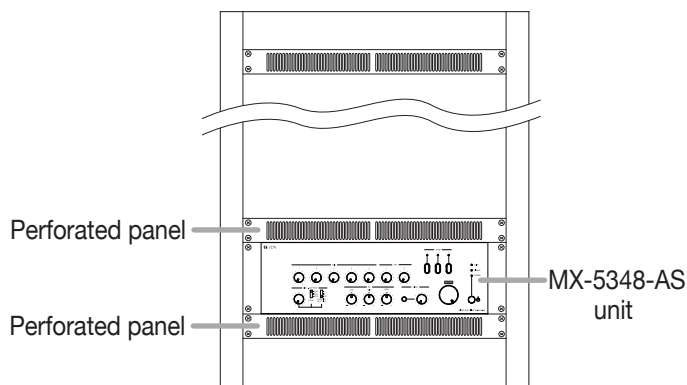
Step 2. Attach the MB-36 to the unit using the supplied 4 screws.



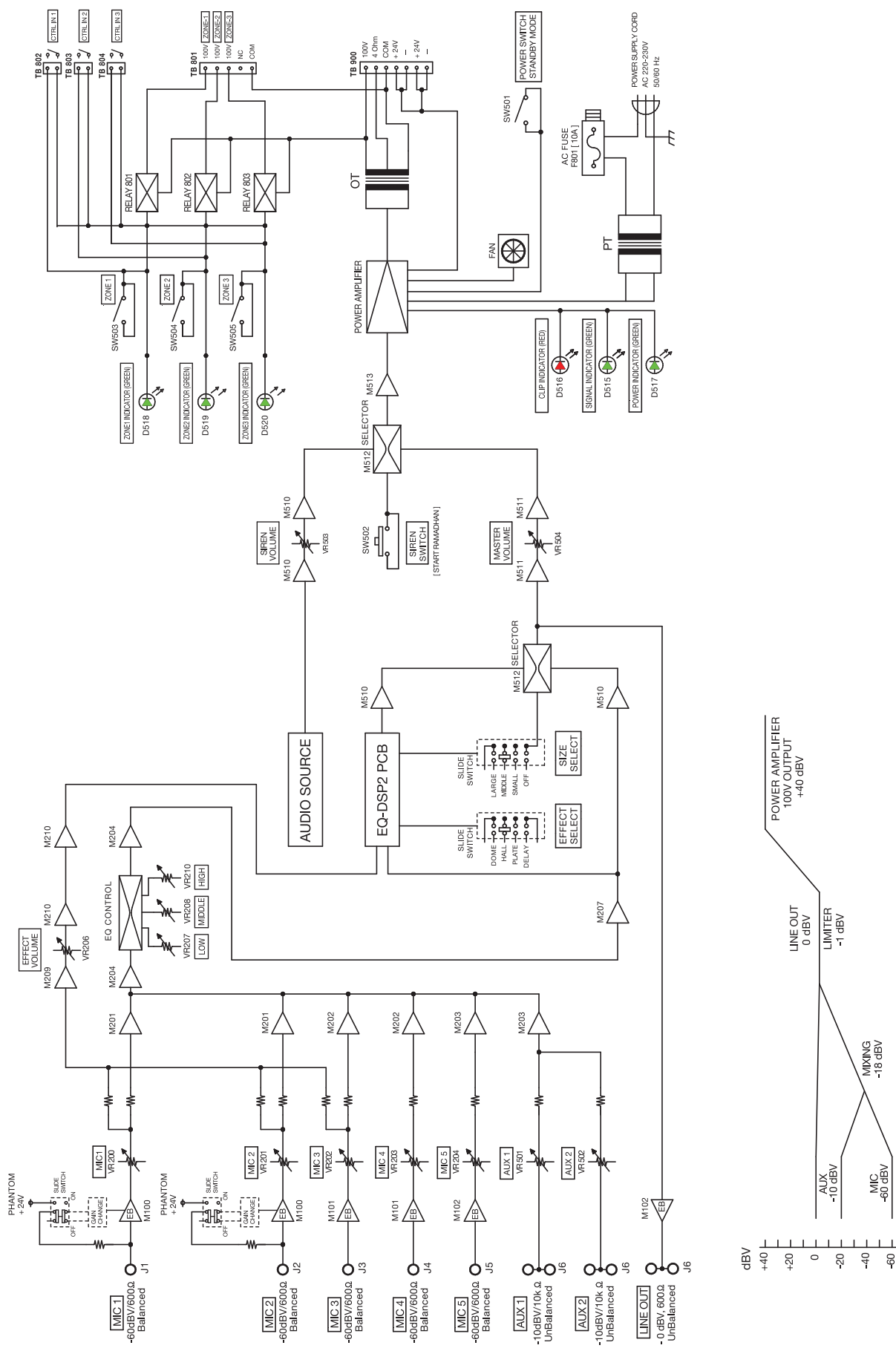
Step 3. Mount the unit on the equipment rack.

Rack-mount installation precautions

- To improve ventilation, ensure that a perforated panel (panel with ventilation openings) of 1-unit size or greater is mounted over and under the unit, as well as on the top and at the bottom of the rack.
- Recommend to use the guide rail to support the rack mounting of the unit.
- Due to the heavy unit, better to install in rack system at lower rack position.
- Rack-mounting screws are not supplied with the unit, prepare them that are appropriate for the equipment rack.

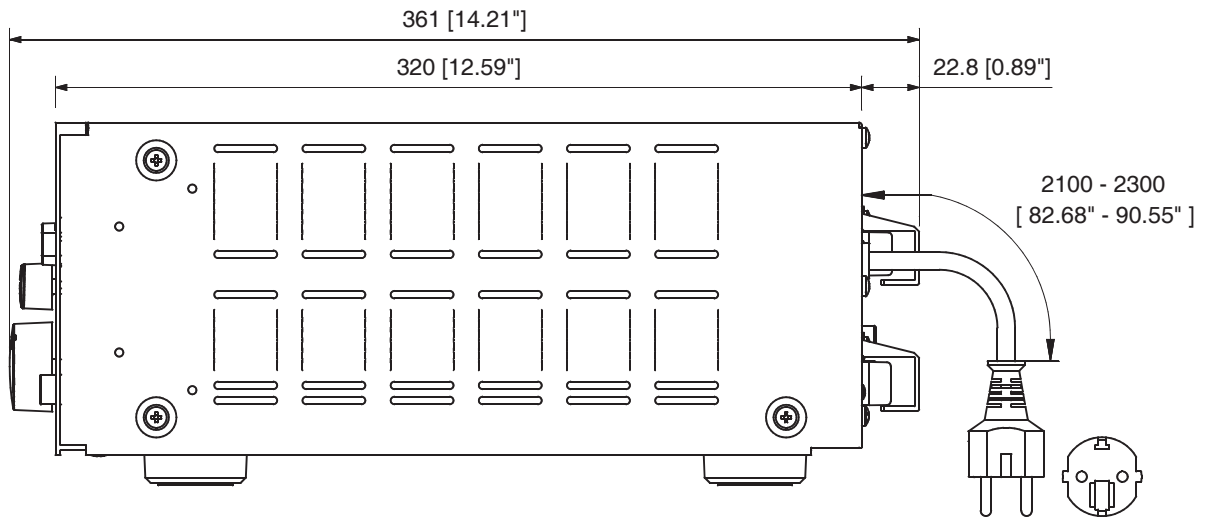
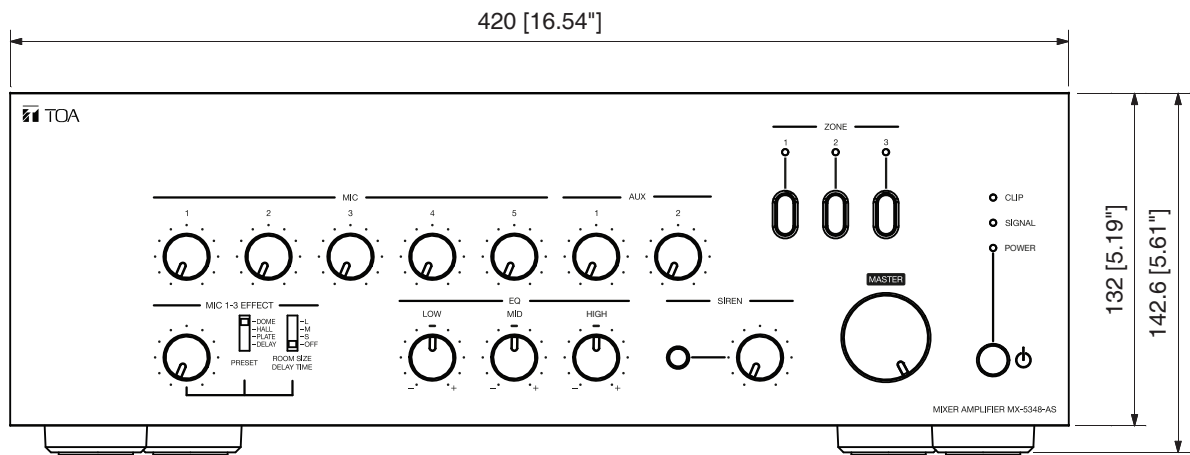


7. BLOCK AND LEVEL DIAGRAMS



8. DIMENSIONAL DIAGRAM

Measurement unit : mm (inch)



9. SPECIFICATIONS

Model No.	MX-5348-AS 1	
Power Source	220 - 230 V AC, 50/60 Hz DC : 24 V DC (Operating range : 19.5 - 27 V) M4 screw type, distance between barrier : 12 mm	
Power Consumption	AC at rated output : 1190 W AC at no signal : 20 W EN 62368-1 : 455 W	
Current Consumption	DC at rated output : 31 A DC at no signal : 0.5 A EN 62368-1 : 11 A	
Rated Output	480 W	
Input	MIC 1 - 2	1 mV ((-50 dB* (24 V Phantom powered)/ -60 dB* (Phantom power OFF)) 600 Ω, Balanced, Phone Jack
	MIC 3 - 5	1 mV (-60 dB*), 600 Ω, Balanced, Phone Jack
	AUX 1 - 2	300 mV (-10 dB*), 10 kΩ, Unbalanced, RCA pin jack
Output	Speaker Out	Speaker Output in screw type terminal
	Speaker Selector	3 Zones, High impedance (100 V line) Individual selector
	Direct Line	High impedance 21 Ω (100 V) Low impedance 4 Ω
	Line Out	0 dB*, 600 Ω, Unbalanced, RCA pin jack
Phantom Power	DC +21 V (MIC 1, MIC 2)	
S/N Ratio	Over 60 dB	
Total Harmonic Distortion	Under 1% at 1 kHz, 1/3 rated power	
Frequency Response	80 Hz - 15000 Hz, ±3 dB, 1 kHz	
Tone Control	Low : ±10 dB at 100 Hz Mid : ±10 dB at 2.5 kHz High : ±10 dB at 12 kHz	
Effect Control	MIC 1 - 3 effect : Effect Control (0% to 100%) of Line out Effect Preset type selection switch (DOME/HALL/PALTE/DELAY) Effect Room size / Delay Time selection switch (L/M/S/OFF)	
Signal Buzzer	Siren One push is one cycle of siren sound	
Indicator	POWER, SIGNAL, CLIP	
Operating Temperature	0 °C to +40 °C (32 °F to 104 °F)	
Ventilation	Fan Cooling	
Finish	Panel : Aluminium, Black, Painting Case : Steel Plate, Black	
Dimensions	420 (w) x 142.6 (h) x 361 (d) mm (16.54" x 5.61" x 14.21")	
Weight	19.0 kg	
Accessory	Removable terminal plug (2 pins) ... 3	

* 0 dB = 1 V

Note : Design and specification are subject to change without prior notice for improvement.

• Optional product

Rack mounting bracket : MB-36