



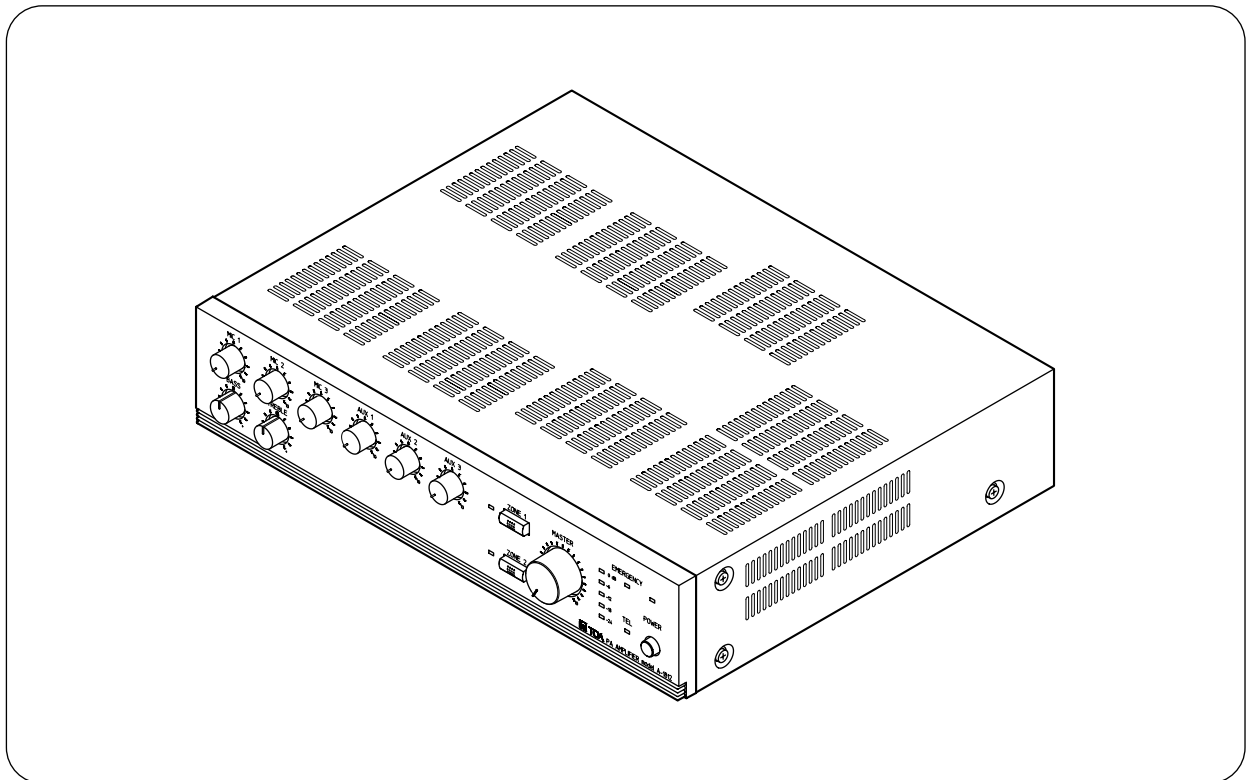
OPERATING INSTRUCTIONS

PA AMPLIFIER

A-1803

A-1806

A-1812



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.

TOA Corporation

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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 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.
 - 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.
- 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 objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.

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.



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.
- 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 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.

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.
- 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.
- 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. GENERAL DESCRIPTION

Equipped with Priority function, Chime function, and 2 Zone selector switches, TOA's A-1803, A-1806, and A-1812 PA Amplifiers are designed to suit PA system applications such as paging announcements, intercommunications, BGM and broadcasting in schools, offices and shops.

3. FEATURES

- Power output of 30 W (A-1803), 60 W (A-1806), and 120 W (A-1812).
- Built-in chime unit (1-tone chime, 2-tone chime, and ascending 4-tone chime)
- Chime can be sounded on use of the MIC 1 input (an optional PM-660D Paging Microphone connectable) or on Telephone paging.
- Priority function provided for inputs as follows:
Emergency input has the highest priority to all inputs. (Contact activation)
Telephone Paging input has precedence over the inputs other than Emergency input.
MIC 1 input has precedence over the inputs other than Emergency and Telephone Paging inputs.
- Emergency function performs as follows:
Closing the contact at the Emergency Control input terminals turns ON the unit's power even if it is OFF, and both Zone selector switches.
- Following audio signal inputs suitable for the intended applications: 3 Microphone inputs, 3 AUX inputs, 1 Emergency input, and 1 Telephone Paging input.
- Phantom-powered Microphone inputs (power ON/OFF switchable).
- Combined XLR/phone jack Microphone inputs for convenient use.
- Electronically-balanced Microphone inputs.
- Speaker selectors for 2-zone broadcast.
- Tone controls (bass and treble).
- Output level meter.
- Master volume control for overall input (excluding the Emergency input) signal level adjustment.
- AC and DC power source.

12. Telephone paging indicator

Lights green when the unit is in Telephone paging mode.

13. AC inlet

Connects to the supplied power cord.

14. Ground terminal

A functional ground terminal.

15. DC input terminals

Connect to a 24 V DC power supply.

16. Output terminals

Connect to speakers. Output signals from the ZONE 1 and 2 output terminals when the front-mounted ZONE 1 and 2 switches (8) are pressed, respectively. Emergency or telephone paging input signals are outputted from both ZONE 1 and 2 terminals irrespective of their selector switch settings while the EMERGENCY or TEL control input terminals (18) remain shorted. The DIRECT output terminal continuously outputs signals irrespective of these switch settings.

17. Remote control output terminals [REMOTE OUT]

Provide an open collector output, which is designed specifically to remotely control the optional P-1812 PA Amplifier's power ON/OFF.

18. Control input terminals [CONTROL]

Accept make contacts to give a priority to the Telephone Paging input or Emergency input.

19. MOH (Music On Hold) output terminals [MOH OUT]

0 dB, 600 Ω , balanced.

Connect to the telephone system. Output signals fed to the AUX 1 (MOH) input (26).

The MOH output will not be subject to the mute control activations through the Emergency and TEL control input terminals, and MIC 1 input terminal.

20. Emergency input terminals [EMERGENCY]

0 dB, 10 k Ω , unbalanced.

An Emergency broadcast input.

21. Telephone paging input terminals [TEL PAGING]

-20 dB, 10 k Ω , electronically-balanced.

Can be converted into transformer-balanced by internal modification.

For modification, refer to p. 13.

22. Recording output terminals [REC OUT]

0 dB, 600 Ω , unbalanced.

Output the signal before the master volume control. Connect a cassette deck, etc. when recording the broadcast contents.

23. Line output terminals [LINE OUT 1, 2]

0 dB, 600 Ω , unbalanced.

Connect to the line input of other equipment. Continuously outputs signals irrespective of the zone selector switch settings. (Factory-preset) Internal modification can change this operation as follows:

Turning on/off the LINE OUT 1 and 2 can be

interlocked with the Zone 1 and 2 selector switches, respectively.

For this modification (p. 13 for details), please consult your TOA dealer.

24. AUX 3 input terminal [AUX 3]

-20 dB, 10 k Ω , unbalanced.

A combined XLR (female)/phone jack connector. Accepts external equipment output signals.

25. AUX 2 input terminal [AUX 2]

-20 dB, 10 k Ω , unbalanced.

Accepts external equipment output signals.

26. AUX 1 (MOH) input terminal [AUX 1 (MOH)]

-20 dB, 10 k Ω , unbalanced.

Accepts external equipment output signals.

Signals fed to this terminal are outputted from the MOH output terminals as well.

27. Microphone input terminals [MIC 1 - 3]

-60 dB, 600 Ω , electronically balanced.

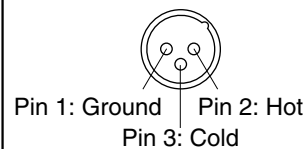
Combined XLR (female)/phone jack connectors.

The MIC 1 has an additional DIN connector for connection of an optional PM-660D Paging Microphone.

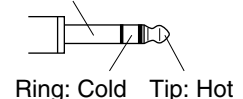
Usable connectors and plugs

• XLR type male connector

• Phone plug



Sleeve: Ground



28. MIC 1 terminal selector switch

Shifting the switch to the right enables the use of combined XLR (female)/phone jack connector, while shifting it to the left enables the DIN connector.

29. MOH volume control

Adjusts the MOH output volume independently of the AUX 1 volume control (4).

30. Emergency volume control

Adjusts the Emergency output volume.

31. Telephone paging volume control [TEL PAGING]

Adjusts the Telephone Paging output volume.

32. Chime volume control [CHIME]

Adjusts the sound volume of the unit's built-in chime.

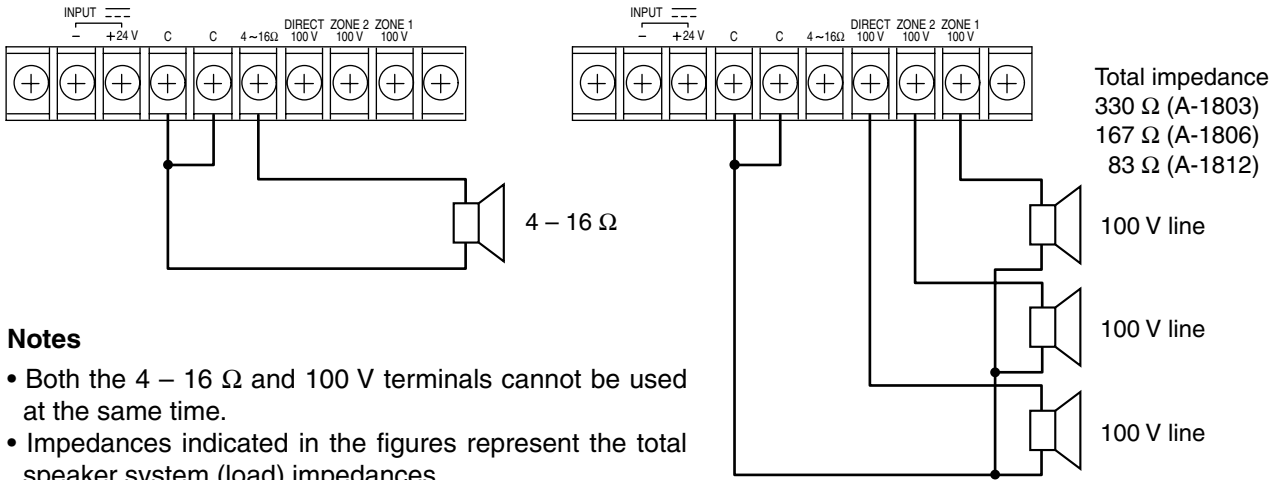
33. Function switch

An 8-bit DIP switch. Selects the following functions:

- (1) Phantom power ON/OFF for each MIC 1-3
- (2) ON/OFF for the MIC 1 voice-activated priority
- (3) ON/OFF for the Telephone Paging voice-activated priority
- (4) Selecting one from 3 different types of chime tones (4-tone chime/2-tone chime/1-tone chime), or chime OFF.

5. CONNECTIONS

5.1. Speaker Connections



Notes

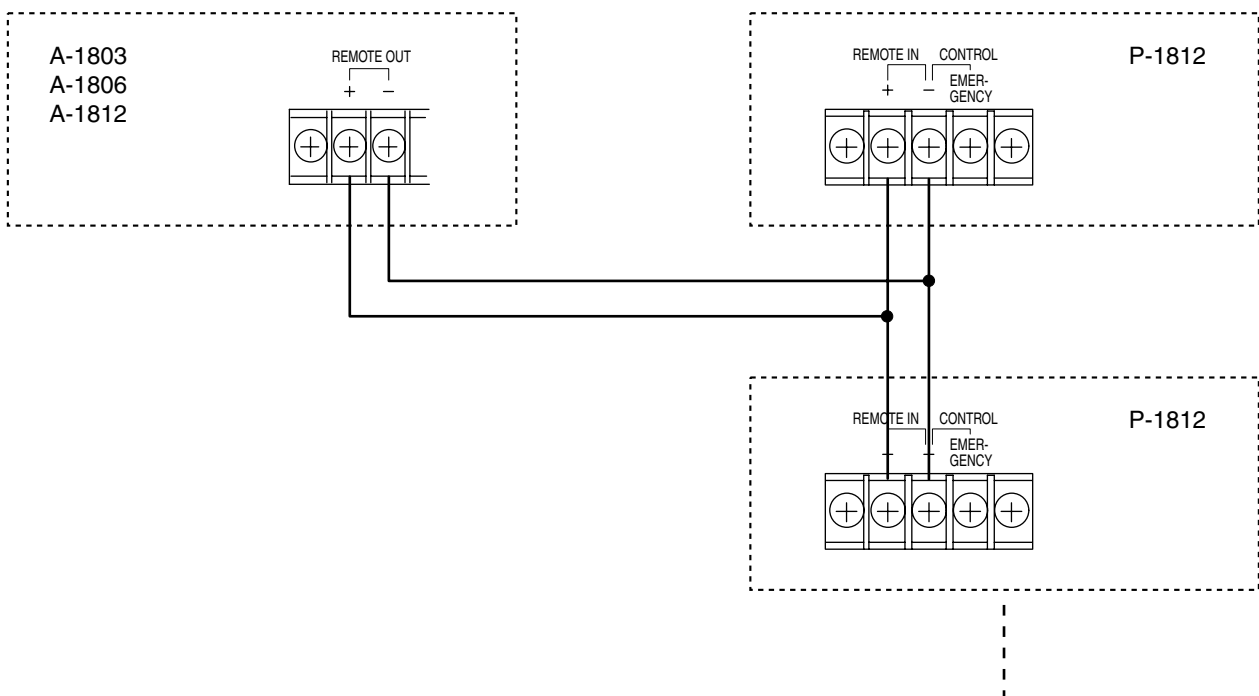
- Both the 4 – 16 Ω and 100 V terminals cannot be used at the same time.
- Impedances indicated in the figures represent the total speaker system (load) impedances.

⚠ WARNING

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

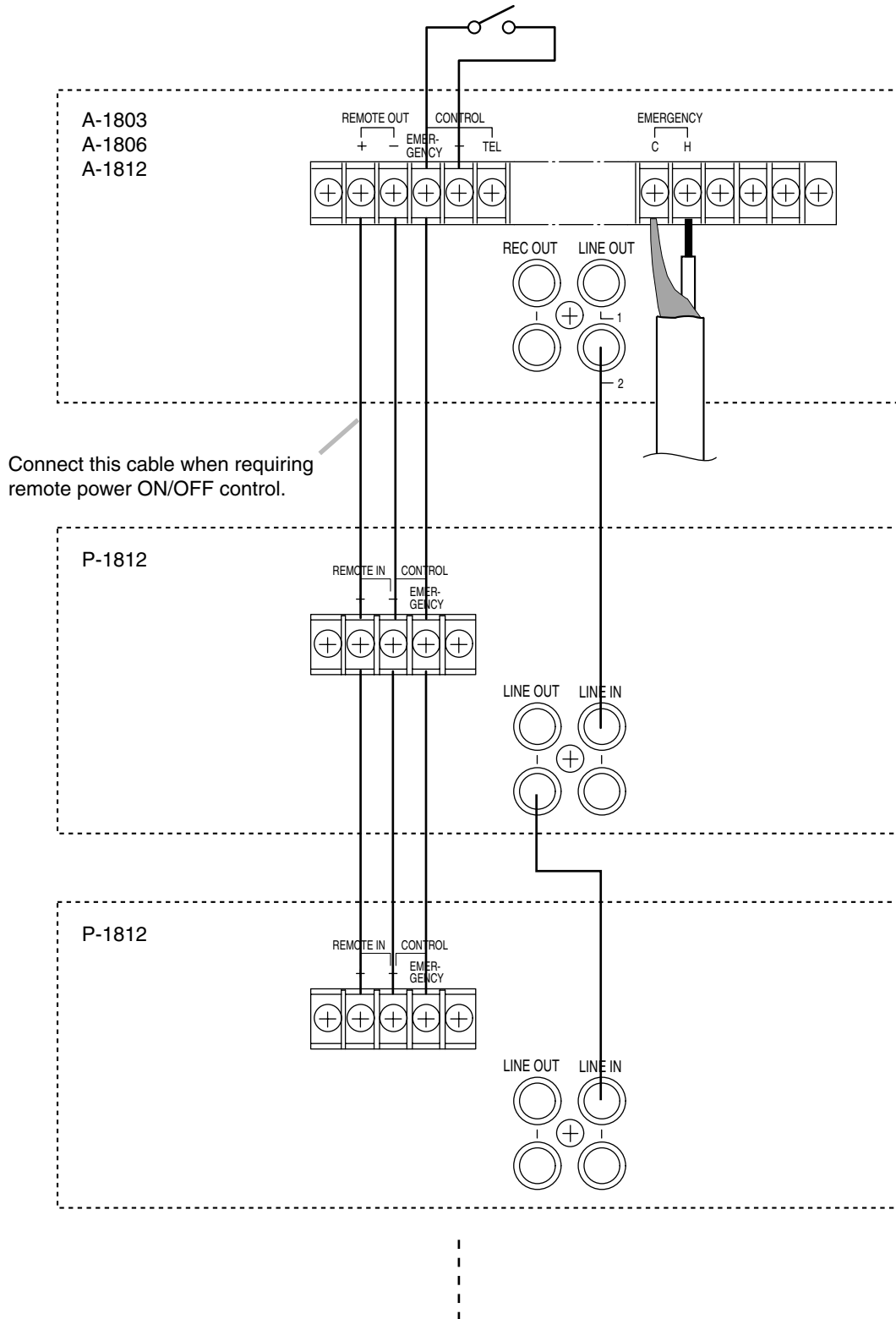
5.2. Remote Power ON/OFF Control Connection

The optional P-1812 PA Amplifier's power can be remotely switched ON or OFF with the power switch operation of the A-1800 series. (This remote control operates only when the P-1812's power is OFF.) Make the Remote IN-OUT terminal connections as shown below.

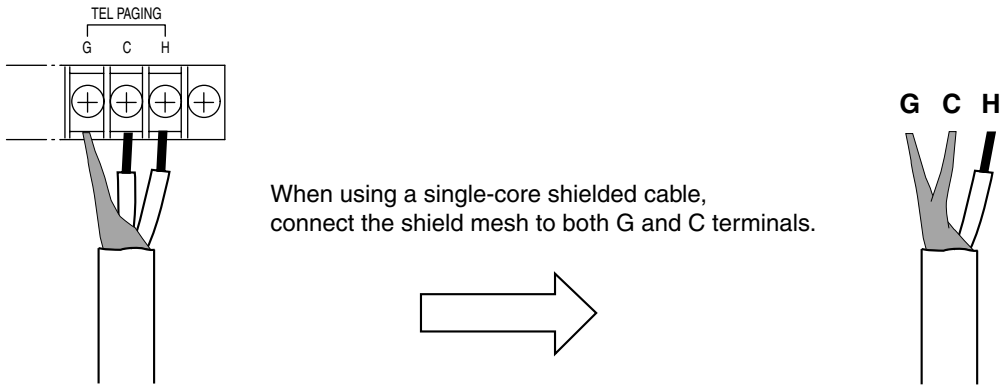


5.3. Emergency Input and Control Input Terminal Connections

While the Emergency control input terminals remain shorted, the power of all the connected A-1800 series and P-1812s is turned on, and the A-1800's ZONE 1 and 2 speaker outputs are enabled, allowing only Emergency input signals to go through bypassing the master volume control. Opening the control input terminals automatically returns the muted signals to the original level.

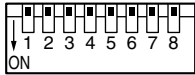


5.4. Telephone Paging Input Terminal Connection



6. FUNCTION SWITCH SETTINGS

Set the rear-mounted Function switch as shown below.



Switch No.	1	2	3	4	5	6	7	8
Function	unused	Chime Selection		TEL PAGING Voice-activated Priority	MIC 1 Voice-activated Priority	Phantom Power		
OFF	unused	See the Chime Selection Table below.		OFF	OFF	OFF	OFF	OFF
ON				ON	ON	ON	ON	ON

[Chime Selection Table]

Switch No.		Chime Tone
2	3	
OFF	OFF	4-Tone Chime
ON	OFF	2-Tone Chime
OFF	ON	1-Tone Chime
ON	ON	OFF

7. CHIME FUNCTION

7.1. MIC 1 Chime Tone

When using the MIC 1's DIN plug, shorting its Pins 4 and 5 allows the chime of type selected with the Function switch setting to sound.

7.2. Telephone Paging Chime Tone

Shorting the Telephone Paging Control input terminals allows the chime of type selected with the Function switch setting to sound.

8. PRIORITY FUNCTIONS

8.1. Telephone Paging Input (voice-activated priority)

With the Function switch No. 4 set to ON, voices applied to the Telephone Paging input terminals mute the input signals other than Telephone paging and Emergency input signals.

After completion of the paging announcements, the muted signals automatically return to the original level.

8.2. Microphone Input (voice-activated priority)

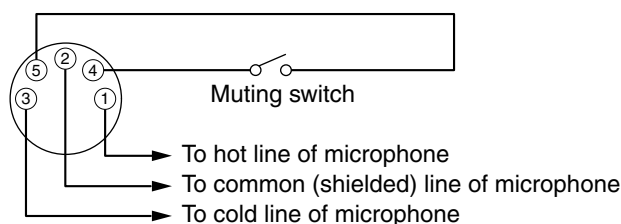
With the Function switch No. 5 set to ON, voices applied to the MIC 1 input terminal mute the input signals other than MIC 1, Telephone Paging, and Emergency input signals.

After completion of the microphone announcements, the muted signals automatically return to the original level.

8.3. Paging Microphone Input

With the MIC 1 terminal selector switch set to the left position (DIN connector input), shorting the connector Pins 4 and 5 sounds the chime of type selected with the Function switch setting and mutes the input signals other than MIC 1, Telephone Paging, and Emergency input signals.

Opening the Pins 4 and 5 automatically returns the muted signals to the original level.



8.4. Emergency Control Input

Shorting the Emergency Control input terminals turns on the power, even if off, and enables both ZONE 1 and 2 speaker outputs, muting all input signals other than the Emergency input signals, which go through bypassing the master volume control.

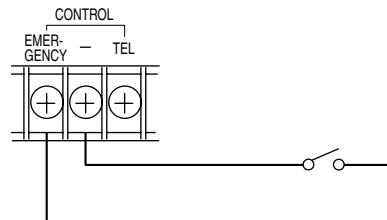
Opening the control input terminals automatically returns the muted signals to the original level.

Internal modification can change this Emergency control function as follows:

Shorting the control terminals forces the power to turn off, disabling broadcast from the unit.

Opening the terminals returns the unit operation to the original broadcast status.

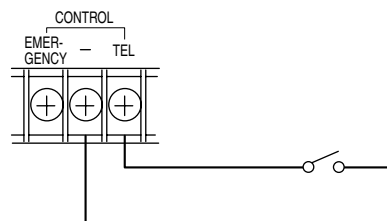
For this modification (p. 13 for details), please consult your TOA dealer.



8.5. Telephone Paging Control Input

Shorting the Telephone Paging Control input terminals sounds the chime of type selected with the Function switch setting and enables both ZONE 1 and 2 speaker outputs, muting the input signals other than Telephone Paging and Emergency input signals.

Opening the control input terminals automatically returns the muted signals to the original level.



9. SPEAKER ZONE SELECTION

Pressing the front-mounted ZONE 1 switch permits its zone indicator to light and makes broadcast through the speakers connected to the rear-mounted Zone 1 output terminals.

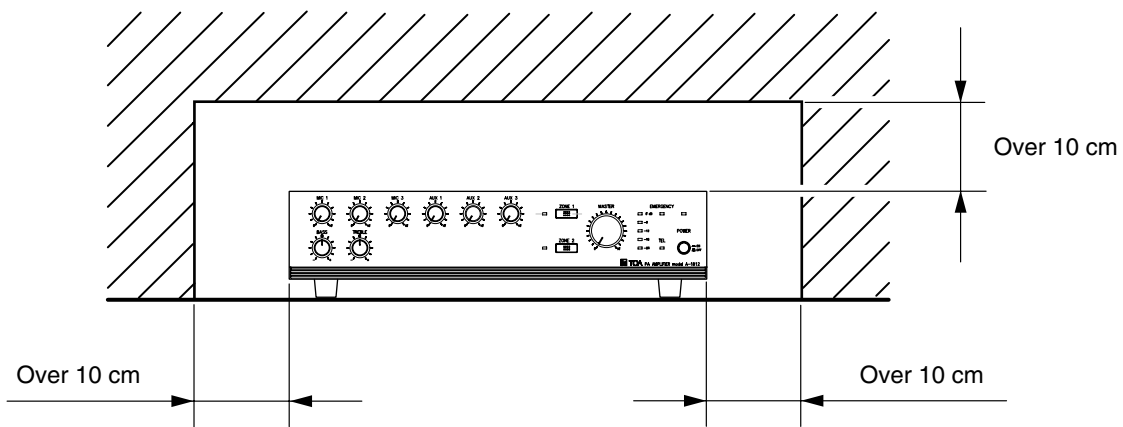
Operation for ZONE 2 is performed in the same way as above.

Shorting the Emergency Control or Telephone Paging Control input terminals turns on both Zone 1 and 2 switches (their indicators light), even if off, allowing the Emergency or Telephone Paging input signals to be broadcast from both ZONE 1 and 2 speaker outputs.

Opening the control input terminals automatically returns the operation to the original status.

10. INSTALLATION

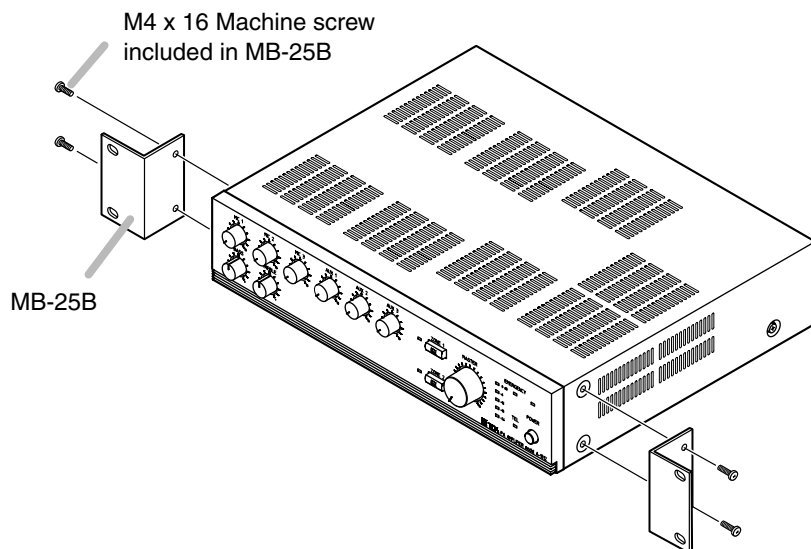
Keep the unit's all sides over 10 cm away from objects that may obstruct air flow to prevent the unit's internal temperature rise.



11. RACK MOUNTING

To mount the unit in a standard 19" equipment rack, use the optional MB-25B Rack Mounting Bracket.

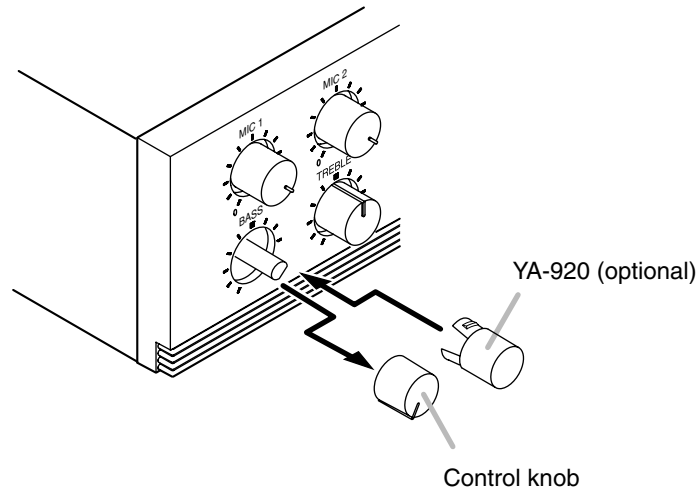
Attach the MB-25B to the unit using the supplied 4 screws. When using other screws, each screw must be shorter than 16 mm.



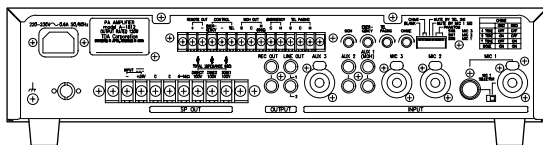
12. CONTROL SETTINGS

Output levels are adjustable with individual volume controls. For music play or announcements, adjust the corresponding volume control so that the red indicator doesn't light. Note that the sound quality is downgraded when the red indicator remains lit.

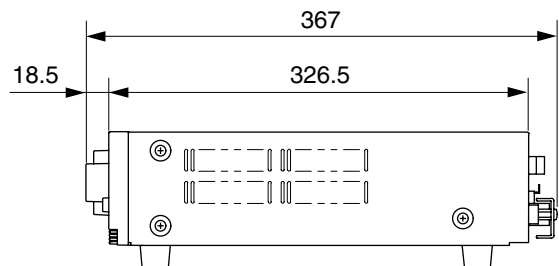
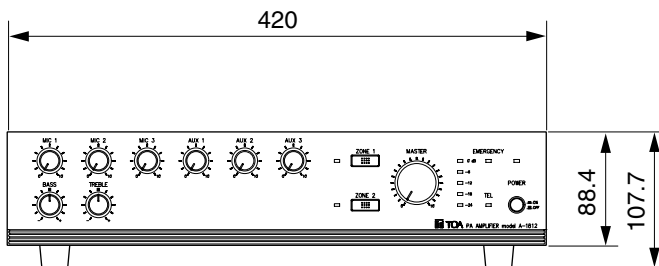
To prevent the accidental change of the settings of input volume and tone (Bass and Treble) controls, remove their knobs after setting them to the desired position and attach the optional YA-920 Volume Control Covers instead.



13. DIMENSIONAL DIAGRAM (Applicable to all models)



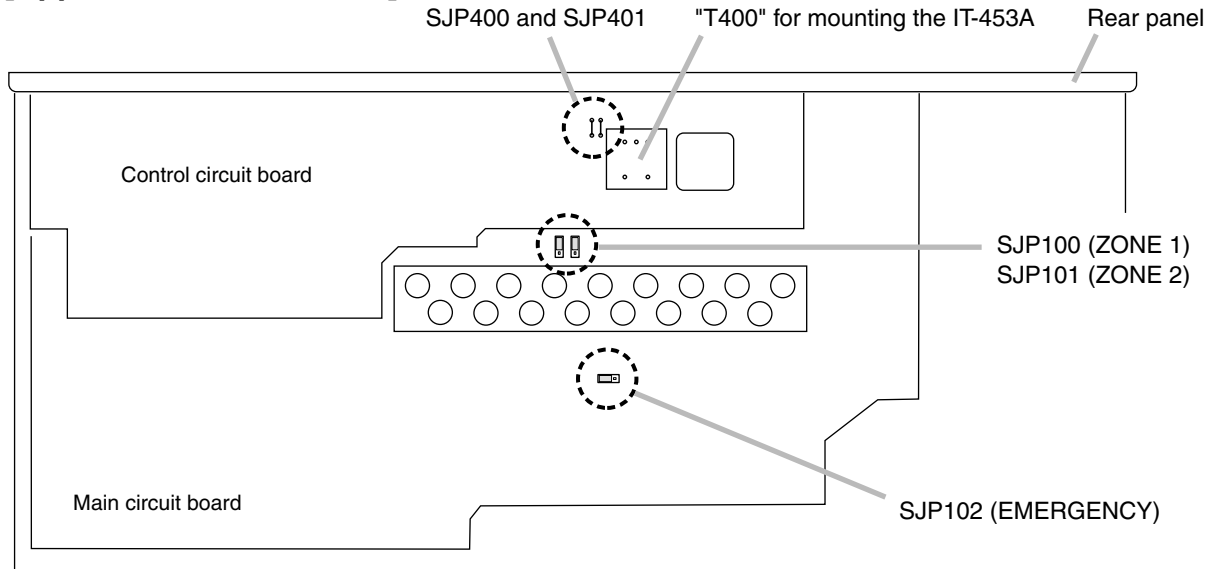
Unit: mm



14. INTERNAL MODIFICATIONS

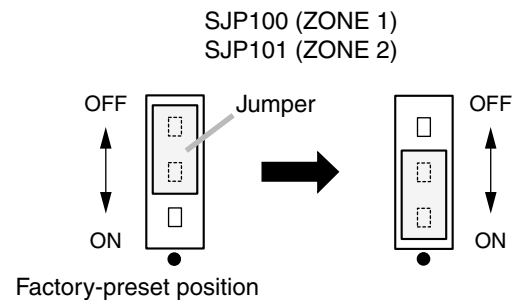
Leave the modifications described here to a qualified service technician only.
Please consult your TOA dealer.

[Upper view without case]



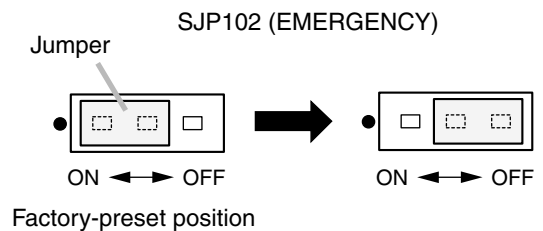
14.1. Turning On/Off LINE OUT 1 (2) in conjunction with ZONE 1 (2) Selector Switch

- To interlock LINE OUT 1 with ZONE 1 switch, install the SJP100 jumper to "ON" position.
- To interlock LINE OUT 2 with ZONE 2 switch, install the SJP101 jumper to "ON" position.



14.2. Turning the Power Off to Disable Broadcast with EMERGENCY Control Activation

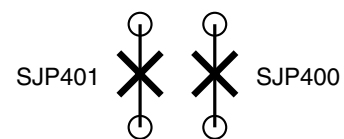
Install the SJP102 jumper to "OFF" position.



14.3. Convert TEL PAGING Input into Transformer-Balanced Type

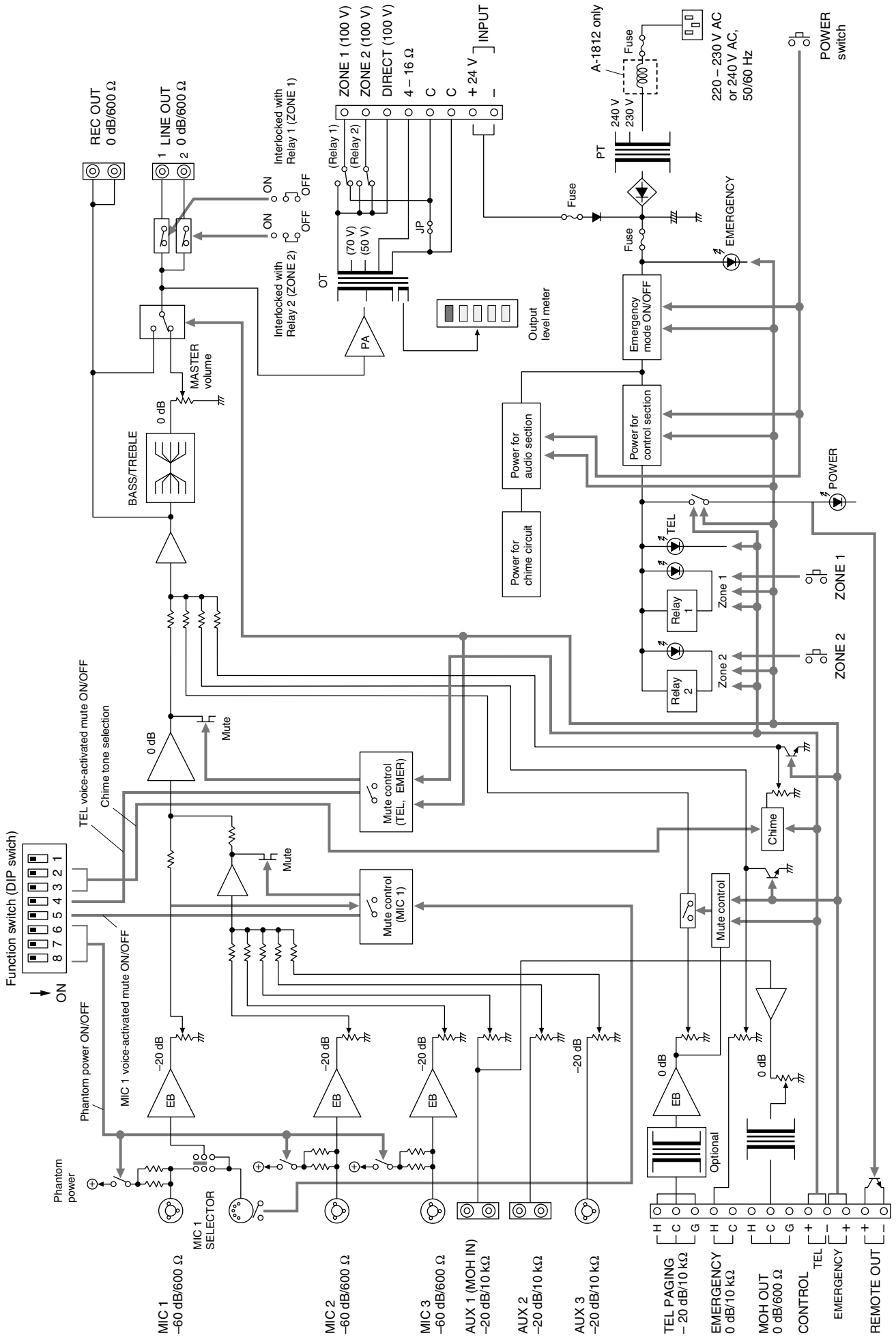
Step 1. Cut the jumpers SJP400 and SJP401.

Note: Treat the cut jumper pieces, especially SJP400's pieces, so that they will not touch the transformer case to be installed in the next step.



Step 2. Install and solder the optional IT-453A Input Transformer in place of "T400" indication on the Control circuit board.

15. BLOCK DIAGRAM



16. SPECIFICATIONS

Model No.	A-1803	A-1806	A-1812
Power Source	220 – 230 V AC or 240 V AC, 50/60 Hz 24 V DC (M4 screw terminal*1)		
Rated Output	30 W	60 W	120 W
Power/Current Consumption	AC operation: 80 W (rated output), 37 W (EN60065) 24 V DC operation: 2.0 A (rated output), 1.0 A (EN60065)	AC operation: 158 W (rated output), 66 W (EN60065) 24 V DC operation: 3.8 A (rated output), 1.6 A (EN60065)	AC operation: 260 W (rated output), 110 W (EN60065) 24 V DC operation: 7.0 A (rated output), 2.8 A (EN60065)
Frequency Response	50 – 20,000 Hz (± 3 dB)		
Distortion	Under 2% at 1 kHz, rated power		
Input	MIC 1: –60 dB*2, 600 Ω , electronically-balanced, combined type of XLR-3-31 equivalent and phone jack, DIN socket (5 pins) MIC 2 – 3: –60 dB*2, 600 Ω , electronically-balanced, combined type of XLR-3-31 equivalent and phone jack AUX 1 (MOH): –20 dB*2, 10 k Ω , unbalanced, RCA pin jack AUX 2: –20 dB*2, 10 k Ω , unbalanced, RCA pin jack AUX 3: –20 dB*2, 10 k Ω , unbalanced, combined type of XLR-3-31 and phone jack TEL *3: –20 dB*2, 10 k Ω , electronically-balanced, M3 screw terminal*1 EMERGENCY: 0 dB*2, 600 Ω , unbalanced, M3 screw terminal*1		
Output	REC: 0 dB*2, 600 Ω , unbalanced, RCA pin jack LINE 1, 2*4: 0 dB*2, 600 Ω , unbalanced, RCA pin jack MOH: 0 dB*2, 600 Ω , transformer balanced, M3 screw terminal*1 SPEAKER SELECTOR: 2 zone, high impedance*5 (100 V line), individual selector switch, M4 screw terminal*1 DIRECT SPEAKER OUT: High impedance*5 (100 V line), M4 screw terminal*1, Low impedance (4 – 16 Ω), M4 screw terminal*1 Note: Both Low and High impedance terminals cannot be used at the same time.		
Phantom Power	ON or OFF for each MIC 1 – 3 with switch setting		
S/N Ratio (Band Pass: 20 – 20,000 Hz)	Over 100 dB (Master volume: min) Over 76 dB (Master volume: max) Over 60 dB (MIC 1 – MIC 3) Over 76 dB (AUX 1 – AUX 3) Over 90 dB (TEL) Over 96 dB (EMERGENCY)		
Tone Control	Bass: ± 10 dB at 100 Hz, Treble: ± 10 dB at 10 kHz		
Control Input	TEL: No-voltage make contact input Open voltage: 24 V DC Short-circuit: under 5 mA, M3 screw terminal*1 EMERGENCY*6: No-voltage make contact input Open voltage: 24 V DC Short-circuit: under 10 mA, M3 screw terminal*1		
Control Output	Power remote: Open collector output Withstand voltage: 35 V DC Control current: under 50 mA, M3 screw terminal*1		
Chime	1-tone, 2-tone, or ascending 4-tone chime, or None selectable with switch setting, activated at MIC 1's DIN or CONTROL TEL terminal.		
Indicator	5-point LED output level meter, Power indicator LED, Zone indicator LEDs, Emergency LED, TEL LED		

Model No.	A-1803	A-1806	A-1812
Priority	EMERGENCY: Overrides other inputs TEL: Overrides other inputs except 'EMERGENCY', ON/OFF selectable with switch setting MIC 1: Overrides other inputs except 'EMERGENCY' and TEL', ON/OFF selectable with switch setting		
Operating Temperature	-10°C to +40°C		
Finish	Panel: ABS resin, black, hair line Case: Steel plate, black		
Dimensions	420 (w) x 107.7 (h) x 367 (d) mm		
Weight	8.1 kg	9.4 kg	12.6 kg

*1 Distance between barriers on the above screw terminals: 7 mm (M3 screw), 9 mm (M4 screw)

*2 0 dB = 1 V

*3 Can be transformer-balanced with the addition of optional IT-453A input transformer.

*4 LINE 1 and LINE 2 outputs can be interlocked with ZONE 1 and ZONE 2 speaker selectors, respectively.

*5 330 Ω (A-1803), 167 Ω (A-1806), 83 Ω (A-1812)

*6 Operation when activated can be selected from the following: Turning ON the unit's power (factory-preset) or OFF.

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

• **Accessories**

AC power cord 1
Terminal cover 1
Terminal cover mounting screw (M4 x 8) 2

• **Optional products**

Rack mounting bracket: MB-25B
Volume control cover: YA-920
Input transformer: IT-453A (Available as a service part, whose part code is "114-03-118-30.")