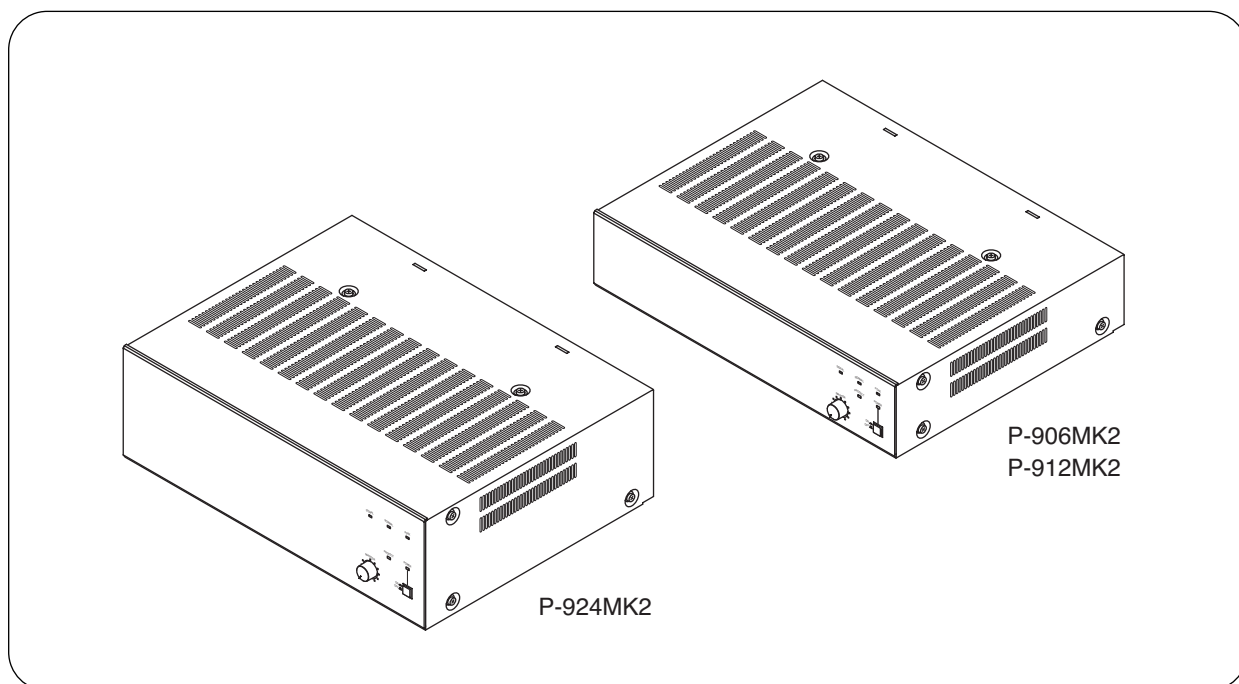


**900 series II
POWER AMPLIFIERS**
**P-906MK2
P-912MK2
P-924MK2**

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Thank you for purchasing TOA's 900 Series II Power 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 replace the unit's 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 optional Rack mounting bracket MB-25B (P-906MK2 and P-912MK2) or MB-35B (P-924MK2) 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 M4 x 16 screws (supplied with the bracket) 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.
- 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.

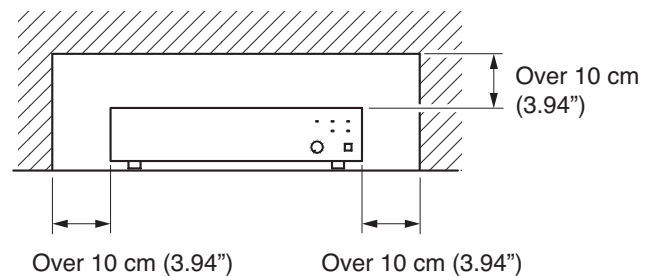


CAUTION

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.
- 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.
- 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 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.
- 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.
- 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.



The lighting 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-906MK2 (rated output: 60 W), P-912MK2 (120 W), and P-924MK2 (240 W) Power Amplifiers feature a high-impedance direct input terminal and an input port that permits the use of various optional plug-in modules. The most appropriate plug-in module can be selected depending on applications.

The power amplifiers have a low-cut switch for a cutoff frequency of 60 Hz, and an input level switch for input sensitivity of 0 dBV (1 V) or -20 dBV (100 mV). The speaker output terminals are designed to match 25 V or 70 V line and 4 Ω or 8 Ω speaker systems.

Each Power Amplifier can be mounted in an EIA equipment rack with the addition of the optional rack mounting bracket MB-25B (P-906MK2 and P-912MK2) or MB-35B (P-924MK2). The optional perforated panel PF-511 provides suitable ventilation, finished in black color to match the Power Amplifiers.

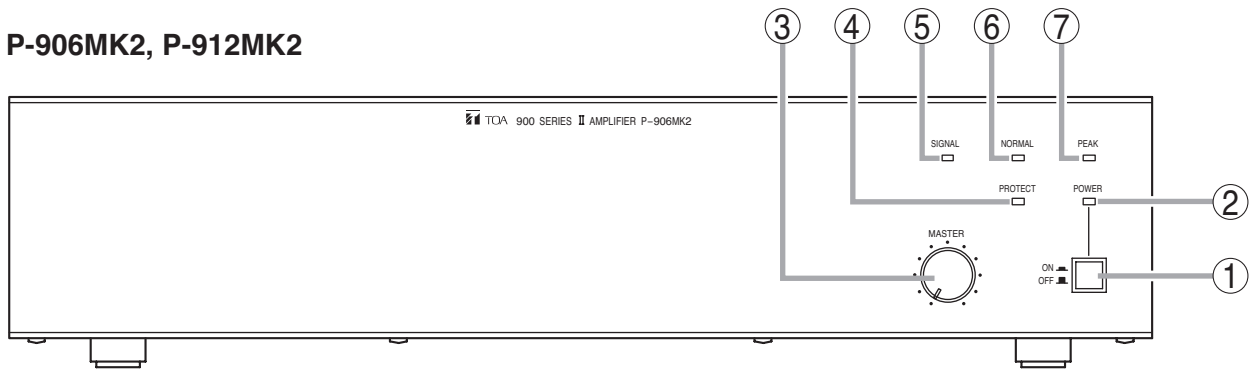
4. FEATURES

- A wide frequency response of 20 to 20,000 Hz (± 1 dB)
- Low distortion and low noise level
- Usable a wide range of plug-in optional modules
- Built-in protection circuitry
- Input level switch (selectable 0 dBV or -20 dBV)
- Mountable in a standard 19" equipment rack (rack mounting bracket: optional)

5. NOMENCLATURE AND FUNCTIONS

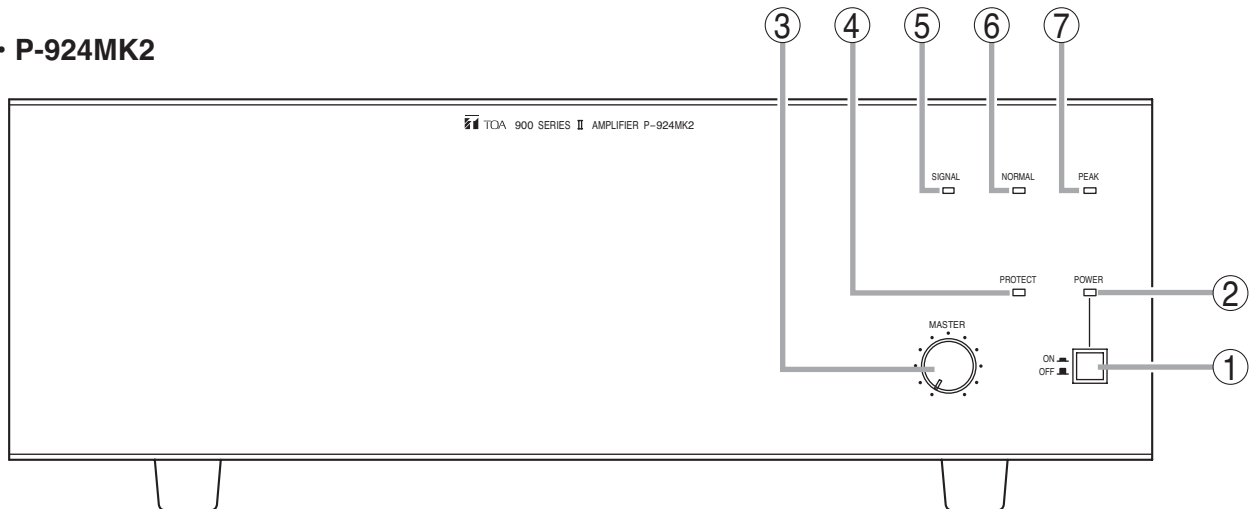
[Front]

• P-906MK2, P-912MK2



This figure represents the P-906MK2.

• P-924MK2



1. Power switch [ON / OFF]

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

2. Power indicator [POWER] (Green)

Lights green when the Power switch (1) is switched on.

3. Master volume control [MASTER]

Adjusts gain of input.

4. Protection indicator [PROTECT]

Lights red if the built-in protection circuit works. This indicator remains lit for about 5 seconds after the power has been switched on.

5. Signal indicator [SIGNAL] (Green)

Lights green when sound is output from the speaker output terminals.

6. Normal indicator [NORMAL] (Yellow)

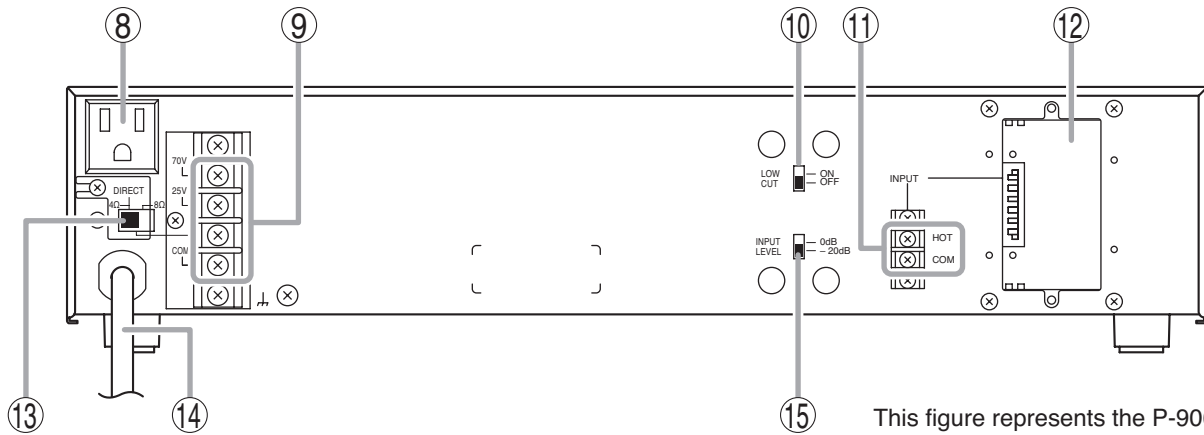
Lights yellow when the output sound volume is appropriate.

7. Peak indicator [PEAK] (Red)

Lights red if input signals approach clipping level. If steady lit, turn down the Input volume control until the indicator flashes only intermittently.

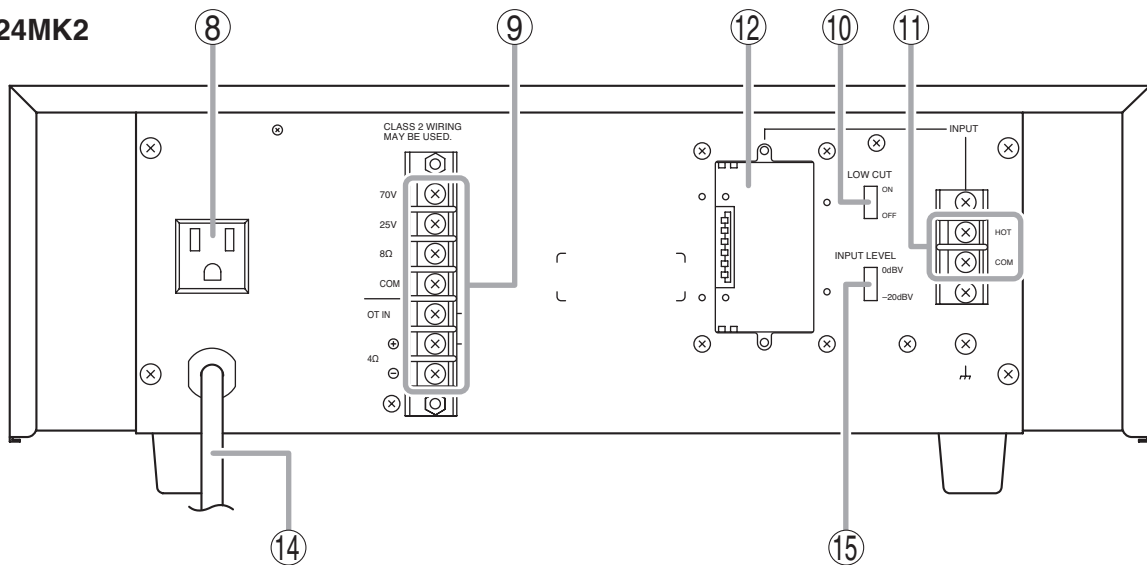
[Rear]

• P-906MK2, P-912MK2



This figure represents the P-906MK2.

• P-924MK2



8. AC outlet (Unswitched)

Provides AC power to auxiliary equipment with power consumption of less than 500 W.

9. Speaker output terminals

Connect speaker cables to these terminals.

10. Low-cut switch [LOW CUT ON/OFF]

Set this switch to the ON position to cut off unnecessary low frequencies.

11. Direct input terminal [INPUT]

0 dBV (1 V) or -20 dBV (100 mV) switchable, 10 k Ω , unbalanced.

Connect the line output of the external equipment directly to this terminal.

The Direct input terminal cannot be used simultaneously with the Module input port.

12. Module input port

Accepts one of 900 series plug-in modules. For the selection of the most appropriate module, refer to Plug-in Module Instruction manual.

13. Impedance selector switch [DIRECT] (P-906MK2, P-912MK2 only)

Placing the switch in the "8 Ω " position enables transformer-balanced 25 V, 70 V, or low-impedance (8 Ω) speaker connection. Placing it in the "DIRECT 4 Ω " position enables only unbalanced low-impedance speaker connection. For the use of this switch, refer to p. 9, "Speaker Connections."

14. AC power cord

Connect this cord to an AC wall outlet.

15. Input level switch [INPUT LEVEL]

Select the appropriate input level "0 dBV" (1 V) or " -20 dBV" (100 mV) depending on the module to be used or equipment to be connected to the Direct input terminal (11).

Normally place the switch in the "0 dBV" position when using the unit as an incremental power amplifier.

6. INSTALLATION AND CONNECTIONS

6.1. Input Connections

- Two types of input terminals are made available on the rear panel for input connections: Direct input terminal and plug-in module port.

(1) Direct input terminal (HOT, COM)

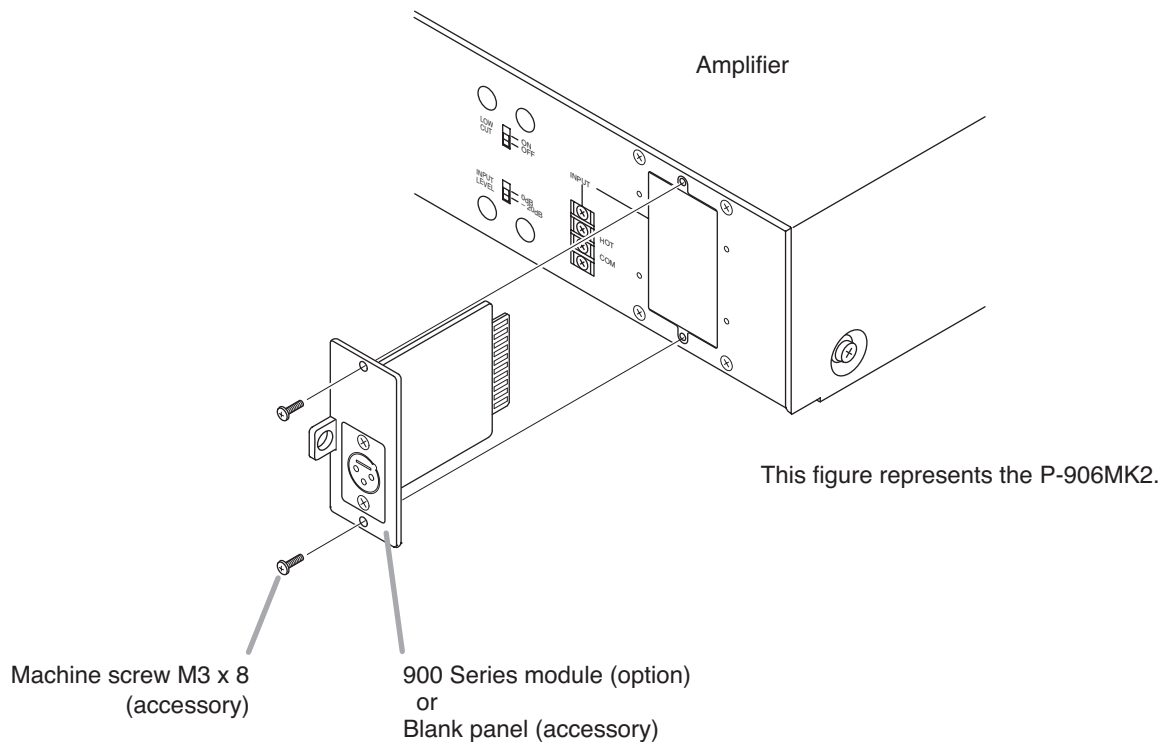
0 dB (1 V) or -20 dBV (100 mV) switchable, 10 k Ω , unbalanced, 2P screw terminal.
Line output of the external equipment can be connected directly to this terminal.

(2) Plug-in module input

Select a desired 900 series plug-in module depending on applications.

Note: The Direct Input terminal cannot be used simultaneously with the Plug-in module input.

- Plug the module fully into the input port by sliding it along the upper and lower guide rails, then secure with 2 screws.
- When the Module input port is not used, be sure to cover it with the blank panel attached to the unit.
- Be sure to set the Input Level switch to the proper position depending on the output level of the module used or the equipment connected to the Direct Input terminal.
- When using the unit in combination with a mixer preamplifier or as a booster amplifier, place Input Level switch in the "0 dBV" (1 V) position.
- Be sure to switch off the unit's power when inserting or removing the module. Failure to do so may cause the module to fail.



6.2. Speaker Connections

The unit has 25 V and 70 V outputs for constant voltage speaker system and low impedance output for 4 Ω or 8 Ω speaker loads. Two types of speaker output are available: transformer-balanced output and unbalanced direct output, which can be selected by the impedance selector switch (P-906MK2 and P-912MK2 only) or the jumper strip (P-924MK2 only) position.

Connect the speaker system to only one of the speaker outputs.

The speaker connection method differs with amplifier models and their applications.

Refer to the following connection diagrams described for each model.

Impedances indicated in the diagram mean total speaker load impedance.



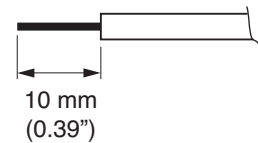
WARNING

The terminals marked with the symbol ⚡ are hazardous live. The external wiring to these terminals requires installation by an instructed person.

[Connection of speaker cable]

Step 1. Unscrew the terminal cover.

Step 2. Strip 10 mm (0.39") of insulative jacket from the end of the speaker cable, as shown in the figure at right.



Step 3. Connect speaker cables to the speaker output terminals.

Step 4. Replace the terminal cover.

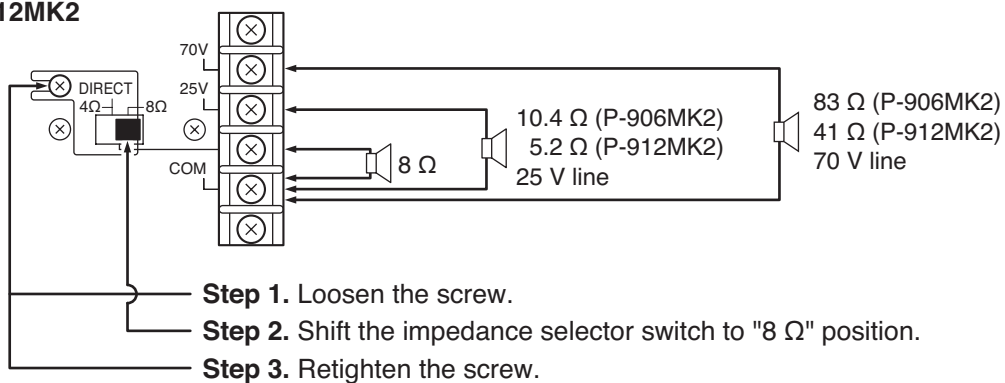


WARNING

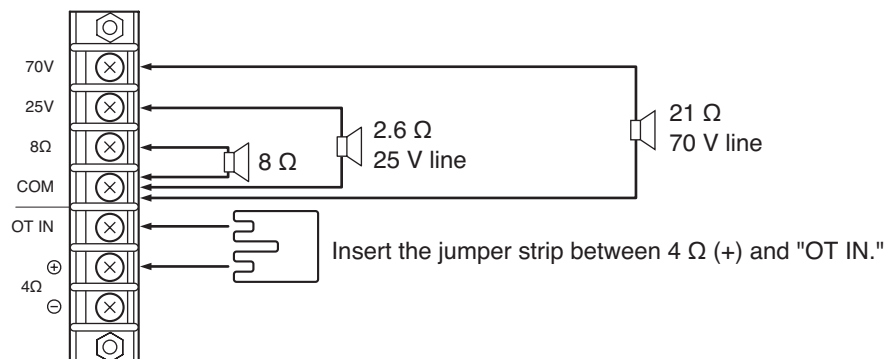
Be sure to replace the terminal cover after connection completion. Because high voltage is generated at the speaker output terminals, never touch these terminals to avoid electric shock.

6.2.1. Connection to 8 Ω, 25 V, or 70 V output (transformer-balanced output)

• P-906MK2, P-912MK2



• P-924MK2

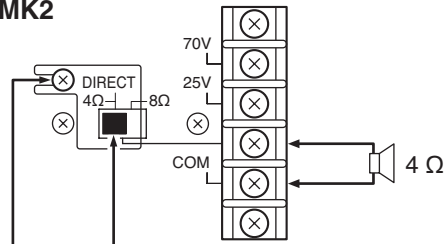


Note

It is highly recommended that the low-cut switch be placed in the CUT position to cut off unnecessary low frequency. This is because the built-in transformer cannot produce low frequencies though the unit has flat response even in low-frequency range.

6.2.2. Connection to 4 Ω output (unbalanced direct output)

• P-906MK2, P-912MK2

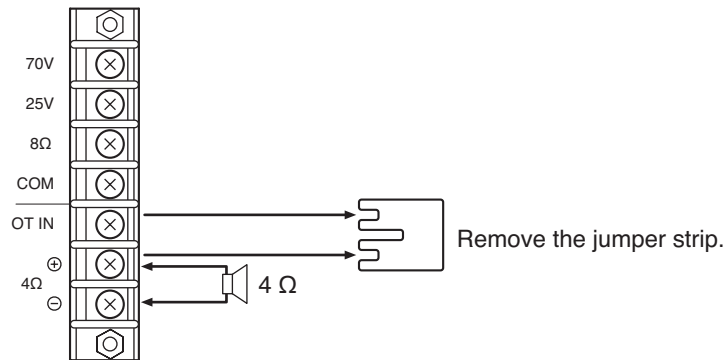


Step 1. Loosen the screw.

Step 2. Shift the impedance selector switch to "4 Ω" position.

Step 3. Retighten the screw.

• P-924MK2

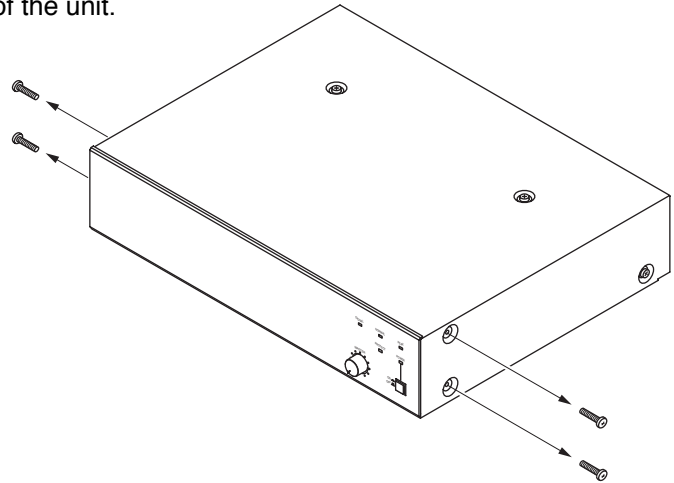


7. RACK MOUNTING BRACKET ATTACHMENT

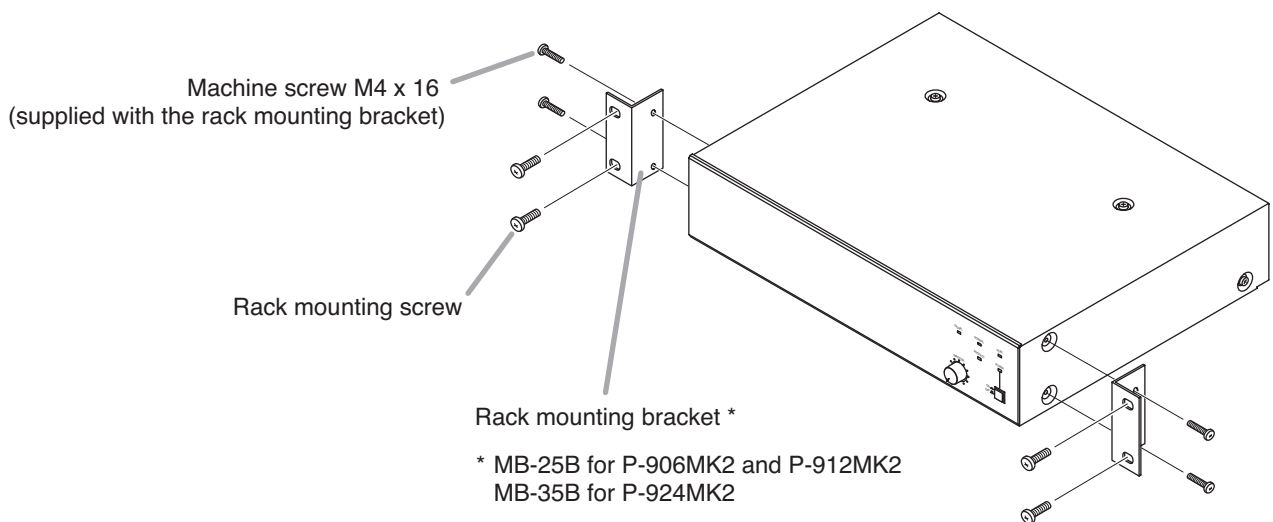
Each Power Amplifier can be mounted in a standard 19" equipment rack with the addition of the optional rack mounting bracket MB-25B (P-906MK2 and P-912MK2) or MB-35B (P-924MK2).

Step 1. Remove 4 plastic feet on the bottom surface when mounting the unit in a rack.

Step 2. Remove four M4 x 8 screws on both sides of the unit.
The removed screws are not used.



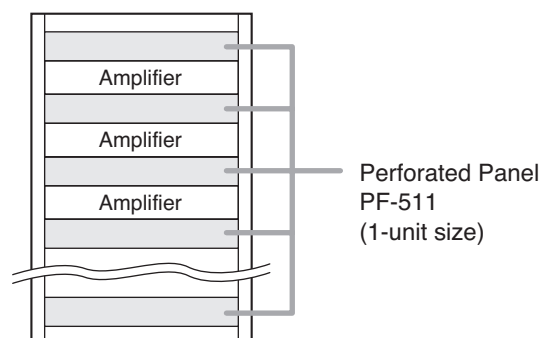
Step 3. Attach the brackets to the amplifier using four M4 x 16 Machine screws supplied with the bracket.



Notes

- 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 the optional PF-511 Perforated Panel (1U*):
 - (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)



8. OPERATION

Be sure to complete all connections before operation.

Step 1. Press the power switch to turn on the power.

The power indicator lights green. The amplifier comes into operation about 5 seconds after the power has been switched on.

Step 2. Adjust the master volume control for the optimum level.

Turn the knob clockwise to increase the output level and counterclockwise to decrease it.

[When the unit is used for normal music playing or announcement]

Adjust the master volume control so that the Normal Indicator intermittently lights. Sound quality is downgraded when the Peak Indicator remains lit.

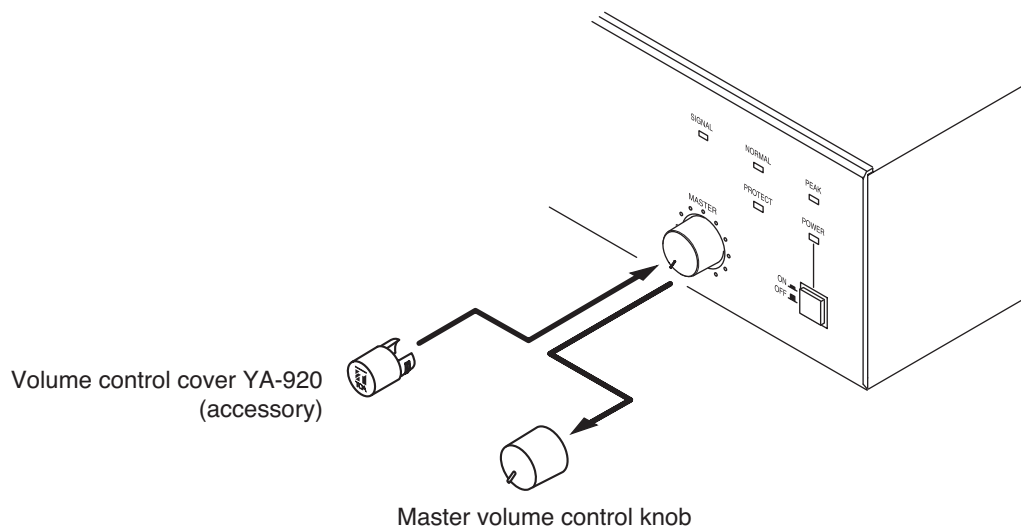
[When the unit is used in combination with a mixer preamplifier]

Adjust the total gain with the master volume control of the mixer preamplifier.

In this case, leave the master volume control of the power amplifier set at the fully clockwise position (maximum gain level).

9. VOLUME CONTROL COVER

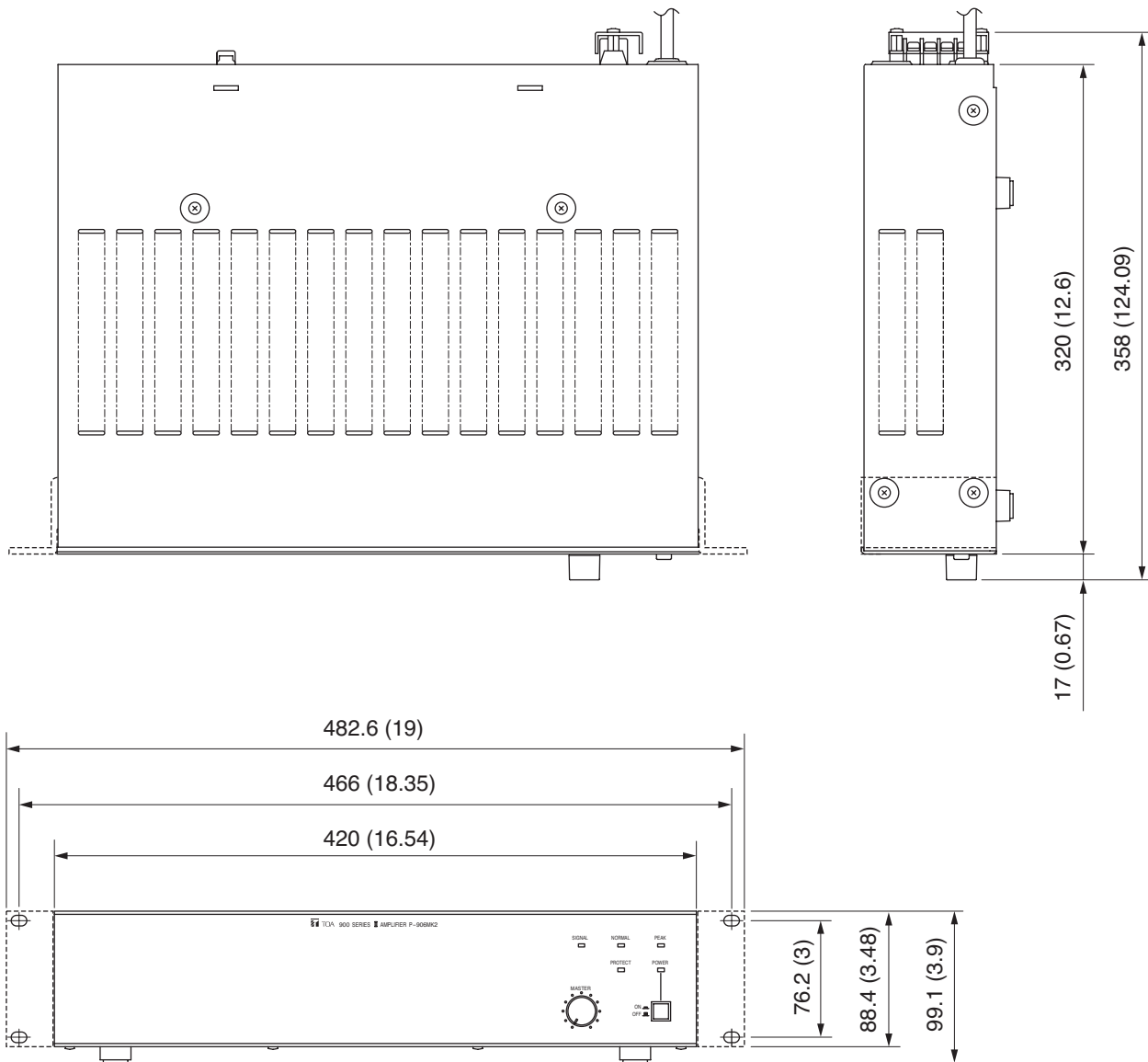
To prevent the accidental change of the setting of the Master volume control, remove the knob after setting it to the desired position and attach the optional cover YA-920 instead.



10. DIMENSIONAL DIAGRAMS

10.1. P-906MK2, P-912MK2

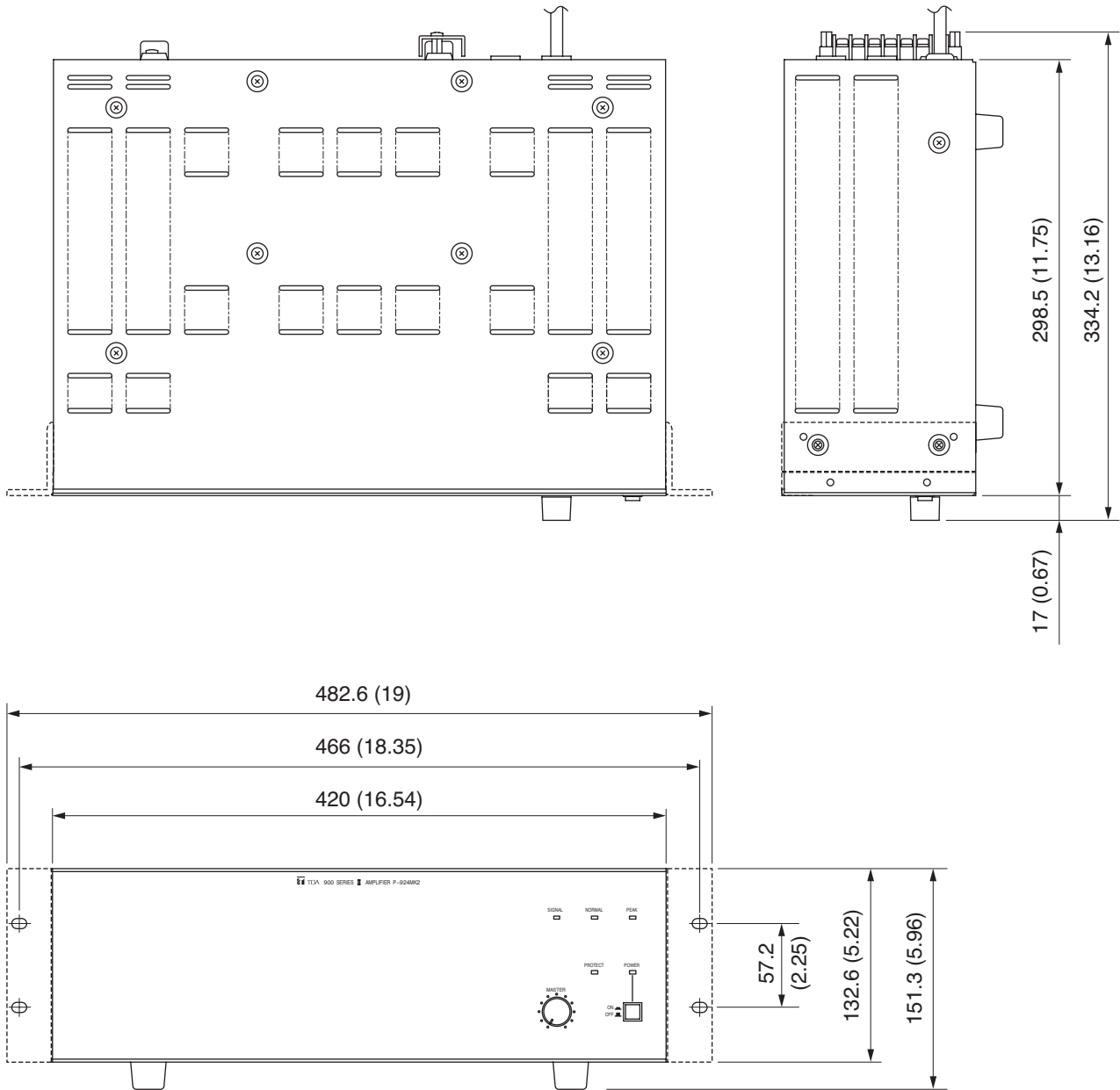
Unit: mm (inches)



This figure represents the P-906MK2.

10.2. P-924MK2

Unit: mm (inches)



11. SPECIFICATIONS

11.1. P-906MK2, P-912MK2

| Model No. | P-906MK2 | P-912MK2 |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Power Source | 120 V AC, 60 Hz | |
| Rated Output | 60 W RMS | 120 W RMS |
| Power Consumption | | |
| Rated output | 100 W | 180 W |
| Based on cUL standards | 70 W | 105 W |
| Power Bandwidth | (D): 20 – 20,000 Hz, 0.5% THD (T): 50 – 20,000 Hz, 0.5% THD | |
| Frequency Response | (D): 20 – 20,000 Hz, ±1 dB (T): 20 – 15,000 Hz, ±1 dB (T): 20 – 20,000 Hz, +1 dB, –3 dB | |
| Total Harmonic Distortion | 0.01% at 1 kHz, rated output | |
| Input | One input port: port accepts any input module except T-01. One direct input Note: Use of direct input prohibits use of modular input port. | |
| Input Sensitivity/Impedance | Input port: 100 mV or 1000 mV (switchable) / 10 kΩ Direct port: 100 mV or 1000 mV (switchable) / 10 kΩ | |
| Output | Main (T): 8 Ω, 25 V and 70 V, balanced Main (D): 4 Ω, unbalanced | |
| Output Regulation (1 kHz) | (D): Less than 0.5 dB, no load to full load (T): Less than 1.0 dB, no load to full load | |
| S/N Ratio (Band pass: 20 – 20,000 Hz) | Input level switch in 0 dB (1000 mV) position: 108 dB Input level switch in –20 dB (100 mV) position: 90 dB | |
| Control | 1 Input gain control, 1 Input level switch, 1 Power ON/OFF switch, 1 Low-cut switch | |
| Indicator | 1 Power LED, 1 Protect LED, 1 Signal LED, 1 Normal LED, 1 Peak LED | |
| Protection | Self-protection, with AC fuse (inside) | |
| Connector | Input: card-edge connector and screw-terminal strip Output: screw terminal strip AC outlet: 3-pin grounding type AC power cord/plug: SJT, 3-prong type | |
| Operating Temperature | –10 to +60 °C (12 to 140 °F) | |
| Other Feature | Output disconnected for approx. 5 seconds after switching power on. | |
| Color | Black | |
| Dimensions | 420 (w) x 99.1 (h) x 358 (d) mm (16.54" x 3.9" x 14.09") | |
| Weight | 9.1 kg (20.06 lb) | 10.9 kg (24.03 lb) |

Notes

- The design and specifications are subject to change without notice for improvement.
- (D): Direct output, (T): Transformer output

• Accessories

| | |
|-----------------------------------|---|
| Volume control cover YA-920 | 1 |
| Blank panel | 1 |
| Machine screw M3 x 8 | 2 |

• Optional product

Rack mounting bracket: MB-25B

11.2. P-924MK2

| | |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Source | 120 V AC, 60 Hz |
| Rated Output | (D): 240 W RMS, (T): 220 W RMS |
| Power Consumption | |
| Rated output | 120 V / 3 A |
| Based on cUL standards | 180 W |
| Power Bandwidth | (D): 20 – 20,000 Hz, 0.5% THD (T): 50 – 20,000 Hz, 0.5% THD |
| Frequency Response | (D): 20 – 20,000 Hz, ± 1 dB (T): 20 – 15,000 Hz, ± 1 dB (T): 20 – 20,000 Hz, +1 dB, -3 dB |
| Total Harmonic Distortion | 0.01% at 1 kHz, rated output |
| Input | One input port: port accepts any input module except T-01. One direct input Note: Use of direct input prohibits use of modular input port. |
| Input Sensitivity/Impedance | Input port: 100 mV or 1000 mV (switchable) / 10 k Ω Direct port: 100 mV or 1000 mV (switchable) / 10 k Ω |
| Output | Main (T): 8 Ω , 25 V and 70 V, balanced Main (D): 4 Ω , unbalanced |
| Output Regulation (1 kHz) | (D): Less than 0.5 dB, no load to full load (T): Less than 1.0 dB, no load to full load |
| S/N Ratio (Band pass: 20 – 20,000 Hz) | Input level switch in 0 dB (1000 mV) position: 108 dB Input level switch in -20 dB (100 mV) position: 90 dB |
| Control | 1 Input gain control, 1 Input level switch, 1 Power ON/OFF switch, 1 Low-cut switch |
| Indicator | 1 Power LED, 1 Protect LED, 1 Signal LED, 1 Normal LED, 1 Peak LED |
| Protection | Self-protection, with AC fuse (inside) |
| Connector | Input: card-edge connector and screw-terminal strip Output: screw terminal strip AC outlet: 3-pin grounding type AC power cord/plug: SJT, 3-prong type |
| Operating Temperature | -10 to +60 $^{\circ}$ C (12 to 140 $^{\circ}$ F) |
| Other Feature | Output disconnected for approx. 5 seconds after switching power on. |
| Color | Black |
| Dimensions | 420 (w) x 151.3 (h) x 334.2 (d) mm (16.54" x 5.6" x 13.16") |
| Weight | 19.5 kg (42.99 lb) |

Notes

- The design and specifications are subject to change without notice for improvement.
- (D): Direct output, (T): Transformer output

• Accessories

| | |
|-----------------------------------|---|
| Volume control cover YA-920 | 1 |
| Blank panel | 1 |
| Machine screw M3 x 8 | 2 |

• Optional product

Rack mounting bracket: MB-35B

