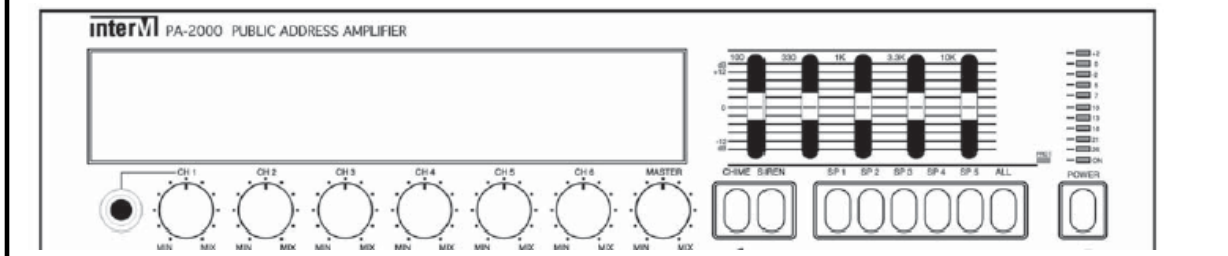


Operating Manual

PA-2000/PA-4000/ PA-2000R/PA-4000R Public Address Amplifier



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Welcome

A personal welcome to you from the management and employees of Inter-M

Thank you for purchasing this fine Inter-M product. All of us here at Inter-M are dedicated to providing you with the highest quality products and the best value.

We sincerely trust this product will provide you with years of satisfactory service, but if anything is not to your complete satisfaction, we will endeavor to make things right.

Welcome to Inter-M, and thank you for becoming a part of our worldwide extended family!

Unpacking

Although your PA-2000/4000 is neither complicated nor difficult to operate, we recommend you take a few minutes to read this brief manual and familiarize yourself with the important information regarding product features, setup and operation.

As with most electronic devices, we strongly recommend you retain the original packaging. In the unlikely event the product must be returned for servicing, the original packaging (or reasonable equivalent) is required.

Warnings




Environment

Never place this product in an environment that could alter its performance or reduce its service life. Such environments are usually characterized by high levels of heat, dust, moisture, or vibration.

Safety

1. Read these instructions carefully.
2. Follow all instructions.
3. Keep all warnings.
4. Do not operate this apparatus near water.
5. Clean only with a damp cloth.
6. Do not block any of the ventilation openings.
7. Install only in accordance with the instructions in this manual.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.
9. 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 is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it is attached to the apparatus.
11. Use only the attachments/accessories specified.
12. Use only with a cart, stand, tripod, bracket, or table specified, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid overturning.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. 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.

 <p>CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN</p> <p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>	 <p>This symbol 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.</p>
<p>WARNING</p> <p>To prevent fire or shock hazard, do not expose the unit to rain or moisture.</p>	 <p>This symbol is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.</p> <p>Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.</p>
<p>Attention: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.</p>	
<p>*Do not install this equipment in a confined space such as a book case or similar unit. *The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus. *Worded: "WARNING FOR YOUR PROTECTION PLEASE READ THE FOLLOWING-WATER AND MOISTURE: Unit should not be used near water(e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc). Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings."</p>	

Operation

Make certain that speakers and input sources are properly connected before switching on.

Keep volume levels at minimum gain before switching on.

NOTE: The system's operation is delayed by approximately three seconds after pressing the AC Mains power switch. This is due to the built-in protection circuitry, designed to protect the speakers and other system components.

PA-2000/4000/2000R/4000R Public Address Amplifier

Features

Six Input Channels with Adjustable Input Sensitivity and Individual Level Controls

- Rear-panel level controls adjust each input channel from Mic to Aux level.

Five-Band Graphic Equalizer

- Five-band graphic equalizer allows you to shape the tonal balance of your program material.

Speaker Select

- Six speaker select switches enable you to select any combination of up to five speakers.

Tuner Memory (PA-2000R, PA-4000R Only)

- Integrated AM/FM tuner with 16 programmable memory locations to easily store and recall your favorite preset stations. (Available on the PA-2000R and PA-4000R only.)

Telephone Paging Input/Music-on-Hold (PA-2000R, PA-4000R Only)

- Telephone input for connection with telephone system. Music-on-Hold function available on PA-2000R and PA-4000R only.

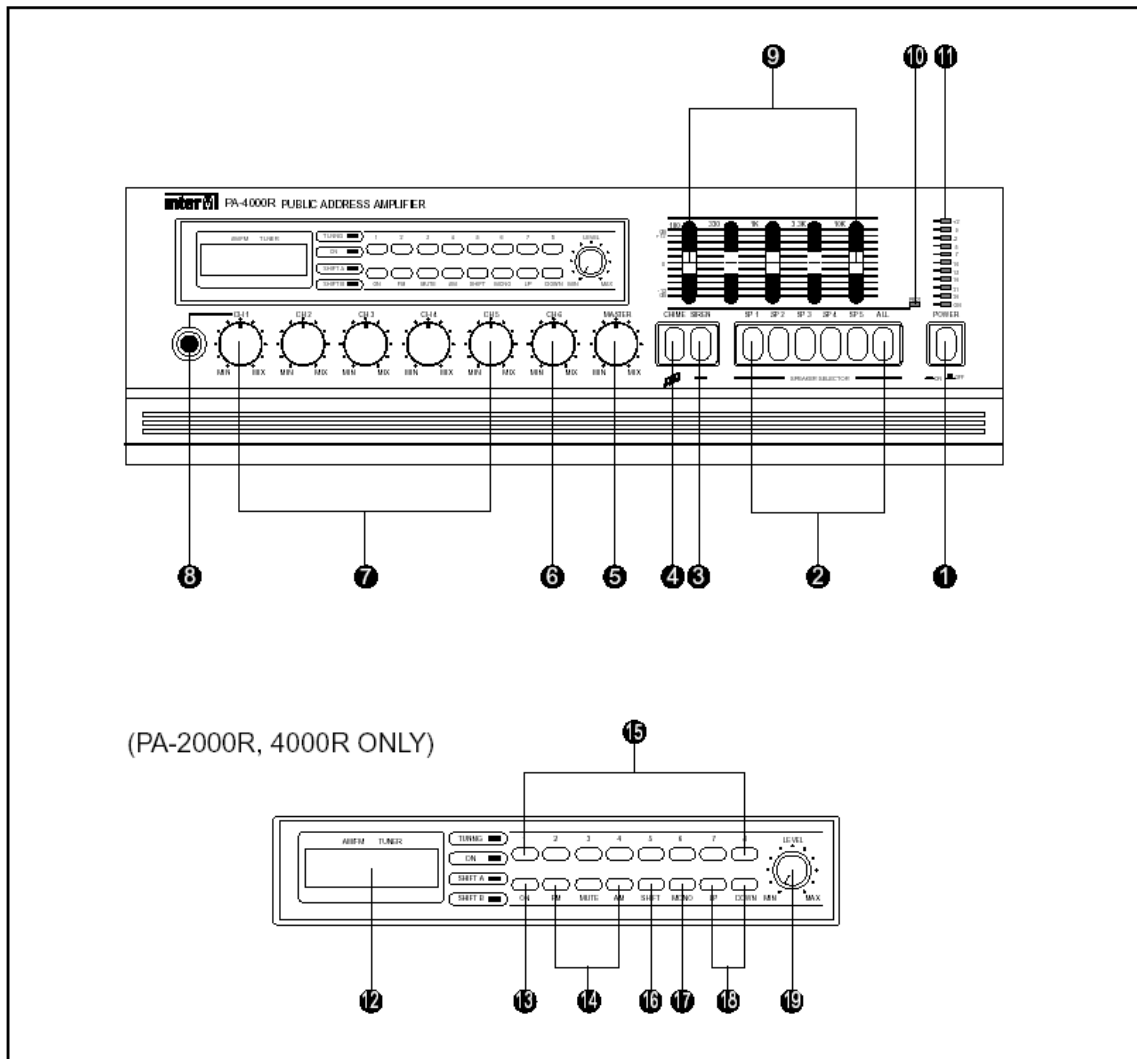
Phono Level Input

- Switchable input level on Channel 6 allows for connection of phono level source.

Announcement Chime and Siren

- Convenient four-tone chime and electronic siren for use with announcements.

Front Panel Controls



1. Power Switch

Pressing this switch switches the unit on, as indicated by the Power LED above the switch. Pressing it again switches the unit off.

2. Speaker Selector

These switches are used to select output to any combination of up to five individual speakers.

3. Siren Button

Pressing this button will activate the siren circuitry. Pressing it a second time will gradually lower the siren signal, switching it off completely after approximately 2.5 seconds.

4. Chime Button

Pressing this switch activates the chime circuitry.

5. Master Volume

This knob controls the overall volume of the amplifier's output signal.

6. CH6 / Phono Volume

This knob controls the volume of Channel 6 or Phono Input, as selected by the associated rear panel switch.

7. CH1-CH5 Volume

These knobs control the output volume of Channels 1 - 5.

8. Channel 1 Input

This is an input jack for Channel 1. Inserting a connector into this front-panel jack will override (disconnect) the signal connected to the rear-panel CH1jack.

9. Graphic Equalizer

Each slider controls the cut (decreased gain) or boost (increased gain) for its associated frequency band. The middle position indicates flat response (no cut or boost). Moving the slider upwards increases that frequency's gain, while moving it down decreases the level of that frequency.

10. Protection Indicator

This LED indicates the state of the amplifier's protection circuitry. When the Protection LED is on (illuminated), the protection circuitry is active, indicating that the unit is not operating normally. This is typically due to overheating or power limiting. Please check the Input and Output condition of the amplifier.

11. Output Level Display

This 10-segment LED meter indicates the amplifier's output level in RMS.

12. Tuning Frequency Display (PA-2000R/PA-4000R Only)

This LCD displays the currently selected frequency of the AM/FM tuner.

13. Tuner Power-On Switch (PA-2000R/PA-4000R Only)

To switch the AM/FM tuner on, press this switch

14. Band Selector Switch (PA-2000R/PA-4000R Only)

This switch selects the frequency band for the AM/FM Tuner. Pressing it selects between AM band, FM band, or FM Mute.

15. Address Select Switches (PA-2000R/PA-4000R Only)

These switches are used to recall previously stored radio frequencies. The eight switches can store and recall up to 16 frequencies within their A and B banks.

16. SHIFT Switch (PA-2000R/PA-4000R Only)

This switch, used in conjunction with the Address Select Switches (see 15 above), selects between the two (A and B) banks of memory locations for preset radio frequencies.

17. MEMORY Switch (PA-2000R/PA-4000R Only)

This switch, used in conjunction with the Address Select Switches (see 15 above), is used for entering a selected radio frequency into one of the 16 preset locations.

To enter a frequency into memory:

- Select the desired frequency with the UP or DOWN switches (see 18 below)
- Select the A or B bank with the SHIFT switch (see 16 above)
- Press the MEMORY switch
- Press the Address Select switch for the desired location (see 15 above)
- The current frequency will be stored in the selected memory location

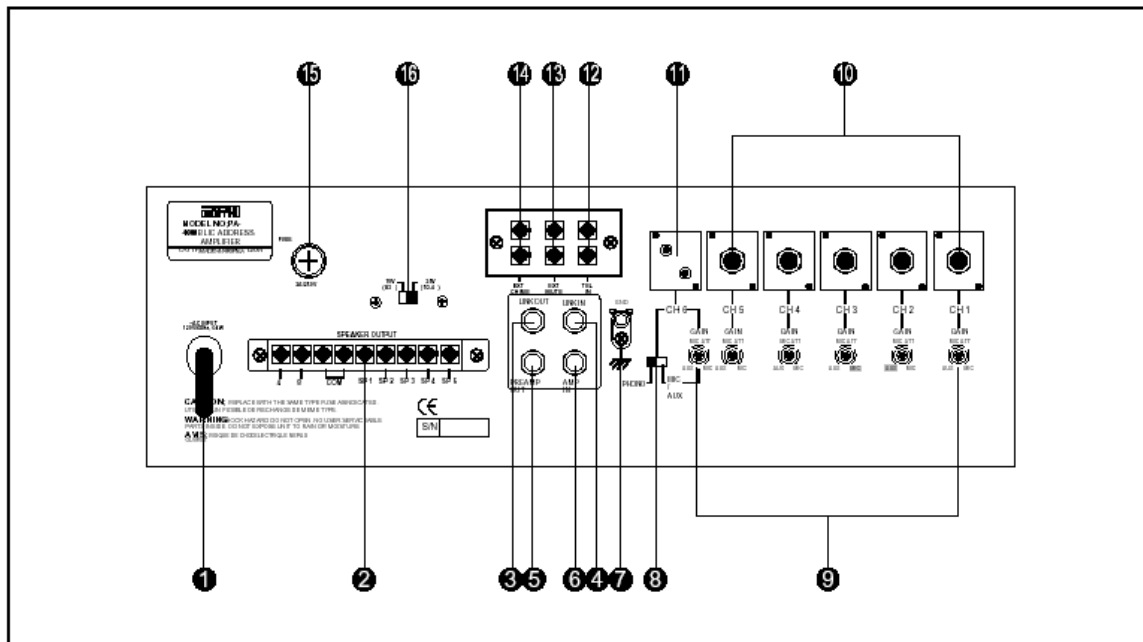
18. UP and DOWN Switches (PA-2000R/PA-4000R Only)

These switches are used to tune the radio frequencies to higher or lower frequencies. Pressing the UP or DOWN switch once will move to the next available frequency. Pressing and holding the UP or DOWN switch will tune the frequency without stopping.

19. Radio Volume (PA-2000R/PA-4000R Only)

Controls the volume level of the radio tuner output.

Rear Panel Controls



1. AC Power Cable

Connect this cable to your AC outlet.

2. Speaker Output Terminal

These terminals connect up to five speakers in 4Ω, 8Ω or High Impedance mode.
NOTE: Only speakers connected to the High-Impedance terminals are controlled by the front-panel Speaker Selector switches.

3. Link Out

This line-level output connects the unit with an external mixdown deck or other recording source.

4. Link In

This line-level input connects the unit with an external mixer for expanded input channels.

5. Preamp Output

This output connects the unit with an external power amplifier. Inserting a plug into the Preamp Out jack will disconnect signal to the unit's power amp, sending the output of the internal mixer to the external amplifier.

6. Amp In

This input connects an external mixer or preamp with the unit's power amp. Inserting a plug into the Amp In jack will disconnect all input signal from the unit's internal mixer. Only signal from the external source will be heard.

7. GND Terminal

This grounding terminal is provided for connecting with the chassis of a turntable or other input device to reduce hum and other ground loop noise. It may also be connected to a true earth ground, such as an AC third-pin ground or water pipe, to further reduce ground loop noise.

8. CH6/PHONO Selector Switch

This switch is used to select the input level for Channel 6. When set to Mic/Aux position, CH6 input is set to Mic/Aux level. When set to PHONO, CH6 input is at Phono level.

NOTE: When the CH6 Input selector is set to PHONO, the input gain of CH6 is unaffected by that channel's Input Gain Control.

9. Input Gain Controls

These knobs control the input levels for each of the six input channels. When adjusting the input gain, make certain that the levels are not set too high, or distortion will result.

The approximate levels for these controls are as follows:

MIC	mic level	(-50dB ~ -70dB)
MIC ATT	instrument level	(-30dB ~ -50dB)
AUX	line level	(-20dB ~ -30dB)

10. Channel 1-5 Inputs

Channel 1-5 inputs are provided on balanced ¼" connectors. Optionally, the inputs for these channels are available as balanced three-pin XLR connectors, unbalanced RCA connectors or screw terminals. Transformer balanced inputs are also available.

11. Channel 6 Input

Channel 6 input is provided on dual RCA connectors, for use with a CD, Cassette or Phono input.

NOTE: When both inputs are used the signal is summed and combined.

12. Telephone Input Terminals

These terminals are provided for connection with a telephone exchange system for paging purposes.

NOTE: When the telephone input is active, all other input signals except AMP IN are muted.

13. EXT Mute

When these two terminals are shorted, signals from Input Channels 3-6, tuner and turntable are muted. Signals from Channel 1, Channel 2, Link In and Chime are not muted.

14. EXT Chime

When these two terminals are shorted, the four-tone chime circuitry is activated.

15. Fuse Holders

This holder contains the AC overload protection fuse. If the fuse has blown out, replace it with a fuse of the same type and rating, as shown below.

If the fuse continues to blow, refer servicing to a qualified service technician.

AC Fuse Ratings		
Model	100VAC – 120 VAC	230VAC-240VAC
PA-2000/PA-2000R	2A / 250V	1A / 250V
PA-4000/PA-4000R	4A / 250V	2A / 250V

16. Impedance Selector Switch

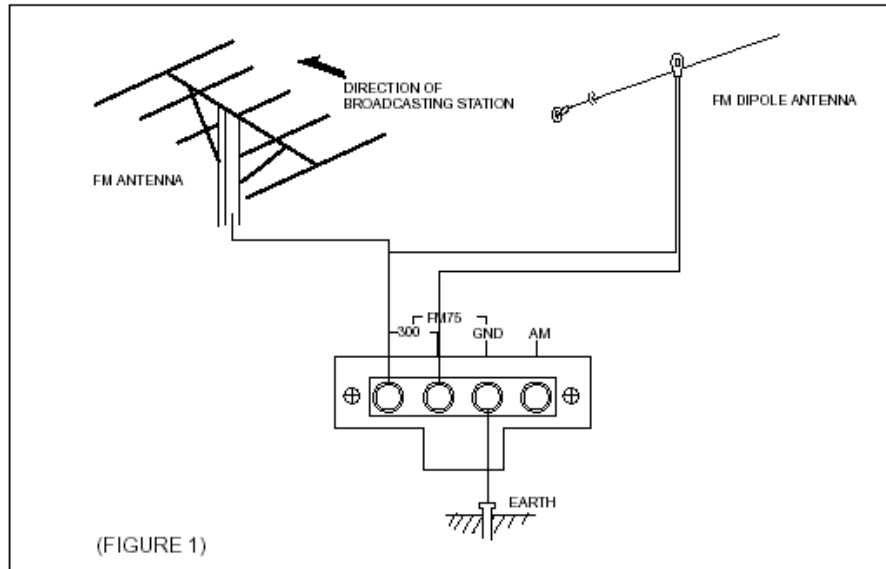
Selects between low impedance settings of 70V or 25V. Note that this switch is only active when the speakers are connected to the COM terminal and one or more of the SP1-SP5 terminals. When the speakers are connected to the COM terminal and either the 4Ω or 8Ω terminal, this switch is non-functional.

Impedance Ratings		
Model	70 Volt	25 Volt
PA-2000/PA-2000R	83.5Ω	10.4Ω
PA-4000/PA-4000R	41.8Ω	5.4Ω

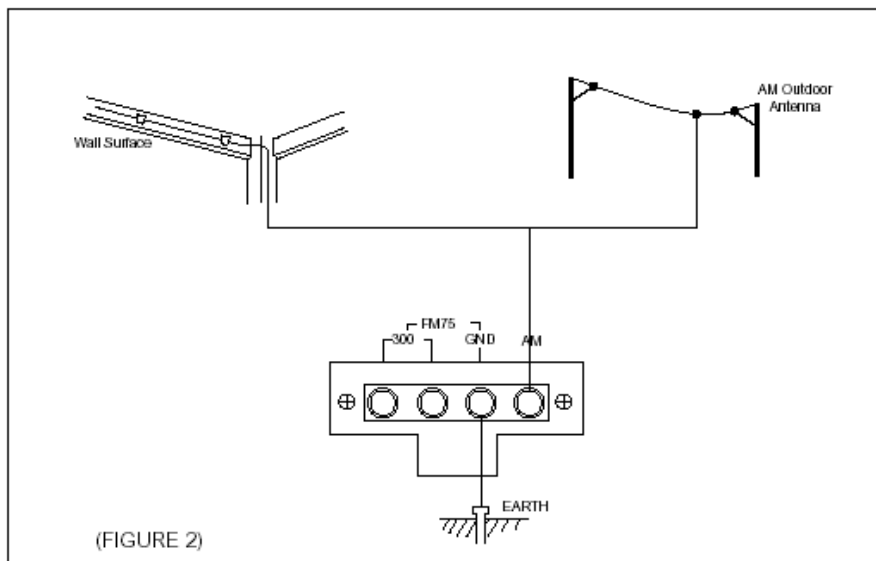
Connection of the Antenna and Grounding Cables

Install a standard FM dipole antenna by connecting one lead to the terminal marked 300 Ω , and the other lead to the terminal marked Ground. (See Figure 1.)

If you are installing a 75 Ω coaxial FM antenna, connect the center conductor to the terminal marked 75 Ω , and the shield conductor to the terminal marked Ground. (See Figure 1.)



Connect the single conductor of an AM antenna to the terminal marked AM. Connecting the terminal marked Ground to an earthed ground will help cut down on radio frequency noise and interference. (See Figure 2.)

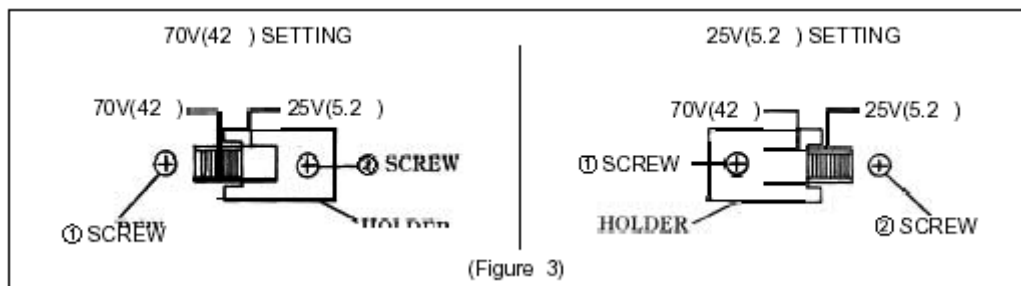


Impedance Selector

To change from high impedance (70V) to high impedance (25V), loosen screw (#2) and remove the holder, then set the switch to 25V. Then tighten screw (#2), insert the holder in the opposite direction and tighten screw (#1). See figure 3 below.

To change from high impedance (70V) to high impedance (25V), loosen screw (#1) and remove the holder, then set the switch to 70V. Then tighten screw (#1), insert the holder in the opposite direction and tighten screw (#2). See figure 3 below.

NOTE: If speakers are connected to the GND and 4Ω or 8Ω terminals, the Impedance Selector switch is inactive.

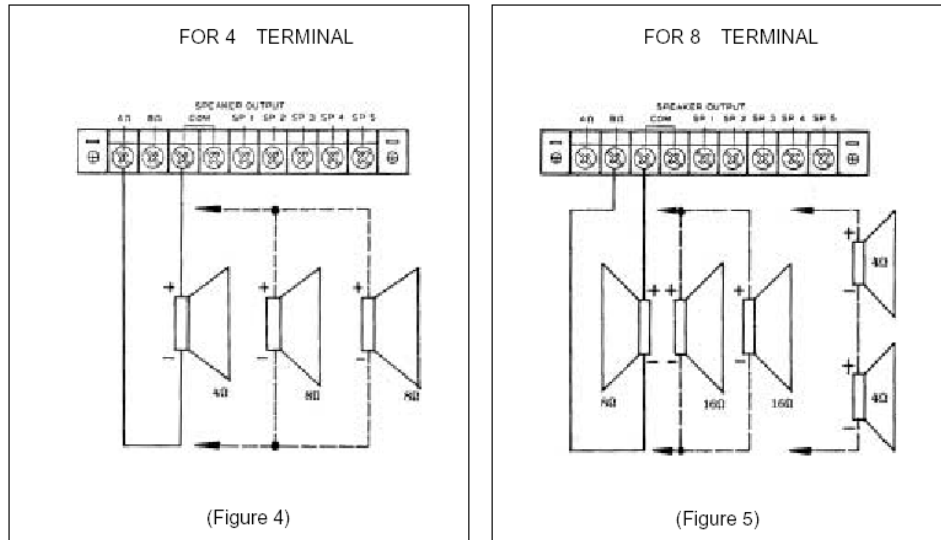


Connecting Speakers

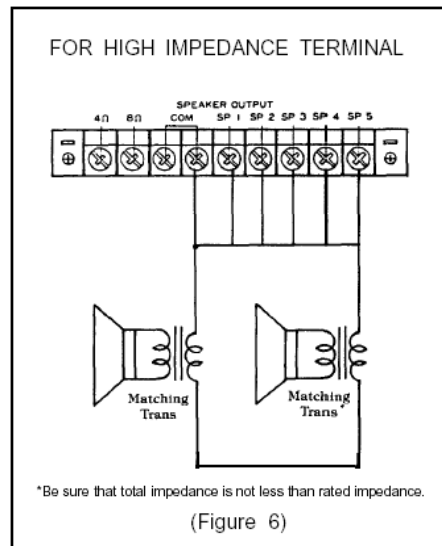
Before connecting speakers to your PA-2000/PA-4000 unit, be sure to disconnect the AC power cable. Make certain that the total impedance is not less than the rated impedance indicated.

For 4Ω speakers, connect in parallel, with the negative (-) connectors to the 4Ω terminal and the positive (+) connectors to the COM terminal. See Figure 4 below.

For 8Ω speakers, connect in parallel, with the negative (-) connectors to the 8Ω terminal and the positive (+) connectors to the COM terminal. See Figure 5 below.



For high-voltage distributed systems, connect with matching transformer as per Figure 6 below. Be certain that the total impedance does not equal less than the rated impedance.



Specifications

AMPLIFIER SECTION

Rated Output Power (THD 1%)	PA-2000/PA-2000R: 60W (RMS) PA-4000/PA-4000R: 120W (RMS)
Input Sensitivity/Impedance CH 1~CH 6	0.25mV~80mV/600Ω
Phono (CH6)	2mV/22KΩ
Link In	100mV/15kΩ
Telephone In	0.775V/600Ω
Amp In	1V/47kΩ
Frequency Response	60Hz~20kHz
T.H.D (at 1kHz Rated Output)	Less than 0.5%
S/N	105dB
Graphic Equalizer (100Hz, 330Hz, 1KHz, 3.3KHz, 10KHz)	±12dB
Speaker Output/Impedance	120W: 4Ω, 8Ω, 42Ω (70V), 83Ω (100V) 60W: 4Ω, 8Ω, 83Ω (70V), 165Ω (100V)
Link Out/Impedance	500mV/600Ω
Music On Hold/Impedance (2000R/4000R only)	0.775V/600Ω
Preamp Out/Impedance	1V/600Ω

TUNER SECTION

Tuning Range	FM: 87.5 – 108 MHz AM: 522 – 1710 KHz
Antenna Input	FM: 300Ω, BAL or 75Ω UNBAL
Usable Sensitivity	FM: 2μV AM: 4μV
S/N	FM: 65dB AM: 50dB

GENERAL

Power Source	AC 110V~240V, 50/60Hz
Power Consumption	PA-2000/PA-2000R: 130W PA-4000/PA-4000R: 230W
Weight	PA-2000: 10kg (22 lbs.) PA-4000: 12kg (26.4 lbs.)
Dimensions	PA-2000: 420(W)x 100(H)x 320(D) mm 16.5(W) x 3.9 (H) x12.6 (D) in PA-4000: 420(W)x 133(H)x 320(D) mm 16.5(W) x 5.2 (H) x12.6 (D) in

Specifications and design subject to change without notice for improvements.



Inter-M, Ltd. (Korea) began operations in 1983.

Since then, Inter-M has grown to become one of the largest manufacturers of professional audio and commercial sound electronics equipment in the world.

Inter-M has gained worldwide recognition for its own branded products, as well as private label manufacturing of electronics sold under other names (OEM).

The company is no longer just a Korean company, but rather a global company that is truly international in scope, with factories and offices in Korea and China, and sales and marketing operations located in Japan, Europe, and the U.S.A.

With more than 850 employees around the globe, Inter-M is well-poised for further growth and expansion.

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