

# Operation Manual

## Public Address Amplifier **PA-2000A/4000A/6000A**

PA-4000A/6000A



PA-2000A



**interM**

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# Welcome

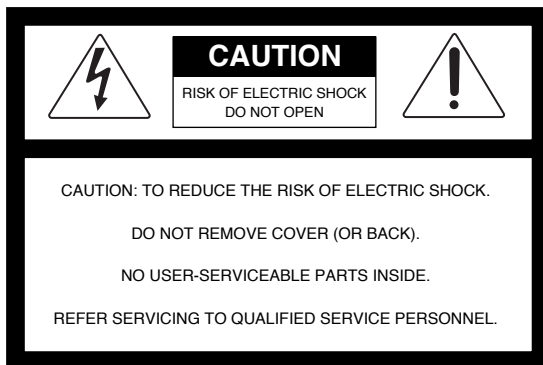
## A personal welcome to you from the management and employees of Inter-M

All of the co-workers here at Inter-M are dedicated to providing excellent products with inherently good value, and we are delighted you have purchased one of our products.

We sincerely trust this product will provide 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 part of our worldwide extended family!

## Warning



### WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

\*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."



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.



This symbol is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying the appliance.

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.

Attentions: 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.

## Unpacking

Although your PA-2000A/4000A/PA-6000A 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.

## Installation

### Environment

Never place this product in an environment which could alter its performance or reduce its service life. Such environments usually include high levels of heat, dust, moisture, and vibration.

### Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (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 are 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 they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. 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.
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.



## Features

- **A PUBLIC ADDRESS AMPLIFIER WITH RATED OUTPUT OF 60W(PA-2000A), 120W(PA-4000A) or 240W(PA-6000A)**
- **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.
- **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.
- **EXTERNAL MUTE FUNCTION**
- **TELEPHONE INPUT FUNCTION**

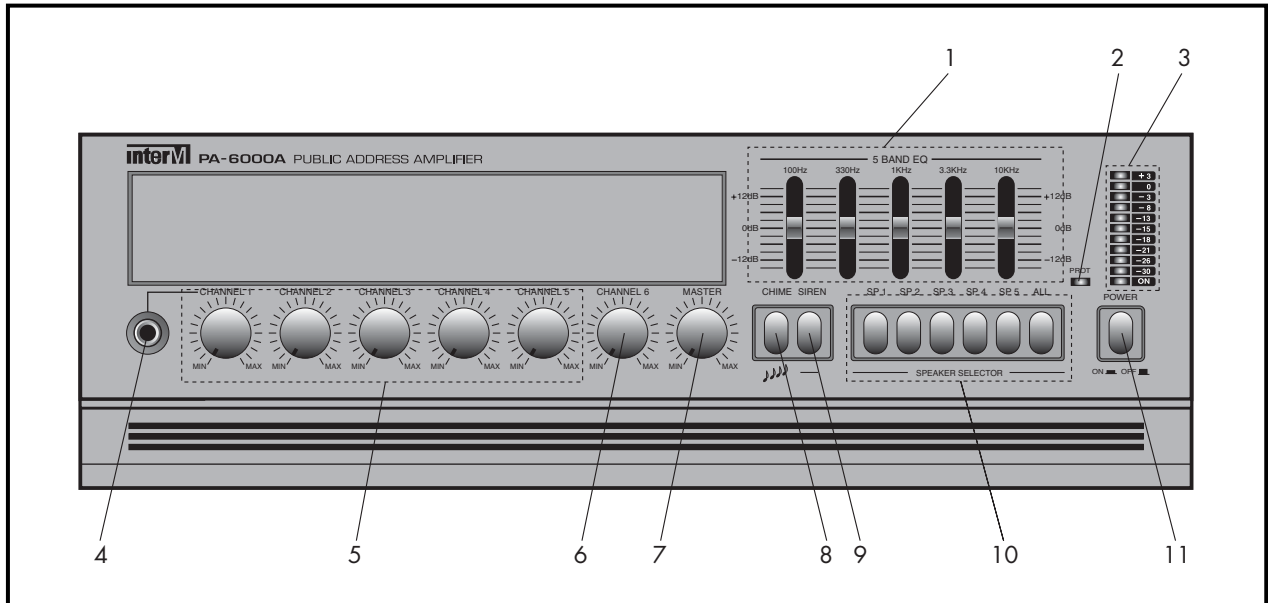
### Accessories

One detachable AC power cord is provided for use with this product.

## Operation

1. Do not connect the AC power until step 5. The ac mains POWER switch should be in the OFF position.
2. Adjust the MASTER and all CH 1-6 volume controls to the MIN Position (turn counterclockwise).
3. Adjust the graphic equalizer so that all sliders are set to the 0dB position.
4. Connect the OUTPUTS to the speaker load according to the mode of operation determined in the previous step.
5. With the ac mains POWER switch in the OFF position, confirm the voltage indication of voltage selector switch with AC source.  
Plug in the supplied AC mains power cord to the product and connect to an appropriate AC source.
6. Depress the ac mains POWER switch to the ON position. The indicator within the power switch will illuminate.
7. The product is ready for operation. Slowly increase the LEVEL control to the desired operating level.  
Avoid illuminating the PEAK indicator and do not apply too much power to the speakers.
8. Operate the product and the system in a manner which DOES NOT illuminate the PEAK warning indicator.

## Front Panel



### 1. 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.

### 2. 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.

### 3. OUTPUT LEVEL DISPLAY

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

### 4. 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 CH1 jack.

### 5. CH1-CH5 VOLUME

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

### 6. CH6/PHONO VOLUME

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

### 7. MASTER VOLUME

This knob provides continuous control of the overall volume of the amplifier's output signal.

**8. CHIME BUTTON**

Pressing this switch activates the one shot chime.

**9. SIREN BUTTON**

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

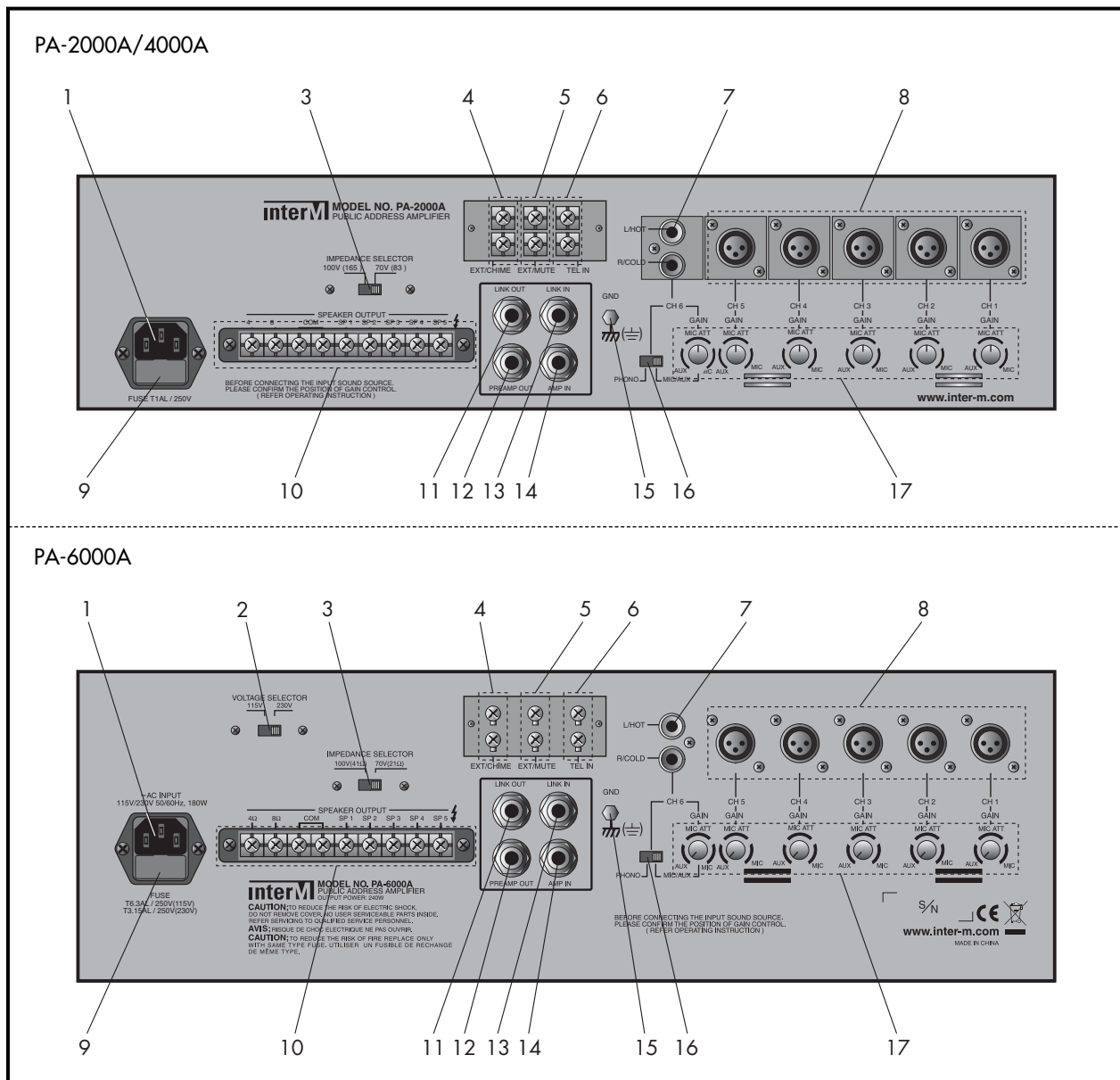
**10. SPEAKER SELECTOR**

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

**11. POWER SWITCH**

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

## Rear Panel



### 1. AC POWER INLET

Connect this inlet to your AC outlet.

### 2. VOLTAGE SELECTOR SWITCH (PA-6000A Only)

The PA-6000A has a multi-tap power transformer which allows it to be used around the world. Before connecting the unit to AC power, confirm that the voltage selector switch setting on the rear of the unit is set to the proper position and the fuse is the correct rating as listed on the rear of the system.

The PA-6000A will accept voltages from 115V or 230Volts, 50-60Hz when the voltage settings are set correctly.

**NOTE:** The PA-6000A UK Version is not used VOLTAGE SELECTOR SWITCH.

**3. IMPEDANCE SELECTOR SWITCH**(Except for USA/CANADA & Associated Version)

Selects between low impedance settings of 100V or 70V. 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 4 $\Omega$  or 8 $\Omega$  terminal, this switch is non-functional.

Impedance Ratings		
Model	100 V	70 V
PA-2000A	165 $\Omega$	83 $\Omega$
PA-4000A	83 $\Omega$	42 $\Omega$
PA-6000A	41 $\Omega$	21 $\Omega$

**4. EXT CHIME**

When these two terminals are shorted, the one shot chime is activated.

**5. EXT MUTE**

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

**6. 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.

**7. 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.

**8. CHANNEL 1-5 INPUTS**

Channel 1-5 inputs are provided on balanced XLR connectors.

**9. FUSE HOLDER**

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-2000A	2A/250V	1A/250V
PA-4000A	4A/250V	2A/250V
PA-6000A	6.3A/250V	3.15A/250V

**10. SPEAKER OUTPUT TERMINAL**

These terminals connect up to five speakers in 4 $\Omega$ , 8 $\Omega$  or High Impedance mode.

Model	Impedance/Output Voltage			
PA-2000A	4 $\Omega$ /15.5V	8 $\Omega$ /22V	83 $\Omega$ /70V	165 $\Omega$ /100V
PA-4000A	4 $\Omega$ /22V	8 $\Omega$ /31V	42 $\Omega$ /70V	83 $\Omega$ /100V

PA-6000A	USA/CANADA & Associated Version			EC & Associated, JAPAN Version			
Impedance	4 $\Omega$	8 $\Omega$	21 $\Omega$	4 $\Omega$	8 $\Omega$	21 $\Omega$	41 $\Omega$
Output Voltage	30V	43V	70V	30V	43V	70V	100V

**NOTE:** Only speakers connected to the High-Impedance terminals are controlled by the front-panel Speaker Selector switches.

**11. LINK OUT**

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

**12. 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.

**13. LINK IN**

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

**14. 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.

**15. 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.

**16. 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(The product is set to Mic/Aux position, when is assembled).

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

USA/CANADA & Associated Version is used CH6/CD SELECTOR SWITCH

**17. INPUT GAIN CONTROLS**

These knobs provide continuous control of 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.

## Connecting Speakers

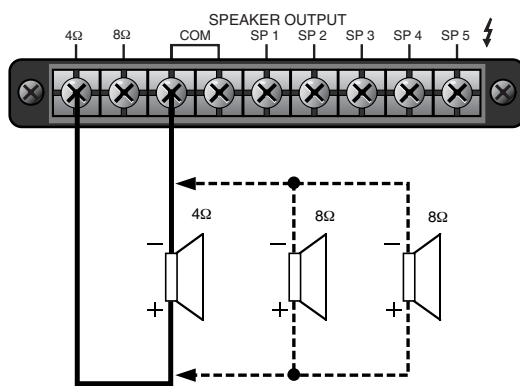
Before connecting speakers to your PA-2000A/4000A/6000A unit, be sure to disconnect the AC power cable. Make certain that the total impedance is not less than the rated impedance indicated.

For 4Ω low-impedance speakers, connect in parallel, with the negative (-) connectors to the COM terminal and the positive (+) connectors to the 4Ω terminal. See Figure 1 below.

For 8Ω low-impedance speakers, connect in parallel, with the negative (-) connectors to the COM terminal and the positive (+) connectors to the 8Ω terminal. See Figure 2 below.

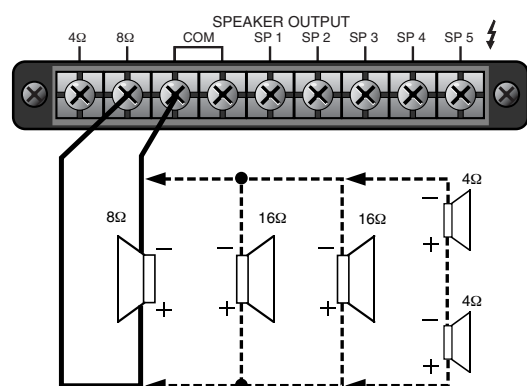
For high-impedance systems, connect with matching transformer as per Figure 3 below. Be certain that the total impedance does not equal less than the rated impedance.

### FOR 4Ω TERMINAL



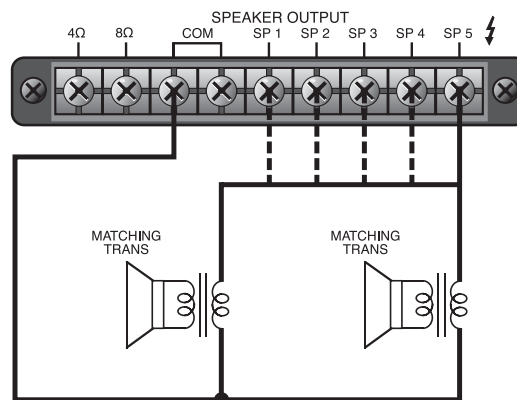
(Figure 1)

### FOR 8Ω TERMINAL



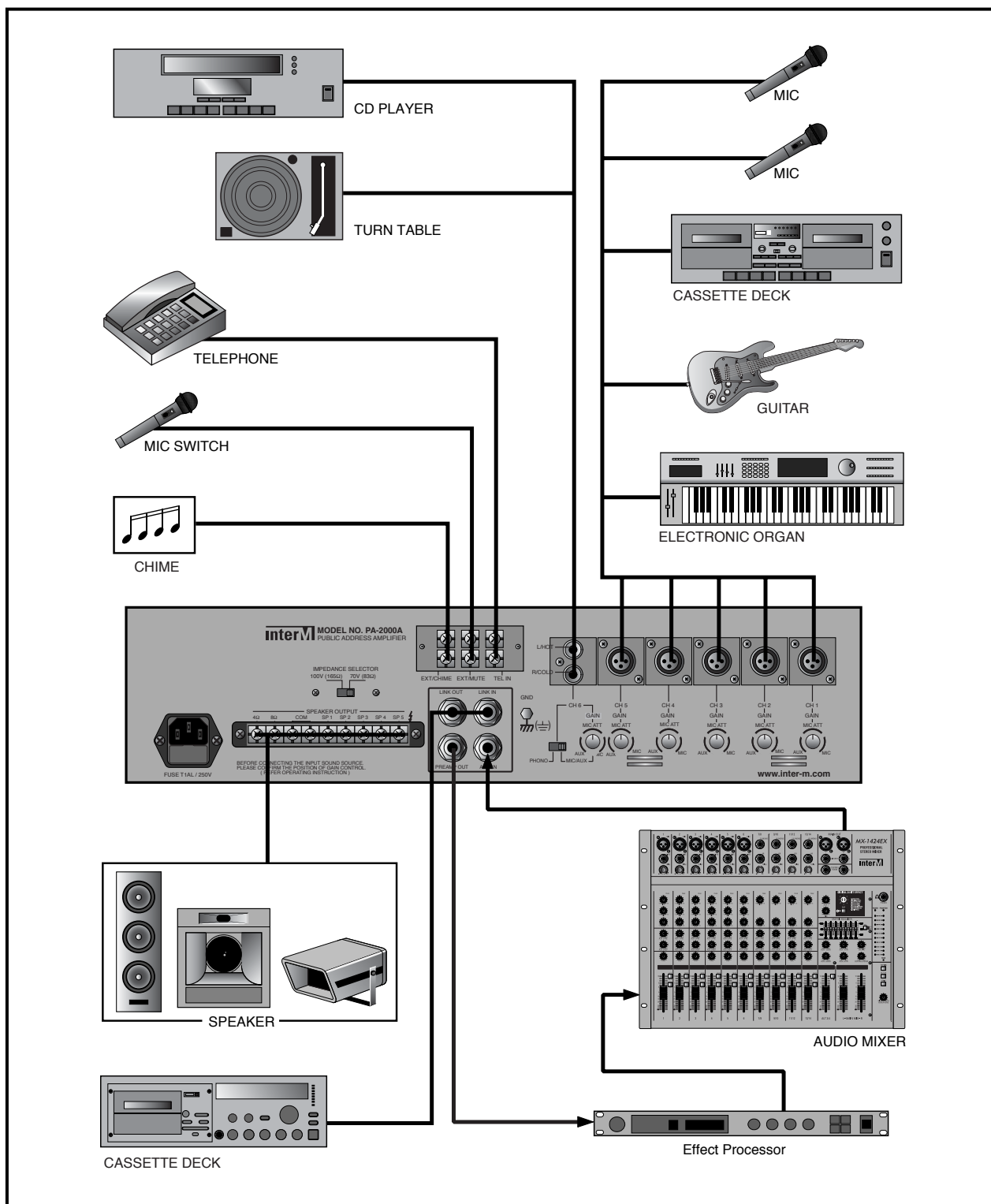
(Figure 2)

### FOR HIGH IMPEDANCE TERMINAL



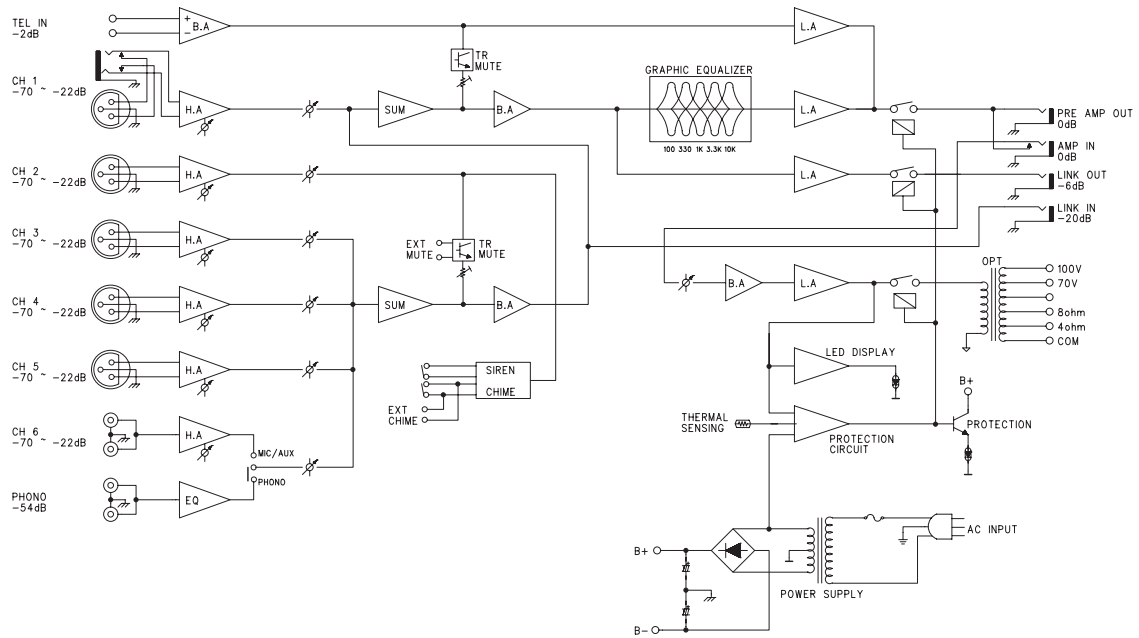
(Figure 3)

# Applications

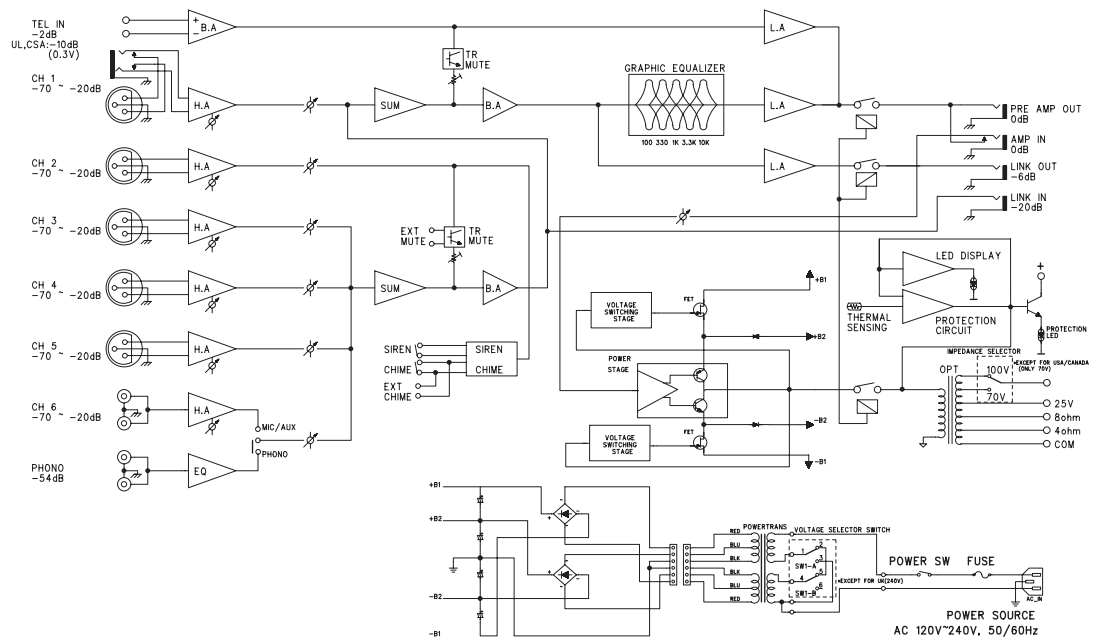


# Block Diagrams

PA-2000A/4000A



PA-6000A



## Specifications

		PA-2000A	PA-4000A	PA-6000A
Rated Output (RMS)		60W	120W	240W
Frequency Response	CH1~CH6	120Hz-10kHz		
	Telephone In	330Hz-3.3kHz		
	Link In	80Hz-12kHz		
	Amp In	60Hz-15kHz		
T.H.D	CH1~CH6, Phono	Less than 1%		
	Telephone In, Link In	Less than 0.5%		
	Amp In	Less than 0.05%		Less than 0.5%
S/N	CH1~CH6	more than 50dB		
	Phono	more than 55dB		
	Telephone In, Link In	more than 65dB		
	Amp In	more than 95dB		
Graphic Equalizer (100Hz, 330Hz, 1kHz, 3.3kHz, 10kHz)		±12dB		
Input Sensitivity / Impedance	CH1~CH6	-70~-22dB/600Ω		
	Phono	-54dB/22kΩ		
	Link In	-20dB/15kΩ		
	Telephone In	EC/JAPAN : -2dB(0.775V)/600Ω, USA/CANADA : -10dB(0.3V)/600Ω		
	Amp In	0dB/47kΩ		0dB/4700Ω
Speaker Output/Impedance		4Ω/15.5V	4Ω/22V	4Ω/30V
		8Ω/22V	8Ω/31V	8Ω/43V
		83Ω/70V	42Ω/70V	21Ω/70V
		165Ω/100V	83Ω/100V	41Ω/100V
Amp Out/Impedance		0dB/600Ω		
Link Out/Impedance		-6dB/600Ω		
Operating Temperature		-10°C ~ +40°C		
Power Source		100-120VAC or 220-240VAC; 50/60Hz (Supplied AC mains transformer depends on country requirements)		
Power Consumption		95W	120W	240W
Weight		10kg/22lb	12kg/26lb	13.5kg/29.76lb
Dimensions		420(W)x100(H)x320(D)mm 16.5(W)x3.9(H)x12.5(D)in	420(W)x133(H)x320(D)mm 16.5(W)x5.2(H)x12.5(D)in	

\* Specifications and design subject to change without notice.

## Service

### Procedures

Take steps to insure the problem is not related to operator error or other products within the system. Information provided in the troubleshooting portion of this manual may help with this process. Once it is certain that the problem is related to the product contact your warranty provider as described in the warranty section of this manual.

### Schematic

A Schematic is available by contacting your warranty provider.

### Parts List

A Parts List is available by contacting your warranty provider.

## Variations and Options

### Variations

Products supplied through legitimate sources are compatible with local AC power requirements.

### Options

No optional items are available for this product.

## Warranty

Warranty terms and conditions vary by country and may not be the same for all products. Terms and conditions of warranty for a given product may be determined first by locating the appropriate country which the product was purchased in, then by locating the product type.

To obtain specific warranty information and available service locations contact Inter-M directly or the authorized Inter-M Distributor for your specific country or region.



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.

**INTER-M AMERICAS, INC.**

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