

# Operation Manual

Public Address Power Amplifier  
**PA-9312/9324/9336/9348**



\* Rack mount products in the Western Hemisphere(North America, South America, and the Caribbean) do not have handles installed due to customer preference.

**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!

	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.</p> <p>DO NOT REMOVE COVER (OR BACK).</p> <p>NO USER-SERVICEABLE PARTS INSIDE.</p> <p>REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		

### 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 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 than 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-9312/9324/9336/9348 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

- **HIGH POWER, LOW DISTORTION**

- 120W (PA-9312), 240W (PA-9324) or 360W (PA-9336) of RMS power, with less than 1% THD.
- 480W (PA-9348) of RMS power, with less than 5% THD.

- **BALANCED INPUT**

Balanced XLR inputs to reduce ground hum and increase efficiency.

- **GAIN ADJUSTMENT**

Input gain is adjustable from -12dB to 0dB (1V) via rear panel control.

- **EMERGENCY BATTERY BACKUP**

Emergency battery backup for unexpected AC power failure.

- **SLIM DESIGN, COMPACT SIZE**

Streamlined design fits in a compact 3RU space.

### Accessories

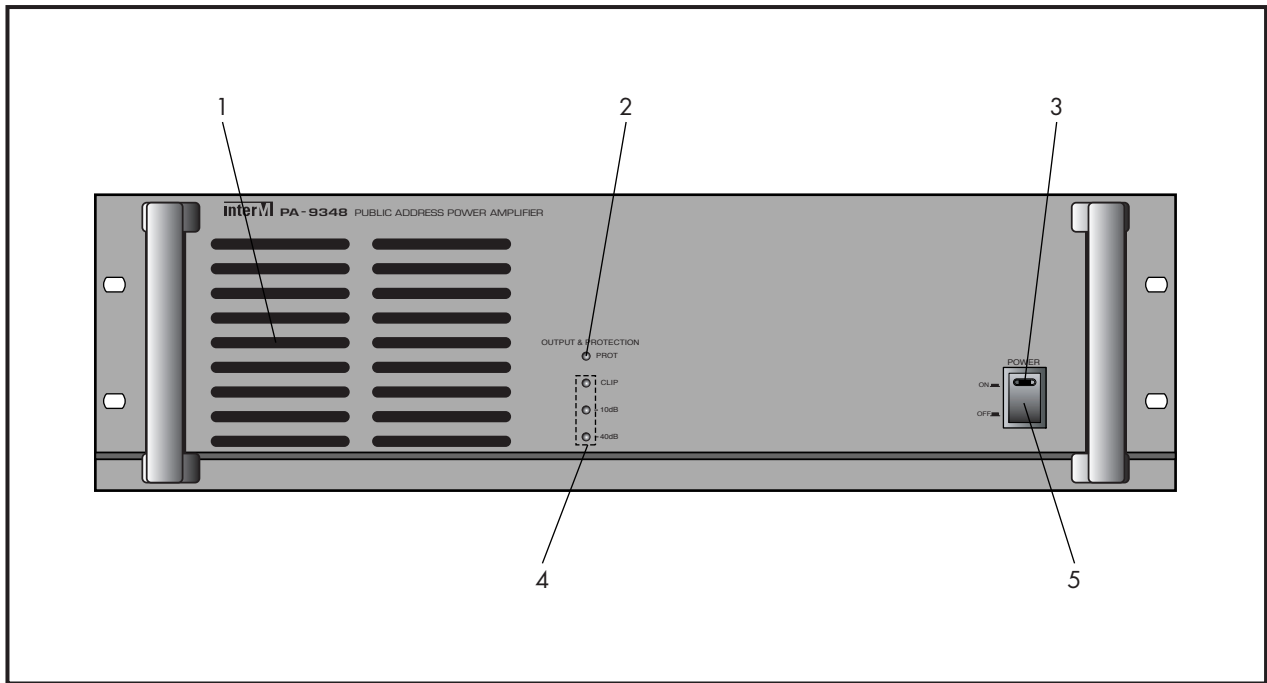
One detachable AC power cord and XLR cord are provided for use with this product.

## Operation

Make certain that speakers and input sources are properly connected before switching on.  
Keep volume levels turned down before switching on.

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

## Front Panel



### 1. FAN VENTS

These vents provide cool air flow into the unit. It is important to keep them free of obstructions, to prevent the unit from overheating. It is also important to operate the unit in a dust-free environment.

### 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. POWER LED

When the unit is powered on, the Power LED will glow steadily.

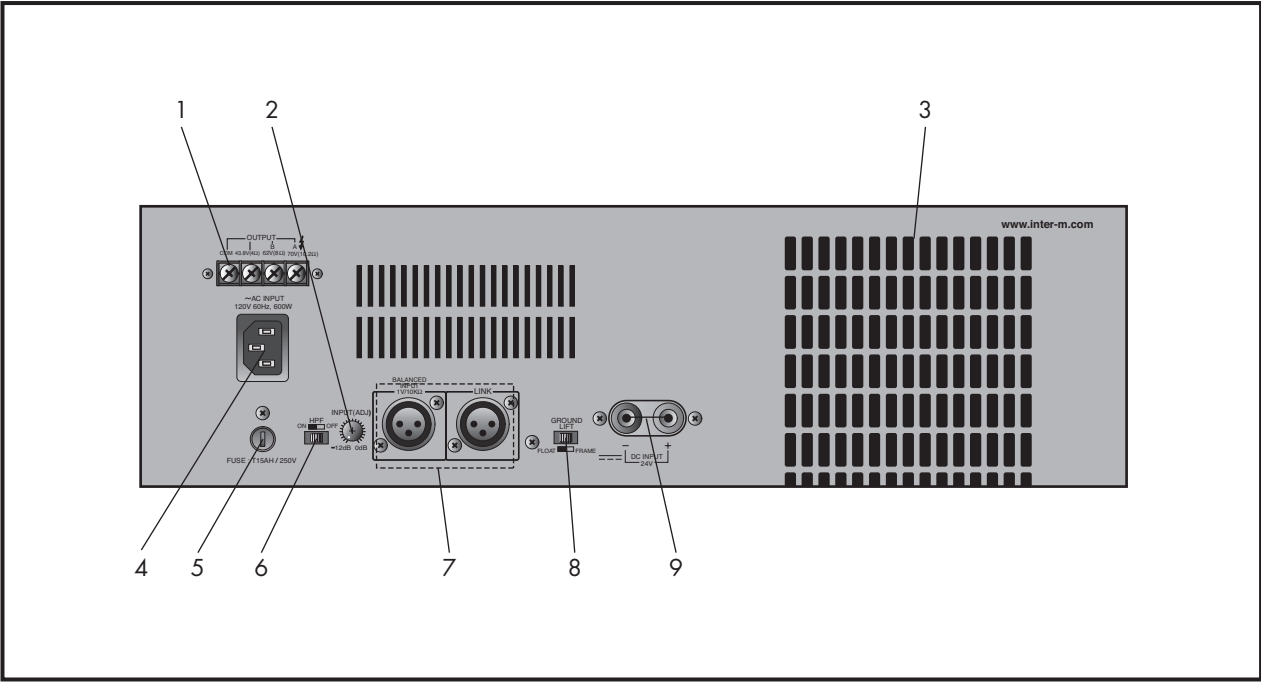
### 4. OUTPUT LEVEL INDICATOR

These three LEDs indicate the amplifier's output status. The -40dB LED indicates the presence of audio signal at the amplifier's output. The -10dB LED indicates output at nominal operating range. The red CLIP LED indicates an excessive output level. Do not operate the unit with the CLIP LED continuously on (illuminated).

### 5. POWER SWITCH

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

# Rear Panel



## 1. SPEAKER OUTPUT TERMINALS

These terminals are used to connect speakers to the unit. You may select either 4Ω or 8Ω conventional operation, or High Impedance operation at either 70V or 100V. Make certain the combined impedance of the speakers is equal to or higher than the rated output impedance of the amplifier. The impedance and output voltage are as follows.

Countries	USA/CANADA & Associated Version				EC & Associated, JAPAN Version		
Output Terminals	4Ω	8Ω	25V	70V	4Ω	70V	100V
PA-9312	22V	-	5.2Ω	41Ω	22V	41Ω	83Ω
PA-9324	31V	-	2.6Ω	21Ω	31V	21Ω	42Ω
PA-9336	38V	54V	-	13.6Ω	38V	13.6Ω	27.8Ω
PA-9348	43.8V	62V	-	10.2Ω	43.8V	10.2Ω	20.8Ω

## 2. LEVEL CONTROL

This knob provides continuous control of the amplifier’s output level, from -12dB to 0dB (reference input of 0dB at 1V). Turning the knob clockwise increases the level, and turning it counter-clockwise decreases the level.

### **3. FAN VENTS**

These vents provide hot air flow out of the unit. It is important to keep them free of obstructions, to prevent the unit from overheating. It is also important to operate the unit in a dust-free environment.

### **4. AC POWER INPUT**

Connect the supplied standard AC input cable here.

### **5. 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.

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

### **6. HIGH-PASS FILTER SWITCH**

This switch activates the high-pass filter circuitry, which decreases frequencies lower than 400Hz by -3dB. The high-pass filter is designed to protect speakers from damage caused by excessive low frequency transients.

### **7. AUDIO INPUTS**

These balanced XLR jacks are for the input of audio signal.

### **8. GROUND LIFT SWITCH**

This switch provides for connection or disconnection of the amplifier's ground to AC "earth" ground, to prevent noise from ground loops. Under most circumstances, this switch should be set to FRAME position.

### **9. DC INPUT TERMINALS**

These terminals are provided for the connection of backup battery. Connect a 24VDC(100A) battery source to these terminals. Make certain the red terminal is connected to the battery's positive (+) side, and the black terminal to the battery's negative (-) side.

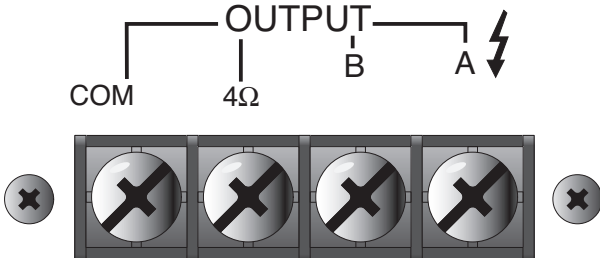


# Connecting Speakers

Before connecting speakers to your PA-9312/9324/9336/9348 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 the positive (+) connector to the 4Ω terminal and the negative (-) connectors to the COM terminal.

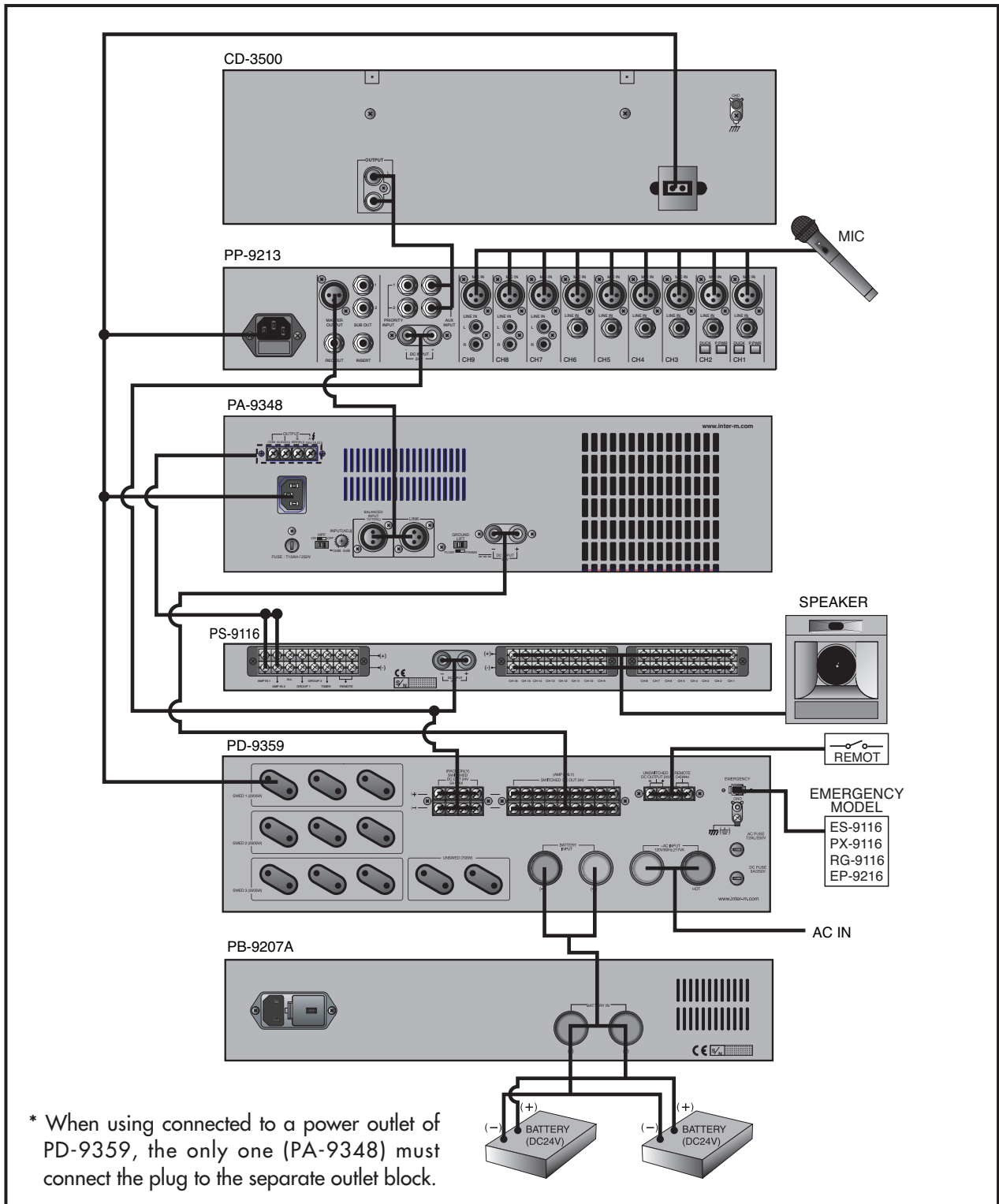
For high-voltage distributed systems, connect with matching transformer to the COM and either B or A terminals. Be certain that the total impedance does not equal less than the rated impedance.



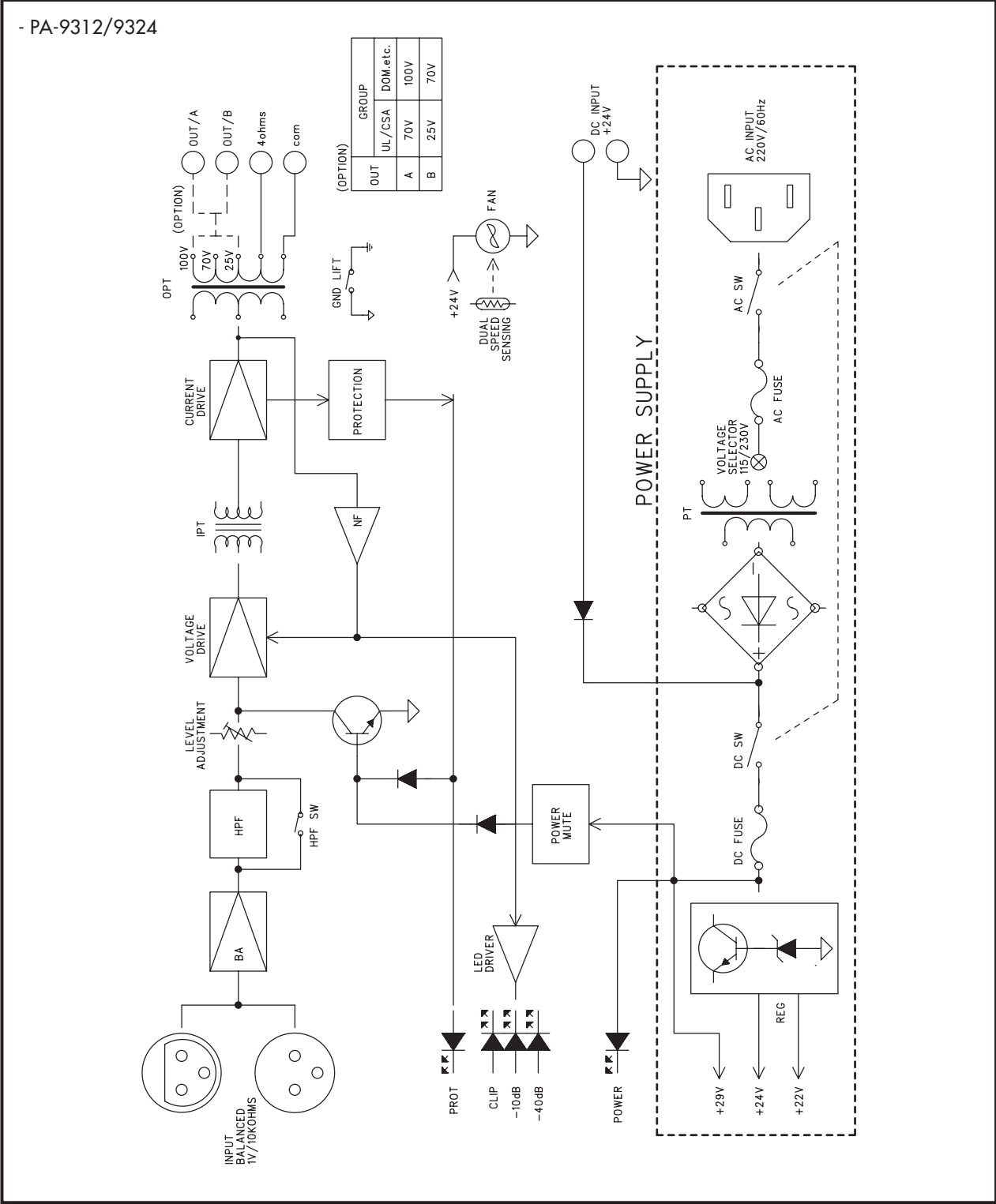
\*The impedance and output voltage are as follows.

Countries	USA/CANADA & Associated Version			EC & Associated, JAPAN Version			
	Low	High (B)		High (A)	Low	High (B)	High (A)
Output Terminals	4Ω	8Ω	25V	70V	4Ω	70V	100V
PA-9312	22V	-	5.2Ω	41Ω	22V	41Ω	83Ω
PA-9324	31V	-	2.6Ω	21Ω	31V	21Ω	42Ω
PA-9336	38V	54V	-	13.6Ω	38V	13.6Ω	27.8Ω
PA-9348	43.8V	62V	-	10.2Ω	43.8V	10.2Ω	20.8Ω

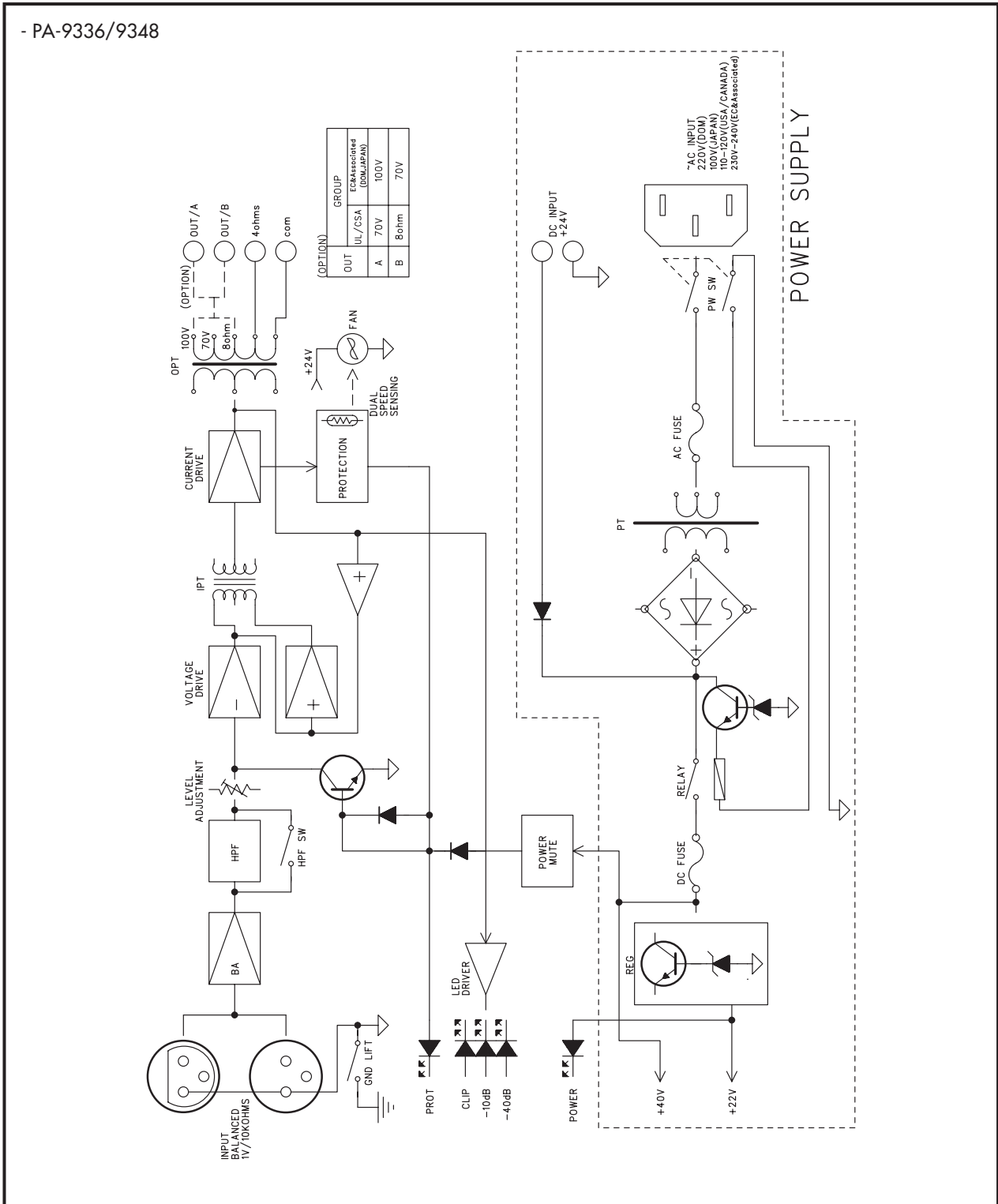
# Applications



# Block Diagram



# Block Diagram



## Specifications

	PA-9312	PA-9324	PA-9336	PA-9348
Rated Output Power (THD 5%, 1kHz)	120W	240W	360W	480W
Frequency Response (+1/-3dB)	70Hz-18kHz			
T.H.D	Less than 1%			Less than 5%
High Pass Filter (400Hz)	-3dB			
Gain Control	-12dB			
S/N	Better than 95dB			Better than 90dB
Input Sensitivity/Impedance	1V/10k $\Omega$ Balanced			
Output Voltage/Impedance	4 $\Omega$ /22V	4 $\Omega$ /31V	4 $\Omega$ /38V	4 $\Omega$ /43.8V
	5.2 $\Omega$ /25V	2.6 $\Omega$ /25V	8 $\Omega$ /54V	8 $\Omega$ /62V
	41 $\Omega$ /70V	21 $\Omega$ /70V	13.6 $\Omega$ /70V	10.2 $\Omega$ /70V
	83 $\Omega$ /100V	42 $\Omega$ /100V	27.8 $\Omega$ /100V	20.8 $\Omega$ /100V
Operating Temperature	-10° C ~ +40° C			
Power Source	100-120VAC or 220-240VAC; 50/60Hz, 24VDC (Supplied AC mains transformer depends on country requirements)			
Power Consumption (1/8 power)	100W	235W	380W	600W
Weight (SET)	14kg/30.8lb	19kg/41.9lb	19kg/41.9lb	22kg/48lb
Dimensions (SET)	482(W) × 132(H) × 280(D)mm/19(W) × 5.2(H) × 11(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.

# interM



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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