

Operation Manual

Mixing Amplifier
PA-60/120/240



interM

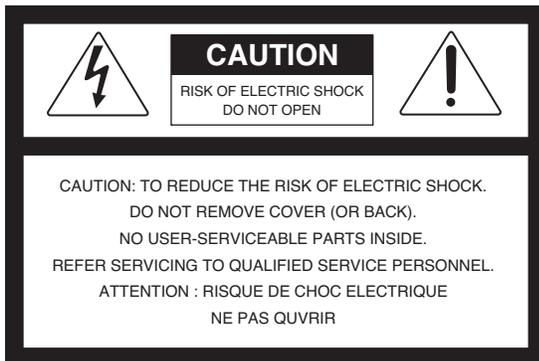
Welcome

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!



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 on une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.
Pour deconnecter complètement l'appareil du reseau d'alimentation. deconnecter le cordon d'alimentation de la prise murale.
La prise du reseau d'alimentation doit demeurer aisement accessible.

WARNING

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

*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.

*CLASS 2 WIRING (Adjacent to speaker terminal): The speaker output of this apparatus can exceed 10 Watts and could be a shock injury. Connection to speakers should be performed by a skilled person.

*Do not install this equipment in a confined space such as a book case or similar unit.

*Warning : To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture and objects filled with liquids, such as vases, should not be placed on this apparatus.

*This apparatus shall be connected to a mains socket outlet with a protective earthing connection.

*To completely disconnect this apparatus from the AC mains, disconnect the power supply cord plug from the AC receptacle.

*The mains plug of the power supply cord shall remain readily accessible.

CAUTION

*These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

NOTE

*This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Contents

Unpacking	2
Installation	
Environment	2
Important Safety Instructions	2
Features	3
Front Panel	4
Rear Panel	6
Speaker Connection	9
System Connection	11
Block Diagram	12
Specifications	14
Dimensions	15
Service	
Procedures	16
Schematic	16
Parts List	16
Variations and Options	16
Warranty	16

Unpacking

Although your PA-60/120/240 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.

Please put enough space between wall and equipment when you install this equipment.

(Sides/Back - 20cm, Top - 30cm)

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.



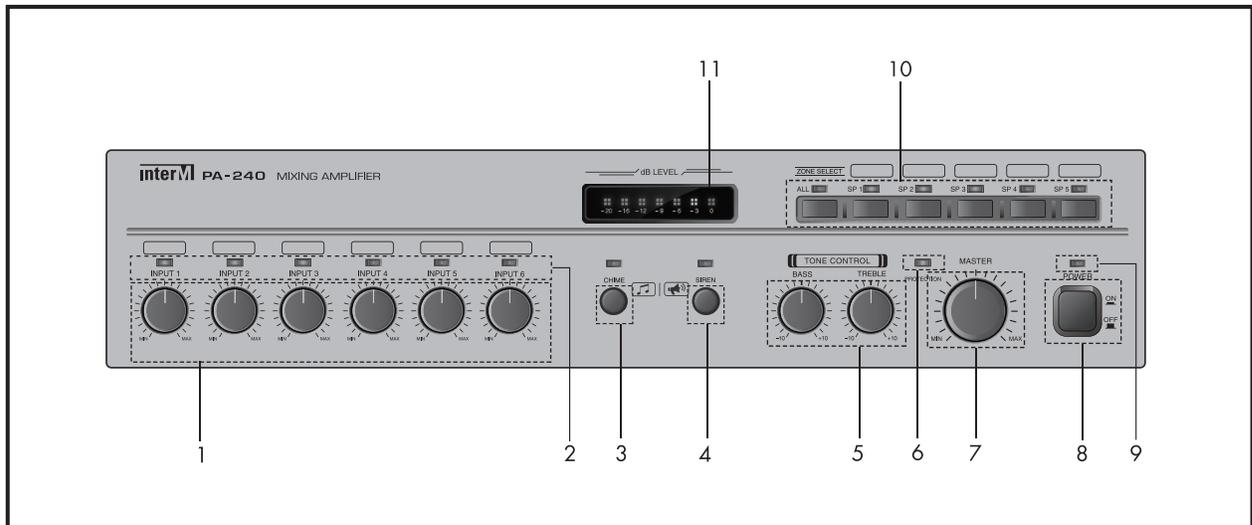
Features

- 2U Size
- 60W / 120W / 240W output power
- 5 Microphone/Line Inputs, Stereo Line Input and TEL IN with individual volume control
- EXT Input and MIX Output
- Input Signal LED Indicator per channel
- Output Level LED Display
- BASS/TREBLE Tone Controls
- 5 Speaker Zone Selection Switches
- PRIORITY
- EXT MUTE. EXT CHIME
- CHIME and SIREN

Operation

1. Make sure the power switch on the front of the unit is set to off and connect the power cord to the mains outlet. Please set each input volume control and master volume control to minimum position and set the tone controls to 0dB before turning on the power switch.
2. Make sure the speaker cables and input cables are properly connected.
3. Before connecting power, always check the voltage of main power supply.
(AC 230V/50Hz or AC 240V/50Hz or AC 120V/60Hz)
4. After completing all connections, turn on the power switch, and check to confirm that the power indicator lights.
5. Use input level control for corresponding to desired mixing volume levels and set the output level with master volume control.
6. Use the Treble/Bass tone controls to change the tone of the output source.

Front Panel



1. INPUT LEVEL CONTROL

Control the level of each of the six input channels.

2. INPUT SIGNAL INDICATOR

These LEDs light when each of the input signal is present.

3. CHIME SWITCH

It activates the four tone chime circuitry. The chime indicator lights when chime is being activated.

4. SIREN ON/OFF SWITCH

When this switch is pressed, siren signal is outputted. Press this switch once again to, stop the siren. The siren indicator lights when siren is being activated.

5. TONE CONTROL

Control the bass (100Hz) and treble (10KHz) tones of the main amplifier output and the MIX output.

6. PROTECTION INDICATOR

Indicated that the amplifier is in protection mode.

7. MASTER VOLUME CONTROL

The master volume control to collectively control the sound level of all outputs and by turning the knob clockwise to increase the volume and counterclockwise to decrease it.

8. POWER SWITCH

Press the power switch to turn on the power.

9. POWER INDICATOR

This LED Lights when the unit is powered on.

10. SPEAKER ZONE SELECTION SWITCH

Use the speaker zone selection switches to route the program audio from the amplifier output to speaker zone 1 through zone 5. The 'ALL' switch turns on all zones. The Indicators light when speaker zone selection switches are on.

- * When power goes off and back on, speaker zone selection switches are set as a setting of 'SPEAKER PRESET' switch of rear panel.
- * When 'ALL' switch is on, signals are out in all zones regardless of the status of SP1~SP5 switch.
- * When 'ALL' switch is on, LEDs of the turned-off speaker zones light half, Half-lit speaker zones will be turned off when 'ALL' switch is off.

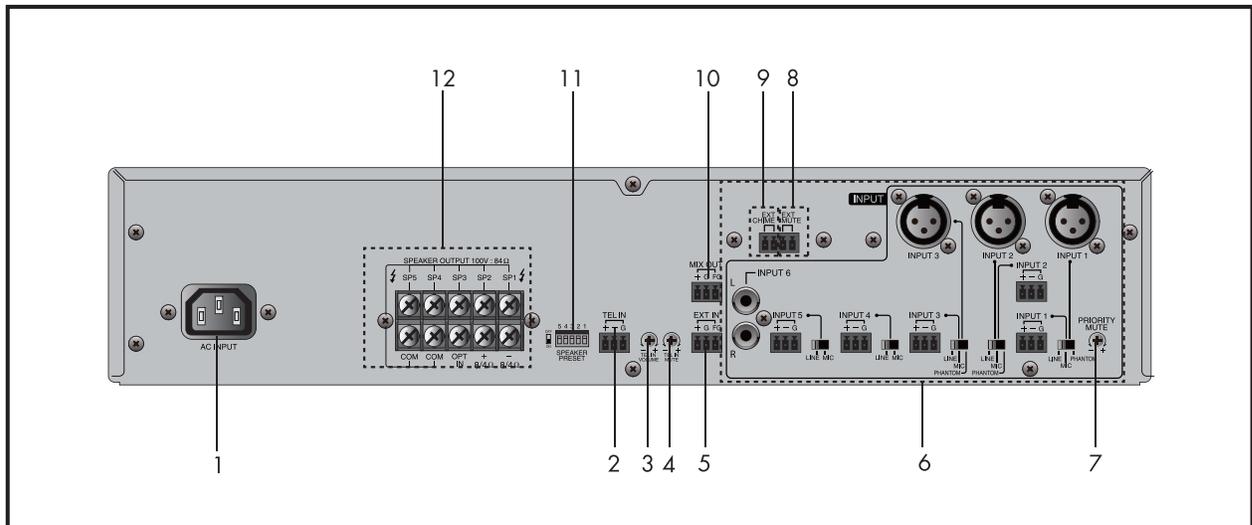
Ex)

STEP	ALL	SP1	SP2	SP3	SP4	SP5	Output
1	OFF	ON	OFF	ON	OFF	OFF	1,3 Zones
2	ON	ON	Half-lit	ON	Half-lit	Half-lit	All Zones
3	OFF	ON	OFF	ON	OFF	OFF	1,3 Zones

11. OUTPUT LEVEL DISPLAY

Displays the output level meter, each bar is marked in intervals of 3 to 4dB.

Rear Panel



1. AC MAINS (AC INLET)

It accepts a standard IEC mains cable, provided.

2. TEL IN TERMINAL

This terminal is provided for connection with a telephone exchange system for paging purposes.
 ※NOTE : When the telephone input is present, all other input signals are muted.

3. TEL IN VOLUME CONTROL

It controls the volume of the TEL IN.

4. TEL IN PRIORITY MUTE CONTROL (TEL IN MUTE)

It controls the mute level of all other input signal when the TEL IN signal is present.

5. EXT IN

This is an unbalanced line-level input connects an external mixer to the amplifier expanding input channels. Pin arrangement is +, G, FG (Frame Ground).

Please use 2-Conductor Braided Shield cable, and connect shield wire to FG (Frame Ground)

6. INPUT 1~6

INPUT 1~6 are utilized to connect various external sound source devices including MIC, CD, TUNER, and others.

1) INPUT 1~3 are provided on balanced XLR Jacks and EURO Terminals. Each input has a 3 position level and phantom power selector switch.

- LINE: used for the LINE level signal input.
- MIC: used for the MIC level signal input such as dynamic mics.
- PHANTOM: used for the condenser type mics with DC19-21V phantom power.

*NOTE : XLR Jacks and EURO Terminals of INPUT 1~3 are bridged internally.
 Therefore, DO NOT CONNECT THESE SIMULTANEOUSLY.

*NOTE : Please set level selector switch to the 'LINE' position when each INPUT 1~5 is not in use

- 2) INPUT 4~5 are provided on balanced EURO Terminals. Each input has a 2 position level selector switch.
- LINE: used for the LINE level signal input.
 - MIC: used for the MIC level signal input such as dynamic mics.

3) INPUT 6 is provided on stereo summing RCA Jacks.

7. PRIORITY CONTROL VOLUME (PRIORITY MUTE)

The output signal level of INPUT 3~6 are controlled by the priority control volume when the signal is inputted to the INPUT 1~2, EXT IN, CHIME and SIREN or EXT MUTE terminal is closed.

- ※ The signal from INPUT 1~2, EXT IN, CHIME, SIREN input has priority over all other input signal and BGM broadcasting.

8. EXT MUTE

When these two terminals are shorted, output signal level of INPUT 3~6 is diminishes as much as the volume value controlled by the PRIORITY CONTROL VOLUME(PRIORITY MUTE).

9. EXT CHIME

This terminal is used to activate the 4 tone chimes remotely.

10. MIX OUT

This is an unbalanced line-level output connects the other amplifier recorder.

Pin arrangement is +, G, FG (Frame Ground).

Please use 2-Conductor Braided Shield cable, and connect shield wire to FG (Frame Ground)

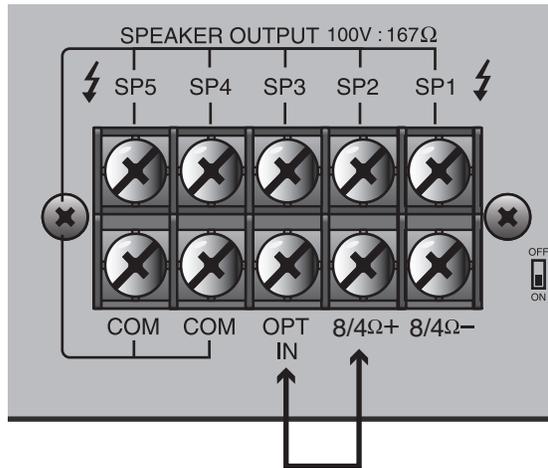
11. SPEAKER PRESET SWITCH

When power goes off and back on, speaker zone selection switches on the front panel are set as a setting of SPEAKER PRESET switch.

12. SPEAKER OUTPUT TERMINAL

	8/4Ω Terminal	SP1~SP5 • COM Terminals	
		100V region	70V region
PA-60	8~4Ω	100V/167Ω	70V/82Ω
PA-120	8~4Ω	100V/84Ω	70V/41Ω
PA-240	8~4Ω	100/42Ω	70V/21Ω

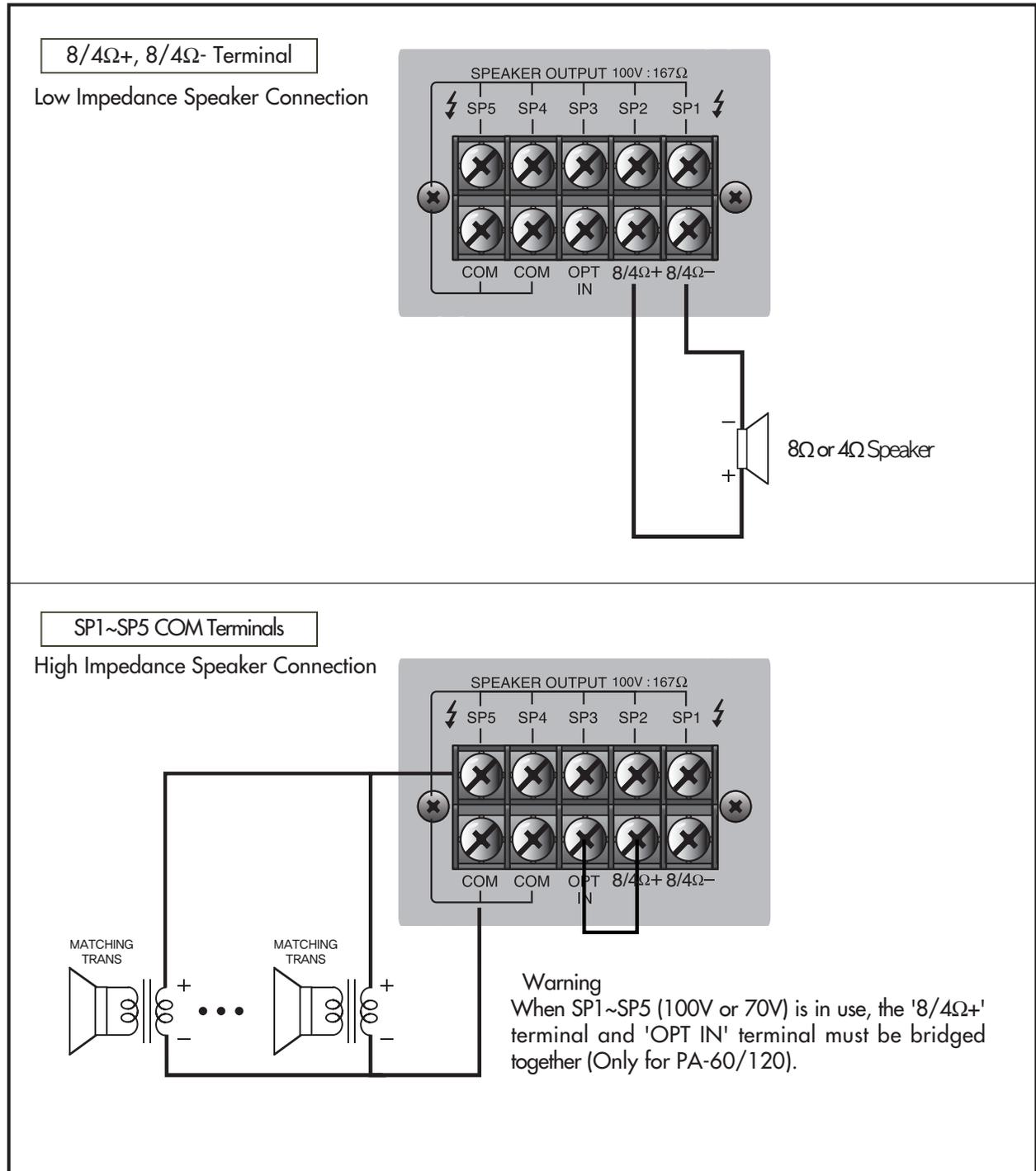
- ※ Please note that SP1~SP5 output voltage (100V or 70V) is different as the region.
- ※ Please note that SP1~SP5 terminal will be controlled by the speaker zone selection switch of front panel.
- ※ When SP1~SP5 (100V or 70V) is in use, the '8/4Ω+' terminal and 'OPT IN' terminal must be bridged together (Only for PA-60/120).



※ Please do not use 8/4Ω output terminal and SP1~SP5 (100V or 70V) output terminals at the same time.

Speaker Connection

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

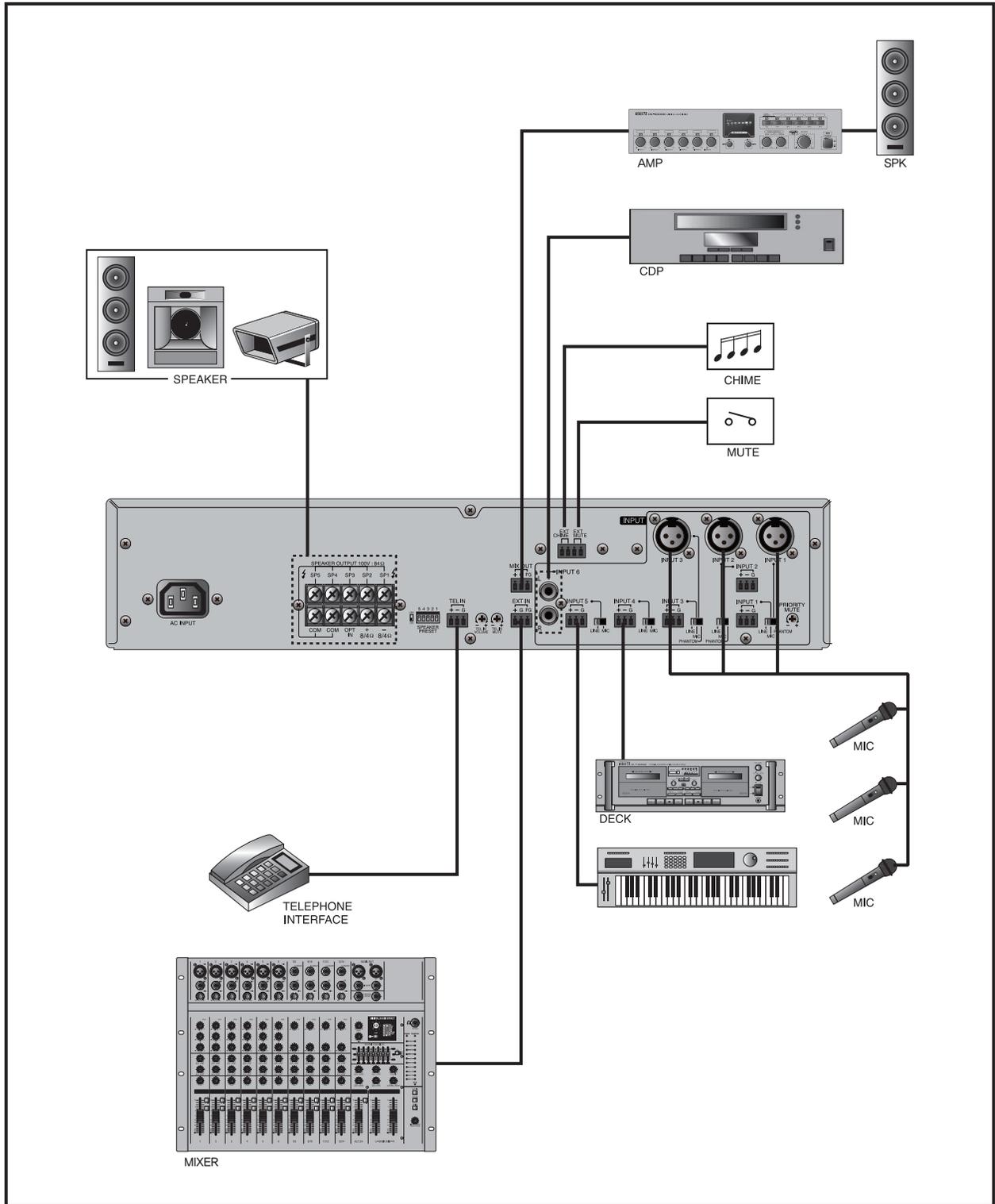


※ Warning : For high impedance systems, connect with matching transformer as the following Figure.
Be certain that the total impedance is not less than the rated impedance.

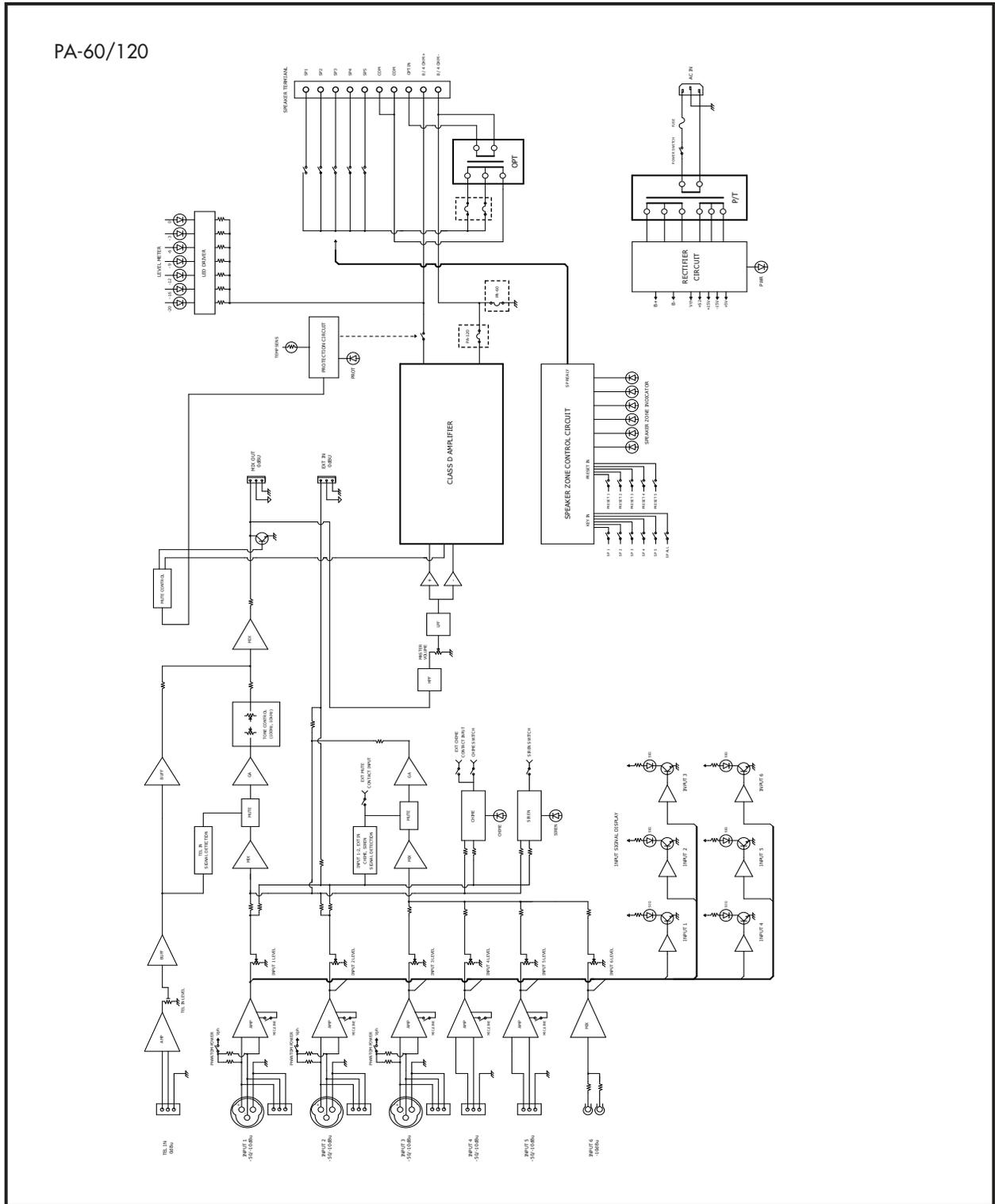
※ Warning : Please do not use 8/4Ω output terminal and SP1~SP5 (100V or 70V) output terminals at the same time.

*NOTE : Please note that SP1~SP5 output voltage (100V or 70V) is different as the region.

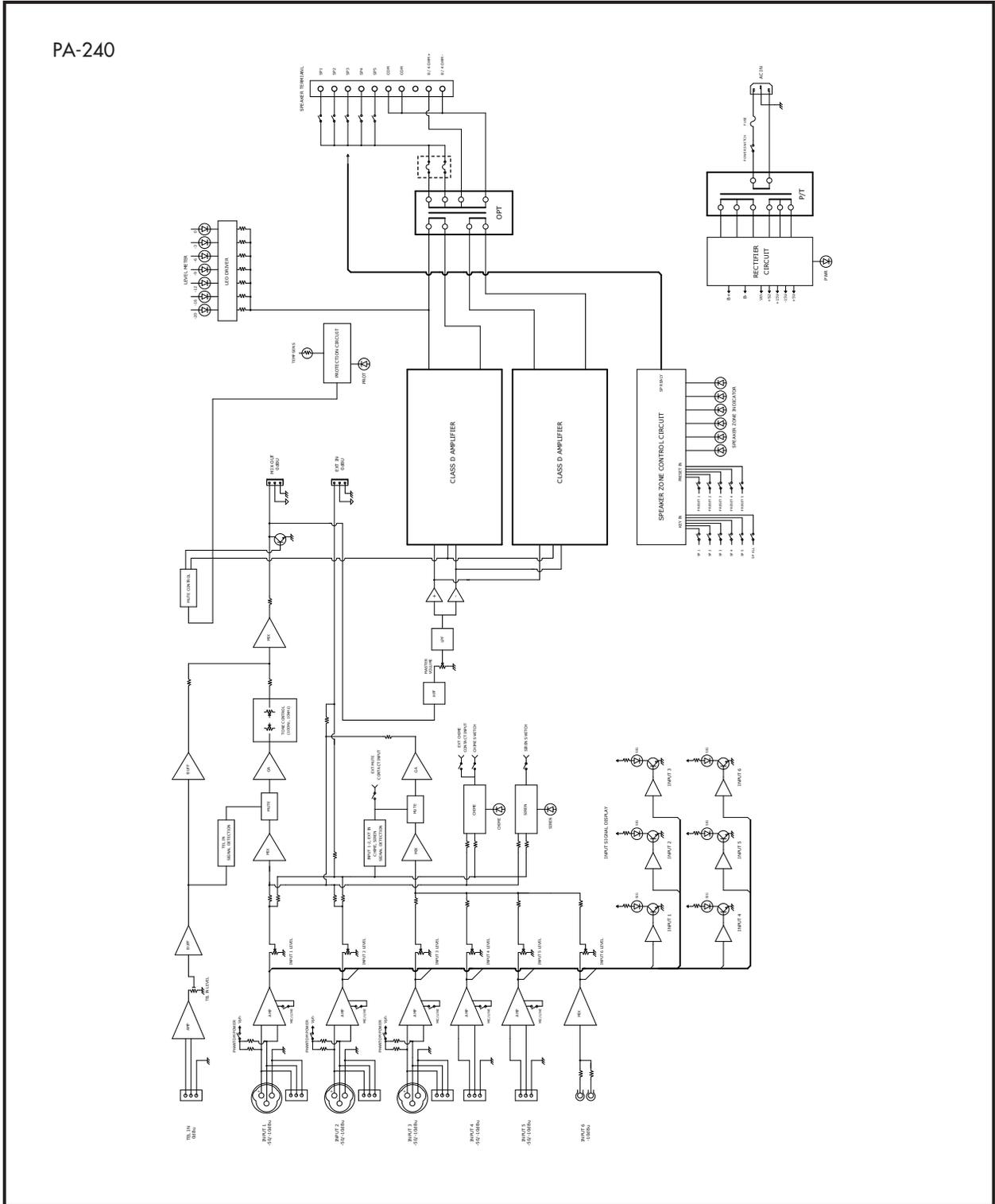
System Connection



Block Diagram



Block Diagram



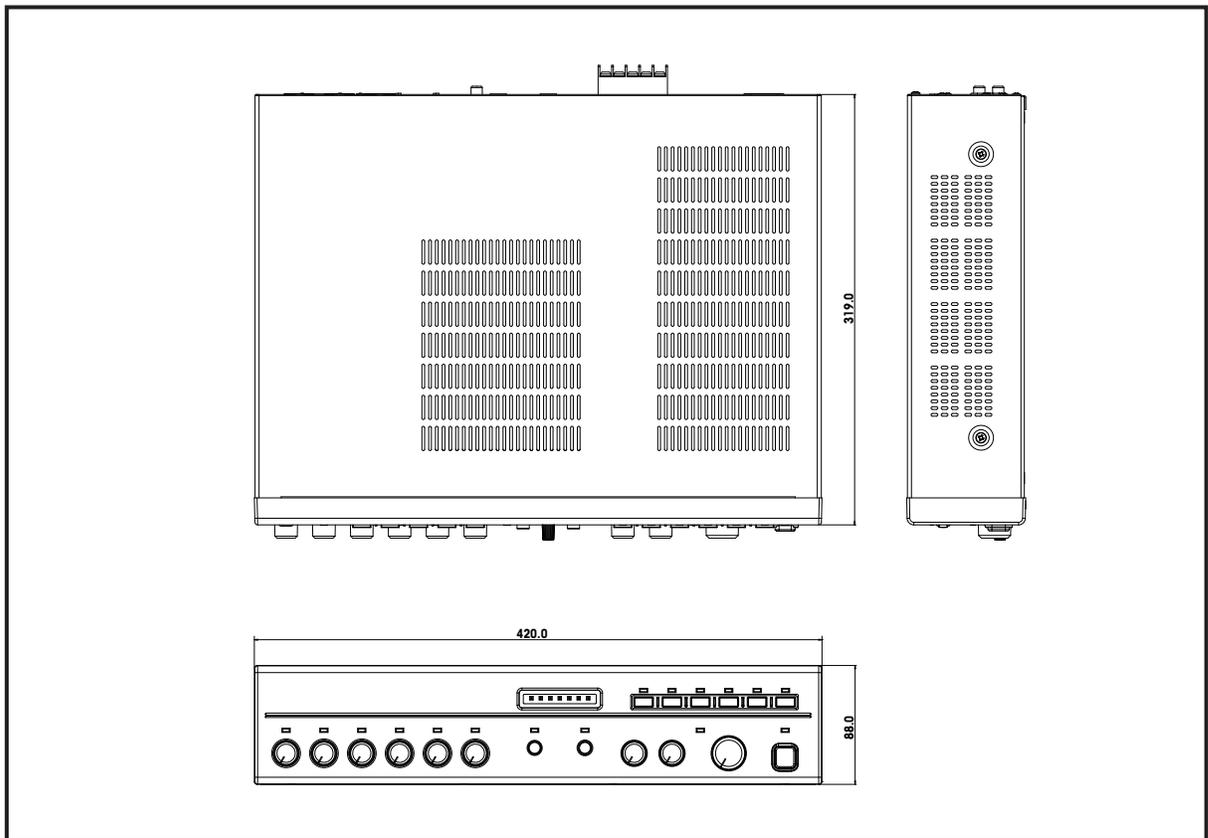
Specifications

		PA-60	PA-120	PA-240
●100V/70V High-Z Output				
Rated Output Power (@1kHz, THD 1%)		60W	120W	240W
Frequency Response (@ 1W, Rated Load, ±3dB)		80Hz ~ 17kHz		
THD (@ Rated Power, 1kHz)		Less than 1%		
S/N (Line input)		more than 78dB		
TONE CONTROL (100Hz, 10kHz, ±3dB)		±10dB		
Input Sensitivity / Impedance				
INPUT 1~5	MIC	-50dBu / 2kΩ (Balance)		
	LINE	-10dBu / 2kΩ (Balance)		
INPUT 6		-10dBu / 10kΩ (Balance)		
TEL IN		0dBu / 10kΩ (Balance)		
EXT IN		0dBu / 20kΩ (Unbalance)		
MIX OUT / Impedance		0dBu / 10kΩ (Unbalance)		
Speaker Output Level/Impedance	100V region	100V / 167Ω	100V / 84Ω	100V / 42Ω
	70V region	70V / 82Ω	70V / 41Ω	70V / 21Ω
●8/4Ω Output				
Rated Output Power (@1kHz, THD 1%)	8Ω	40W	120W	180W
	4Ω	60W	160W	240W
Frequency Response (@ 1W, 8Ω, ±3dB)		80Hz – 20kHz		
●General Specifications				
Operation Temperature		-10°C ~ +40°C		
Power Source		AC 120V/60Hz or AC 230V/50Hz or AC 240V/50Hz (Supplied AC mains transformer depends on contrary requirements)		
Power Consumption (1/8W output)		40W	60W	90W
Weight (SET)		6.2kg / 13.7lb	7.4kg / 16.3lb	9.8kg / 21.6lb
Dimensions (SET)		420(W) x 88(H) x 319(D)mm 16.5(W)x3.5(H)x12.6(D)in		

* Design and specification are subject to be changed for the improvement of product quality without pre notice.

* Please note that High-Z SP1~SP5 output voltage (100V or 70V) is different as the region.

※ DIMENSIONS



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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