Operation Manual

Public Address Mixing Amplifier

PU-103/106/112



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 étre insérées à fond sans en laisser aucune partie à découvert.
Pour deconnecter completement 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.

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Unpacking

Although your PU-103/106/112 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.



Overview

The PU-103/106/112 is a mixing amplifier which supports high / low impedance, USB input, and MP3.
It was developed as a product to add a USB input to an easy-to-install table-type amplifier.

Features

- COMPACT DESIGN
Easy to install and operate with compact design of 1U size and functions.

- DIGITAL AMPLIFIER CIRCUIT
Take up the Digital Amplifier Circuit with High efficiency of the rated power PU-103: 30W, PU-106: 60W, PU-112: 120W), High reliability, low weight and low temperature.

- USB DRIVE AUDIO PLAY FUNCTION
USB thumb drive supports audio play.

- VARIOUS INPUT CONTROL FUNCTION
Control the each input channel level using the sound control volume of INPUT 1~3.

- INPUT SIGNAL LED
Allowed to display the input signals input to INPUT 1~3 to easily check the signal input of each channel.

- AUTOMATIC SLEEP MODE
Minimized power consumption and life span of the parts is lengthened. When the output is lower than 170μW for a minimum of 5 minutes (Default: 15 minutes), MA-112 switches to standby, and switches back on in less than 0.5 seconds when the output exceeds 170μW.

- TONE CONTROL FUNCTION
You can adjust the tone to suit your surroundings and mood by using the Tone Controls of BASS and TREBLE depending on the frequency used.

- PRIORITY MUTING
Adopted to control other input signals by input signals of TEL IN and INPUT 1.

- EXTERNAL MUTE FUNCTION
Be able to use external mute when you want to cut off the unit's output signal from the external equipment.

Contents and Accessories

1. 8P Terminal Block x 1EA
2. Operation Manual x 1EA

Operation

1. Before you plug the power cord to AC outlet, please set the power switch OFF, tone Control center, and volume level minimum.

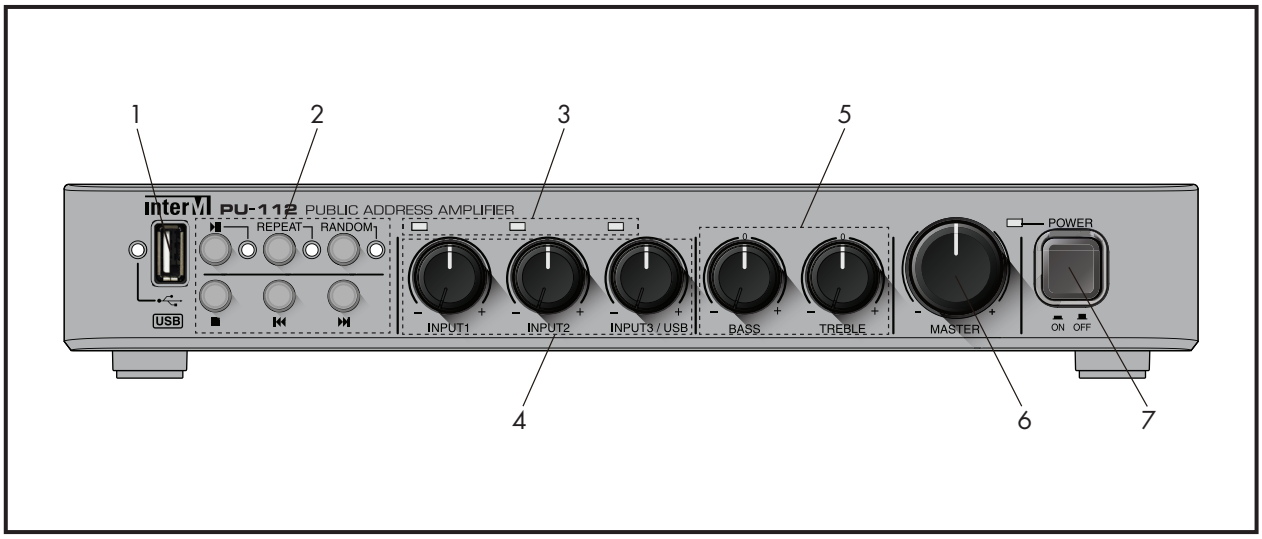
2. Please make sure the speakers and input jacks are properly connected before turn the power switch on.

3. Be sure the AC power is correct voltage before you plug into the power cord. (AC 120-240V, 50/60Hz)

4. Please push the power switch, then the power input led is on and the unit will be operated.

5. Please use your own with adjustment the volume using each input volume and master volume, the tone using the tone control.

Front Panel



1. USB-A (MEMORY) SLOT

Please use your own with adjustment the volume using each input volume and master volume, the tone using the tone control.

※ File system: FAT16, FAT32 (NTFS not available)

※ Formats supports only

1) MP3 files: *.mp3, *.mp2, *.mp1
2) WMA files: *.asf, *.wma
3) AAC files: *.m4a, *.3gp, *.mp4

2. USB PLAY MODE SELECTION BUTTON

1) ■ Button: Press the button to stop the audio file currently being played.
2) |◄◄ Button: Press the button briefly to move to the previous audio file. Press and hold the button for more than 2 seconds to rewind.
3) ►►| Button: Press the button briefly to move to the next audio file. Press and hold the button for more than 2 seconds to fast forward.
4) ►|| Button: Press the button to play or pause the audio file.
   - When LED is turned on (by pressing the button once): Current audio file is played.
   - When LED blinks (by pressing the button twice): The audio file which is currently being played is paused.
5) RANDOM Button: When you press the button, the LED lights up and the audio file is played at random.
   - The entire audio files in memory are played repeatedly. It is recommended to use up to 128 audio files.
6) REPEAT Button: Press the button to play the audio file repeatedly.
   - When LED is turned on (by pressing the button once): Those files stored in the folder with currently playing audio file are played repeatedly.
   - When LED blinks (by pressing the button twice): Only the currently playing audio file is played repeatedly.

   ※ You cannot activate the RANDOM and REPEAT simultaneously.

3. INPUT SIGNAL LED

These green LEDs flash when signal is present and the input level control to INPUT 1~3 is turned up.

4. INPUT VOLUME

These adjust the Mixing level of input signal of INPUT 1~3.

※ You can adjust the volume of USB and AUX input through INPUT 3 volume.

5. TONE CONTROL

These controls the BASS (200Hz) and TREBLE (15kHz) of the main output signal by ±10dB.

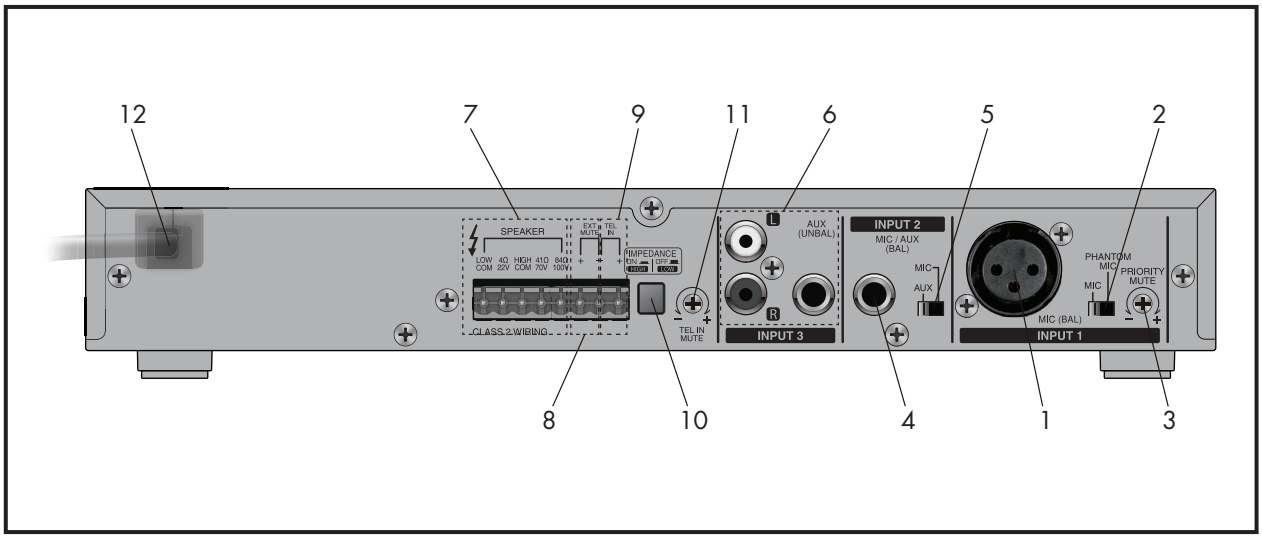
6. MASTER VOLUME

This controls the main output level. Turn the master volume clockwise to increase volume.

7. POWER SWITCH, POWER LED

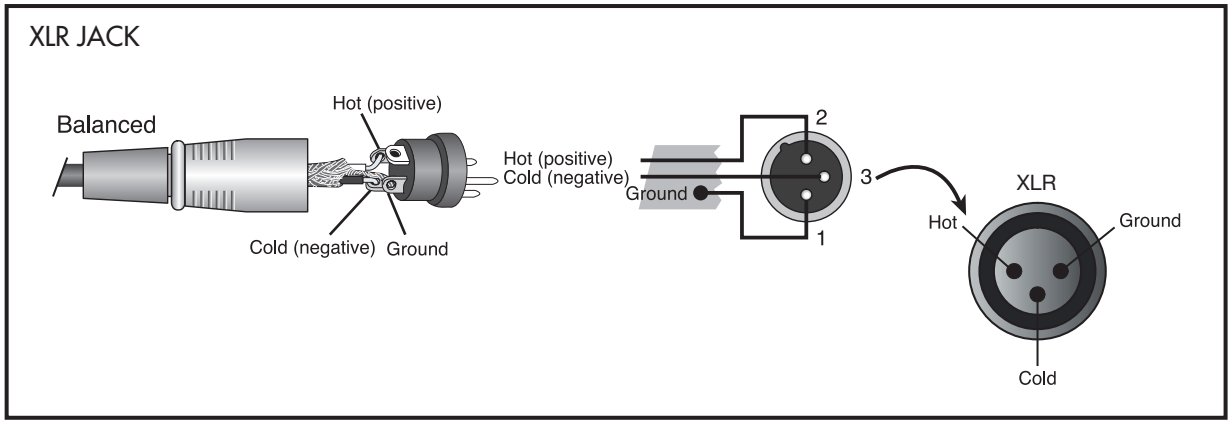
It is a power supply switch. After connecting the power cord on the back of the equipment, press the switch to supply power to the equipment and turn on the power LED (Blue).

Rear Panel



1. INPUT 1 TERMINAL

This terminal is for microphones. Be sure to use a balanced cable.



2. SELECT SWITCH OF INPUT 1 PHANTOM MIC

This is the switch to select types of microphones. Be able to use either dynamic microphone or condenser microphone, and the phantom power of +15V is supplied when using the condenser microphone.

- MIC: for general dynamic microphones
- PHANTOM MIC: for condenser microphones

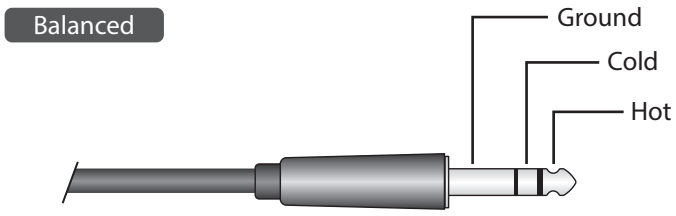
3. PRIORITY MUTE CONTROL VOLUME

INPUT 1 has priority over INPUT 2~3. Output level of INPUT 2~3 lowers when signal is present on INPUT 1. Priority mute control volume adjusts the output level on INPUT 2~3.

4. INPUT 2 TERMINAL

This terminal is for such devices as microphone, computer, CD player, and DVD player. Please refer to the following picture about the suitable cables. 6.3ø phone Jack.

- 6.3ø Phone Jack

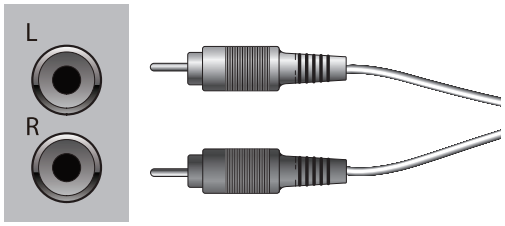


5. INPUT 2 LEVEL SELECT SWITCH

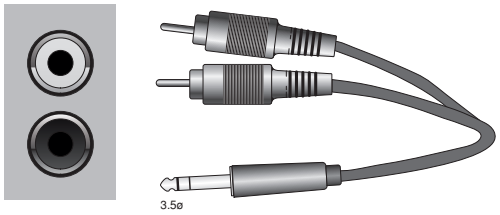
This is the switch to adjust level of INPUT 2
- MIC: for microphones
- AUX: for source devices

6. INPUT 3 TERMINAL

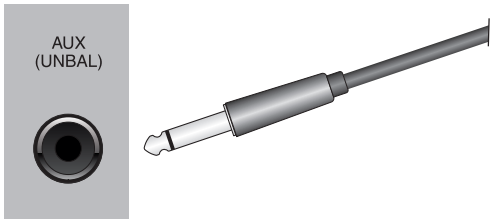
AUX input terminal for such devices as microphone, PC, CD player, and DVD player. Please refer to the following picture about the suitable cables.
- RCA JACK



- 'Y' cable is needed when connecting to PC



- 6.3ø Phone Jack



7. SPEAKER OUTPUT TERMINAL

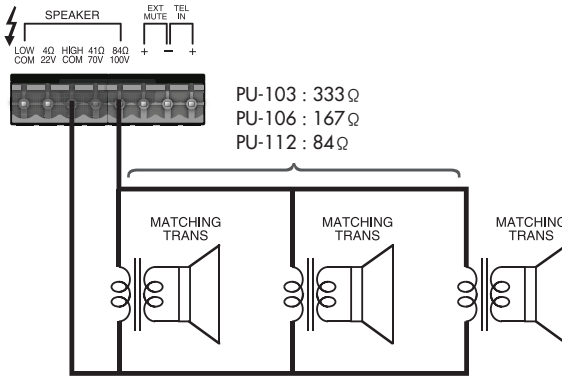
This is the terminal for speakers. 4Ω(8Ω), 70V, 100V cannot be used at the same time. Make certain that the total impedance is not less than the rated impedance indicated. It may cause overload and malfunction.

※ Connecting Speakers

Before connecting speakers to PU-103/106/112 unit, be sure to disconnect the AC power cable.

- FOR 100V TERMINAL

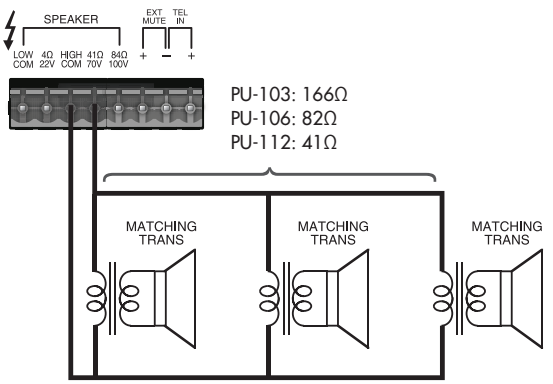
※ IMPEDANCE SELECTION SWITCH ON



※ Make sure that 4Ω output terminal is connected with OPT-IN terminal.

- FOR 70V TERMINAL

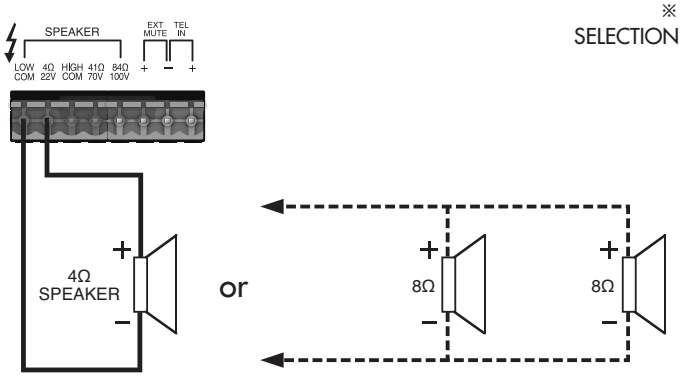
※ IMPEDANCE SELECTION SWITCH ON



※ Make sure that 4Ω output terminal is connected with OPT-IN terminal.

- FOR PU-103/106: 8Ω or PU-103: 4Ω TERMINAL

※ IMPEDANCE SELECTION SWITCH ON



(ONE 4Ω SPEAKER) (TWO 8Ω SPEAKERS)

※ Set impedance selection switch to OFF position.

※ Please make sure not to use 4Ω/8Ω, 70V, 100V terminals simultaneously.

NOTE : 1. Make certain that the total impedance is not less than the rated impedance indicated.
2. Please make sure not to use 4Ω/8Ω, 70V, 100V terminals simultaneously.
3. Impedance selection switch must be on properly to use high-impedance output terminal (70V, 100V).

8. EXTERNAL MUTE CONTROL TERMINAL

Connect +, - terminals externally to mute the output signal.

9. TEL IN TERMINAL

This is the audio input terminal of PBX that can be controlled with master volume control.

10. IMPEDANCE SELECTION SWITCH

Adjust this switch to select the desired output impedance. Select OFF for 4Ω(8Ω) output. Select ON for 70V or 100V output.

11. TEL IN MUTE CONTROL VOLUME

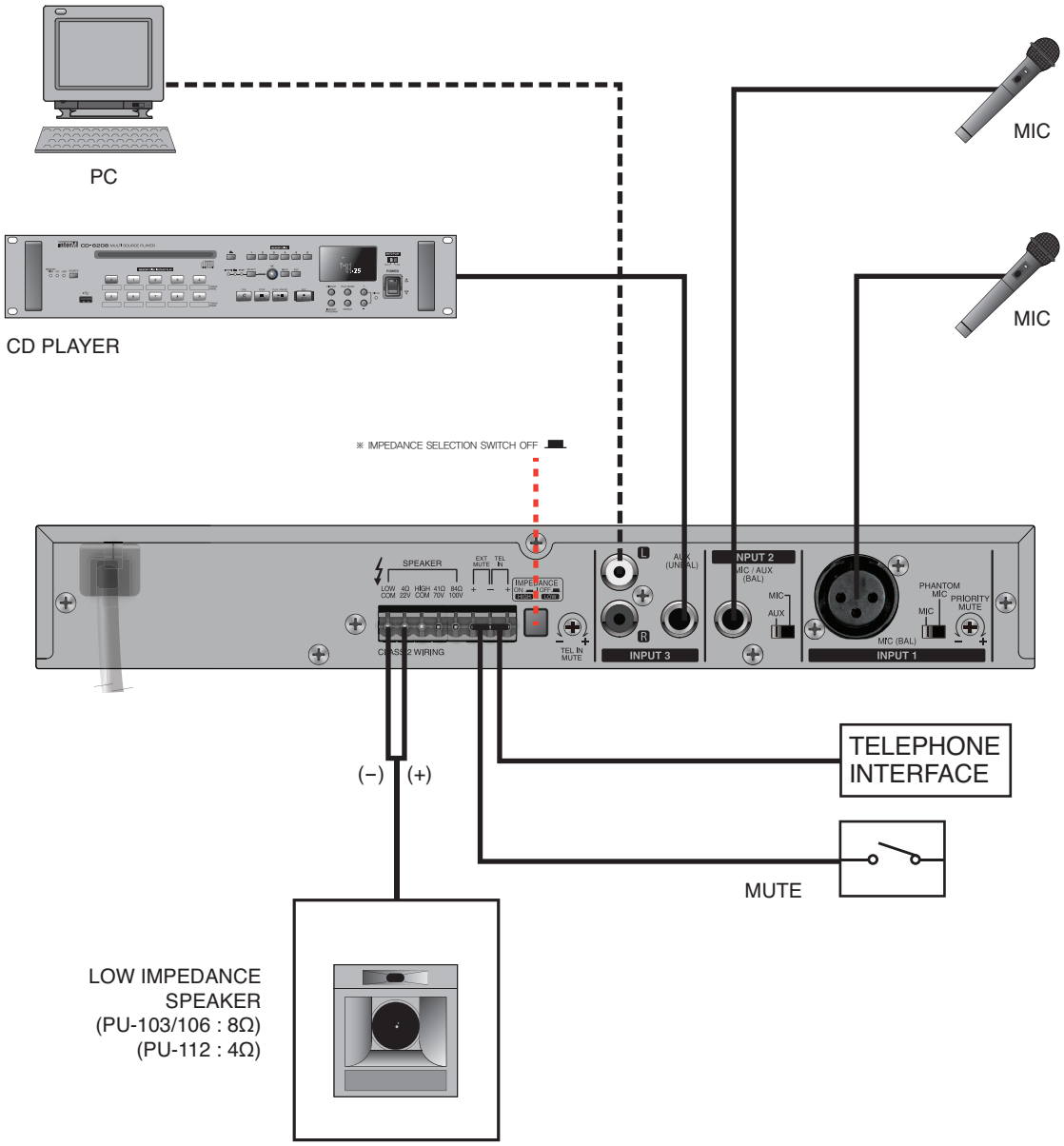
TEL IN input signal can be the top priority. TEL IN input has priority over INPUT 1~3. Output level of INPUT 1~3 falls when signal is present on TEL IN. TEL IN mute control volume adjusts the level of output falling on INPUT 1~3.

12. AC POWER CORD

This is the AC cord for connecting power. Do not bend, pull, twist, heat and cut by force. It may cause electric shock.

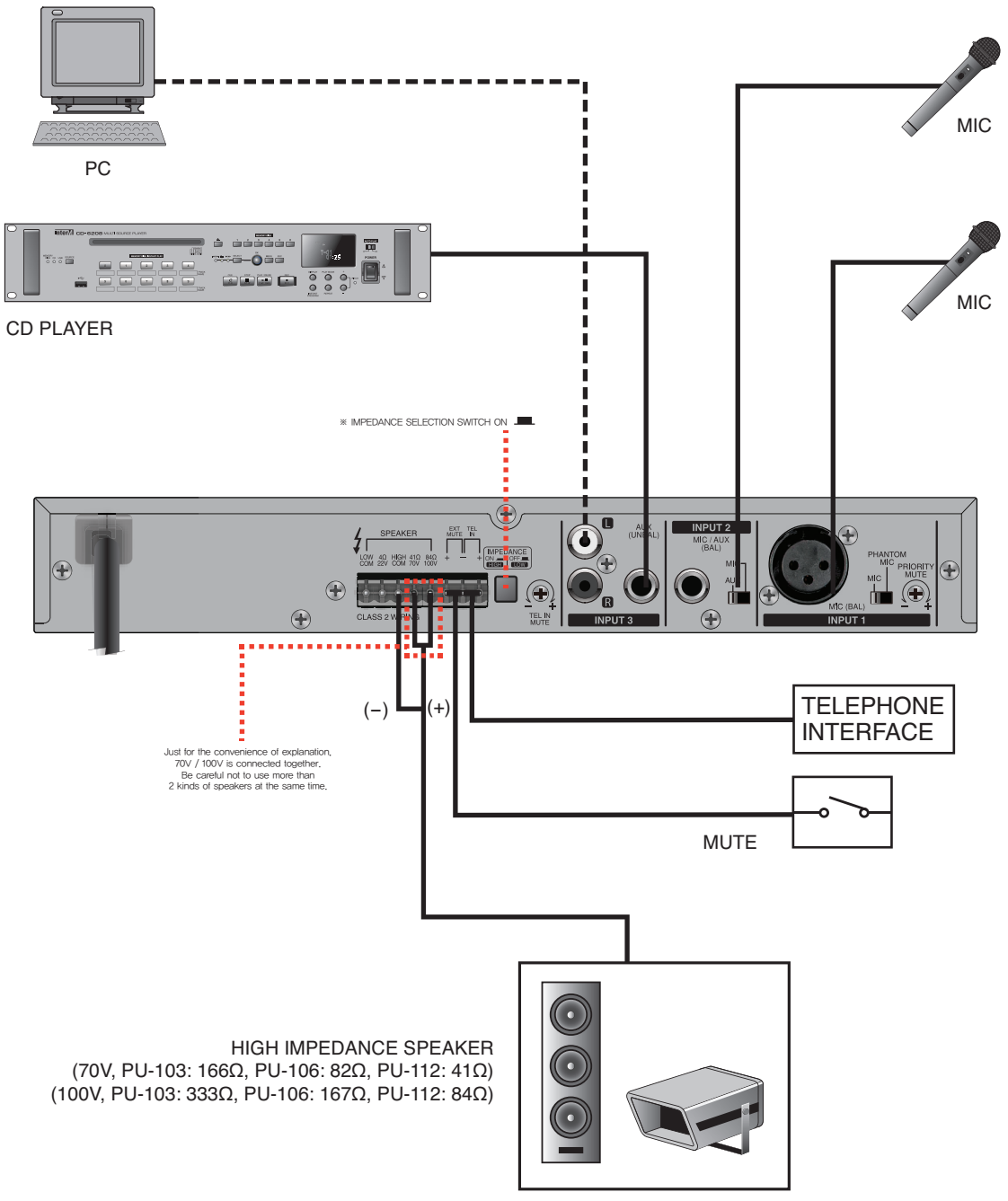
Applications

USING LOW INPEDANCE SPEAKER

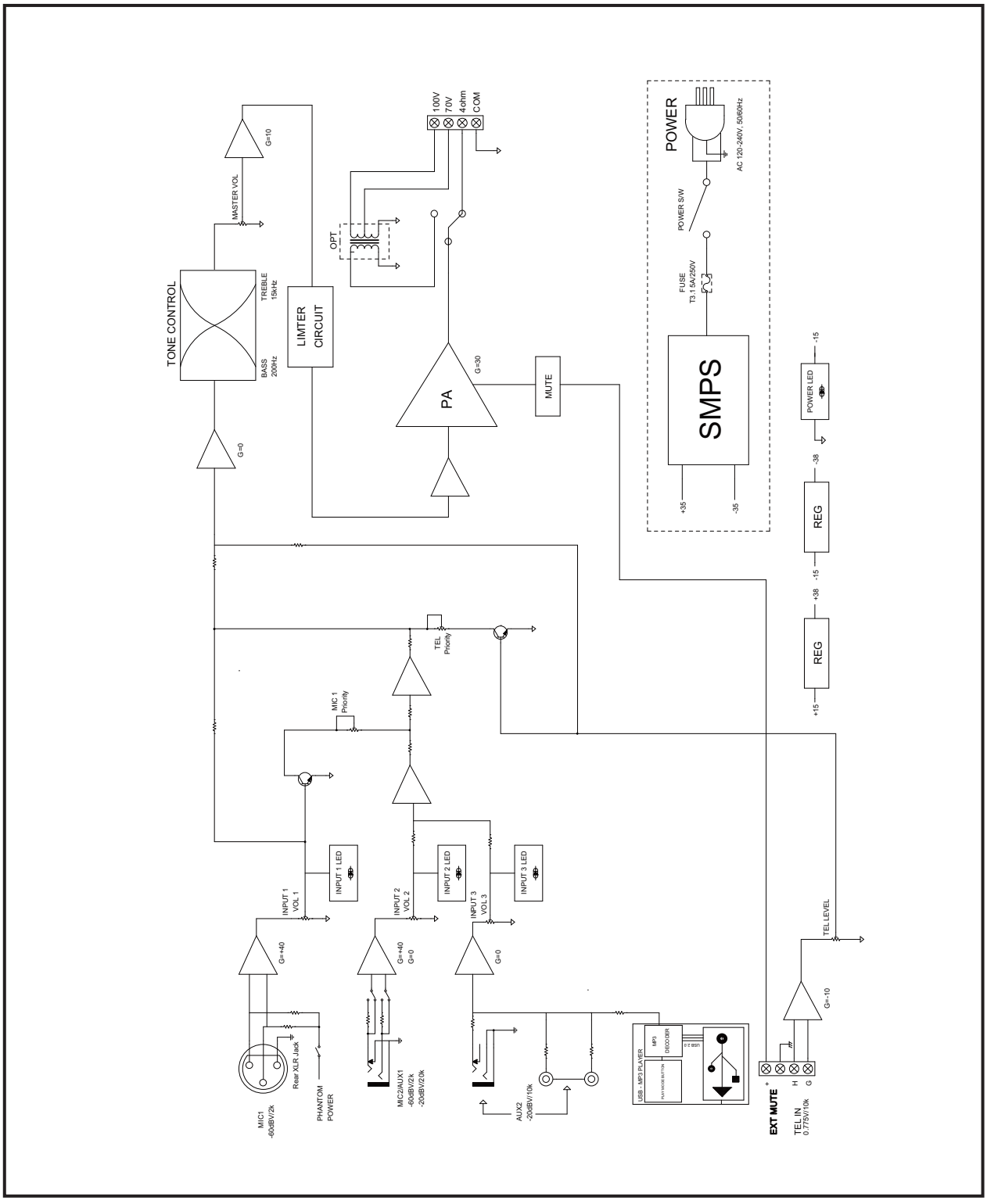


※ You have to select one between 4Ω/8Ω and High voltage output.
You never use both 4Ω/8Ω with High voltage output at the same time. Please use only one output terminal. (4Ω/8Ω, 70V, 100V) If you do this system will have damaged or work protection.

USING LOW INPEDANCE SPEAKER



Block Diagram

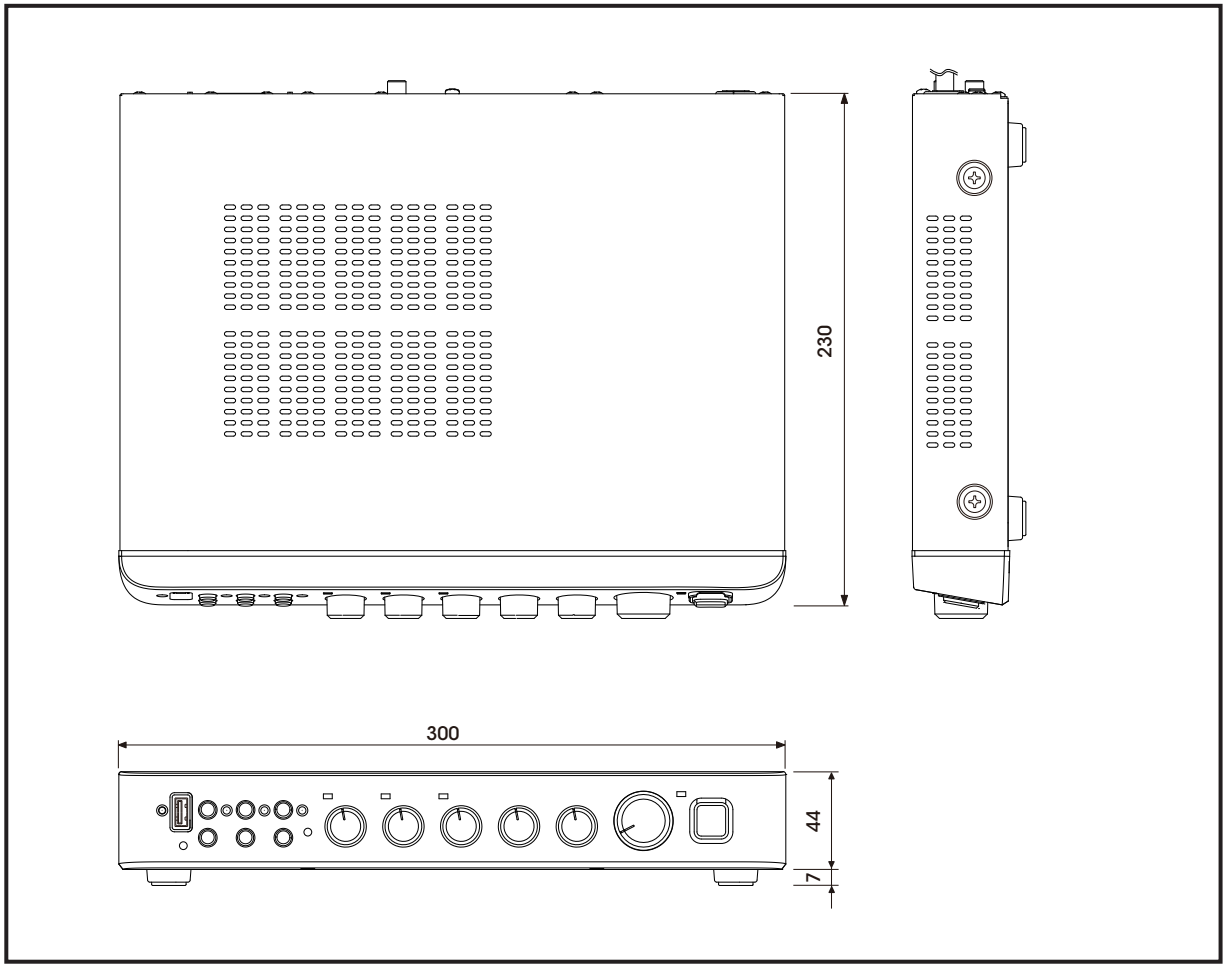


Specifications

		PU-103	PU-106	PU-112
Rated Output Power (1kHz, THD 1%)		15.5V(8Ω)	21.9V(8Ω)	21.9V(4Ω)
		70V(166Ω)	70V(82Ω)	70V(40.83Ω)
		100V(333Ω)	100V(167Ω)	100V(83.33Ω)
S/N	MIC	Better than 55dB		
	RCA, 6.35Φ PHONE JACK	Better than 55dB		
	LINE, TEL IN	Better than 55dB		
Input Sensitivity /Impedance	MIC (BALANCE)	-60dBV /2kΩ		
	LINE (BALANCE)	-20dBV /2kΩ		
	RCA (UNBALANCE)	-20dBV /2kΩ		
	6.35Φ PHONE JACK (UNBALANCE)	-20dBV /2kΩ		
	TEL IN (BALANCE)	0dBV/600Ω		
THD+N	1kHz (1/3Pwr @8Ω)	Less than 1%		
TONE CONTROL	BASS(200Hz)	±10dB		
	TREMBLE(15KHz)	±10dB		
Frequency Response (1W,±3dB,Low-Z)	INPUT 1~2 (MIC)	300Hz~12kHz		
	INPUT 2~3 (LINE), TEL IN	300Hz~15kHz		
Operating Temperature		-10℃~+40℃		
Power Source		AC 120-240V, 50/60Hz		
Power Consumption (1/8W)		20W	35W	
Weight (Set)		2.82kg/6.2lb	3.18kg/7.01lb	3.18kg/7.01lb
Dimensions (Set)		300(W) x 44(H) x 230(D)mm/11.8(W) x 1.7(H) x 9(D)in		

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

※ 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.

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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