Operation Manual

Public Address Amplifier

MA-106A



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.

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.
*This apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such vases, shall be placed on the apparatus.
*This apparatus shall be connected to a mains socket outlet with a protective earthing connection.
*It has heed to be easy to disconnect the device. To disconnect the device from power, separate AC input cable from inlet or unplug the AC Cord.
*The socket-outlet shall be installed near the equipment and shall be easily 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 MA-106A 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.



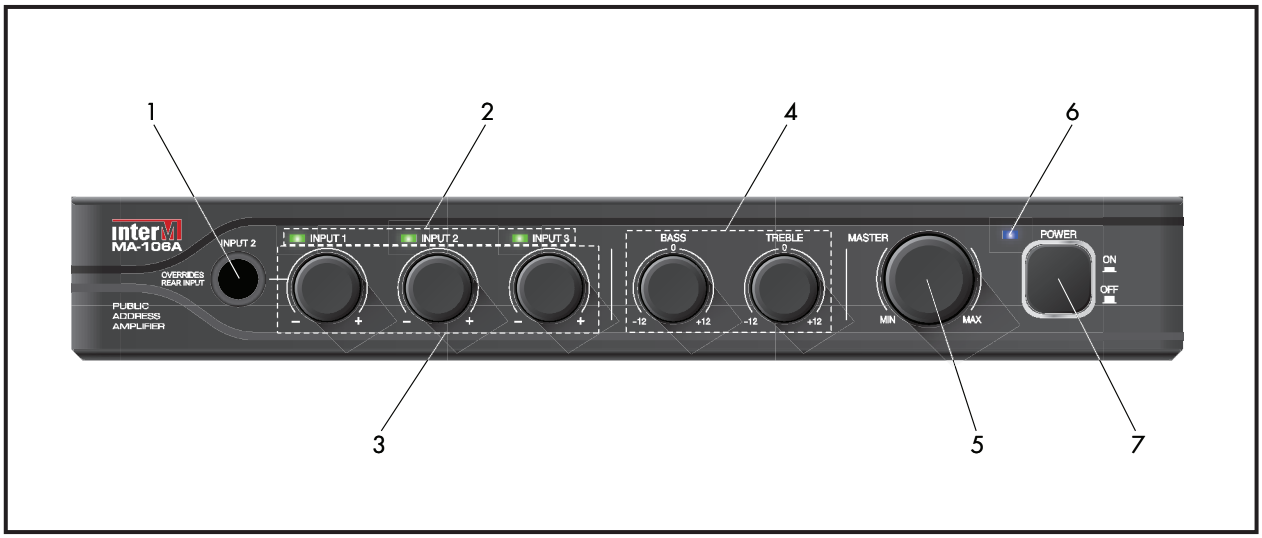
Features

- 1U Size Compact Design
- 60W High Efficiency Digital Amp Circuit
- SMPS Power Circuit
- Volume control on INPUT 1~3 – enable to adjust each input channel level
- Display the input signal of INPUT 1~3
- Base and Treble Controls
- Diverse Features -Phantom Mic Power, External MUTE, etc.
- PRIORITY Function
- MIX Configuration DIP switches
- Without input signal for 25 Min, automatically converted to Master System standby Mode

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.
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. INPUT 2 JACK
This is a 3.5mm Tip Ring Sleeve (TRS) jack on the front panel that drives input 2. This jack is very useful for connecting MP3 players, and overrides all input 2 connections on the back panel.

2. INPUT SIGNAL LEDS
These LEDs flash when input signal is present.

3. INPUT LEVEL CONTROLS
These control the level of the three input channels.

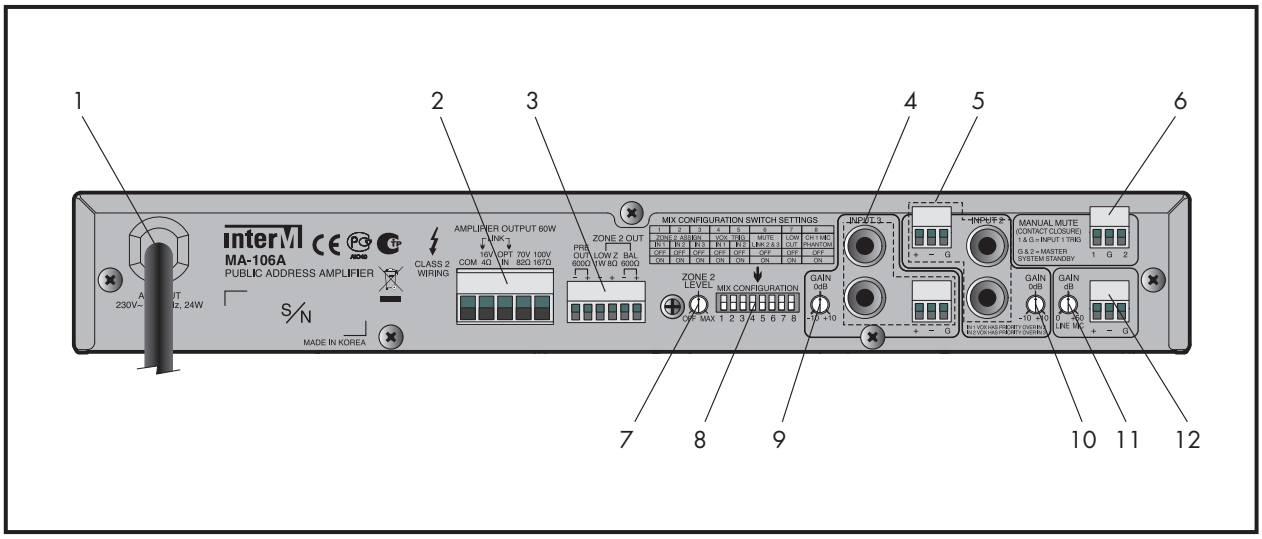
4. BASS AND TREBLE CONTROLS
These control the bass and treble of the main amplifier output.

5. MASTER VOLUME CONTROL
This controls the main amplifier output level. There is a separate rear panel level control for zone 2 output.

6. POWER LED
This LED lights blue when the unit is powered on and active, and red when in standby mode.

7. POWER SWITCH
This switch turns the power on or off.

Rear Panel



1. AC MAINS

Connect this cable to an AC outlet.

2. MAIN SPEAKER OUTPUTS

This 5.08mm Euroblock connector is used for the main speaker output wiring. For low impedance speaker loads, minimum 4Ω, connect between the COM and 16V/4Ω pins. For 70V/82Ω or 100V/167Ω speaker loads (USA/CANADA & Associated : 25V/11Ω or 70V/82Ω), the LINK wire must first be installed between the 16V/4Ω pin and OPT IN pin, then connect the speaker load between COM and 70V or 100V pins.

3. ZONE 2 AND PREAMP OUTPUTS

In addition to the main 60 Watt amplifier output, there is a separate ZONE 2 output which is a switch selectable mix of channels 1, 2, or 3. This output is not effected by the priority ducking/mute action or by the bass/treble EQ controls.

The ZONE-2 output provides two signals; 1) a low impedance output that is capable of continuously driving 1 Watt into an 8 Ohm loudspeaker, and 2) a 600 Ohms transformer balanced output. Zone 2 output is controlled by the rear panel Zone 2 level control, as well as the three channel assign DIP switches.

The PRE OUT connection is used for driving additional external devices with the same signal that drives the main MA-106A power amplifier. The PRE OUT 600 Ohms output signal is taken before the master volume control.

4. INPUT 3 CONNECTORS

3.5mm Euroblock connectors and summed stereo RCA jacks are used for input 3. If wiring an unbalanced input signal into a balanced Euroblock input, be sure to ground the (-) input pin.

5. INPUT 2 CONNECTORS

3.5mm Euroblock connectors and summed stereo RCA jacks are used for input 2. If wiring an unbalanced input signal into a balanced Euroblock input, be sure to ground the (-) input pin.

6a) MANUAL MUTE CONTACT CLOSURE

Contact Closure between pins 1 and G will mute input channel 2, or mute channels 2 and 3 together if they are linked using mix configuration switch #6. This is typically used when a microphone plugged into channel 1 has a push-to-talk switch, whereby the pressing of the switch not only turns on the mic but also mutes the signal on channel 2, or channels 2 and 3 if they are linked. When the switch is released, the signal on channels 2 and 3 returns.

6b) MASTER SYSTEM STANDBY

The MA-106A has a power saving standby mode which can be triggered by 25 minutes of audio inactivity(below a certain audio input level), or by contact closure of the Master System Standby connector pins G & 2. When in standby mode, the front panel power LED will turn red, changing back to blue for normal operating mode. Standby mode is ended when there is audio signal present again, or when the Master System Standby circuit is opened. Master system standby has priority over standby due to inactivity.

7. ZONE 2 LEVEL CONTROL

This controls the level of the Zone 2 output signal.

8. MIX CONFIGURATION DIP SWITCHES

- Switches 1, 2, and 3: Zone 2 Assign
  These assign each input to Zone 2 output, post-level control. There is no effect to the main output mix.
- Switches 4-5: VOX Trigger -
  The MA-106A has the ability to trigger a mute on channel 2 or 3 from the presence of an audio signal on channel 1 or 2. This is called Voice Operated Switching, or VOX. Input 2 has priority over input 3, and input 1 has priority over input 2. Input 1 also has the ability to use a contact closure trigger such as a mic push-to-talk switch for priority muting of channel 2. Additionally, input 1 can be set to have priority over both inputs 2 and 3 together (see switch 6).
  The MA-106A has audio detecting LEDs on each input. When the VOX TRIG switches are set to ON for inputs 1 or 2, the same signal level which activates the LED is used as the VOX trigger. VOX mutes the dependent channel until the trigger signal falls back below the LED threshold. Each input features a rear panel gain trim that first optimizes the overall input sensitivity for each input, but can also serve to fine-tune the sensitivity of the signal detector which creates the VOX trigger point for each input.
- Switch 6: Mute Link 2&3
  When this switch is turned on, it sets the channel 1 VOX trigger or Manual Mute contact closure to mute both channels 2 and 3. If only channel 2 is to be affected, leave it off.
- Switch 7: Low-Cut Filter
  This switch turns on a 400Hz 6dB/oct low-cut filter affecting the main and PRE outputs but not the zone 2 outputs. This is useful for providing the proper EQ for paging horns.
- Switch 8: CH 1 MIC Phantom Power
  This provides +18V phantom power to input 1 for use with condenser and electret microphones.

9. INPUT 3 GAIN CONTROL

Input 3 gain trim range is adjustable from -10dB to +10dB.

10. INPUT 2 GAIN CONTROL

Input 2 gain trim range is adjustable from -10dB to +10dB. This control is also used to fine tune the signal threshold that will trigger the muting of input 3.

11. INPUT 1 GAIN CONTROL

Input 1 gain trim range is adjustable from 0dB to +50dB. A typical line level input setting would be close to 0dB. A typical Microphone input setting would be closer to +50dB. This control is also used to fine tune the signal threshold that will trigger the muting of input 2 or inputs 2 and 3 if linked.

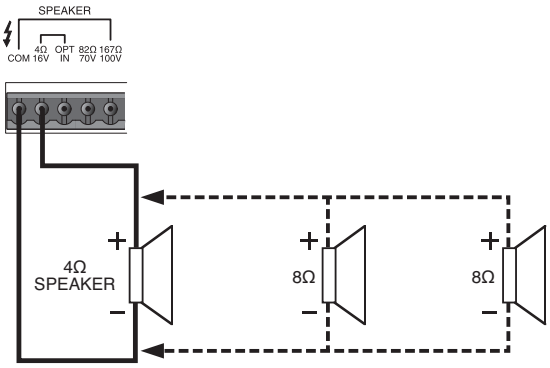
12. INPUT 1 CONNECTOR

A 3.5mm Euroblock connector is used for input 1, and can be used as a mic level or line level input. As a balanced line input, it can connect to a telephone paging system instead of a microphone. If the input signal is unbalanced, be sure to ground the unused (-) input pin.

Connecting Speakers

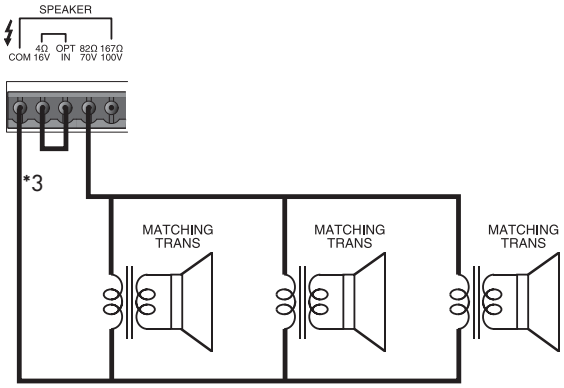
Before connecting speakers to MA-106A unit, be sure to disconnect the AC power cable.

- FOR 4Ω TERMINAL

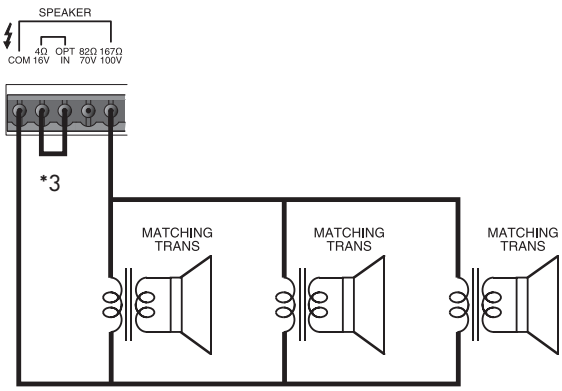


(ONE 4Ω SPEAKER) (TWO 8Ω SPEAKERS)

- FOR 70V TERMINAL



- FOR 100V TERMINAL



NOTE : 1. Make certain that the total impedance is not less than the rated impedance indicated.
2. Don't have to use several speaker terminals at the same time.
3. If you're just dealing with the high impedance terminal, then make sure that 4Ω output terminal is connected with OPT-IN terminal.

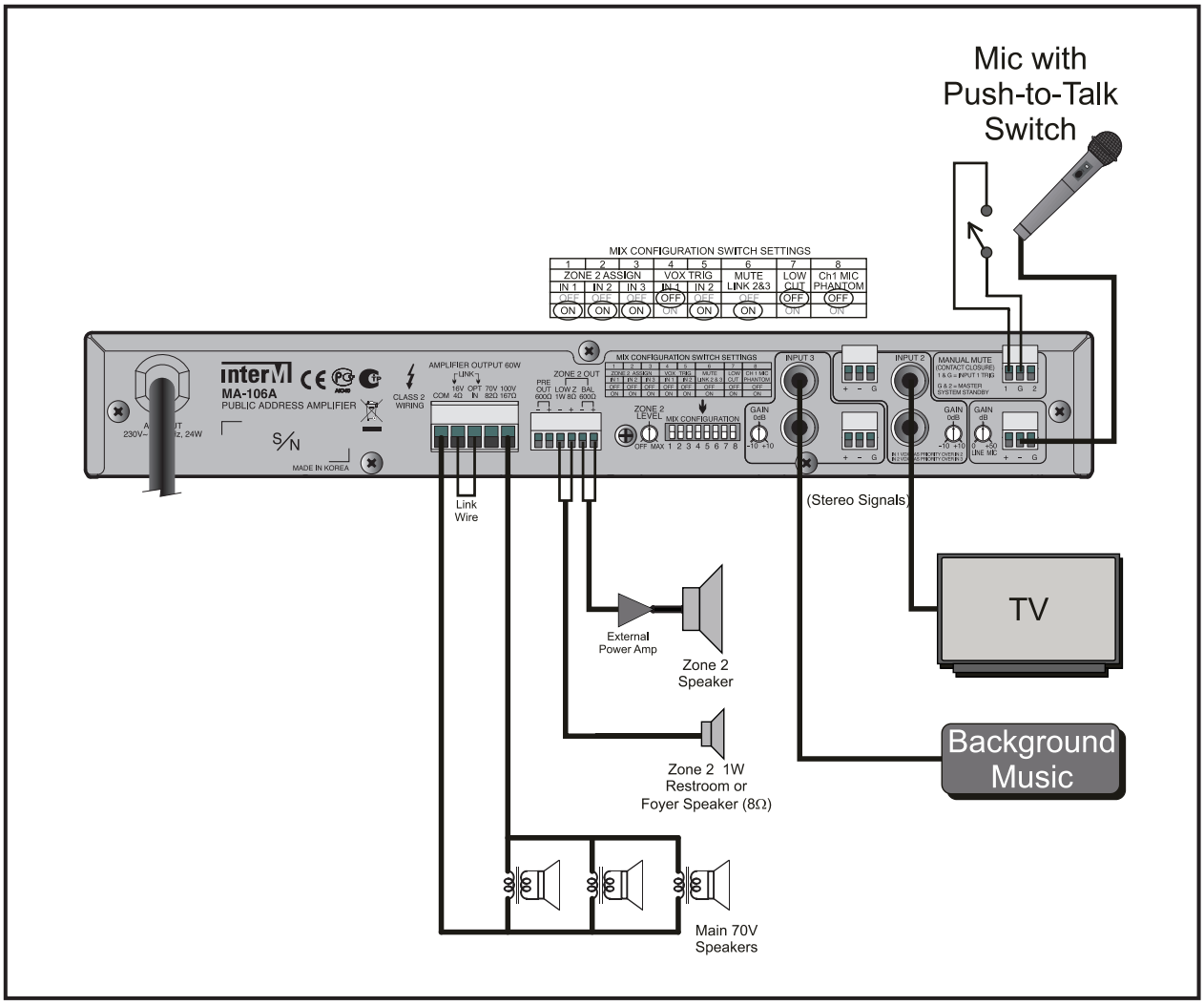
Typical Applications

- RESTAURANT SYSTEM

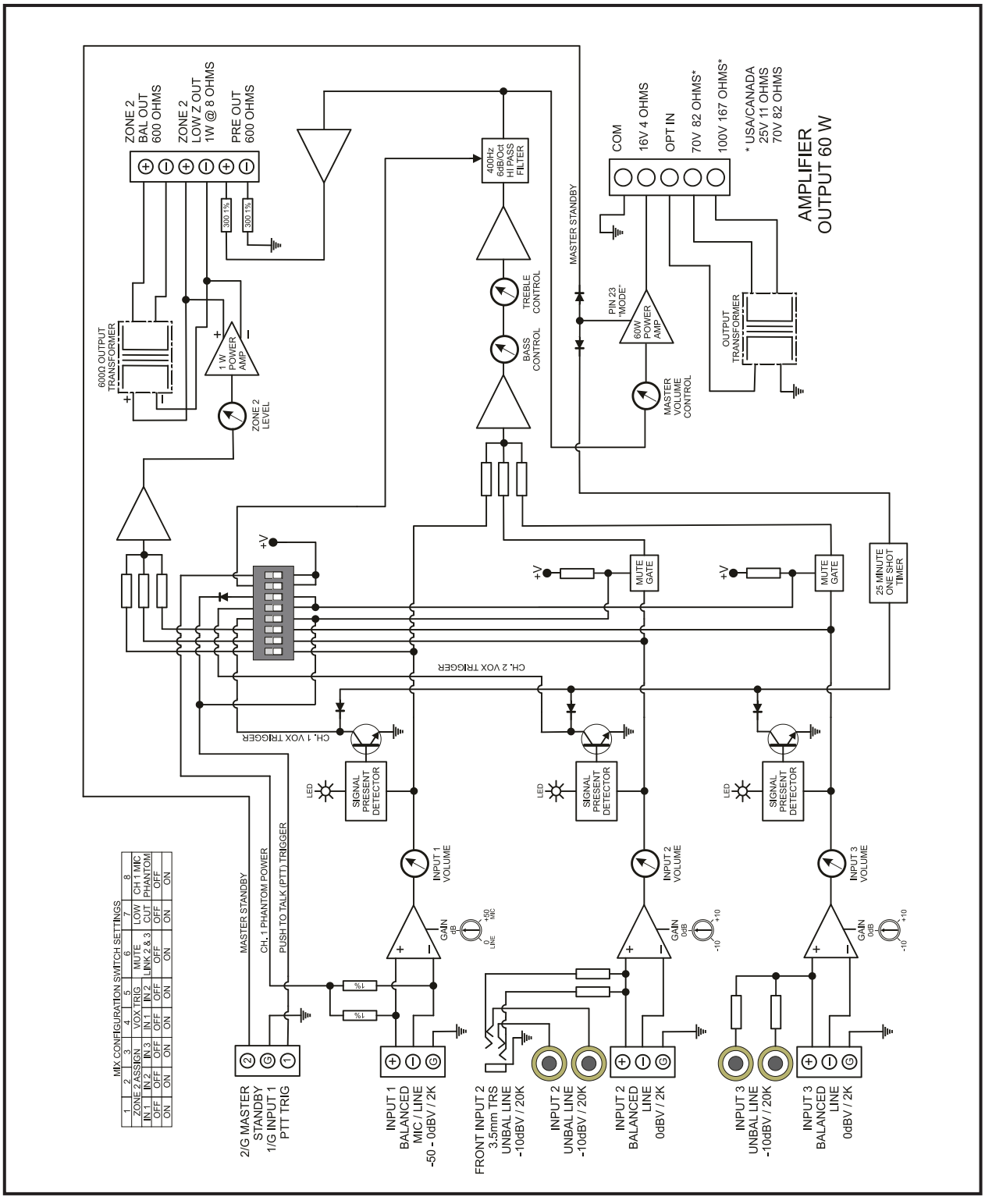
This two tiered priority ducking example allows for background music to be present on channel 3, which can be overridden by the presence of audio on channel 2 from a TV signal, both of which can be overridden by a keyed microphone announcement on channel 1. Stereo audio signals using RCA jacks are summed to mono at the input.

In this example, all three inputs are assigned to Zone 2 via the DIP switches. Because the mic is set up for push-to-talk, the IN 1 VOX trigger switch is left off. IN 2 VOX trigger is switched on however, so that signal from the TV will automatically override the background music. Mute Link is switched on so that the keyed mic will mute both Inputs 1 and 2.

A 70V distributed speaker system runs off of the main power amplifier, and an external amplifier is run off of the Zone 2 600Ω output. A small 1W 8Ω speaker is run off of the Zone 2 Low Z output.



Block Diagram



Specifications

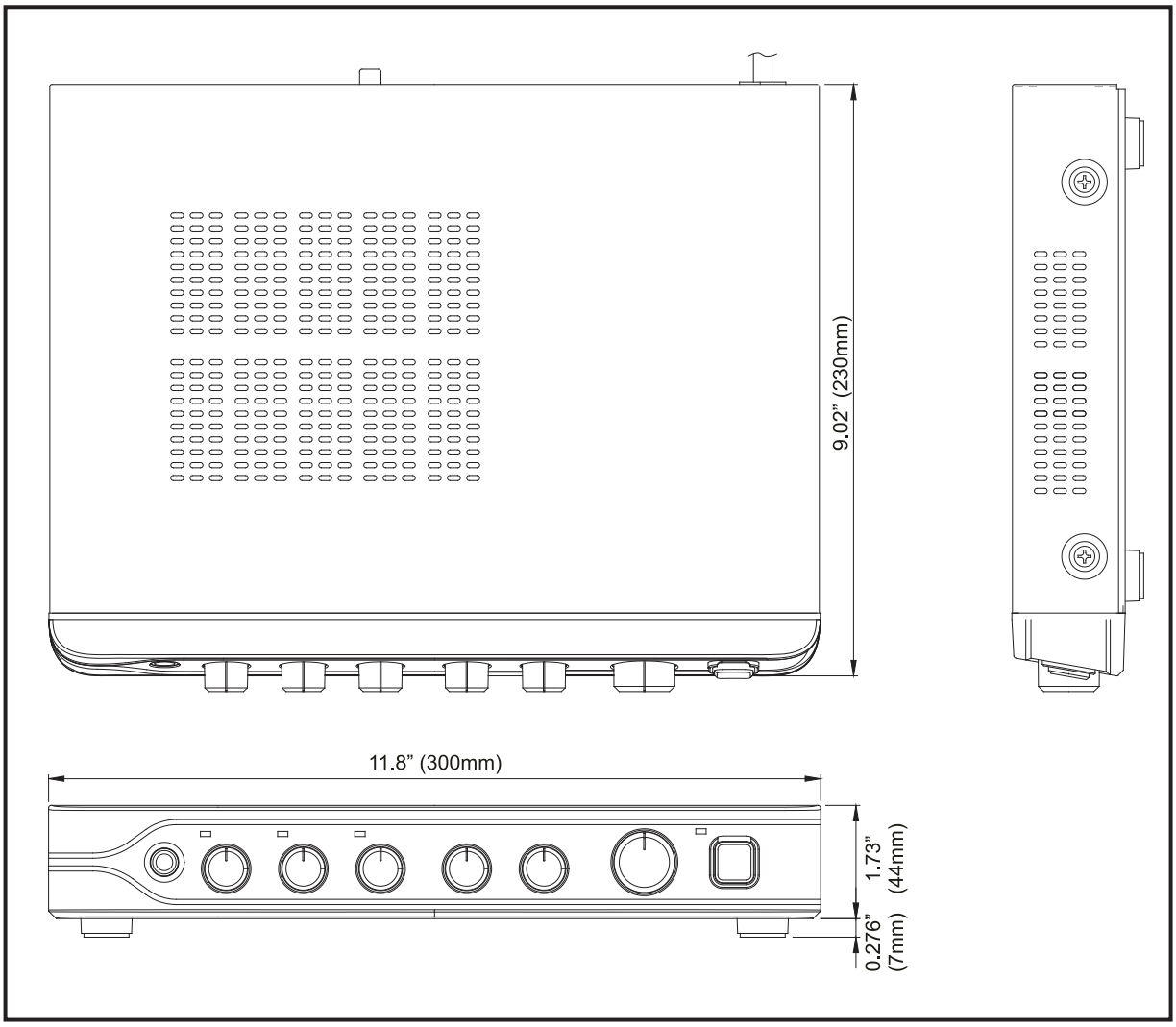
* 0dBV = 1.0Vrms

		MA-106A		
Rated Output Power (T.H.D 1%)		60W(RMS)		
Output Voltage	EC & Associated, JAPAN	4Ω/16V	82Ω/70V	167Ω/100V
	USA/CANADA & Associated	4Ω/16V	11Ω/25V	82Ω/70V
Frequency Response (1W@1kHz)	Input 1, 2, 3	+1/-3dB, 80Hz-15kHz		
T.H.D (60W@1kHz)		Less than 1%		
S/N Ratio (60W@1kHz A-weighted)	INPUT 1, 2, 3	Better than 70dB		
Input Sensitivity	INPUT 1	-10dBV to -50dBV		
	INPUT 2, 3	0dBV to -20dBV		
Tone Control	BASS (100Hz)	±10dB		
	TREBLE (10kHz)	±10dB		
Residual Noise (Input 1-3 vol min, tone at center)		Master volume min	-65dB	
		Master volume max	-55dB	
Zone 2 Output		Rated power 8Ω (RMS, THD 3%)	1W	
		BAL 600Ω	2.4V	
PRE Out (input -10dBV)		0dBV		
Mix Configuration Switches		SW1	Zone 2 Assign Input 1	
		SW2	Zone 2 Assign Input 2	
		SW3	Zone 2 Assign input 3	
		SW4	VOX Trigger Input 1	
		SW5	VOX Trigger Input 2	
		SW6	Mute Link Input 2 & 3	
		SW7	Low-Cut, 400Hz 6dB/Oct.	
		SW8	INPUT1 Phantom Power, +18V	
Manual Mute Contact Closure		Pin 1 & G=Input 1 Mute Trigger		
Master System Standby Contact Closure		Pins G & 2=Power Standby		
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		24W		
Weight (SET)		3.1kg/6.8lb		
Dimensions (SET)		300(W) x 44(H) x 230(D)mm/11.8(H) x 1.7(H) x 9.1(D)in		

* Specifications and design subject to change without notice.

*** Remark :** 1. All specifications are measured with AES-17 filter.
2. This system is used digital Amplifier (PWM Modulation) so the PWM leakage signal will appear to output terminal, but it doesn't matter. You can't hear the PWM leakage sound because of PWM frequencies is very higher than Audio frequencies.

※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
Variations of this product exist to reflect the variations in AC power requirements throughout the world. Product supplied through local 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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