Operation Manual

Mixing Amplifier
PMU-60N/120N/240N



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.

WARNING

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

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 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.

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 PMU-60N/120N/240N 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.



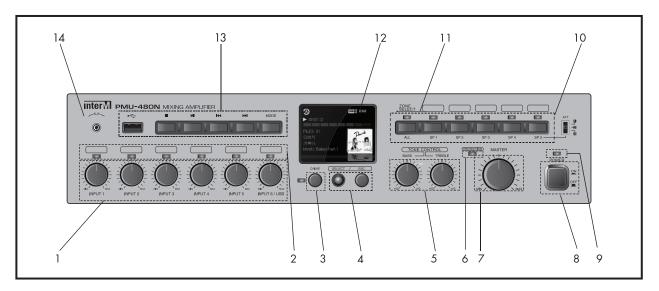
Features

- USB mp3 Player
- USB Audio Stream
- Internet Radio
- Stream Receiver from AOE-212N
- 2.8" Color TFT LCD
- 2U Size
- 60W /120W /240W output power
- SMPS delivers high power output with low power consumption and weight reduction
- 5 Microphone/Line Inputs, EXT IN and TELL IN with individual volume control
- Input Level LED Monitor per channel
- Separate BASS/TREBLE Tone Controls
- 5 zone selection switches
- Independent built-in Attenuator over Zone 5 (70v/50V)
- PRIORITY
- Remote MUTE and CHIME terminal
- VCA Remote volume controll

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 to minimum position and set the tone controls to OdB 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 220V or AC 110V)
- 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

Controls the level of each of the six input channels.

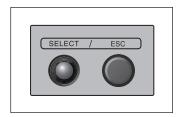
2. INPUT SIGNAL INDICATOR

These LEDs light green when input signal is present.

3. CHIME SWITCH

It activates the four tone chime circuitry. The chime indicator lights green when chime is on use.

4. ROTARY ENCODER CONTROL PROGRAM SELECTION DISPLAYED ON THE LCD DISPLAY



- SELECT

The select button activates MENU mode when pressed and held for a few seconds, then it is used as the select button during menu navigation.

- ESC

It used to return to the OPERATION MODE from the MENU MODE

5. TONE CONTROL

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

6. PROTECTION MODE INDICATOR

Indicated that the amplifier is in failure 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

9. POWER INDICATOR

This LED Lights green when the unit is powered on.

10. ATTENUATOR

Built-in ATTENUATOR over zone 5, It allows to decrease the output volume independently from master volume.

Switch mode 1 : 100V outputSwitch mode 2 : 70V outputSwitch mode 3 : 50V output

11. ZONE SELECTION SWITCH

Use the zone selection switches to route the program audio from the amplifier output to speaker zone 1 through zone 5. The All button controls turns ON/OFF all zones. The Indicators lights on when zone selection switches indicates if the zone is on.

12. LCD OPERATION DISPLAY

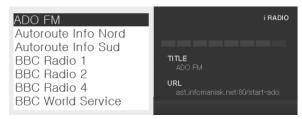
Displays the output level meter, each bar is marked in intervals of 3 to 5dB.

1) USB Play mode



9	Play Mode Icon.
' <mark>୬ଡ଼୬୫୬୫</mark> 'ଲଠା RADIO USB	Single, single repeat, folder, folder repeat, play all, repeat all. Input source display - MP3 Player, Internet Radio, AOE Stream Receiver.
000	
	Output level meter display.
FOLDERS:30 / FILES:120	Displays number of Folder and File.
FILES: 0 Artist	Displays the information of song.
Title	
Album	
Hasu	Displays USB connection status.

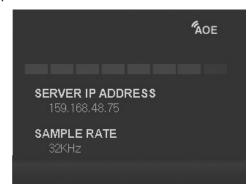
2) INTERNET RADIO



< radio list & radio main >

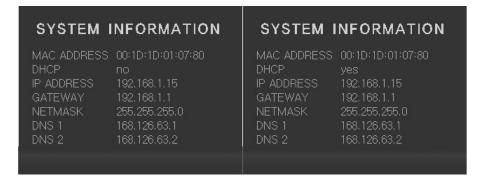
TITLE ADO FM	Displays Broadcasting station.
	Output level meter display.
URL ast.infomaniak.net:80/start-ado	Displays the URL of broadcasting station.

3) AOE stream



SERVER IP ADDRESS 159,168,48,75 SAMPLE RATE 32KHz	Displays server IP address which is connected with AOE-212N. The setting of access server can be reconfigured through the internal Web browser page.
	Output level meter display.

4) System Information Screen



MAC ADDRESS	Displays default MAC ADDRESS of equipment.
DHCP	Displays DHCP setting.
IP ADDRESS	Displays IP address.
GATEWAY	Displays GATEWAY address.
NETMASK	Displays NETMASK address.
DNS1,2	Displays DNS address.

5) MENU MODE



- Select the desired menu by pressing the select button (From the left, USB/AOE/Internet Radio/Network-BGM/Set up menu).

13. USB PLAYBACK BUTTONS

1) USB input port

Insert a USB memory stick into the USB port.

*Warning: only supports drives formatted in FAT or FAT32 format.



- *It may cause a problem ejecting a memory stick while music file in USB is playing.
- 2) Stop button
- 3) ►►/ | playback / pause button
- 4) ► previous / next button

 Moves to previous or next song by pressing the button and moves to previous or next folder by pressing the button for more than 2 second.

5) MODE button

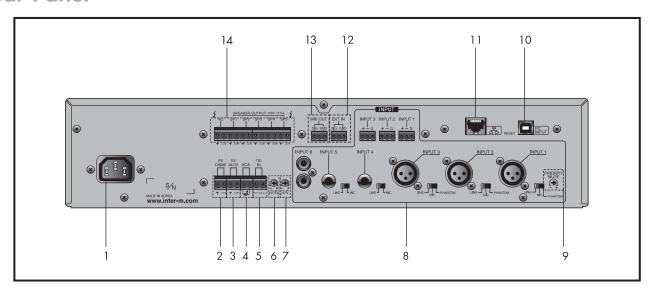
Sets the play mode by pressing the button in regular sequence.

All song repeat \rightarrow all song random play \rightarrow all song randomly repeat \rightarrow single song play \rightarrow single song repeat \rightarrow folder random play \rightarrow folder random repeat \rightarrow All song repeat.

14. AUX INPUT

3.5mm Tip Ring Sleeve (TRS) jack on the front panel.

Rear Panel



1. AC MAINS (AC INLET)

It accepts a standard IEC mains cable, provided.

2. REMOTE CHIME SWITCH TERMINAL

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

3. MANUAL MUTE TERMINAL

When these two terminals are shorted, the output signal is blocked and the protection indicator on the front panel flashes.

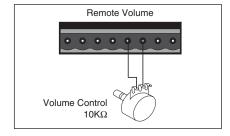
4. VCA (VOLTAGE CONTROLLED AMPLIFIER) TERMINAL

These two terminals provide connection for an external potentiometer. When the potentiometer is connected, it allows for remote control of the master volume level.

Note that individual input volume control positions limit the maximum output level adjustable with the remote volume control.

* Make sure not to set the main volume control to minimum level.

- Connection of remote volume control



*Note: Negative terminal should not be grounded. Never connect it to the unit's chassis or other circuit ground.

5. TEL IN TERMINAL

This terminal is provided for connection with a telephone exchange system for paging purposes.

*NOTE: When the telephone input is active, all other input signal except AMP IN are muted.

6. TEL IN VOLUME CONTROL

It controls the volume of the TEL IN.

7. TEL IN PRIORITY VOLUME CONTROL

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

8. INPUT 1~6

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

- 1) INPUT 1~3 are provided on balanced XLR JACKs and EURO Terminals Each input have a 3 position level and phantom power selector switch.
 - LINE: used for LINE level signal input.
 - MIC: used for the MIC level signal input such as dynamic mics.
 - PHANTOM: used to power condenser type mics with DC 24V.
 - *NOTE: Because INPUT 1~3 XLR Jacks are in parallel with the Euro terminal, do not use them simultaneously.
- 2) INPUT 4~5 are provided on balanced TRS ? inch JACKs. Each input has a 2 position level selector switch.
 - LINE: used for 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.

9. PRIORITY VOLUME CONTROL

It controls the priority control volume when the signal is inputted to the INPUT 1~2, EXT IN, CHIME and SIREN.

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

10. PC USB STREAM CONNECTION TERMINAL

This is a USB sound card that connects to PC with WINDOWS 7 operating system, It automatically detects and play USB sound from PC.

11. NETWORK CONNECTION TERMINAL

This is an RJ45 network terminal. It connects the amplifier to the internet using an Ethernet switch, router or PC. The network port supports 10/100Mbps and Auto MDIX.

12. EXT IN

This line-level input connects an external mixer to the amplifier expanding input channels.

13. MIX OUT

This line-level output connects the amplifier to an external processing unit or recorder.

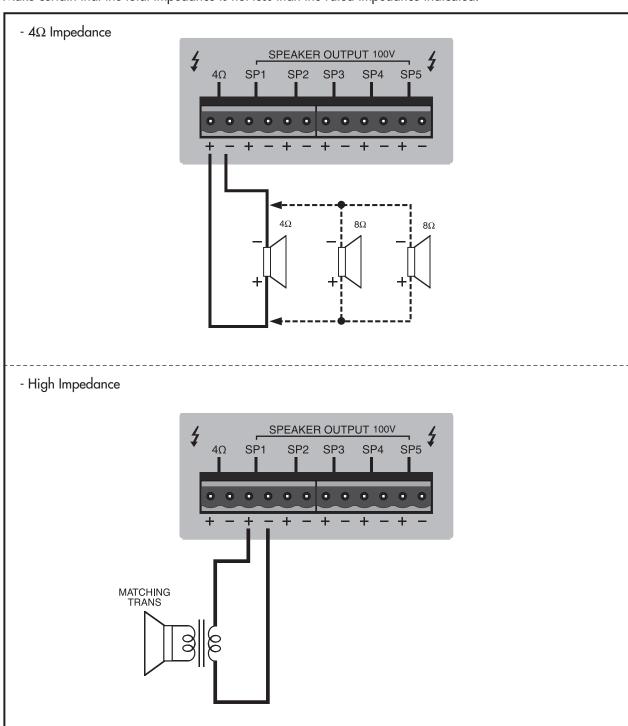
14. SPEAKER OUTPUT TERMINAL

PMU-60N	15.5V/4Ω	100V/167Ω	70V/83Ω
PMU-120N	22V/4Ω	100V/83Ω	70V/42Ω
PMU-240N	31V/4Ω	100V/42Ω	70V/21Ω

^{*} Please note that SP 1~5 terminal will be controlled by speaker selector switch of front panel.

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.

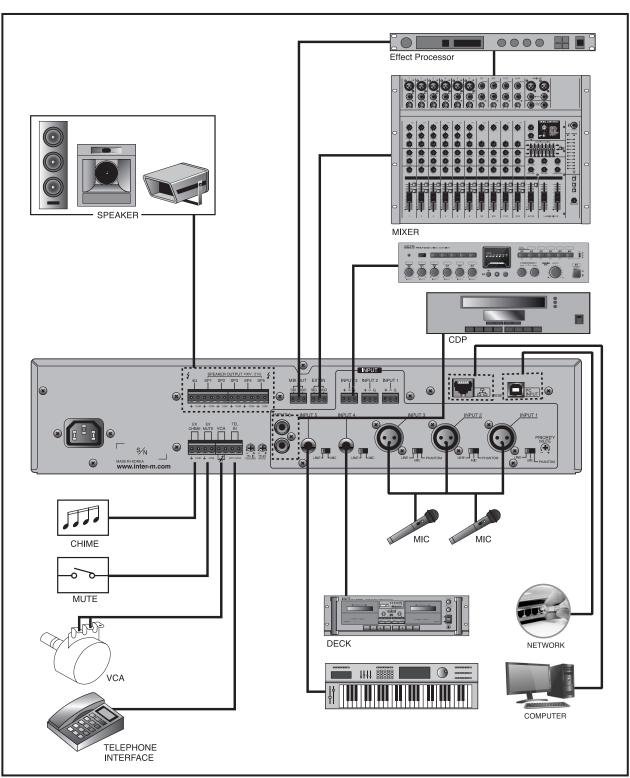


*Warning: For high impedance systems, connect with matching transformer as the following Figure. Be certain that the total impedance does not equal less than the rated impedance.

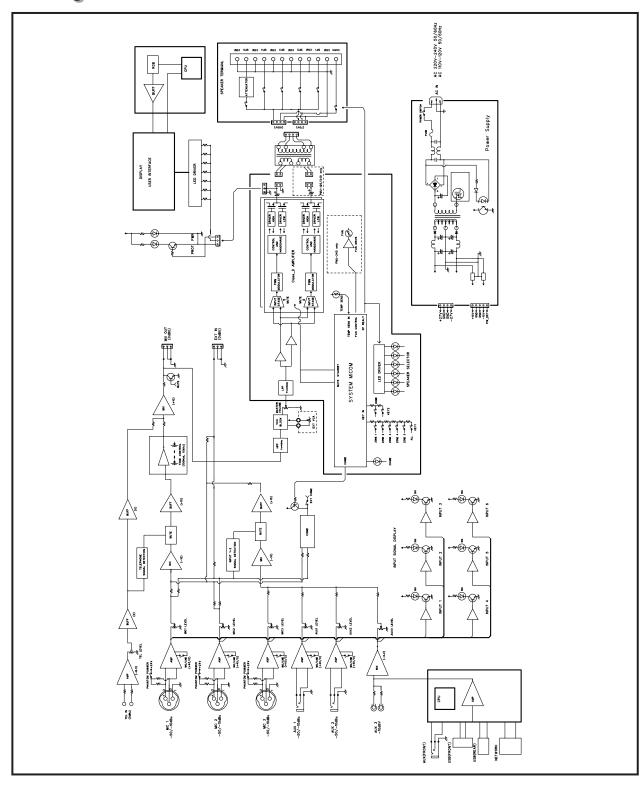
	Low Impedance	(100V)	(70V)
PMU-60N	4Ω	167Ω	83Ω
PMU-120N	4Ω	83Ω	42Ω
PMU-240N	4Ω	42Ω	21Ω

Please do not use a 4Ω and SP1~SP5 terminal at the same time.

System Connection



Block Diagram

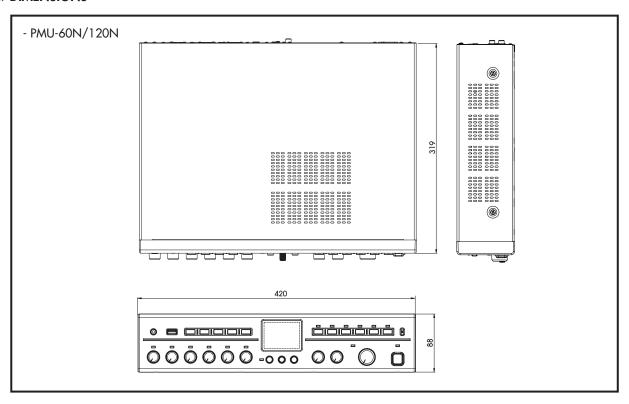


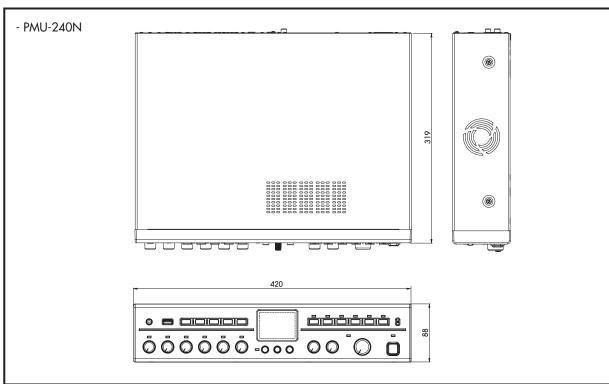
Specifications

		PMU-60N	PMU-120N	PMU-240N
Rated Output Power		60W	120W	240W
Frequency Response (SP OUT/1W output)		80Hz~15kHz		
T.H.D (Rated Output, 1kHz)		Less than 0.5%		
S/N (Rated Output)		More than 78dB		
Tone Control (100Hz, 10kHz)	Tone Control (100Hz, 10kHz)		±10dB	
Input Sensitivity/Impedance				
Input 1~5	MIC	-50dBυ/2kΩ		
	LINE	-10dBu/2kΩ		
Input 6			-10dBu/10kΩ	
TEL IN		OdBu/10kΩ		
EXT IN		OdBu/20kΩ		
MIX Out/Impedance		OdBu/10kΩ		
Speaker Output Level/Impedance	LOW-Z	15.5V/4Ω	22V/4Ω	31V/4Ω
	HIGH-Z	100V/167Ω	100V/83Ω	100V/42Ω
Operation Temperature		-10°C ~ +40°C		
Power Source		AC 220V/60Hz		
Power Consumption (1/8W output)		50W 75W		75W
Weight (SET)		5.4kg/11.9lb	6.7kg/14.8lb	8.0kg/17.6lb
Dimensions (SET)		420(W)x88(H)x319(D)mm/16.5(W)x3.5(H)x12.6(D)in		

^{*} Specifications and design are subject to change without notice.

*** DIMENSIONS**





Web Setting

1. Accessing PMU-N Series Web-page

- If IP address has not been set, type the default IP address (192.168.1.99) – by pushing the factory set switch more than 5 second, the unit will be reset as default mode.

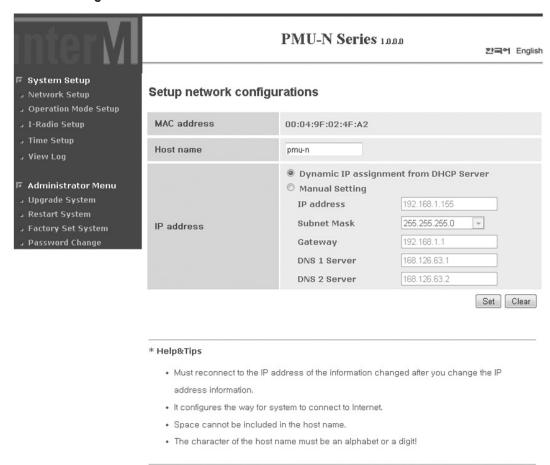


When connected normally, user verification window will pop-up.



ID: admin Password: 1

2. Network Setting

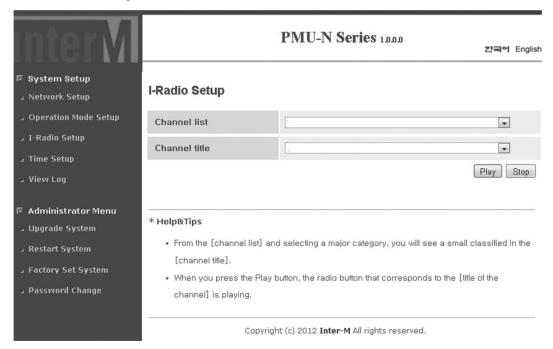


3. Operation Mode Setting



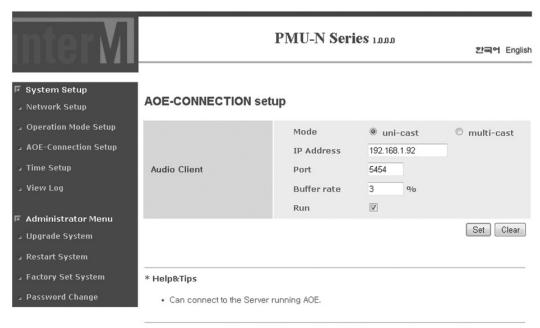
One of three different modes can be set. (USB Player /Internet Radio/AOE Stream Receiver) Dedicated setting page will be shown according to operating mode setting.

4. Internet Radio Setting



Select the broadcasting station from the Channel list then select broadcasting title from the Channel title then click the play button to play.

5. AOE Stream Setting AOE Stream



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Select the server address and connection mode of AOE-212N which you want to access the The mode should be set the same as that of AOE-212N stream server.

6. Time Setting

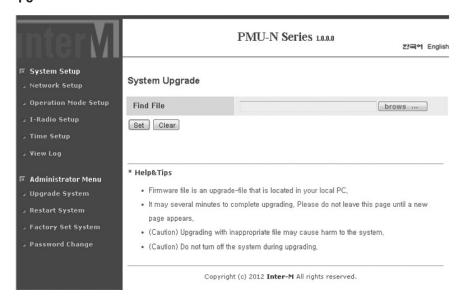


7. Log View



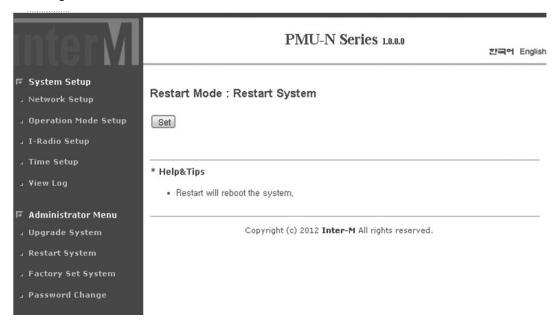
It displays the log information of unit setting and history of modification with time. If time has not been set, the log information will be shown with jan/ 1/ 1970 as default.

8. Upgrade



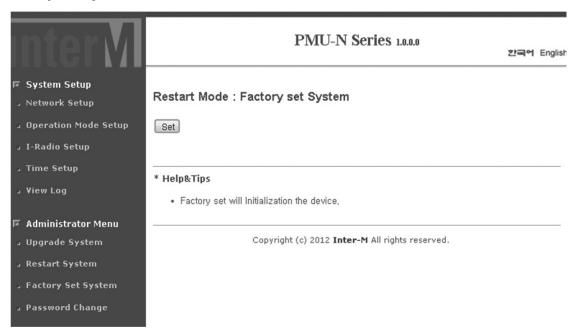
After downloading an upgrade file from your PC, starts the upgrade by clicking the set button. Network settings will be retained after the upgrade.

9. Rebooting



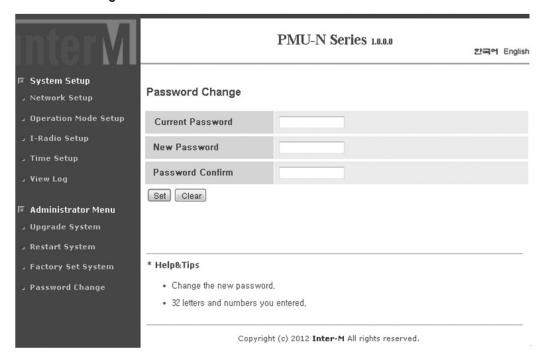
Reboot the unit. Reboot process takes about 30 second.

10. Factory Setting



The network and time setting will be reset to default setting.

11. Password Setting



Password set up page.

When the unit is reset to factory setting, the password will be reset to the default password. The default Password is "1"

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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