avgear

USER MANUAL

AVG-MA3
Audio
Mini Amplifier 40W

The MA3 is a 40W power amplifier (Class-D) with selectable 70V or 100V line output.

Features

- Mono audio output at 40Watts.
- Switchable between 70V and 100V.
- Audio Ducking function.
- 16 ID codes for controlling different AVG-MA3 amplifiers.
- 3-level MIC input, supports condenser microphone, dynamic microphone and wireless microphone (Line Level)
- MIC port can support balanced or unbalanced signal.
- Two stereo audio inputs and one digital audio input, switchable by panel button, IR remote & RS232.
- Volume/Bass/Treble controllable by panel buttons, IR remote & RS232.
- Convection cooled, fan is not needed allowing for quiet running.
- LED indicator, for power indication and working status.
- Antistatic case design to provide RF Shielding for long-term, stable performance.

**PLEASE READ THIS PRODUCT MANUAL CAREFULLY
BEFORE USING THIS PRODUCT.**

This manual is only for operation instruction only, and not to be used in a maintenance capacity. The functions described in this version are current as at March 2015. Any changes of functions and operational parameters will be updated in future manual versions. Please refer to your dealer for the latest product details.

Version 1.0 1/3/15

SAFETY OPERATION GUIDE

In order to guarantee the reliable operation of the equipment and safety of the user, please abide by the following procedures in installation, use and maintenance:

1. The system must be earthed properly. Please do not use two blade plugs and ensure the alternating power supply ranges from 100v to 240v and from 50Hz to 60Hz.

2. Do not install the switcher in an environment where it will be exposed to extreme hot or cold temperatures.

3. This unit will generate heat during operation, please ensure that you allow adequate ventilation to ensure reliable operation.

4. Please disconnect the unit from mains power if it will be left unused for a long time.

5. Please DO NOT try to open the casing of the equipment, DO NOT attempt to repair the unit. Opening the unit will void the warranty. There are high voltage components in the unitand attempting to repair the unit could result in serious injury.

6. Do not allow the unit to come into contact with any liquid as that could result in personal injury and product failure.

TABLE OF CONTENTS

1. Introduction

1.1. Introduction to the AVG-MA3

AVG-MA3 is a 40 Watt power amplifier (Class-D) with a selectable 70V or 100V line output. It has 2 stereo inputs (1x3.5mm jack for line in, 2xRCA for L&R), 1 digital input & 1 balanced MIC. It is integrated with powerful functions, including audio ducking, EQ control, MIC mixer etc, and MIC input supports 3 levels with condenser MIC, dynamic MIC & Line audio input.

There a two main voltages, 70V and 100V used for different countries, with the AVG-MA3 designed to integrate with both voltages.

1.2. System Applications

AVG-MA3 is a flexible small footprint amplifier finding applications in classrooms, small meeting rooms, lecture halls, bars and hotels etc.

1.3. Features

- Mono audio output at 40Watts.

- Switchable between 70V and 100V.

- Audio Ducking function.

- 16 ID codes for controlling different AVG-MA3 amplifiers.

- 3-level MIC input, supports condenser microphone, dynamic microphone and wireless microphone (Line Level)

- MIC port can support balanced or unbalanced signal.

- Two stereo audio inputs and one digital audio input, switchable by panel button, IR remote & RS232.

- Volume/Bass/Treble controllable by panel buttons, IR remote & RS232.

- Fast switching speed.

- Convection cooled, fan is not needed allowing for quiet running.

- LED indicator, for power indication and working status.

- Antistatic case design to provide RF Shielding for long-term, stable performance.

2. What's in the Box

- 1 x AVG-MA3

- 1 x Power adapter (DC 24V)

- 1 x Power Cord

- 2 x Mounting ears (separate from AVG-MA3)

- 1 x RS232 cable including Phoenix Connector

- 4 x Screws

- 4 x Plastic Feet

- 1 x User manual
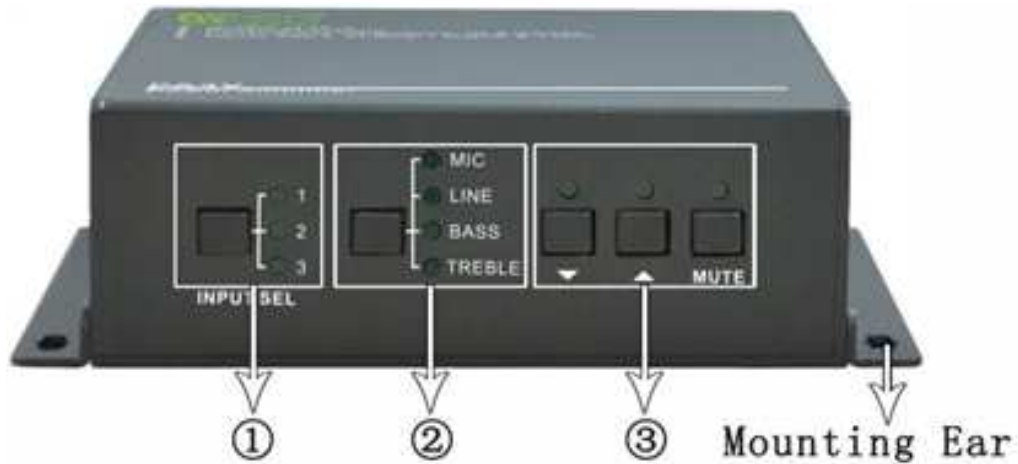
Options:

- 1 x IR remote (not included, available separately)

- 1 x IR receiver (not included, available separately)

Note: Please confirm if the product and the accessories are all included, if not, please contact your dealer.
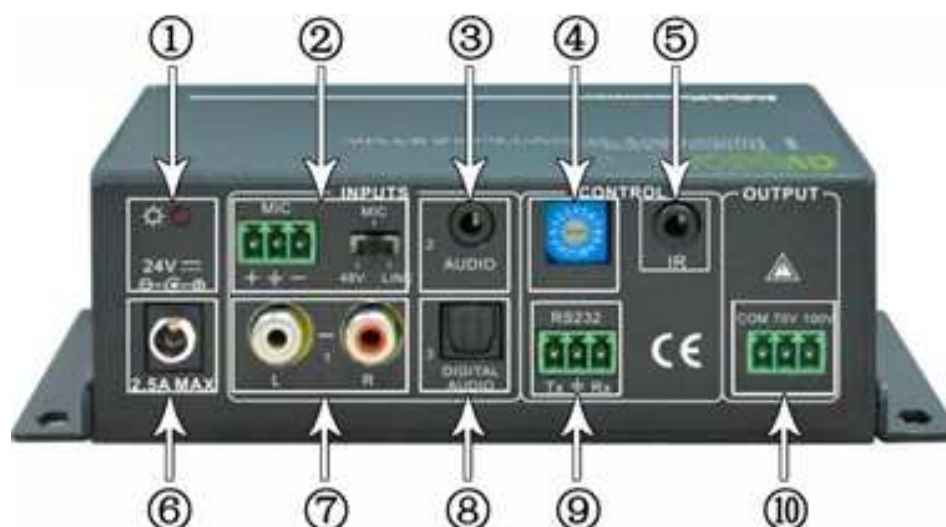
3. Connecting the AVG-MA3

3.1. Introduction to the Front Panel

Front Panel

| No.	Name	Function
①	Audio Input Selection	To select the input audio source, after choosing the audio source, the corresponding LED indicator will be on. No.1 is for dual mono audio input (2 RCA connectors for L&R), No.2 is for stereo audio input (3.5mm mini jack), and No.3 is for digital optical audio input.
②	Audio Control	Adjust the volume of the MIC, Line, or the level of Bass and Treble with this button.
③	Volume Adjustment	To turn up/down or mute the corresponding audio. ∇ : Turn down the volume $\triangle$: Turn up the volume MUTE: Mute the output

3.2. Introduction to the Rear Panel

Rear Panel

| No.	Name	Function
①	Power Indicator	Indicates red when power is on.
②	Microphone Input Port	3-pole captive screw connector for microphone input, the slide switch to the right is to select the microphone input type, including 48V (for condenser microphone), MIC (for dynamic microphone) and LINE (for line audio).
③	Audio Inputs	3.5mm mini jack for stereo audio input, it can be connected with an audio source device such as DVD player.
④	ID Code	16 codes range from 0 to F (hexadecimal), works together with the PC control software.
⑤	IR Port	To connect with the IR receiver, works together with the IR remote.
⑥	Power Port	To connect with the power adapter (DC24V).
⑦	2 x RCA	Dual-mono audio input, which can be connected with an Audio source device such as a PC.
⑧	Digital Audio Input	Optical connector for digital audio input (PCM format), it can be connected to a device's optical port, such as a blue-ray player.
⑨	RS232	3-pole captive screw connector for serial control, it can be connected with a PC (Use a 3-pole captive to 9 pin female D connector and serial control software) to control the AVG-MA3.
⑩	Audio Output	To connect to 70V or 100V Speakers.

3.3. Connection Diagram
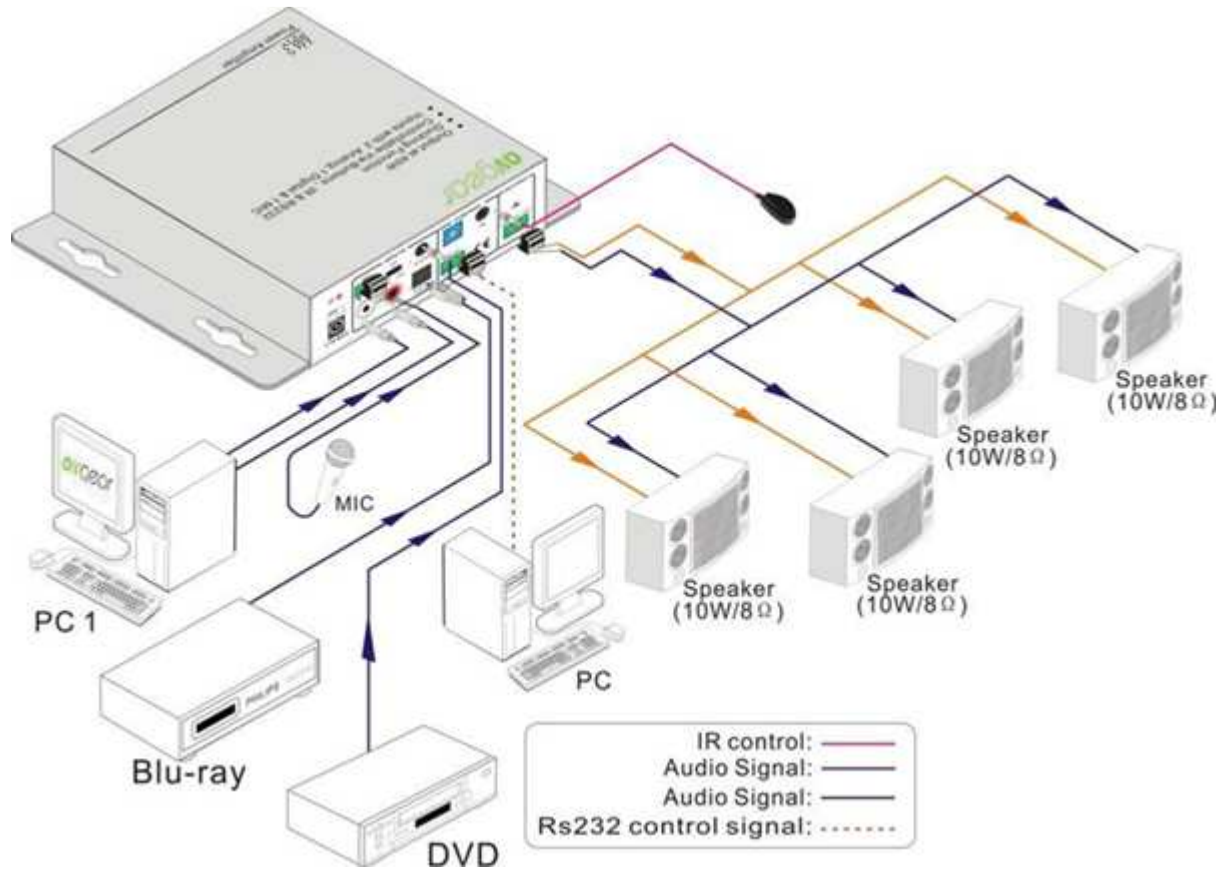
3.4. Audio Signal Connection

3.4.1. Audio Output

AVG-MA3 supports mono audio output, and the output voltage is 70V or alternatively 100V. With its dual-purpose design, it can be used for driving both common standards. The end 'COM' connector is for grounding. The AVG-MA3 amplifier has a mono audio output with a rated power at 40Watts, so the AVG-MA3 can be connected with several speakers in parallel connection.

(Total power mustn't exceed 40Watts).

The following figure shows us how to connect with the speakers. Here we take the speakers 10Watt@8Ohms each as example.

40W Power Amplifier

Audio Output Connection
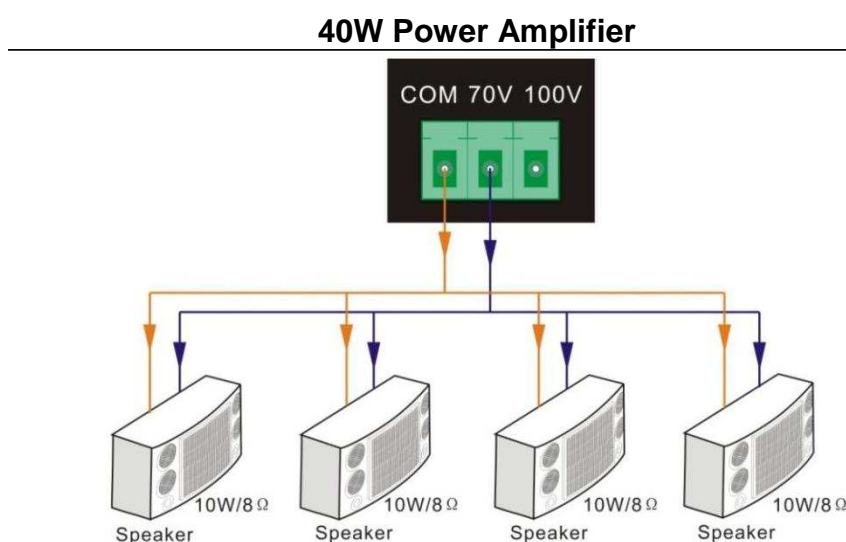
3.4.2. Audio Inputs

AVG-MA3 provides us with 2 stereo audio inputs, one microphone input and one digital optical audio input. The following figure shows the audio input ports.
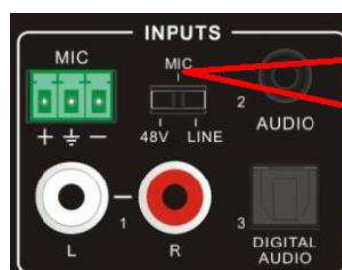
Slide Switch, to select the MIC input mode, includes MIC (dynamic microphone), 48V (condenser microphone) and LINE (normal line audio or wireless microphone).

Audio Input Ports

- **48V Phantom Power Input**

  With the switch selected to "48V" the MIC input will provide 48V phantom power. This is usually used for powering for condenser microphones, Connection is:

  "+" connects to positive, "-" connects to negative and " ⏚ " to ground

  Note: In this mode, only condenser microphones can be connected.

- **MIC Input**

  With the switch selected to "MIC" the microphone input is used for connecting with a dynamic microphone. There are two different connections:

  a. Unbalanced connection:
     "+" and " ⏚ " connect to ground, and "-" connects to signal
     "-" and " ⏚" connect to ground, and "+" connects to signal

  b. Balanced connection: "+" connects to positive, "-" connects to negative and " ⏚ " connects to ground

- **LINE Input**

  With the switch selected to "LINE" the microphone input is used for connecting with normal audio or wireless microphone output (line level). There are two different connections:

  a. Unbalanced connection: "+" and " ⏚ " connect to ground, and "-" connects to signal. "-" and " ⏚" connect to ground, and "+" connects to signal

  b. Balanced connection: "+" connects to positive, "-" connects to negative and " ⏚" connects to ground

- **Digital Audio Input**

  AVG-MA3 provides an optical port to connect with digital audio sources. With the SPF optical port the audio signal can be transmitted faster, more reliably and can be transmitted over a long distance without distortion.

  Note: This digital audio input can support/decode PCM format signal only. If the CD/DVD is DTS or AC3 format, please set the player to PCM format output before connecting it to the AVG-MA3.

3.5. Usage Precautions

1. Amplifier Output must be connected to Load.

2. Speakers must be connected before unit is powered on.

4. Operating the AVG-MA3

4.1. Operation of the Front Panel

The front buttons control volume/EQ control and switching. The LED indicator will show the connection status. The following content introduces audio switching and EQ control in detail.

Operations: Press the corresponding button again for cyclic switching.

4.1.1. Audio Switching

There are three switchable audio inputs, one 2xRCA input, one 3.5mm jack input, and one digital optical audio input, switchable through the buttons as below:
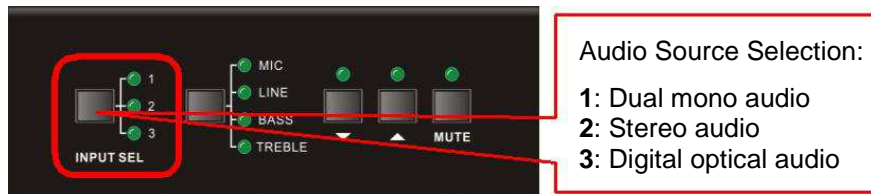
Audio Source Selection Button

4.2. Volume/EQ Control

The line volume and MIC volume can be controlled by the buttons.

The MIC Volume/LINE volume/LINE bass/LINE treble will be selected by the buttons, and controlled up/down/mute by the function buttons. Please check the picture below:
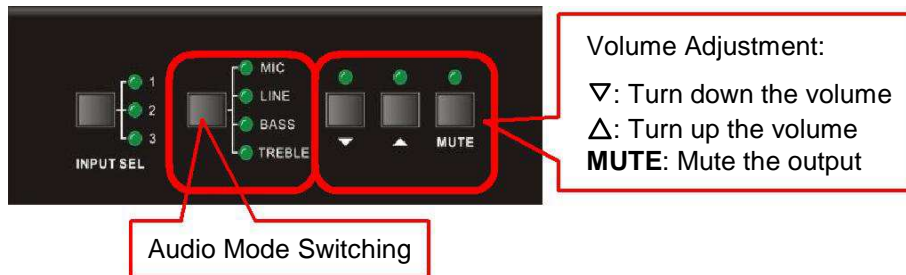
Audio Mode and Volume Adjustment Buttons

For example, to turn up the line volume, you should select the "LINE" first, and then press the button "▲".

4.3. Operating the IR Remote

AVG-MA3 includes an IR port for use with the IR Receiver and the IR remote allowing the user to control the AVG-MA3 remotely.

Note: The IR Receiver and the IR remote are purchased separately.

Audio Source Selection:

1: 2 RCA dual-mono audio input
2: 1 3.5mm jack
3: 1 Digital optical audio input

Use to transmit the infrared signal sent by the remote controller.

Audio Controlling Modes:

MIC: Turn up/down the microphone volume
LINE: Turn up/down the line volume
BASS: Bass tuning
TREBLE: Treble of line volume

Mute Mode:

MIC: Mute the microphone volume
LINE: Mute the line volume
SPEAKER: Unmute

IR Remote

The IR receiver works together with the IR remote. Please point the IR remote at the IR receiver to control the MA2.

3.5mm jack inserts into the IR 3.5mm socket to connect the IR Receiver.

IR Receiver

4.4. Operating with 3rd Party Control Software

4.4.1. Connection with a Computer

When the Amplifier is connected via the RS232 port to either a computer or 3rd party processor it is able to be controlled using RS232 String commands.

To connect the amplifier, users should use the 3-pole male captive screw to 9-pin D female connector (supplied).

4.4.2. Connection of RS232 Port

This RS-232 communication port is a female 9-pin D connector. The definition of its pins is as per the table below.
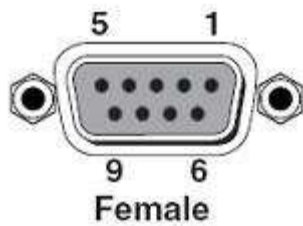
No.	Pin	Function
1	N/C	Unused
2	Tx	Transmit
3	Rx	Receive
4	N/C	Unused
5	Gnd	Ground
6	N/C	Unused
7	N/C	Unused
8	N/C	Unused
9	N/C	Unused

4.4.3. RS232 Communication Commands

Communication Protocol: RS232 Communication Protocol

Baud rate: 9600   Data bit: 8   Stop bit: 1   Parity bit: none

Command	Function Description	Feedback Code
1A1.	Switching the audio to input 1	A: 1 -> 1
2A1.	Switching the audio to input 2	A: 2 -> 1
3A1.	Switching the audio to input 3	A: 3 -> 1
0A0.	Mute Audio of MIC and Line out	Mute
1A0.	Mute audio of MIC	Mute MIC
2A0.	Mute audio of line out	Mute LIN
0A1.	Unmute Audio	Unmute Audio
600%	Checking the working status	A: 1 -> 1 Volume of MIC : 50 Volume of LINE : 50 Bass of LINE : 4 Treble of LINE : 4 Ducking Off
601%	MIC volume up	Volume of MIC: 51
602%	MIC volume down	Volume of MIC: 51
603%	Line volume up	Volume of LINE: 51
604%	Line volume down	Volume of LINE: 51
605%	Bass level up	Bass of LINE: 4
606%	Bass level down	Bass of LINE: 4
607%	Treble level up	Treble of LINE: 4
608%	Treble level down	Treble of LINE: 4
609%	Initialization, back to the default setting	Init OK
610%	Enable/disable the ducking function.	Ducking off/Ducking on
4[x][x]%	Preset the volume level of ducking function. [xx] arranges from [00] to [60]. 61 degrees in total.	Ducking of LINE: 50
5[x][x]%	Preset MIC volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of MIC: 50
7[x][x]%	Preset line volume, [xx] arranges from [00] to [60]. 61 degrees in total.	Volume of LINE: 50
8[x][x]%	Preset the bass level, [xx] arranges from [00] to [08]. 9 degrees in total.	Bass of LINE: 4
9[x][x]%	Preset the treble level, [xx] arranges from [00] to [08]. 9 degrees in total.	Treble of LINE: 4

Notes:

1. The letter inside the bracket [ ] is the variable code, which is changeable.

2. The bracket symbol [ ] is not to be used in the RS232 string commands.

3. Any dot "." after the letters is part of the commands.

4. Ducking function:

   When MIC audio is sensed, the volume of the line audio will be automatically dimmed to the preset volume level, if there is no input MIC audio signal after 5 seconds, then the volume will be automatically turned up to the original level. If you need to disable/enable the ducking function, just send the command "**610%**" again.

5. ID coding:

   The ID codes of AVG-MA3 ranges from 0 to F (hexadecimal), when sending RS232 commands, please take notice of the address of the ID code.

   If the address of the ID code is **0**, any RS232 command is available.

   If the address is in **1~F**, it has one unique ID code (If the ID code is not the same with the address, no RS232 command will work).

   While the ID code is in **1~F**, please add "**ID/**" before sending the command.

   For example, if the ID code is **5**, the RS232 command needed is "**604%**", the correct command is in this format: **5/604%**.

   There is no need to add "**ID/**" before the command when the ID code is **0**.

Examples:

1. Switching the input 2 to the line out, the command is: **2A1.**

2. Turning up the volume of line audio, the command is: **603%**

3. Preset the MIC volume to "21" degree, the command is: **521%**

4. Checking the working status of AVG-MA3, the command is: **600%**

5. If the ID code is **0**, sending command **601%** is able to turn up the MIC volume. If the ID code is **2**, sending command **601%** will not work, and the MIC volume remains unchanged. The right command is **2/601%**.

5. Specifications

Audio Input		Audio Output	
Input	**2** stereo audio **1** MIC **1** Digital optical audio	Output	**1** mono amplifier
Input Connector	**2** RCA **1** 3.5mm jack **1** 3-pole 3.81mm captive screw connector **1** SPF optical connector	Output Connector	**1** 3-pole 3.81mm captive screw connector
Input Impedance	>10KΩ	Output Type	Constant voltage 70V or 100V
Audio General			
Frequency Response	120Hz ~ 20KHz	CMRR	>70dB@20Hz ~20KHz
SNR	80dB (Max)	Bandwidth	120Hz ~ 20KHz
Rated Power Output	40Watt @8Ohms	THD + Noise	1%@1KHz, 0.3%@20KHz at nominal level
Voltage Gain	26dB		
Control Function			
RS232 Control	**1** 3-pole 3.81mm captive screw connector	Front Panel Control	Buttons
ID Code Control	16 ID codes for control		
Optional	IR remote & TCP/IP controlled by PTNET(PTN's programmable interface)		
General			
Temperature	-20 ~ +70℃	Humidity	10% ~ 90%
Power Supply	DC 24V power adapter	Power Consumption	5W
Case Dimension	W153 x H44 x D144mm (1U high)	Product Weight	0.86Kg

5.1. Panel Drawing

6. Troubleshooting & Maintenance

1. When there is no output audio:

- Check if there is any signal at the input.

- Check if there is any signal at the output.

  We can check these by using an oscilloscope or a multimeter. If there is no signal at the input/outputs please check input/output cables and replace if necessary.

- Check if the output port number is the same with the controlled one.

- If not the problem mentioned above the unit may have a pre existing fault.

2. If the **POWER** indicator doesn't work or respond to any operation, please check and make sure the power cord connection is good.

3. If the output sound has interferance, please make sure the system is grounded well.

4. If the static becomes stronger when connecting the audio connectors, it probably due to bad grounding, please check the grounding and make sure it connected well, otherwise it wcan damage the amplifier.

5. If the AVG-MA3 amplifier cannot be controlled by the keys on the front panel, RS232 port or the IR remote, the unit may have an existing fault. Please return to your dealer for testing.