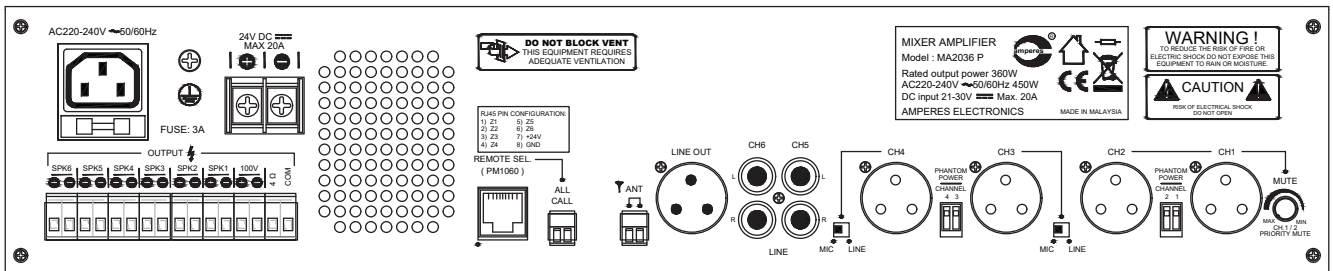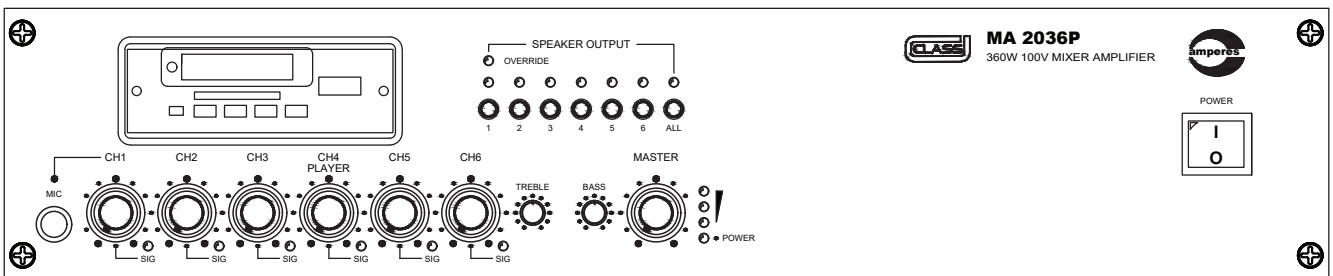# amperes ®

INSTRUCTION MANUAL

MA2006 / 2006P 60W 100V
MA2012 / 2012P 120W 100V
MA2024 / 2024P 240W 100V
MA2036 / 2036P 360W 100V

### Mixing Amplifier with 6 Zone Output

Thank you for choosing another quality product from Amperes Electronics.

MA2000 Series of mixing amplifiers is now improved with added features and circuit design, offering a more value added product with greater performance. The series now includes 360W version to cater for larger installation. All of them comes with 6 speaker zone outputs with flexibility to connect to PM1060 desktop paging microphone for zone controls.

One notably major difference is the amplifier circuit, which is Class D and is known for its wide frequency response for delivering better sound reproduction. Weight had been much reduced due to SMPS employed.

Please read through the manual before installation in order to capture the features available and how to suit your applications. We assure you that you are getting a reliable product for usage in years to come.

Parts Identifications

Front View:

Rear View:
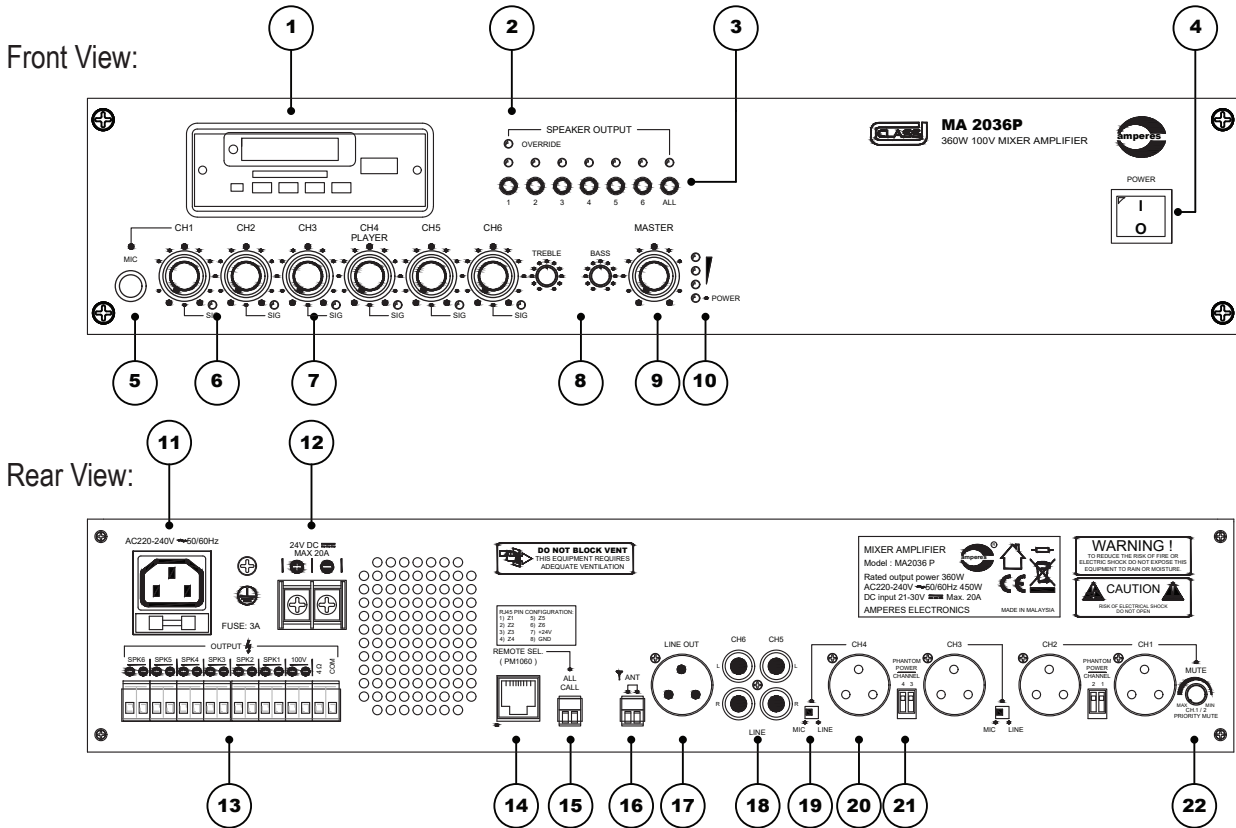
1. **MEDIA PLAYER MODULE (ONLY AVAILABLE WITH "P" PREFIX SERIES)**
   This modules enable playback from USB, FM Tuner, SD Card and Bluetooth.

2. **ZONE TRIGGER LED**
   Indicates which zone is ON as well as remote zone trigger LED for paging microphone.

3. **ZONE ON SWITCH**
   6 zones are available for audio distribution and is selected from these buttons. Any remote zone triggered for paging purpose shall override the front selected switches and is indicated with Override LED.

4. **POWER SWITCH**
   This switch turn ON or OFF the ac incoming power as well as DC back up.

5. **FRONT MICROPHONE INPUT JACK (PHONE JACK)**
   Channel 1 balanced microphone input. Once inserted, it shall bypass the rear input connection.

6. **INPUT SIGNAL LEDS**
   Signal LEDs for incoming audio.

7. **INPUT CHANNEL VOLUME CONTROL**
   Volume of each input channel can be adjusted accordingly or turned off by turning anti clockwise fully.

8. **TREBLE AND BASS CONTROL**
   Bass and treble controls for mixed input signals prior to output.

9. **MAIN OUTPUT VOLUME CONTROL**
   Master volume control for mixed signal; speaker and line outputs.

Parts Identifications

10. POWER AND SINGAL LED

LED indicator for power and signal outputs.

11. INCOMING AC SUPPLY

The mixer operates at 220 to 240 V ac. IEC connector with fuse rating of 3A is used.

12. 24V DC INPUT CONNECTOR

MA2000 also operates on 24V DC. In PA installation, this shall be back up source in case of ac mains failure. Under ac mains operation, DC voltage shall be on standby only.

13. SPEAKER OUTPUT TERMINALS

6 zones of speaker lines can be connected via these Phoenix connectors. 4 Ohm output is available but it is advised to use only single type of speakers.

14. PAGING MIC TERMINAL (RJ45)

For easy connection to PM1060. Activation of paging mic shall override the front selected zones.

15. ALL CALL PORT

For connection to EP1200 emergency paging mic for highest all call priority paging, or other similar operation.

16. ANTENNA PORT (AVAILABLE FOR "P" SERIES ONLY)

FM antenna terminal for media player.

17. LINE OUT XLR JACK

Balanced output with +4 dBu (or 1.2 V rms)

18. RCA JACKS FOR MUSIC SOURCES

Stereo inputs for music sources for channel 5 and 6.

19. MIC AND LINE SWITCH

Channel 1 to 4 can be used with either line or mic level. Use this switch to connect to appropriate input level.

20. XLR JACKS FOR INPUT SIGNALS (CH 1 TO 4)

All inputs to mixing amps shall use balanced signal with XLR jack. Use the mic / line switch for correct signal level.
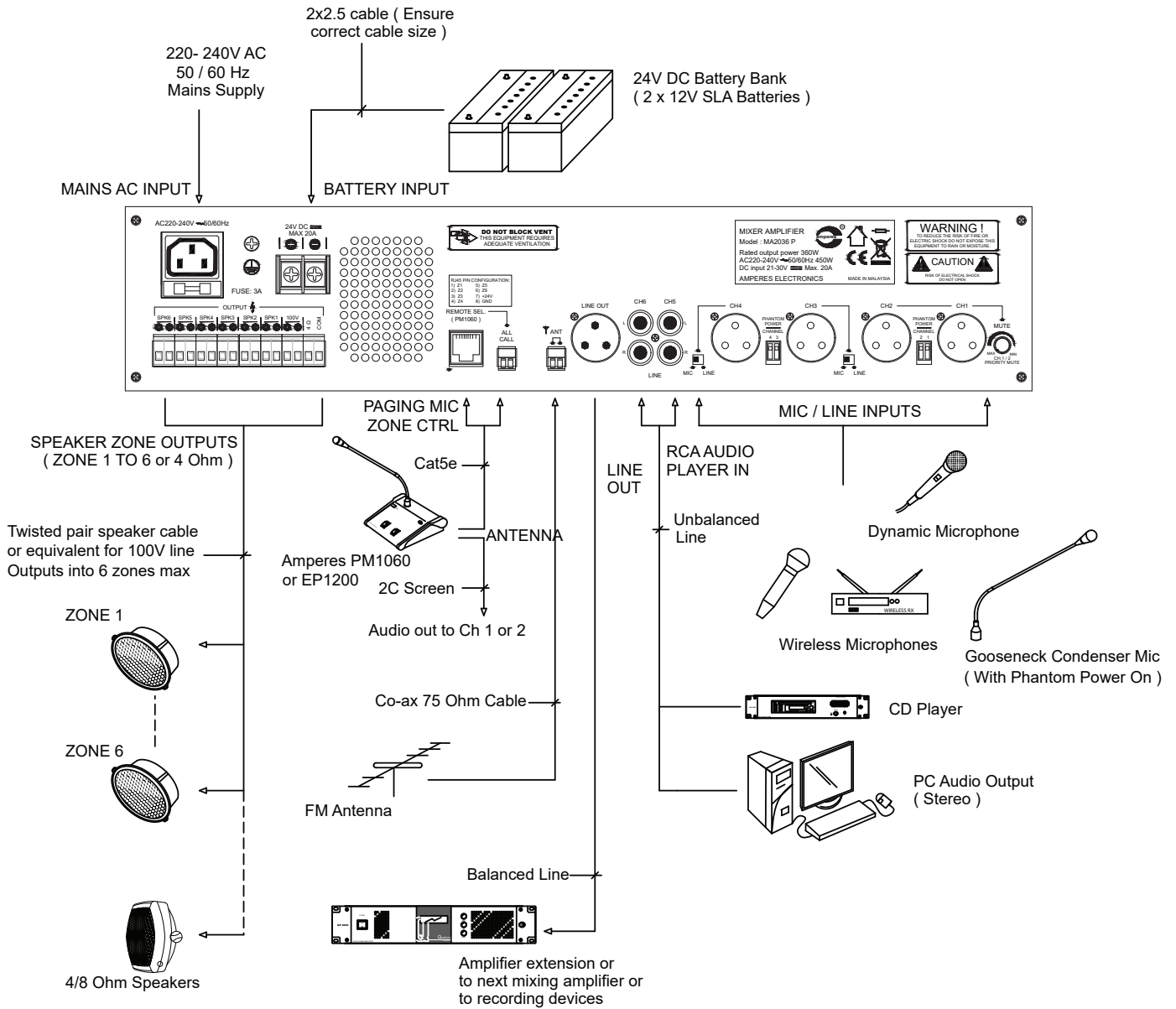
21. PHANTOM POWER SWITCH

Inputs 1 to 4 has switchable phantom power for usage with condenser microphones. The phantom power voltage is 12V DC.

22. MUTE CONTROL KNOB

Ch 1 and 2 has higher priority than other channels. Ducking level can be adjusted via this knob. It can be turned off by fully turning it clockwise. Adjust it according to your own preference.
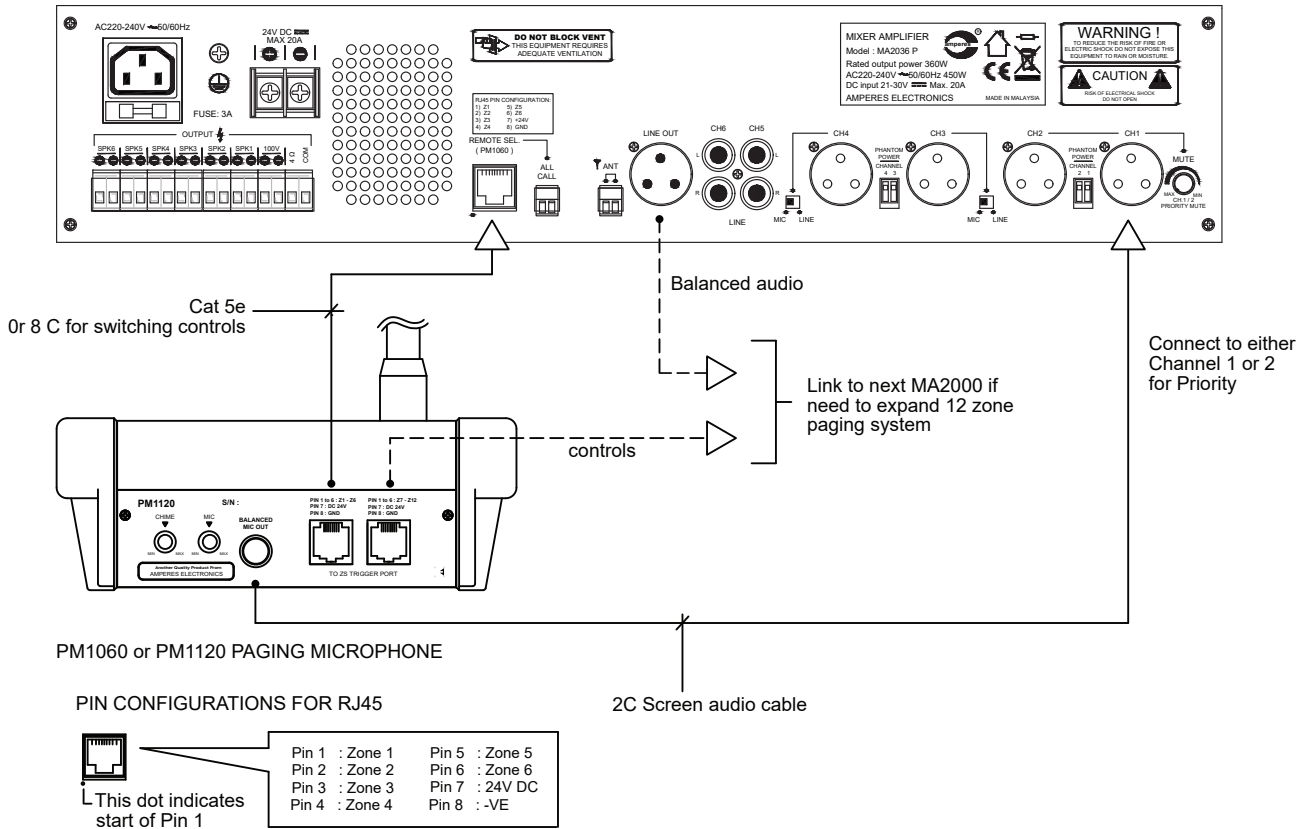
General Connection Diagram

2x2.5 cable (Ensure correct cable size)

220- 240V AC
50 / 60 Hz
Mains Supply

24V DC Battery Bank
(2 x 12V SLA Batteries)

MAINS AC INPUT

BATTERY INPUT

AC220-240V 60/60Hz

24V DC MAX 20A

DO NOT BLOCK VENT
THIS EQUIPMENT REQUIRES
ADEQUATE VENTILATION

MIXER AMPLIFIER
Model : MA2036 P
Rated output power 360W
AC220-240V 50/60Hz 450W
DC input 21-30V Max. 20A
AMPERES ELECTRONICS   MADE IN MALAYSIA

WARNING !
TO REDUCE THE RISK OF FIRE OR
ELECTRIC SHOCK DO NOT EXPOSE THIS
EQUIPMENT TO RAIN OR MOISTURE.

CAUTION
RISK OF ELECTRICAL SHOCK
DO NOT OPEN

FUSE: 3A

OUTPUT

SPK6 SPK5 SPK4 SPK3 SPK2 SPK1 100V COM 4 Ω

RJ45 PIN CONFIGURATION:
1) Z1   5) Z5
2) Z2   6) Z6
3) Z3   7) +24V
4) Z4   8) GND

REMOTE SEL.
(PM1060)

ALL
CALL

ANT

LINE OUT   CH6 CH5   CH4   CH3   CH2   CH1   MUTE

PHANTOM POWER CHANNEL 4 3

PHANTOM POWER CHANNEL 2 1

MAX   MIN
CH 1 / 2
PRIORITY MUTE

LINE   MIC   LINE   MIC   LINE

SPEAKER ZONE OUTPUTS
(ZONE 1 TO 6 or 4 Ohm)

PAGING MIC
ZONE CTRL

LINE
OUT

RCA AUDIO
PLAYER IN

MIC / LINE INPUTS

Cat5e

Unbalanced
Line

Dynamic Microphone

Twisted pair speaker cable
or equivalent for 100V line
Outputs into 6 zones max

Amperes PM1060
or EP1200

ANTENNA

2C Screen

WIRELESS RX

ZONE 1

Audio out to Ch 1 or 2

Wireless Microphones

Gooseneck Condenser Mic
(With Phantom Power On)

ZONE 6

Co-ax 75 Ohm Cable

CD Player

PC Audio Output
(Stereo)

FM Antenna

Balanced Line

4/8 Ohm Speakers

Amplifier extension or
to next mixing amplifier or
to recording devices

NOTE :
At any one time, use only one type of speakers
eg. for 100V with transformer or 4 Ohm (total) type.

Connecting PM1060 / 1120 Paging Microphone

PM1060 / 1120 Paging Mic or other brands with negative trigger type can be used with MA2000 for zone triggering. Zone control from PM shall connect to Zone Trigger RJ45 port of MA while the audio (line balanced) shall go to Input 1 or 2. This is to enable muting of BGM whenever a paging is broadcasted.


PIN CONFIGURATIONS FOR RJ45

Pin 1	: Zone 1	Pin 5	: Zone 5
Pin 2	: Zone 2	Pin 6	: Zone 6
Pin 3	: Zone 3	Pin 7	: 24V DC
Pin 4	: Zone 4	Pin 8	: -VE

Connecting EP1200 Emergency Paging Microphone

If it is required to connect Amperes EP1200 Emergency paging mic (or other emergency announcement such as MR1301) to MA2000 to make ALL CALL, follow the connection diagram below. Activation of EP1200 shall then turn ON all the zones (All Call) and bypass any other incoming music sources. Dry contact (momentarily) is required to turn ON all zones.

AMPERES EP1200 EMERGENCY PAGING MIC
OR
PT1801 mk II PROGRAM TIMER
OR
MR1301 MESSAGE PLAYER

2C Screen audio cable
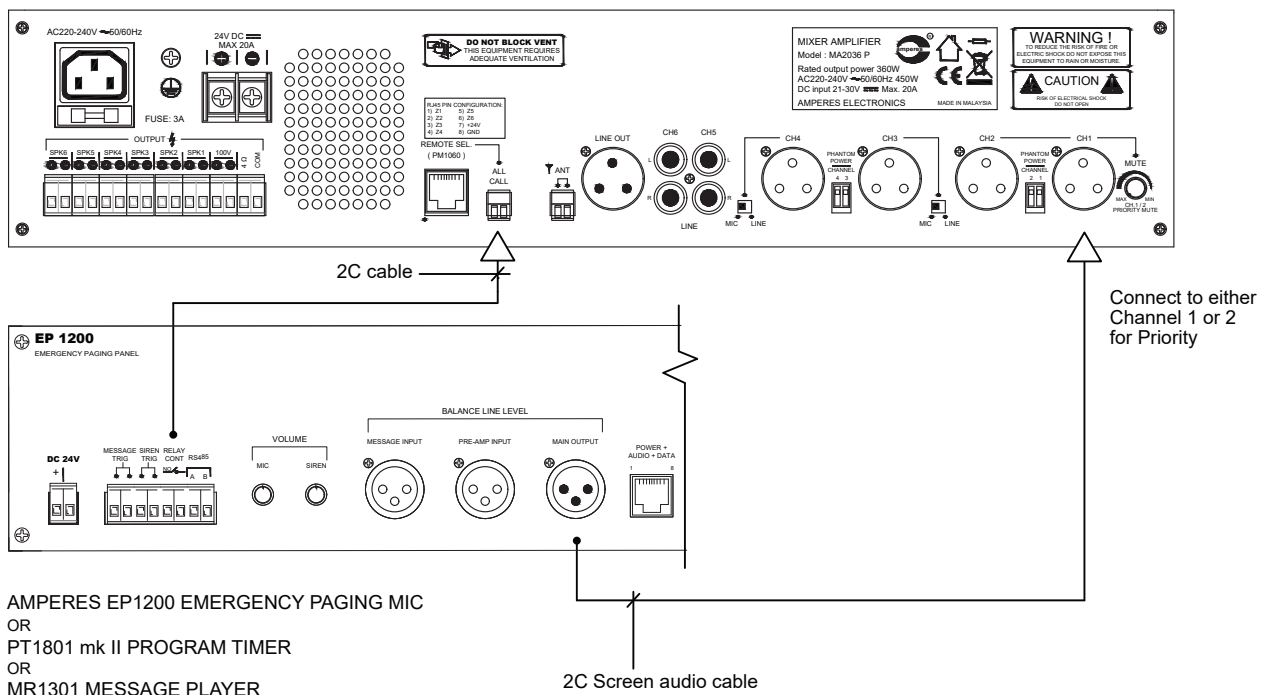
Connecting BGM Sources

Channel 5 and 6 are for BGM inputs with RCA stereo jacks, such as CD player, tuner or PC. Input level is normally line level of 0 dBV. It is advisable to plug in both Left and Right outputs from sources although output from MA2000 is mono. Sound quality may be affected if only one side of audio from the sources is connected.

2C cable

CD / FM / MP 3 PLAYER
OR
PC AUDIO OUTPUT

L   R

STEREO RCA JACK
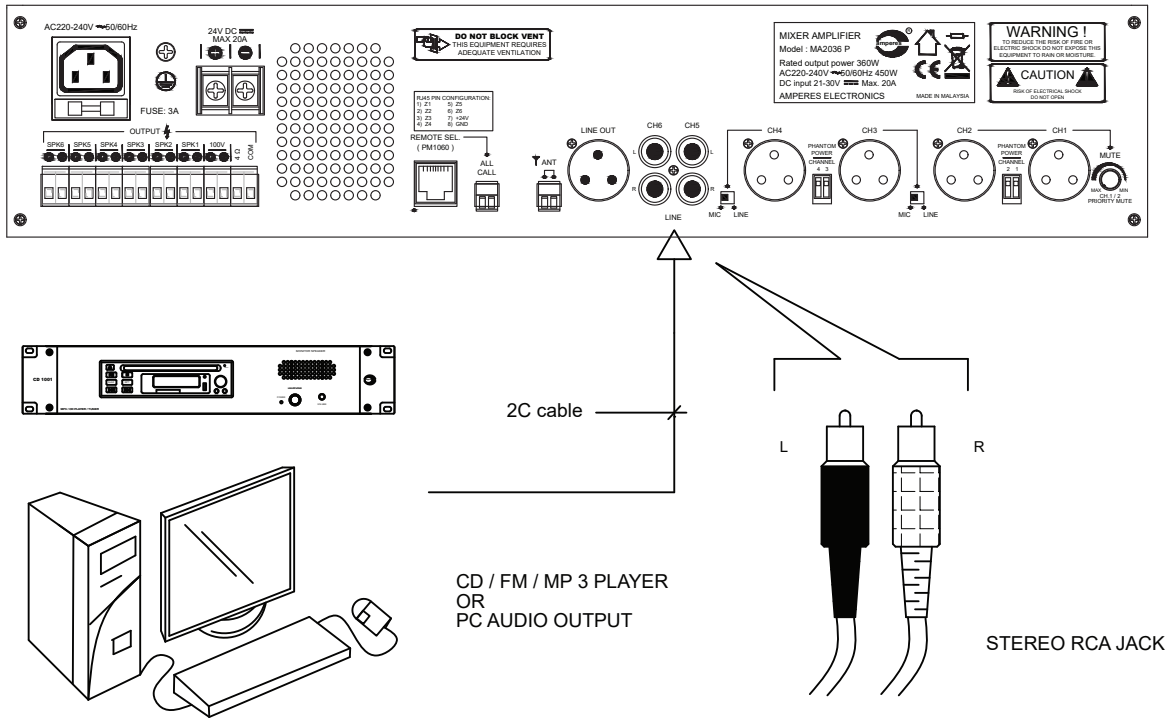
Connecting Condensor Microphone

Phantom power of 12V DC is available for Channel 1 to 4., used to power condenser microphones that requires power. Push down the DIP switch downward to turn ON the power. Please check the correct power requirement of the mic to be used. When Phantom Power is not required, it is recommended that it is turned Off.

PHANTOM
POWER
CHANNEL
4   3

Push down to switch on
Phantom Power (12V DC)   ON

Gooseneck Condenser Mic
(With Phantom Power On)
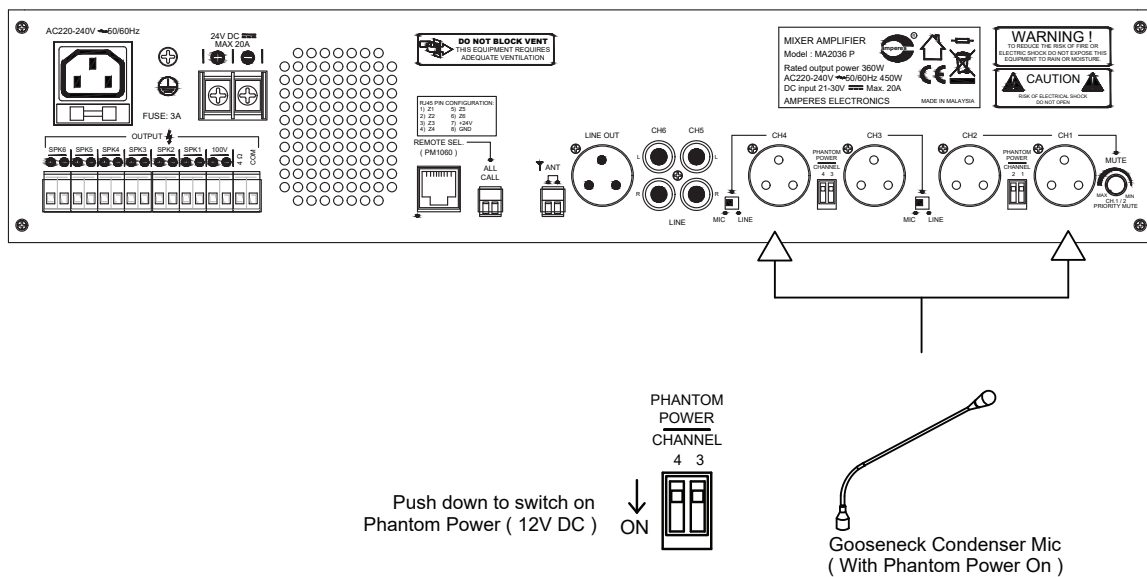
Priority Channel Muting / Ducking

Channel 1 and 2 are priority channels that can mute other channels (except audio from Paging Mic). The mixing level can be adjusted to totally mix or total mute. When both signals are present at Ch.1 and 2, they shall mix while muting other channels.
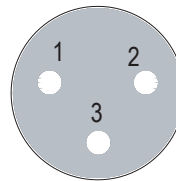
CH1

MUTE

MAX   MIN
CH.1 / 2
PRIORITY MUTE

No Mute

Totally Mute
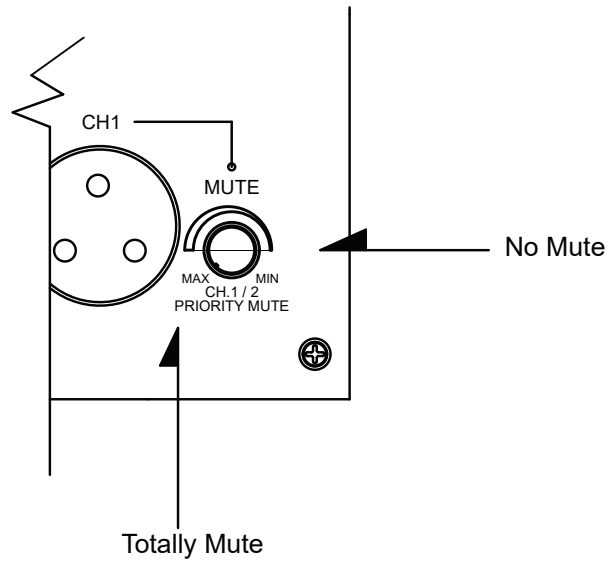
Connection of Jacks

MIC/BALANCED INPUT XLR (F)

2   1
3
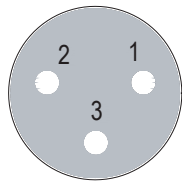
1 - GROUND / SCREEN
2 - HOT (+VE)
3 - COLD (-)

FOR UNBALANCED, CONNECT
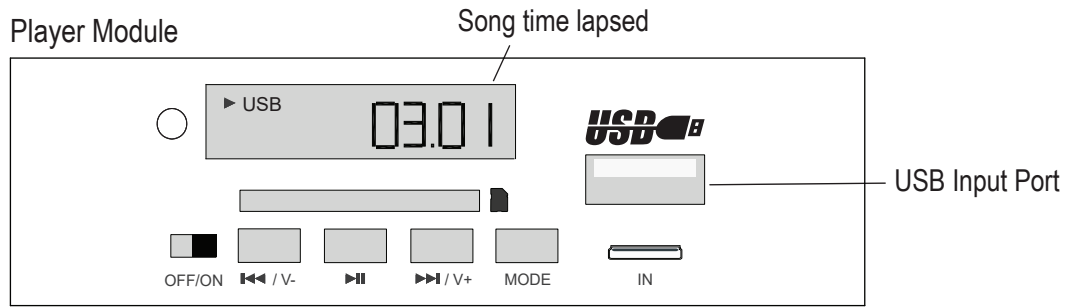PIN 1 AND 3 TOGETHER

MIXER BALANCED OUTPUT XLR (M)

1   2
3

FOR UNBALANCED, SPARE PIN 3

TRS PHONE JACK

TIP : +VE / HOT SIGNAL

RING : -VE / COLD

SLEEVE : GROUND / SCREEN
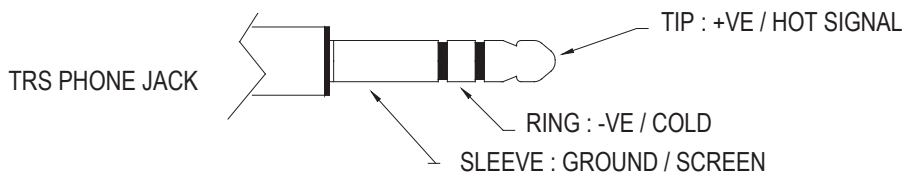
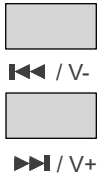# Operating the Unit (Playing USB / SD)

Insert a SD Card or USB into the slot and the unit shall automatically enter the playing mode.

Player Module   Song time lapsed

USB Input Port

OFF/ON   ◄◄ / V-   ►II   ►►I / V+   MODE   IN

OFF/ON Button

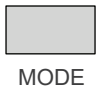Individual power OFF/ON for each module

Next, Prev & Volume Button

The top button for repeating the previous song and to decrease the song volume while the bottom one shall skip to the next song and to increase the song volume.

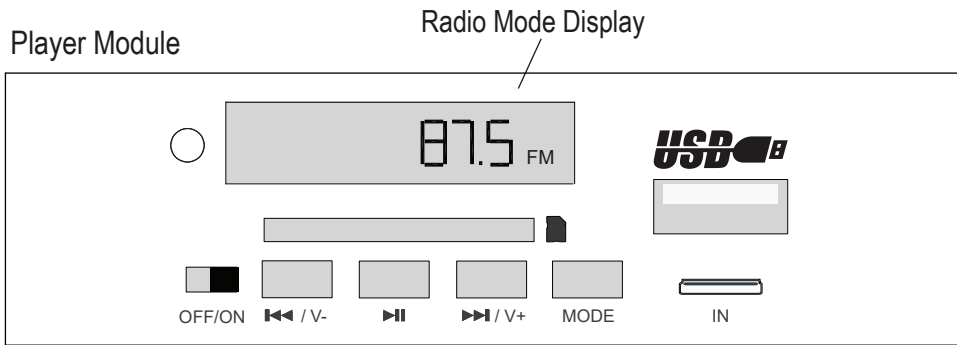**Play & Pause Button**

Press this button to play or to pause.

Mode Button

The menu at the display would switch between :-

RADIO ---- USB ---- SD ---- BLUETOOTH ---- RADIO

Operating the Unit (FM Tuner)

Radio Mode Display

Player Module

87.5 FM

USB

OFF/ON ◄◄ / V-   ►❚❚   ►►❚ / V+   MODE   IN

MODE

To enter the radio mode, press Mode button & FM Radio reception mode shall be displayed.
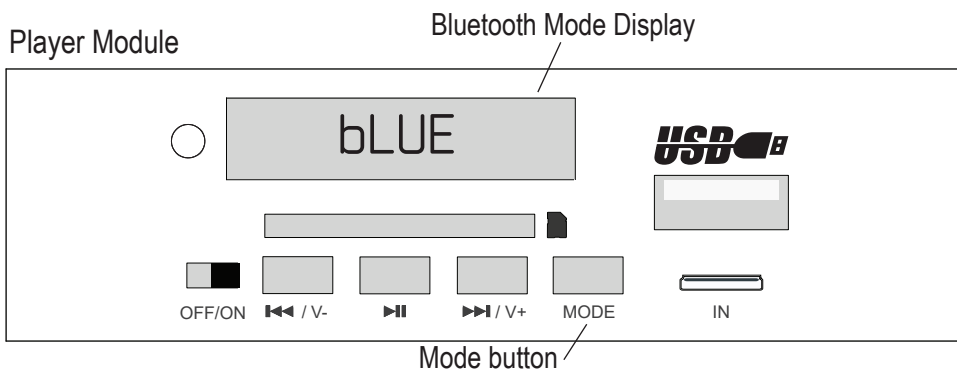
◄◄ / V-   ►►❚ / V+

Use the 'Next' or 'Prev' button to manually select the station.

►❚❚
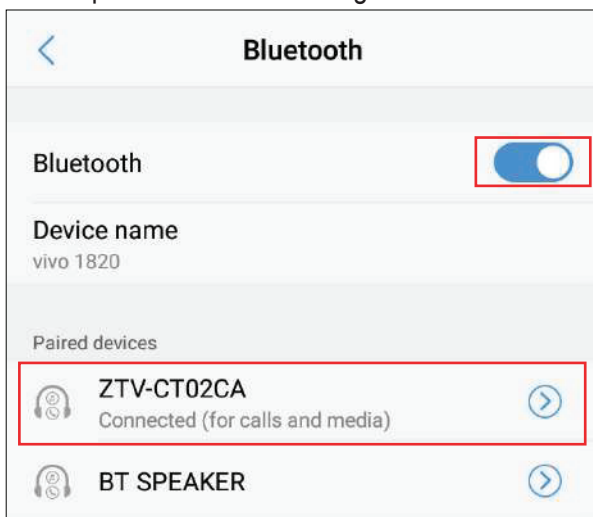
Auto program select. Press this button briefly and the tuner shall automatically search the stations.

Operating the Unit (Bluetooth)

Bluetooth Mode Display

Player Module

bLUE

USB

OFF/ON ◄◄ / V-   ►❚❚   ►►❚ / V+   MODE   IN

Mode button

Mobile phone bluetooth setting

‹   **Bluetooth**

Bluetooth   ⬤

Device name
vivo 1820

Paired devices

🎧 ZTV-CT02CA   ⊙
Connected (for calls and media)

🎧 BT SPEAKER   ⊙

1) On MA2000P series media player, press MODE button until 'bLUE' show up on the LED display, indicates that the player is now in Bluetooth reception mode.

2) On a Bluetooth transmission device, turn On the Bluetooth mode. It will start searching for active reception device around the area.

Figure on the left, shows a mobile phone running on Android detected a device named " ZTV-CT02CA " which is the MA2000P player. Click the " ZTV-CT02CA " to pair the player.

If the pairing is successful, we shall hear " Bluetooth successfully connected". Now we can play an audio file on our bluetooth device and stream it to MA2000P.
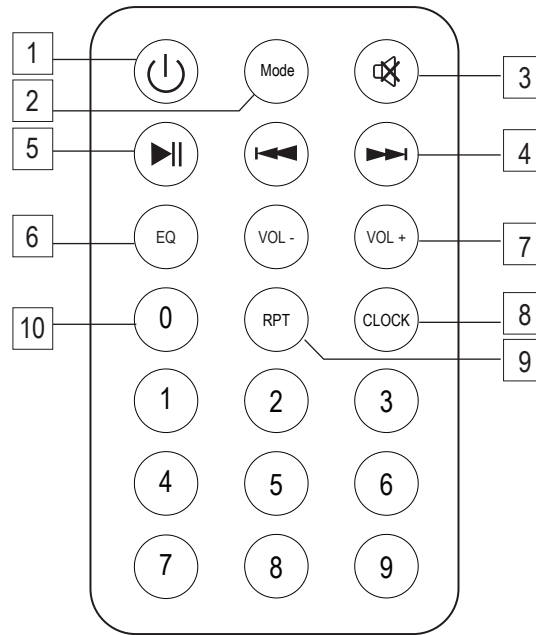
1. Power Switch : Press once to switch ON, press again to switch OFF.

2. Mode: Press this button to switch the radio / bluetooth / AUX / playback of USB / SD function.

3. MUTE : Press once to mute audio output, press again to resume volume level.

4. Next / Previous Button : In the playback mode, USB / SD songs, press this button to select previous song or next song. In the radio mode, it is for searching stations.

5. Play / Pause Button : Press this button to switch between Play and Pause.

6. EQ: Press this button to switch EQ modes (Jazz, Pop, etc)

7. VOL +/-: Press this button to increase or decrease volume level.

8. CLOCK: Press this button to switch to clock mode.

9. RPT: During playback, press RPT button briefly to play the current track repeatedly, and the LCD will display ONE. Press RPT button twice to play the tracks in the Folder repeatedly, and the LCD will display FOLD.
Press RPT button twice to play all the track, and the LCD will display ALL.

10. Numerical Buttons : In the radio mode, press this button to search the station. In the playback mode, press this button to choose desired songs.

Technical Specifications

	MA2006 / 2006P	MA2012/ 2012P	MA2024 / 2024P	MA2036 / 2036P
Rating (W rms, 100V output)	60W	120W	240W	360W
Operating Voltage	220 - 240V AC or 22 - 30V DC			
Power Consumption	115W	160W	285W	450W
Current (Load / Standby) @ 240Vac	0.5 / 0.1A	0.7 / 0.1A	1.2 / 0.1A	1.9 / 0.1A
Current Requirement (24 V DC)	3.5A	6.7A	12.9A	19.6A
Inputs Channel 1 & 2 Channel 3 & 4 Channel 5 & 6	Balanced MIC Input with 12V Phantom Power (10k Ohm) ; Adjustable Mute Priority Balanced Line / MIC Selectable with 12V Phantom Power (15k Ohm Line, 10k Ohm Mic) Unbalanced Input (15k Ohm) RCA 0dBV			
THD + N (At rated power)	< 0.02%			
SNR	> 68 dB			
Tone Control	Bass (100Hz) ; Treble (10kHz) +/- 15 dB			
Frequency Response	120 ~ 20 kHz (+/- 3dB)			
SIG Output	0dBu Balanced Line			
Power Output 4 Ohm @ 1Vrms Balanced Line Input	50V rms			
100V @ 1Vrms Balanced Line Input	100V @ 60W	100V @ 120W	100V @ 240W	100V @ 360W
Zone Selectors	6 Selectable Output Zones			
Protection	Thermal, Short Circuit, AC & DC Fuse			
Indicator	Power, Signal Indicator for Each Channel, Output Signal Level			
Cooling System	45°C Thermostat Automatic Fan Control			
Dimensions (W x H x D) mm	434 x 88 x 200 mm (Without mounting bracket)			
Weight	4.6 kg / 4.75 kg (P Version)			

Note:

The above specifications are correct at time of printing but subjected to changes without prior notice due to product improvements.

Summary of Features

● Class D amplifier with wide frequency range and high efficiency

● 6 mic / line selectable input channels, with front mic jack, phantom power

● Priority muting for mic input 1 and 2 with adjustable muting level

● 6 zone speaker output with ALL CALL and remote triggering port for Emergency Paging mic and dedicated jack for PM1060 / 1120.

● 100V line output with aux 4 Ohm speaker terminal

● Tone and bass controls

● AC / DC operation for fixed and uninterrupted operation

Warranty Conditions

Only Amperes Electronics Service Centres are allowed to make warranty repairs : a list of Amperes Electronics Service Centres may be asked for by the purchaser or send directly to Amperes Electronics Sdn Bhd at 70 Jalan Industri PBP 3, Tmn Perindustrian Pusat Bandar Puchong, 47100, Puchong, Selangor, Malaysia or its authorized dealers. This warranty is not valid if repairs are performed by unauthorized personnel or service centres.

This warranty covers only repairs and replacement of defective parts ; cost and risks of transportation as well as removal and installation of the product from the main system are for the account of the purchaser. This warranty shall not extend to the replacement of the unit.

This warranty does not cover damages caused by misuse, neglect, accident of the product as well as using the product with power supply voltage other than shown on the product, or any other power supply source / adaptor not recommended by the manufacturer.

This warranty does not cover damages caused by fire, earthquakes, floods, lightning and every cause not directly related to the unit.

This warranty does not include any indemnity in favor of the purchaser or the dealer for the period out of use of the unit; moreover the warranty does not cover any damages which may be caused to people and things when using the product.

This warranty certificate is valid only for the described product, and is not valid if modifications are made on this certificate or on the identification label applied on the product.

This warranty covers all the material and manufacturing defects and is valid for a period of 36 months from the date of purchase or for a specified period in countries where this is stated by a national law. In this case, the extension is valid only in the country where the product is purchased.

Amperes Electronics Sdn Bhd is not obliged to modify previously manufactured products under warranty if the design changes or improvements are made.

Disclaimer

Information contained in this manual is subject to change without prior notice and does not represent a commitment on the part of the vendor. AMPERES ELECTRONICS SDN BHD shall not be liable for any loss or damages whatsoever arising from the use of information or any error contained in this manual.

It is recommended that all services and repairs on this product be carried out by AMPERES ELECTRONICS SDN BHD or its authorized service agents.

AMPERES series must only be used for the purpose they were intended by the manufacturer and in conjunction with this operating manual.

AMPERES ELECTRONICS SDN BHD cannot accept any liability whatsoever for any loss or damages caused by service, maintenance or repair by unauthorized personnel, or by use other than that intended by the manufacturer.