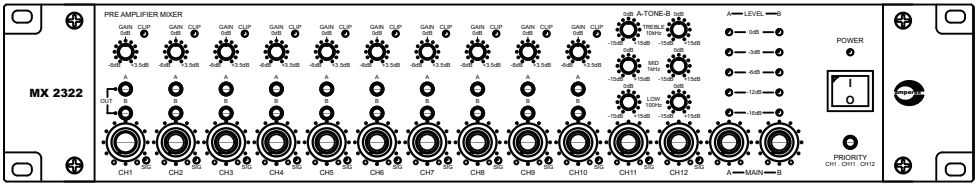
INSTRUCTION MANUAL

MX2322

DUAL BUS PRE-AMPLIFIER MIXER



Thank you *for selecting and trusting another product from Amperes Electronics.*

MX2322 is another product realized due to increasing demand that requires more flexible mixers that is both suitable for PA system (PAVA) as well as for applications in conference room, classrooms, small function halls etc.

It allows easy assignment for inputs to outputs or both by selecting the required switch. Mic pre-amps is available for better input controls through input source balancing. Individual output shall has its own tone controls, either to suit the speaker delivery area or different types of speakers used.

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.

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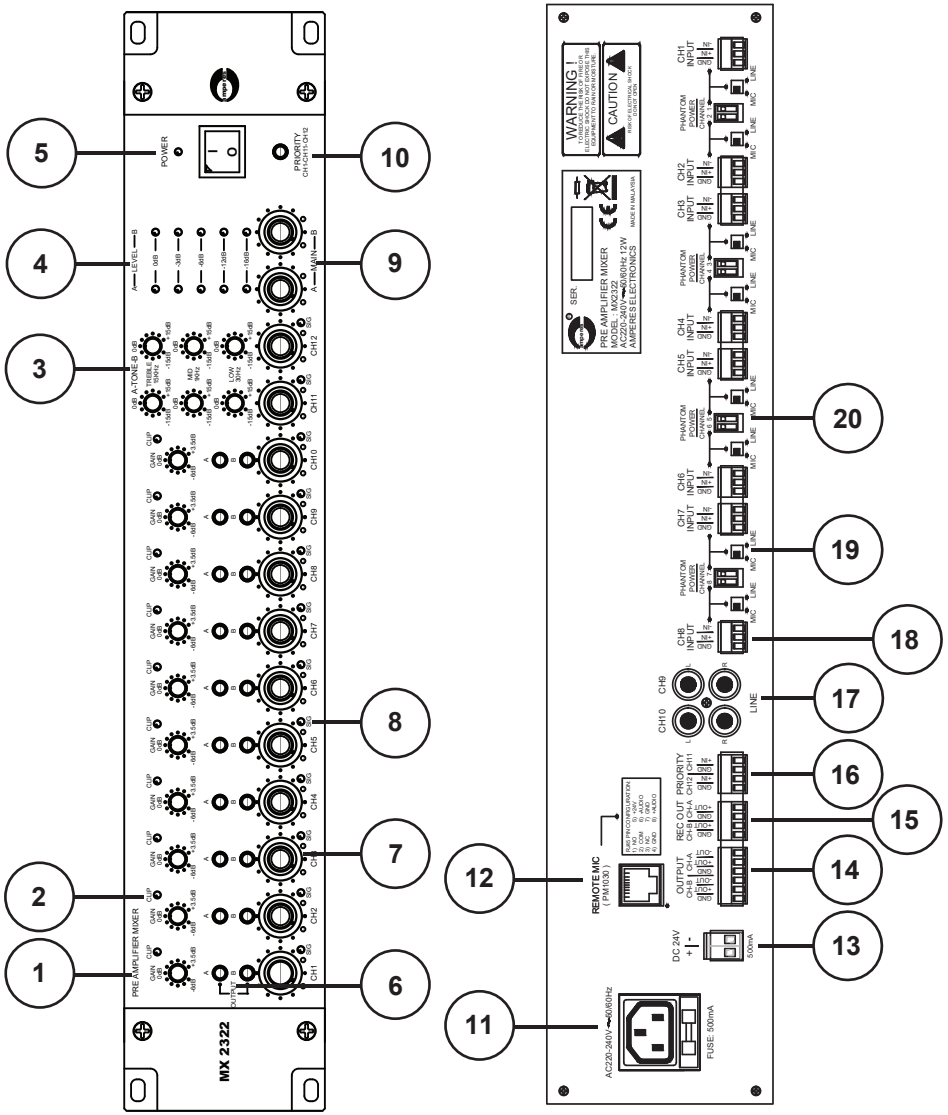
Parts Identifications

FRONT VIEW

REAR VIEW



Parts Identifications (front view)

1. MIC PRE-AMP GAIN KNOB

Input signal can be adjusted or equalized before mixing. Useful when there are different types of audio source with differing output levels.

2. INPUT SIGNAL CLIP LED

Indicates the input level reached clipping level.

3. OUTPUT TONE CONTROLS

3 bands of tone controls available with channel has its individual tone controls.

4. OUTPUT LEVEL LED

Output level meter for both output A and B.

5. POWER LED

AC or DC power indicator to the unit.

6. INPUT TO OUTPUT CHANNEL SWITCH

Each input can be assigned to either output A or B, or both by pressing these switches.

7. INPUT CHANNEL VOLUME CONTROL

Volume of each input channel can be adjusted accordingly or turned off by turning anti clockwise fully.

8. INPUT CHANNEL SIGNAL INDICATOR

The intensity of the LED shall lit according to the volume of each channel.

9. MAIN OUTPUT VOLUME CONTROL

Main output A and B can be adjusted accordingly.

10. PRIORITY SWITCH

Priority overriding can be switched On or Off by pressing this button. Priority muting is available for Ch.1, 11 and 12.

Parts Identifications (rear view)

11. INCOMING AC SUPPLY

The mixer operates at 220 to 240 V ac. IEC connector with fuse rating of 500 mA is used.

12. PAGING MIC INPUT CONNECTOR

Enable easy connection of Amperes PM1030 paging mic. Mic activation shall mute all incoming BGM audio

13. 24V DC INPUT CONNECTOR

MX2322 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.

14. MAIN AUDIO OUTPUT A AND B

Output from mixer is balanced line voltage.

15. RECORD OUTPUT

Record output is available in unbalanced line signal, for connection to external recording devices.

16. PRIORITY INPUTS (CH 11 AND 12)

Unbalanced line input with priority option (see front priority button), which can override other sources.

17. RCA INPUT FOR MUSIC PLAYERS (CH 9 AND 10)

Unbalanced line inputs from music players such as DVD audio available in stereo mode.

18. BALANCED AUDIO INPUTS (CH 1 TO 8)

8 channels of balanced audio available with line / mic level switch

19. MIC / LINE SWITCH (CH1 TO 8)

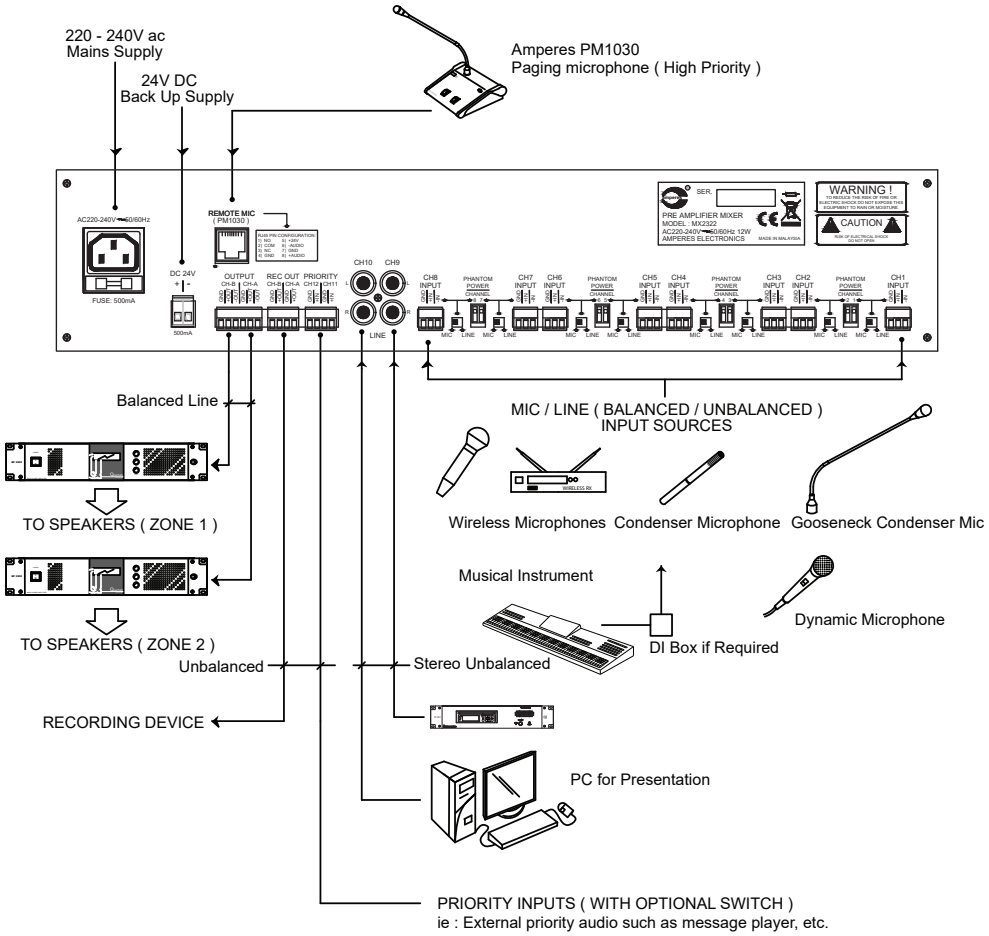
Enable different audio level to be inserted to mixer. Switch to Mic for microphone inputs and Line for other sources such as media players, wireless mic receivers or link from other mixers.

20. PHANTOM POWER SWITCHES

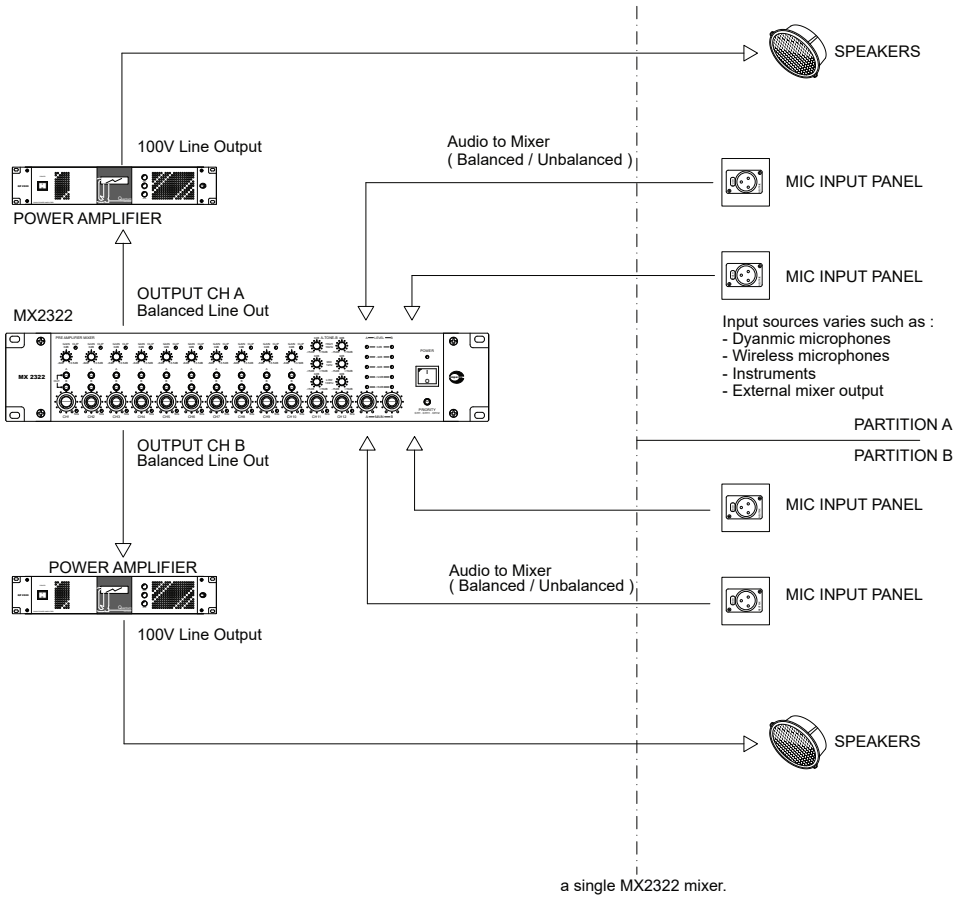
18V DC phantom power is available for Condenser microphones that requires powering. If dynamic mic or other line sources are used, it is advisable to switch them Off.

Push down to turn on phantom power.

General Connection Diagram



Application For Partitioned Function Room



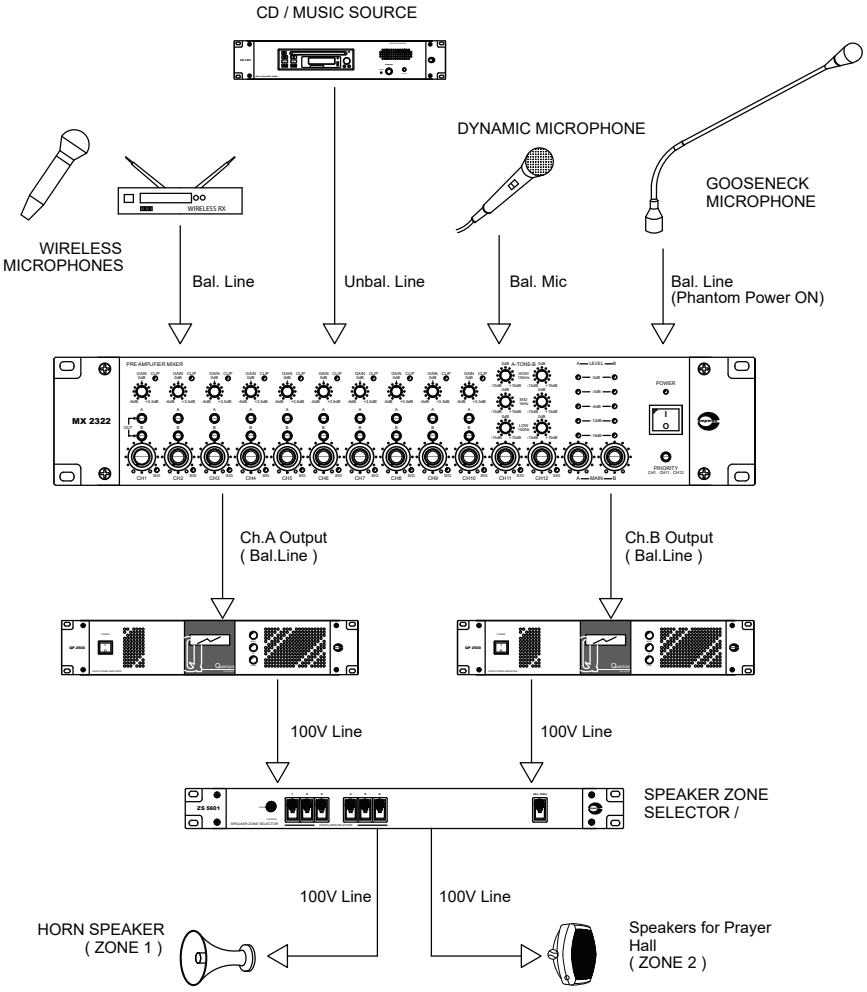
The above summarized diagram shall be used for function rooms which is divided into 2 partitions which can be used separately using.

In this scenario, input sources at Partion 1 to be routed to mixer output Ch.A and Input sources at Partition 2 to mixer output Ch.B

When both partitions are to be combined into a single hall, with Partition A as main, route the input sources at Partion 1 to both mixer out Ch.A and B.

Among applications are hotel function rooms, school classrooms which is convertible to single large room or restaurants.

Application For Mosques

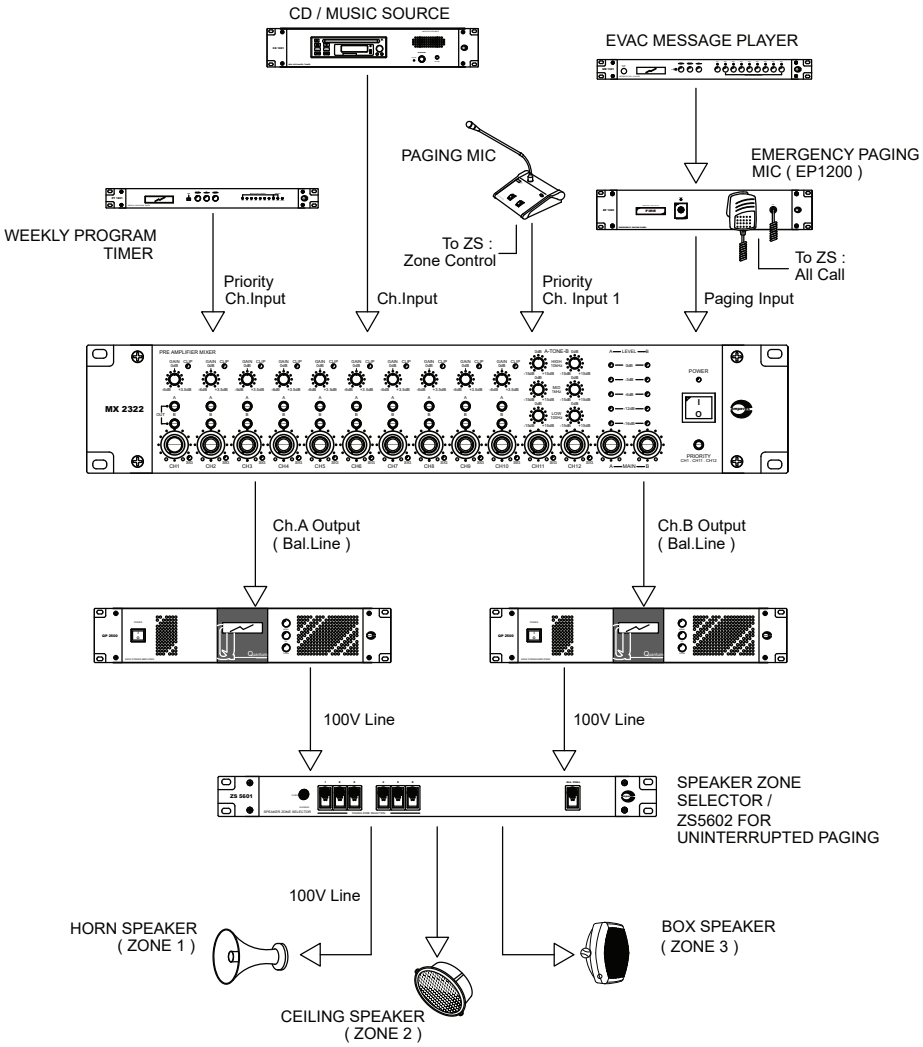


Note on Applications :
The above sample is suitable for Mosques or similar applications that may utilise different types of speakers that requires some audio equalisation to suit the speakers' characteristics or the environment.

All inputs shall be routed to both A and B outputs that goes to different amplifiers that cater for specific speakers eg. Output A to amplifier A for Horn and Ouput B to amplifier B for Hall speakers. Speaker zone selector is an option in case there is to need to turn On or Off certain zone.

Each individual output channel can be tuned with the 3 band tone controls to suit the speakers used. ie. you may need to decrease the bass for horn speakers.

Application For General Paging System

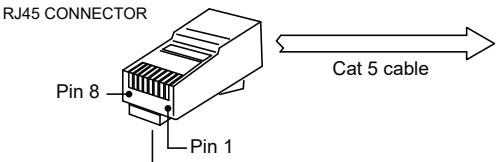


Note on Applications :
Above illustration is suitable for general paging as well as Uninterrupted Paging setup (use ZS5602).

Among application that requires above illustrations :
- System that requires 2 sets of music for different zones
- Uninterrupted paging, which paging one zone would not affect another
- Normal and Emergency zones, which emergency zones would only require paging audio, otherwise in silent mode

Consult us if you need to expand the system to include other equipments such as line supervisory, changeover etc.

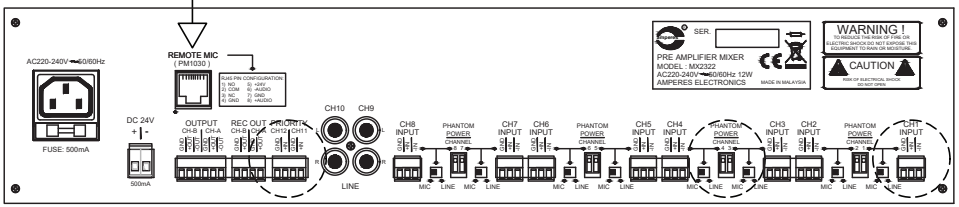
Connection To Mixer



TO PM1030
EXTERNAL CONNECTION BOX WITH
PIN CONFIGURATIONS AS :

1 - NO	5 - 24V DC
2 - COM -	6 - -VE AUDIO
3 - NC	7 - GROUND
4 - GROUND	8 - +VE AUDIO

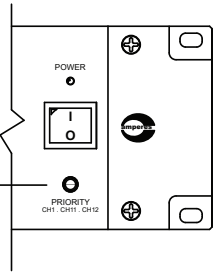
Paging mic can be powered directly from MX2322. Therefore external adaptor at paging mic shall not be needed.



Condenser
Phantom power of 18V is available for source that requires this ie. Condensor Mic push the switch down to turn on the Phantom power. If source does not require this, we recommend this switch is pushed to Off position (upwards)

Select the input level type for Ch.1 to 8 using the slide switch accordingly

Priority line input is available for source such as tone generator or message player or emergency mic. To activate the priority feature, the front priority switch must be switched ON.

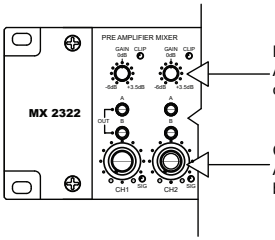


Priority Switch is available for Ch1, 11 and 12. It shall mute all other channels and shall resume after approximately 5 seconds. Muting shall occur at both Output A and B.

Operating The Mixer

1. EQUALISING INPUT LEVEL OF DIFFERENT AUDIO SOURCE

Output levels from different audio source may be different, such as microhones which could be at -40dBu, whereas instruments at 0dBu or 0dBv and some audio players could be more than 4dBU (1.22 V rms). Before reaching the individual volume controllers, these input sources should be adjusted at "Pre-Input Volume Control " level to enable easier controls. They can be either increased or decreased, ranging from -6dB to +3.5dB.

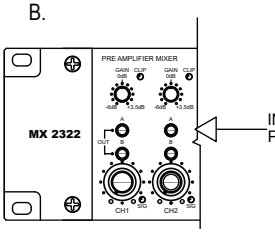


PRE-INPUT VOLUME CONTROL
Adjust the input signal with gain or attenuation according to input source to reach equal level as compared to other sources. Ensure the Clip indicator does not lit.

CHANNEL VOLUME CONTROL
Adjust these according to the required mixing level with other sources. Audio intensity is indicated by Signal LED

2. ROUTING INPUT SIGNAL TO OUTPUT CHANNEL

Input channel can be routed by pressing the A or B button. If it is required to send to both outputs, press both A and B.

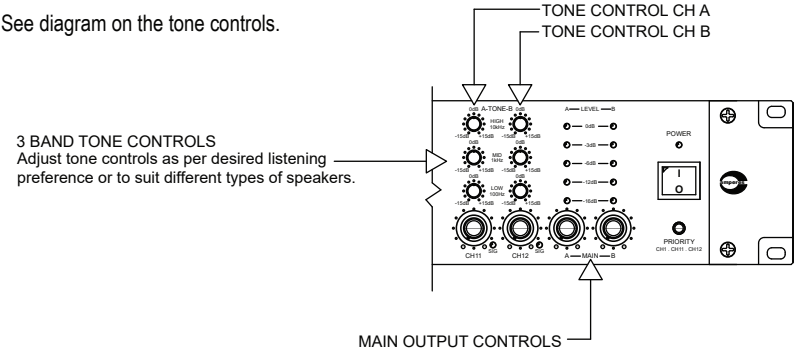


INPUT ROUTING SWITCHES A & B
Press the required switch to send input source to either A or B, or both.

3. MIXED OUTPUT TONE CONTROLS

Each output (A and B) has 3 band tone controls with Low at 100 Hz, Mid at 1 kHz and High at 10 kHz. Each band has shelving of +15 to -15 dB gain.

See diagram on the tone controls.



4. MAIN VOLUME CONTROLS

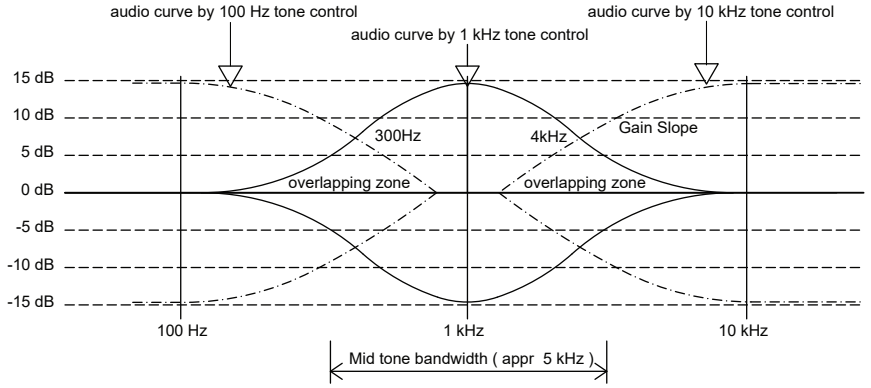
Each output has mixed signal main volume control and the levels are indicated by signal LED. To avoid audio clipping which may distort the sound, ensure it is always within 0dB, which is approximately 1.22V rms.

Illustration Of Band Controls

3 tones band control with cut off frequencies at 100Hz (Low), 1 kHz (Mid) and 10 kHz (Hi) is available for simple output tuning to fit listening preference or to drive certain speakers such as sub woofer or horn speakers.

As mixed audio may have rather low frequency level, adjusting upwards the gain of Low tone knob may increase the bass delivery. Using horn speaker may be the opposite as low frequencies may need to be attenuated to protect the horn coils.

Adjustment of tones may need certain skill to deliver optimum audio delivery or to prevent echo or feedback in installations. For more refined tuning, 31 band graphic equaliser be useful. Please consult qualified audio technician for refined tuning.



Technical Specifications

Operating voltage	220 - 240V ac 50 Hz / 24 V dc
Current consumption (max)	41 mA (240V ac) / 260 mA (24V dc)
Power consumption	9.6W (240V ac) / 6.3W (24V dc)
Input	8 x Mic / Line inputs with gain controls & phantom power 2 x line inputs with priority , 2 x RCA line inputs , 1 paging mic
Input impedance	Line : 10 k Ohm Mic : 15 k Ohm
Phantom power	18V dc at Ch.1 to Ch.8 switchable
Operating level	-30dBu (mic) , +4dBu (line) , Line mic attenuation : -30 dB
Input level (Max)	+10 dBu
Gain controls	-6dB to +3.5dB (Ch1 to Ch10)
Crosstalk	< -70 dB
Outputs	2 x (Ch A and B) ; line balanced , 2 x Record output ; line unbalanced
Output impedance (Ohm)	300 Ohm balanced
Tone controls	3 Band tone controls : +/- 15 dB , 100 Hz (Low) , 1 kHz (Mid), 10 kHz (High)
Frequency response	(+0.5dB , -3dB)
S/N ratio / THD + N	>75 dB / < 0.1%
Connectors	Mini Phoenix connectors (Mic / Line inputs and outputs) RCA jacks for unbalanced audio source , RJ45 for Amperes PM1030 paging mic
Dimensions (WxHxD) / Weight	482 x 88 x 185 mm / 3.3kg

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 master distributor, TNT Links Sdn Bhd / MyPA Systems Sdn Bhd. 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 12 months from the date of purchase or for a longer 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.

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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.

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