

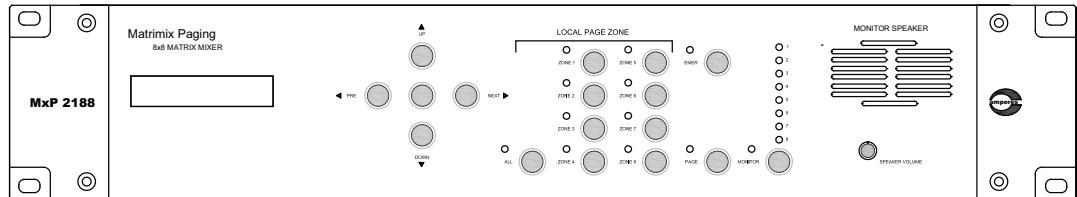
INSTRUCTION MANUAL

guide to installation and operation
Version 2 (Jan 10)



MATRIX SYSTEM

public address systems
8 x 8 matrix



amperes

www.ampereselectronics.com
malaysia



version 2 / 10



INTRODUCTION

Congratulations and you had just got another great product from Amperes, and this is an upgraded version, with extra features and capabilities which would do better work than the previous version.

MxP2188 - It is a Matrix System created for Public Address installations which was developed through detailed research and understanding of the customers' need. Each controller is an 8 input and 8 output unit, but can be linked to form larger output zones, up to 16 units or a total of 128 zones.

Apart from the dedicated paging microphone PD1160, now it can work directly from Amperes PD2400 or PD2800 paging mic, thanks to the harmonised codes and shall be the standard protocol of all Amperes products. The recently upgraded Remote Control panel, RP1104 and RP1105 shall complement the overall system, making it a great product you shall appreciate.

We do not stop here, and believe us, more things shall be included in time to come, including interface to the PMX System - music server software.

We truly believe MatriMix System shall be a great tool for your PA installation and this shall remain to be in the years to come. We welcome your feedback and we shall ride on those recommendations. Do email to us your thoughts to amperes@streamyx.com

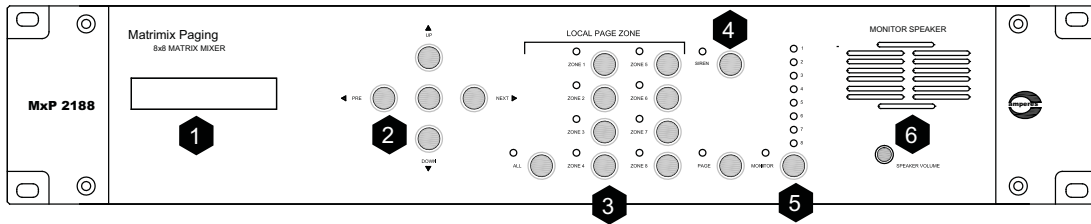


CONTENTS

Introduction and contents	2	Operating the system	
Parts identifications		To make paging	19
Front	3	Activating siren	19
Rear	4	Activating message	19
Associated components in the MatriMix System	6	Monitoring output volume	20
Installation schematic		Adjust zone volume	20
Single unit installation	7	Using remote panel	20
Cascade	8	Technical specifications	21
Connecting the unit		Warranty	22
Remote zone control panel	9		
Remote source input panel	9		
Remote paging microphone - PD1160	10		
Multipoint remote paging	10		
Local mic input	10		
Remote triggering and E/M contact	11		
RS485 connections	11		
Connecting output	11		
Cascading two units	12		
Setting up and programming			
Main Menu	13		
Monitor channel	14		
Channel paging	14		
Output channel setting	15		
Chime	15		
Voice message recording	16		
Cascade	17		
Option	18		
Memory	18		
Exit	18		

PARTS IDENTIFICATIONS

A. FRONT VIEW



1. LCD DISPLAY

2 X 18 characters LCD display with back light enables menus and instructions to be displayed for ease of programming and operating.

2. MENU BUTTONS

These buttons are used to access Menu or Setup functions.

ENTER - Press momentarily for 1 second to enter setup, to confirm selection

LEFT (<) and RIGHT (>) - To scroll between main menus

UP and DOWN - To scroll between the sub menu

Pressing UP momentarily to save setting and enter into standby mode before shutting down the unit. It is recommended that this procedure be followed everytime the unit is to be shut down.

3. ZONE SELECTION AND PAGING BUTTONS

ALL CALL button shall switch on all zones, to activate press twice. Selection of individual zone can be made directly to the respective button. Press PAGE after selection to begin paging. To end paging, press PAGE again.

While the unit is in paging mode, remote panels of the selected zone shall be disabled with blinking LEDs, indicating busy mode. It is therefore important to ensure that the unit returns to normal mode after each paging to avoid interruption.

4. SIREN

Siren shall be activated to all zone when this button is pressed. It shall have high priority over normal paging. It can also be triggered via remote port.

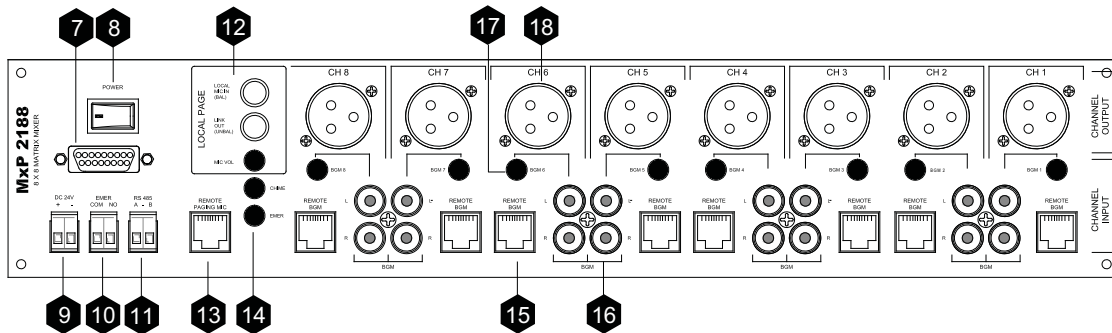
5. AUDIO MONITOR SELECT

This is to select the output channel via daisy chain switching. The amber LED indicates off position.

6. MONITOR SPEAKER AND VOLUME

Selected output zone is monitored via the front panel speaker and the volume can be adjusted.

B. REAR VIEW



7. REMOTE TRIGGER PORT

This is used to trigger siren / pre-recorded message with a dry contact. It can be linked to alarm switch or fire control panel to activate the alarm.

Also refer to "Connecting The Unit - Remote Triggering"

8. POWER SWITCH

It is recommended to switch off the supply only after the unit has returned to standby mode as hard switching off shall erase any preset memory during the previous usage.

9. DC INPUT PORT

Input voltage is 24V DC with recommended power supply rating of 2A. Use only regulated DC supply and observe polarity when connecting.

10. E/M or AC CONTACT

Whenever ALL CALL is activated, this shall provide a close contact, and can be linked to external devices such as mimic panel or external relay to override volume controls.

11. RS485 PORT

External controls or interface devices shall be able to communicate with the unit. It shall be able to communicate with software using RS485 to USB converter which shall be available in near future.

12. LOCAL PAGE INPUTS - LINK

A handheld dynamic mic such as emergency mic shall be connected to the unit at this jack, using balanced signal. An output link is provided to link to slave unit. The mic volume control is available to adjust the level.

13. REMOTE PAGING MIC

A dedicated desktop mic - PD1060 shall be connected to this port. If more than two units are available, use the Paging Mic Extender - EX1102. Should two units of MxP2188 are installed, a Paging Mic Splitter (MS1103) shall be used, one link to the Master and the other to the Slave port.

Also refer to "Connecting The Unit - Remote Paging Console and Multiple Point Paging "



PARTS IDENTIFICATIONS (Con't)

14. VOLUME CONTROLS - LOCAL PAGE / CHIME, EMERGENCY

The volume controllers available :

Local Page - volume adjustment for local mic input
Chime - for built in chime output
EMER - for siren or recorded message output volume

15. REMOTE BGM / ZONE CONTROL PANEL

Remote zone control panel (Amperes RP1104) are plugged to this RJ45 jack using Cat 5e / 6 cable. Each individual remote control panel shall be connected to its corresponding channel.

Remote BGM or external audio source shall be connected to RP1105 and link to RP1104 prior to connection to these ports. External remote panel which requires 24V DC supply may be tapped from this port.

Each channel shall have same connection configuration.

The use of these ports is optional if there is no requirement for remote zone control or when only adjustments are allowed at the control room.

Please refer to section " Remote Zone Control Panel " and "Remote Source Input Panel" on the pin configurations.

16. LOCAL BGM INPUT

Local audio sources at the rack shall be connected to these inputs using RCA jacks. Since PA systems run on mono mode, a single input may suffice, either at Left or Right channel. However, some music playback may contain high level of stereo effect and thus it is advisable to have both channels plugged in to capture full spectrum of the music.

If remote BGM is available together with local BGM, the remote source shall have priority and would mute the local source. To avoid cross interference, we recommend that you use only one source for each channel.

For cascade mode, please refer to section " Cascading The Unit ".

17. INPUT LEVEL VOLUME CONTROL

This is to control the volume from local BGM source to the system.

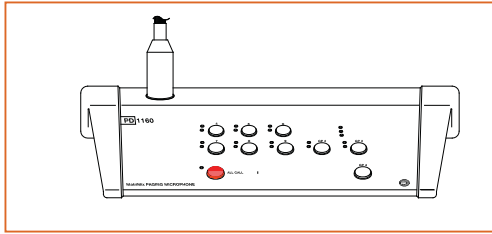
18. OUTPUT CHANNEL

Audio output is balanced line level signal. Each individual output can have its level preset at the front panel, including the bass and treble control.



ASSOCIATED COMPONENTS IN MxP2188 MatriMix SYSTEM

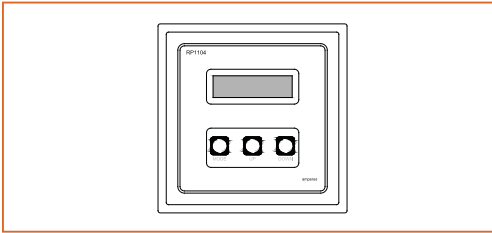
Listed below are components that may be required in a full matrix system. Quantities required for each component may vary depending on the installation specifications. The components are to be purchased separately.



PD1160 - DESKTOP PAGING MICROPHONE (Ver 2)

Dedicated paging mic desk with 8 / 16 zone selection, powered by 24V DC via the UTP cable with RJ45 connectors. It comes with busy indicators, illuminated gooseneck microphone and volume control.

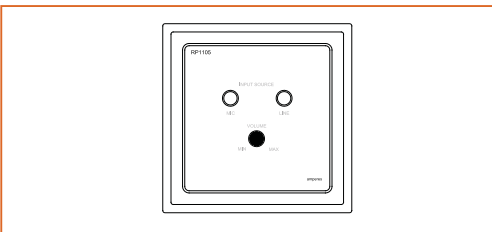
It is to be connected directly to MxP2188 controller with recommended cable length at approximately 100 m.



RP1104 - REMOTE ZONE CONTROL PANEL (Ver 2)

Each zone shall have a panel installed at remote location to control the source input and the volume to the particular area.

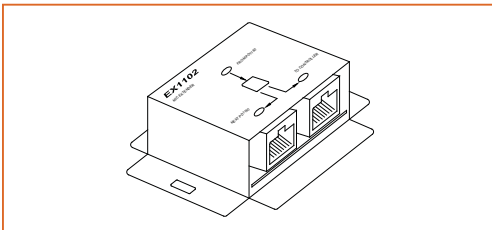
A busy indicator with blinking LED shall lit whenever paging is activated either via the PD1160 paging mic or directly at the MxP2188 controller.



RP1105 - REMOTE SOURCE INPUT PANEL (Ver 2)

It shall be used alongside with RP1100 to enable a local music patch to the particular area. BGM input with line level or microphone source could be patched to the system via this panel.

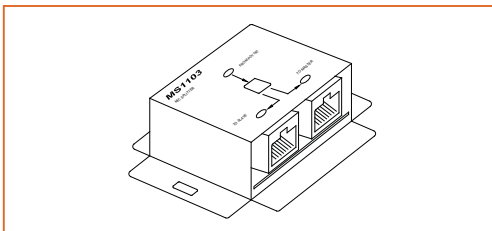
Remote source shall have priority over the central BGM input. If required, other zone shall be able to tune in to this local music input.



EX1102 - PAGING MIC EXTENDER (Ver 2)

Remote paging mic can be installed at various points under same cabling route (series connections). Whenever two or more mics are activated, the one nearer to MxP2188 controller shall have priority over others.

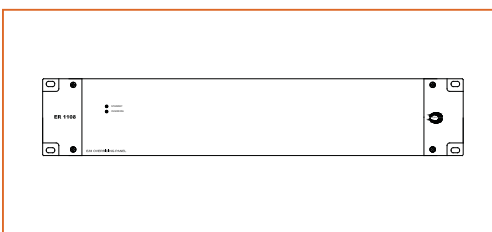
Keep total length to appr. 100 m to avoid signal loss or noise pick up.



MS1103 - PAGING MIC SPLITTER (Ver 2)

It is required when a PD1160 is to be connected to two units of MxP2188 controllers under cascade mode to form 16 output channels.

It shall be installed near the controller.



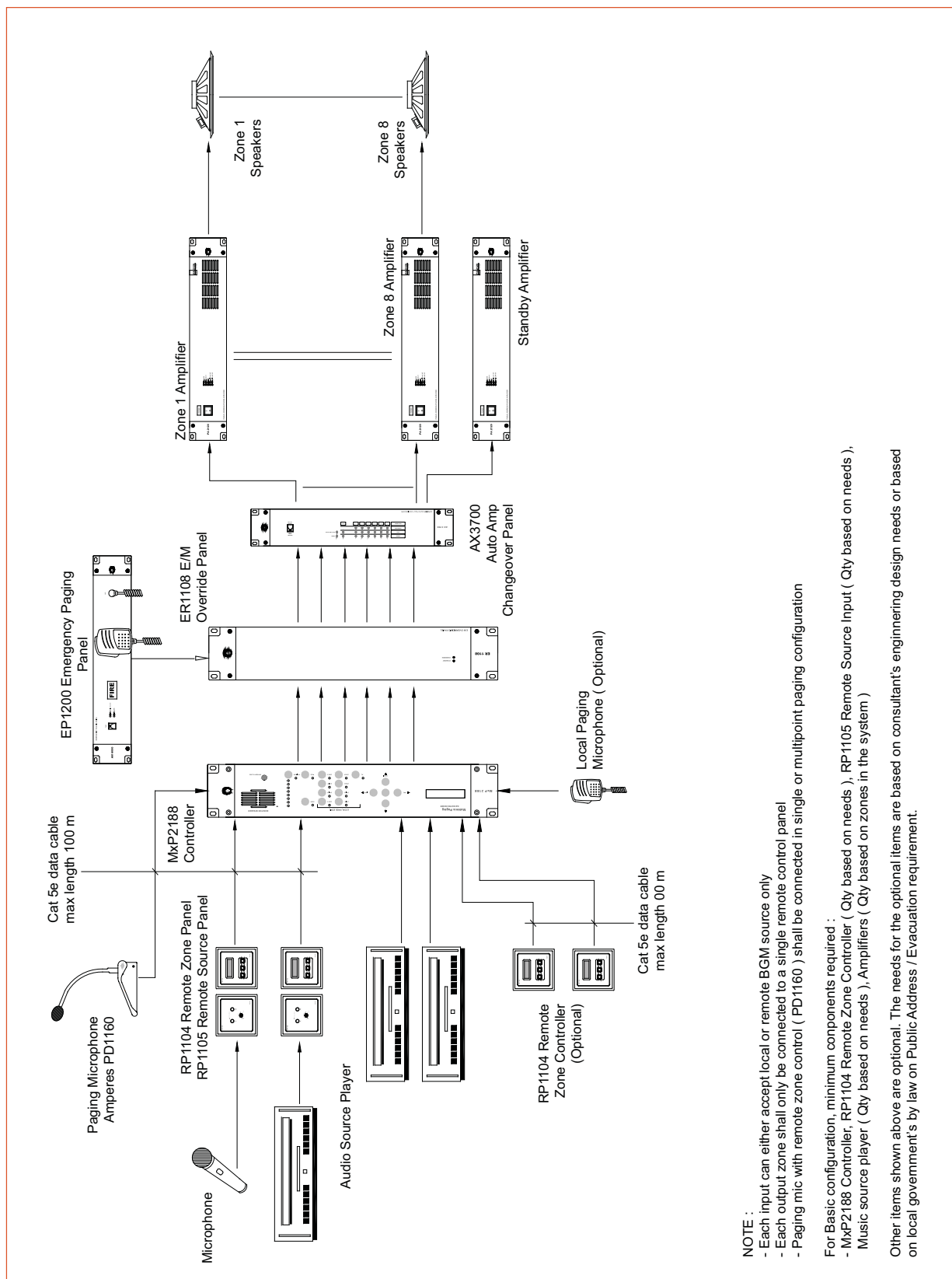
ER1108 - EMERGENCY PANEL OVERRIDE RELAYS

It is an interface unit for EP1200 Emergency Paging Panel to the MatriMix Paging system. All outputs from MxP2188 shall be overridden whenever EP1200 is activated.

It has built in audio signal amplifier which amplifies the audio output from EP1200 and distributed to all duty amplifiers available in the matrix system.

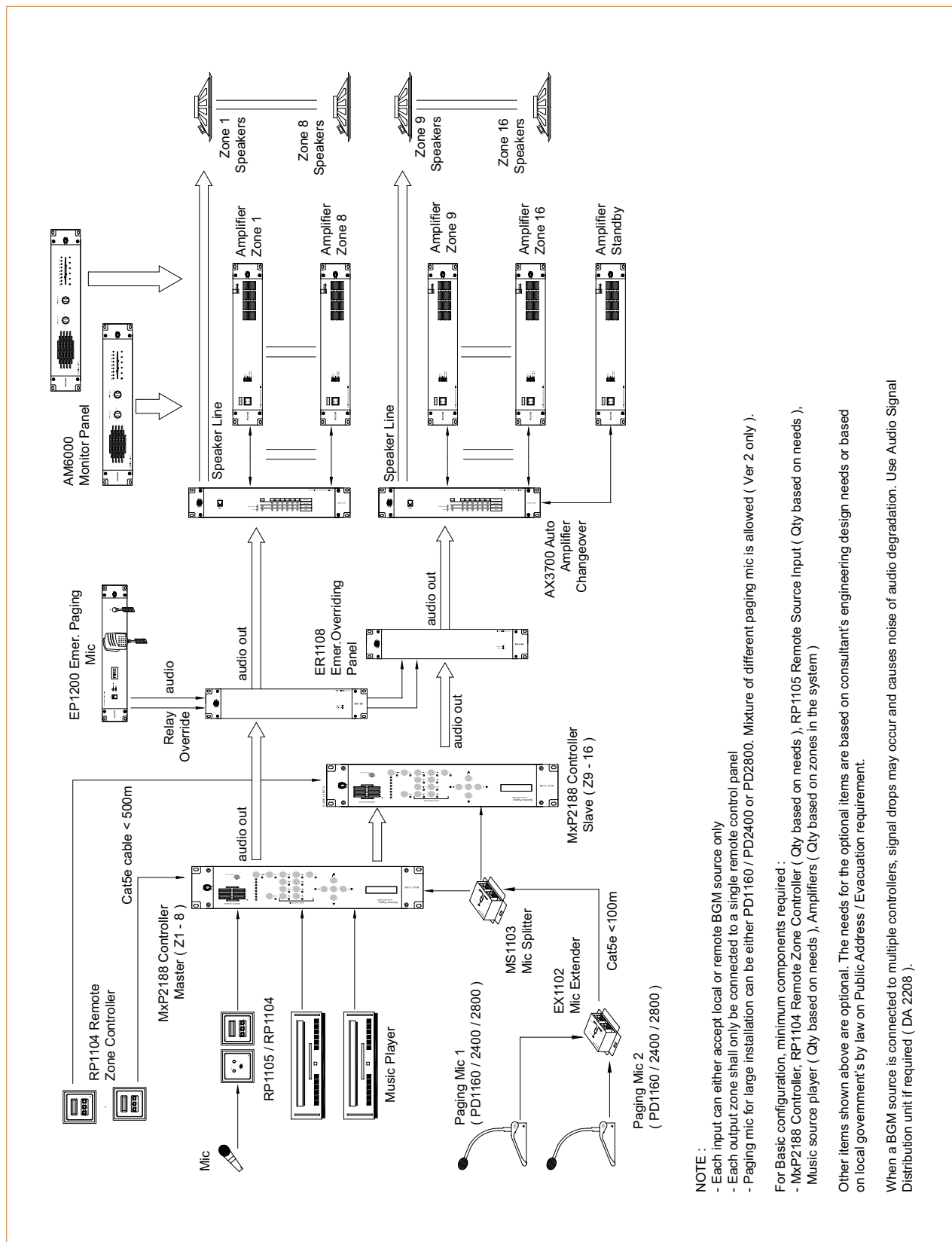
INSTALLATION SCHEMATIC (single unit installation)

The schematic below is a typical configuration with MxP2188. In general, matrix system is suitable for installation in multi zone, multi input source distribution type, such as bangalows, club house, school etc.



INSTALLATION SCHEMATIC (cascade)

The schematic below is a configuration for a larger setup using 2 nos MxP2188 in cascade mode. Equipments shown may vary in actual installation.



NOTE :
 - Each input can either accept local or remote BGM source only
 - Each output zone shall only be connected to a single remote control panel
 - Paging mic for large installation can be either PD1160 / PD2400 or PD2800. Mixture of different paging mic is allowed (Ver 2 only).

For Basic configuration, minimum components required :
 - MxP2188 Controller, RP1104 Remote Zone Controller (Qty based on needs), RP1105 Remote Source Input (Qty based on needs), Music source player (Qty based on needs), Amplifiers (Qty based on zones in the system)

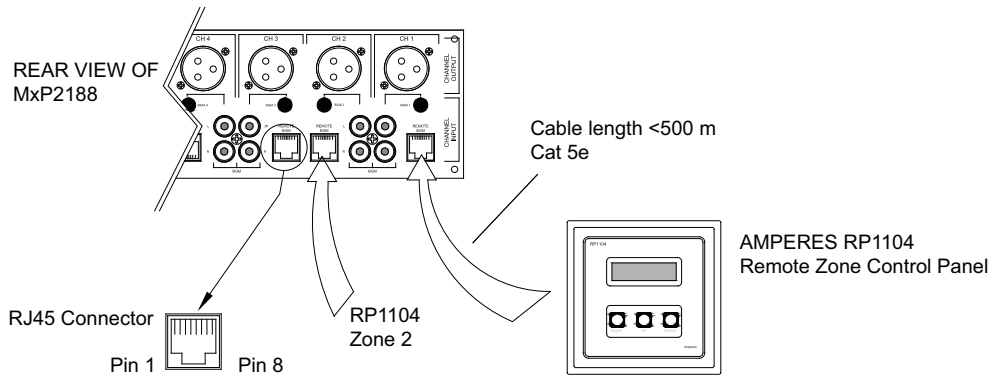
Other items shown above are optional. The needs for the optional items are based on consultant's engineering design needs or based on local government's by law on Public Address / Evacuation requirement.

When a BGM source is connected to multiple controllers, signal drops may occur and causes noise of audio degradation. Use Audio Signal Distribution unit if required (DA 2208).



CONNECTING THE UNIT

A. REMOTE ZONE CONTROL PANEL - RP1104



PIN CONFIGURATIONS

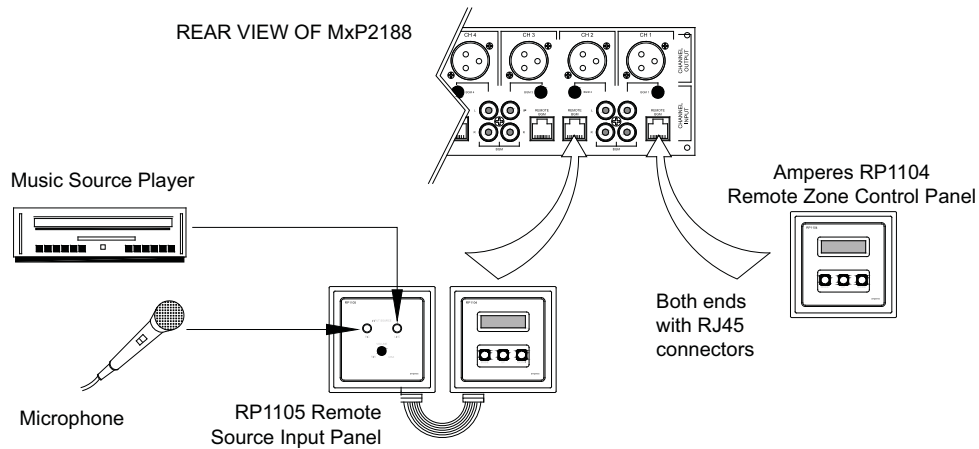
1 - RS485 _A	5 - 24V +VE
2 - RS485 _B	6 - SIGNAL -VE
3 - GND	7 - GND
4 - GND	8 - SIGNAL +VE

Each output zone shall be connected with individual remote zone control panel (RP1104). Looping is allowed when RP1105 is not installed.

It is not necessary to install RP1104 at every output channel for a complete system. Controls of zone without remote panel can be made at the MxP2188 itself.

A RP1104 panel installed to a channel can also controls other zone by changing the unit's address. Refer to Manual of RP1104

B. REMOTE SOURCE INPUT - RP1105



RP1104 and RP1105 shall be installed next to each other and linked with the cable provided.

When RP1104 and RP1105 are to be installed to a channel, the circuit should run individually back to the controller's respective control jack.

NOTE :

Either mic or audio source with line signal can be plugged to RP1105. Use 1/8" mini phone jack (unbalanced) and insert to the correct jack.

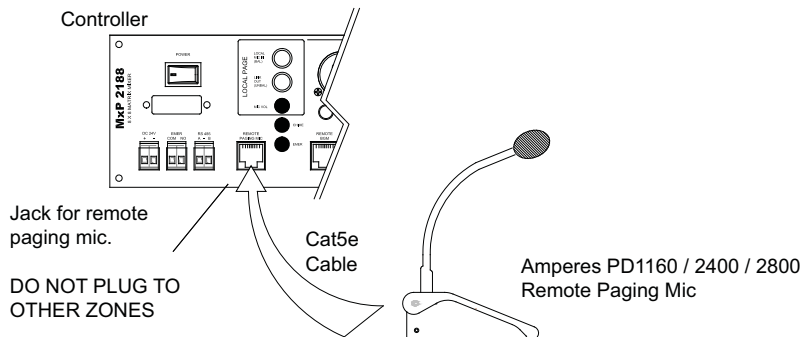
If local BGM source is connected at the MxP2188, it shall be muted when the remote source is active. To avoid cross interference, we recommend that only one source is connected to each zone input.



CONNECTING THE UNIT

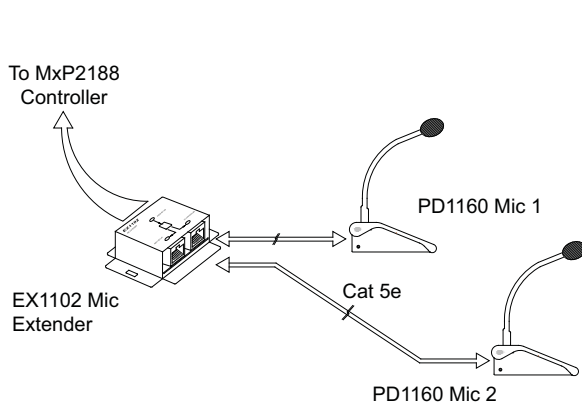
C. REMOTE PAGING MICROPHONE - AMPERES PD1160

Apart from PD1160, PD2400 and PD2800 (Version 2), can be connected to the controller using Cat 5e cable. Recommended length shall be around 100 m.



D. MULTI-POINT REMOTE PAGING

When 2 or remote paging mic (PD1160) are to be installed, use a mic extender (EX2188) as shown before connecting to MxP2188 remote mic port.



PD1160 :
When two paging mic are connected, activating one shall render the other redundant with Busy LED blinking. No priority is available and is on first come first serve basis.

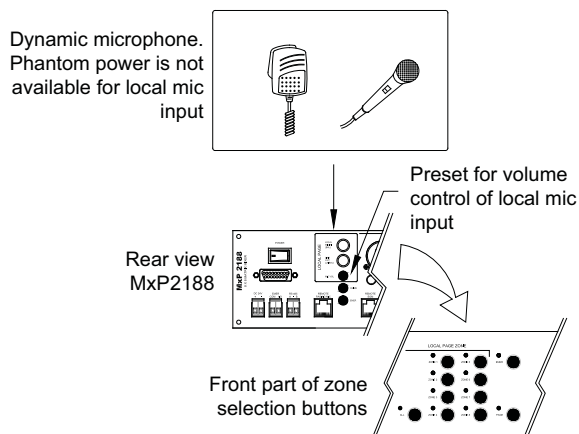
Paging at the controller shall have priority and disconnect any active paging mic.

PD2800 :
Each mic can have priority setting to the unit. An active unit with lower priority shall be disconnected when a higher priority unit is activated. In the other way, the lower priority unit shall have BUSY sign on.

Priority level can be set from 1 to 15, with 1 being higher. Controller is always assigned as 0, being the highest.

E. LOCAL MIC INPUT

Local mic at the rack can be installed in which paging can be made directly via MxP2188. Zone selection can be done with the front panel switches.



Local paging has the highest priority over remote paging mic / message trigger / siren or BGM.

Selecting ALL CALL shall trigger all zones including any cascade units (slaves) and would also trigger a E/M dry contact available at the rear of the controller.

Volume output of the local source shall be determined by the preset volume and would return to individual zone volume upon deactivation of the local paging.



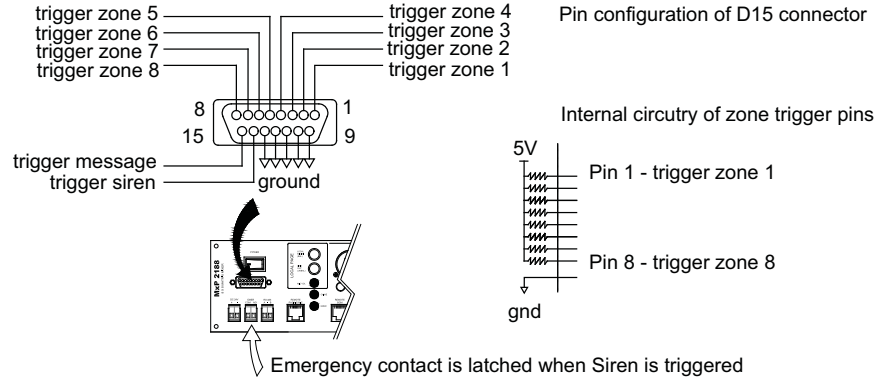
CONNECTING THE UNIT

F. REMOTE TRIGGERING AND E/M CONTACT

Remote triggering port is used to activate the message or siren via external triggering devices such as dry contact switch or from fire alarm panel.

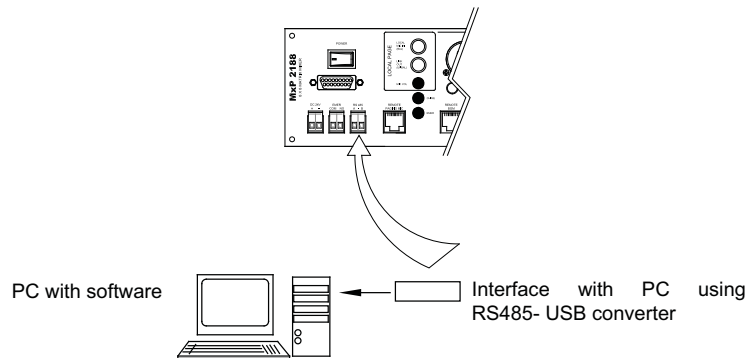
Triggering of recorded message to individual zone can be done via remote switch by grounding respective pin of 1 to 8.

Activation of siren or message at pin 14 and 15 shall trigger all zones.

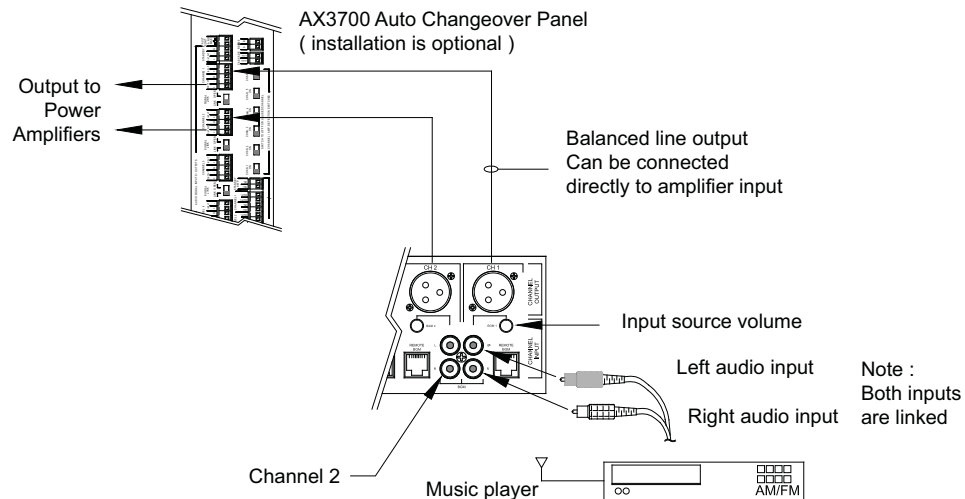


G RS485 CONNECTIONS

Remote communications are using RS485 protocol. Currently, the connection is limited to interfacing with only some components within the system such as cascading and remote control panel. They shall be upgraded to communicate with external software in near future.



H. CONNECTING OUTPUTS



CONNECTING THE UNIT (cascading)

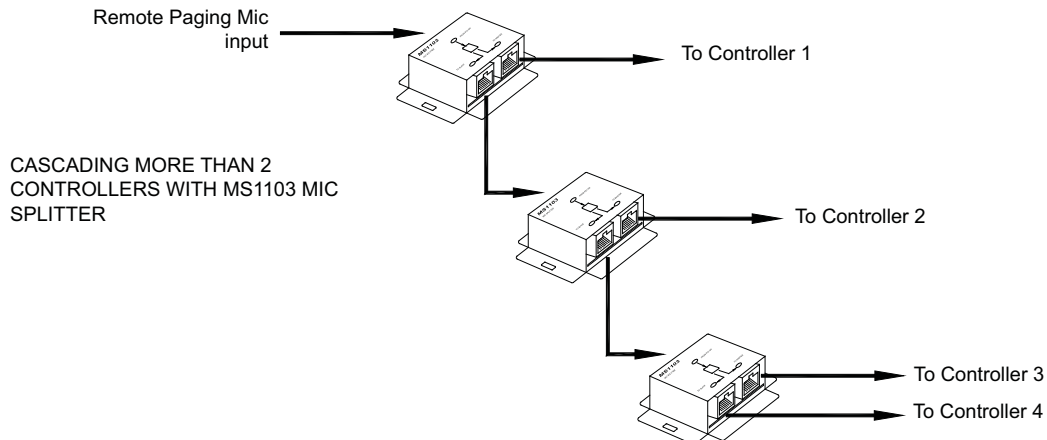
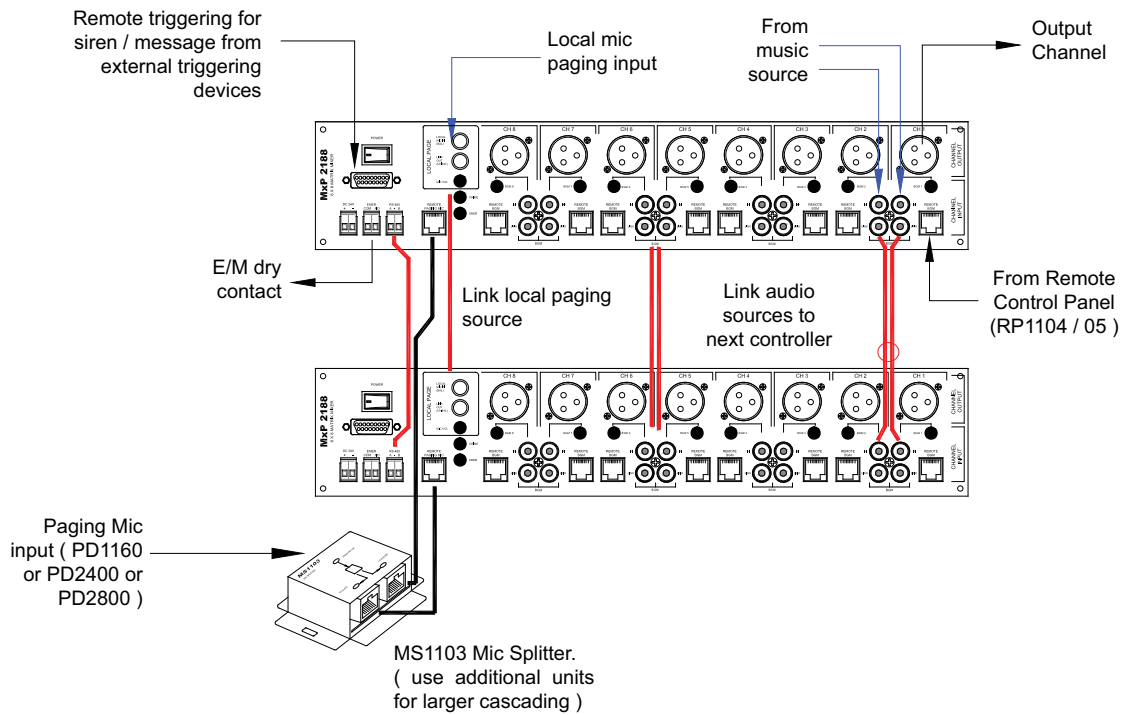
I.. CASCADING MORE THAN ONE CONTROLLER

Two or more MxP2188 controllers can be cascaded to form large number of zones. Up to 16 units can be linked (including Master) for get 128 output channels. ie. 8 x 128 matrix.

In cascaded configuration, address of each unit must be set during setup, and normally the unit at the top shall be the Master. Selecting zones for paging shall be done at each individual unit, but ALL CALL triggering and siren can be done only at the Master.

Cascading of 2 controllers requires PD1160 paging mic and whereas when 3 or more controllers are used, PD2400 or PD2800 shall be used.

Music input sources shall be linked, channel 1 of Controller 1 to Channel 1 of Controller 2 and so forth. Linking too many of the input sources shall degrade the sound quality. In this case, we recommend the use of signal distribution amplifier.

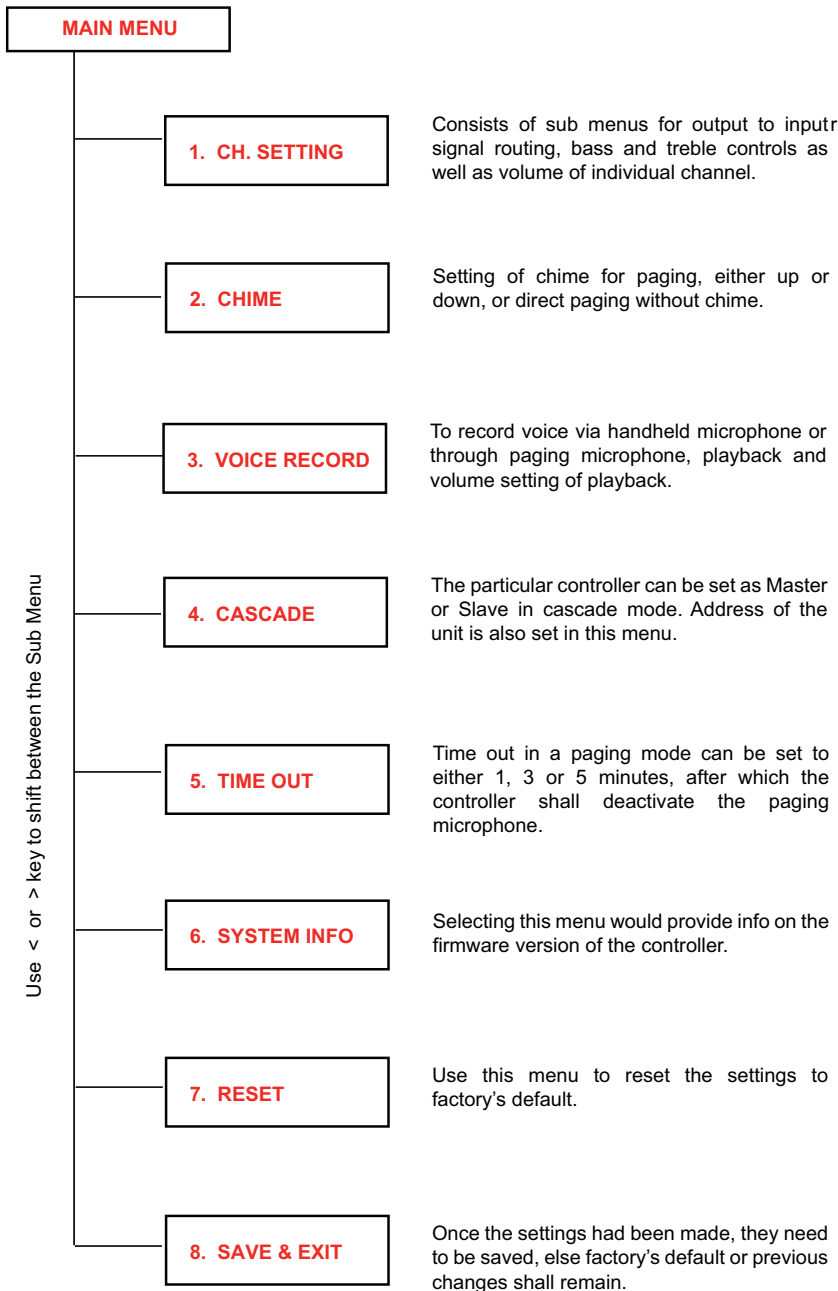
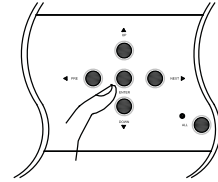




SETTING UP - MAIN MENU

Upon successful installation of the system, some basic settings need to be done at the controller. To enter the configuration setting menu, briefly press the ENTER button. The listing of the sub menu is shown below.

Press ENTER button to access the menus.





SETTING UP - MENU

Upon powering up, the display shall show the unit is either assigned as Master or Slave with zone number.

MASTER
Zone : 1 to 8

In standalone system, the unit is set as Master, representing Zone 1 to 8. In a cascade mode, the first unit must be set to Master as this shall control some functions of the slave unit.

SLAVE 01
Zone : 9 to 16

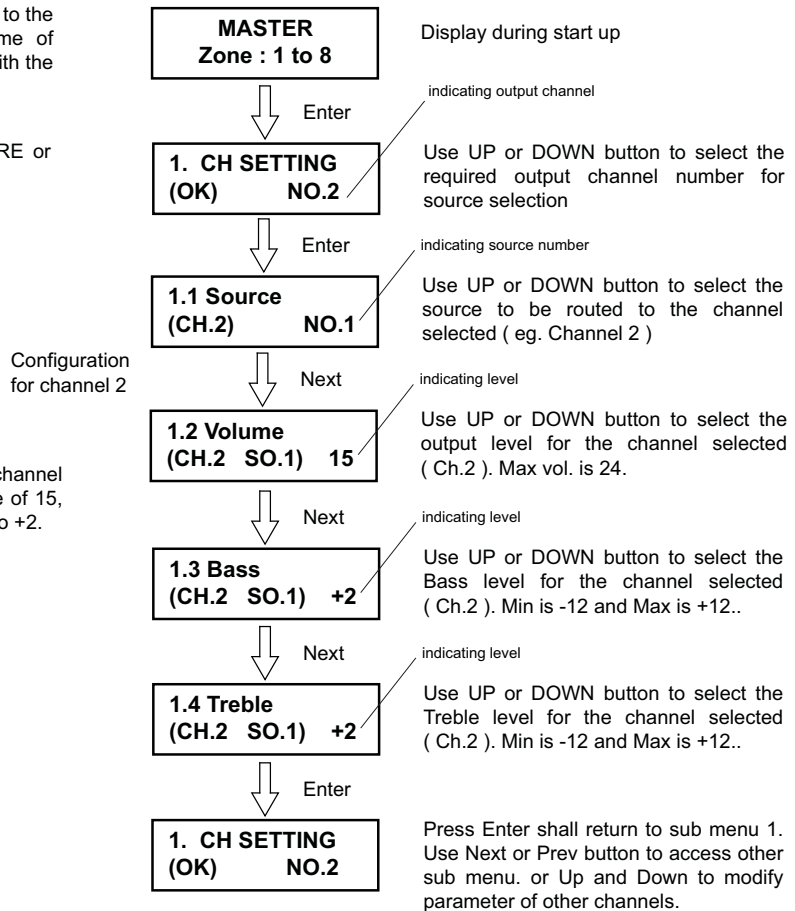
In a cascade mode, each slave unit shall be addressed accordingly. Up to 15 slaves can be installed in a system, contributing to 128 zones. The zone representation of each slave unit shall be displayed accordingly.

1. CHANNEL SETTING

This menu enable input source routing to the individual output channel. The volume of every output channel can be pre set with the required bass or treble level.

To access, press ENTER and use PRE or NEXT button to select menu no. 1

The example shown would enable channel setting to output Ch.2 with preset volume of 15, Bass level set to +2 and the Treble level to +2.



Repeat the above process for other channels.



SETTING UP - MENU

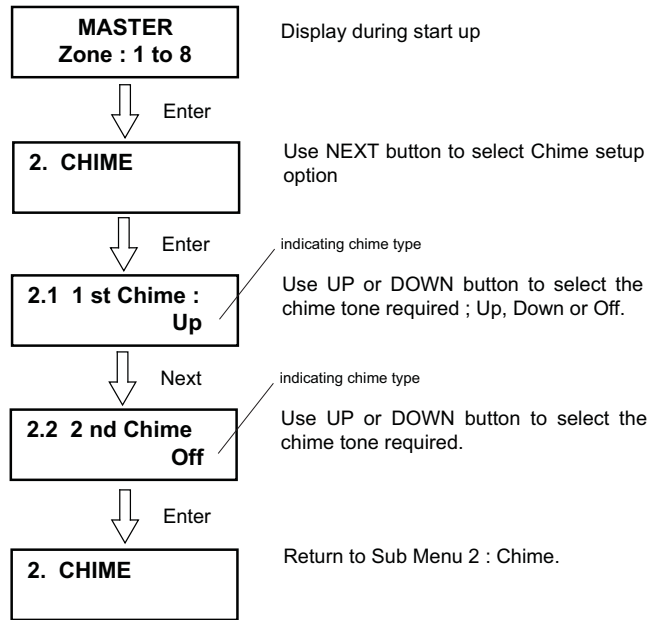
2. CHIME

This menu enable the setting of 1st chime during paging activation and 2 nd chime when paging mic is shut down.

Currently only 4 tone chime of up and down tone is available for selection.

Alternatively, the user may opt for no chime tone during mic activation or shut down.

The illustration shown the user sets the unit with a up 4 tone chime during mic activation and silence when mic is deactivated.



Use Next or Prev button to access other Sub Menu

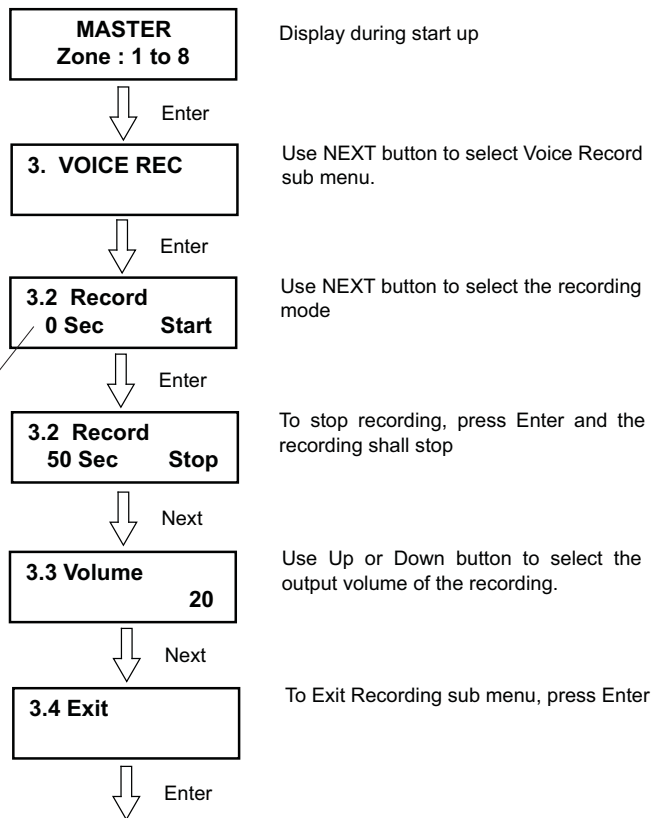
3. VOICE RECORD (RECORDING)

MxP2188 controller has built in voice recorder for a basic and brief message of up to 60 seconds in one bank.

Recording can be made directly from the mic attached to the unit or via the paging microphone (PD1160)

For playback, it can be performed via this sub menu or by remote triggering through the D15 pin connectors located at the back of the unit.

indicating the recording time



Return to Sub Menu 3 : Voice Rec



SETTING UP - MENU

3. VOICE RECORD (PLAYBACK)

To play back the recorded message, it can be done either using the sub menu or via remote triggering port located at the back of the unit.

To play via sub menu, the steps are shown here.

The illustration shown is a playback with recorded message of 50 seconds.

indicating the length of the recorded message

indicating the length of the remaining message

MASTER
Zone : 1 to 8



3. VOICE REC



3.1 Play
50 Sec Start



3.2 Play
30 Sec Stop



3.4 Exit



Return to Sub Menu 3 : Voice Rec

Display during start up

Use NEXT button to select Voice Record sub menu.

To start playback, press Enter button

To stop playback, press Enter button

Use Next or Prev button to exit the sub menu.

4. CASCADE

In default, the controller is set as Master (Zone 1 to 8). If cascading is required in a larger setup, the address of each unit must be set.

The zone number for the corresponding slave unit shall be assigned automatically, ie. Slave 3 : Zone 17 to 24 and so forth in a multiply of 8.

Up to 16 units can be cascaded (including Master), making a total of 128 zones.

indicating the units address

MASTER
Zone : 1 to 8



4. CASCADE



4.1 Unit set :
Slave 01



Return to Sub Menu 4 : Cascade

SLAVE 2
Zone : 9 to 18

Display during start up

Use NEXT button to select Cascade sub menu

Use Up or Down button to select the appropriate unit address from Master to Slave 15.

To confirm setting, press Enter and repeat the same steps for other units.

The illustration shown is setting of address of a slave unit 01, with the main menu at the LCD showing Zone 9 to 18



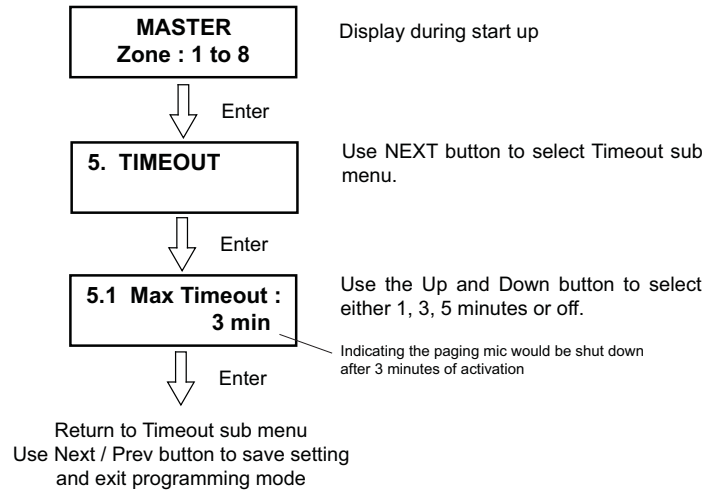
SETTING UP - MENU

5. TIMEOUT

Time out feature is important when paging microphone is connected to the system. It can be set to either 1, 3 or 5 minutes and the count down begins the moment paging microphone is activated.

In some cases, the user prefer the time out to be turned off and MxP allows this option. Eg. when long speech is performed using the PA system.

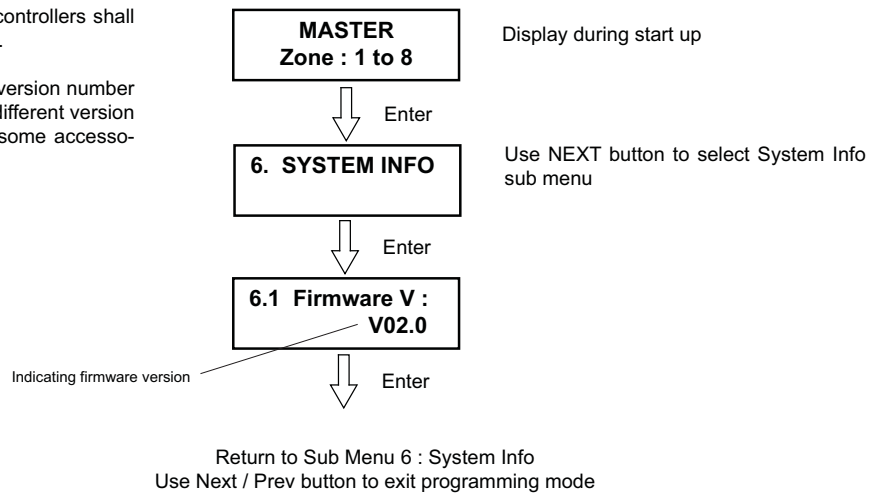
The illustration shows setting of time out period of 3 minutes



6. SYSTEM INFORMATION

The firmware version of the controllers shall be indicated in this sub menu.

It is important to indicate the version number when service is required, as different version shall not work properly with some accessories.



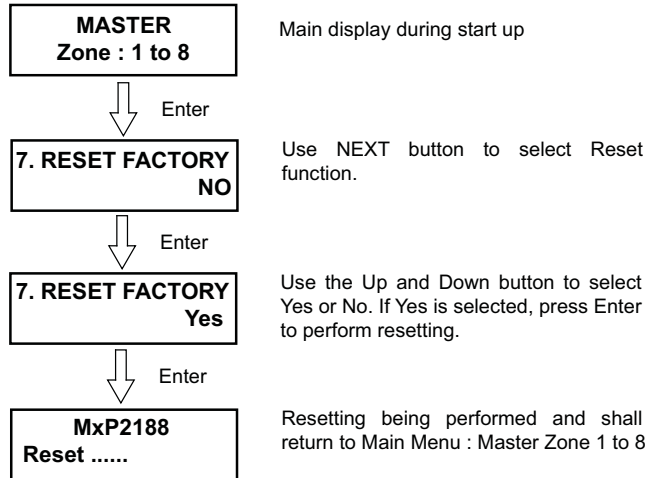


SETTING UP - MENU

7. RESET TO FACTORY'S DEFAULT

When this function is performed, the settings saved earlier shall be deleted to revert to original setting during the production.

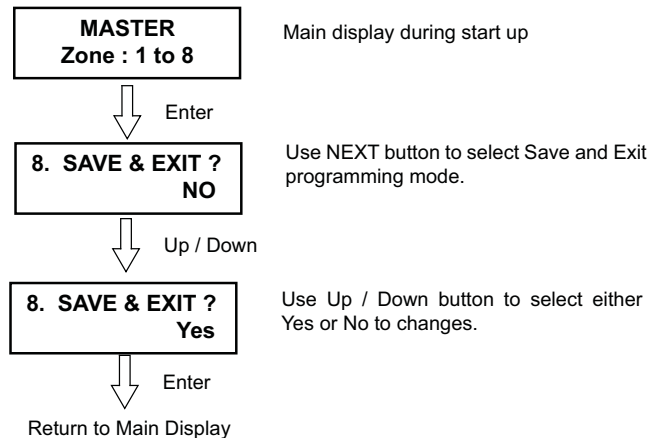
The illustration shows setting of time out period of 3 minutes



8. SAVE SETTING AND EXIT PROGRAMMING MODE

Every time changes is made to the setting, the new parameters must be saved. Use this menu to exit the programming mode as well.

If the programming mode is left idle for 2 minutes, it shall automatically return to the main display without saving any changes.





OPERATING THE UNIT

A. TO MAKE PAGING

Paging can be made via a microphone attached to the Controller (Master) and perform zone selection directly at the front panel or through remote paging mic - Amperes PD1160 / PD2400 or PD2800.

1. To make ALL CALL :

- Press ALL CALL button, all LEDs lights up
- Press Page
- Talk through the microphone
- To end paging, press Page button or ALL CALL.

2. To page individual zone

- Select the required zone and corresponding LED shall lit
- Press Page button and a chime shall be broadcasted
- To end paging, press Page button

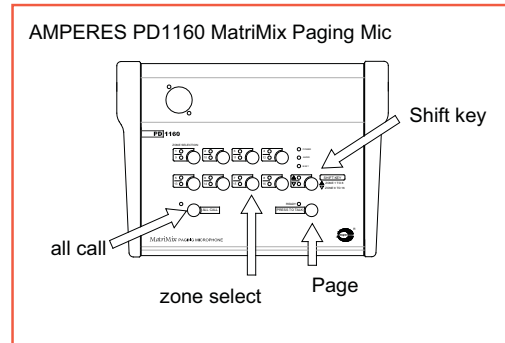
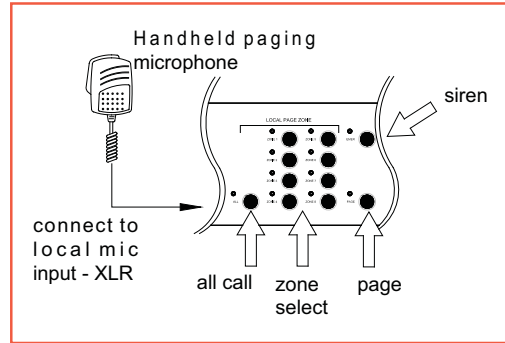
It is still possible to select zone when paging is already in progress but no chime would be broadcasted.

3. To page via remote paging mic (PD1160)

- Press ALL CALL button, all LEDs lights up
- Press Page
- Talk through the microphone
- To end paging, press Page button.

- To make individual call, select required zone and press Page button.
- Use shift key for selecting zone 1 to 8 or zone 9 to 16.

Adjust volume of chime and mic at the rear panel of the unit. When the main controller is busy or other mic is in used, it is indicated by Busy LED.



In multiple paging mic (PD1160) setup, activating any unit shall render others in Busy mode. There is no priority in using PD1160.

In PD2800, priority can be set at the mic (0 being highest and assigned to the Controller) and activating a higher priority unit during paging in progress would override the latter.

B. TO ACTIVATE SIREN

Siren is activated when Siren button is pressed and shall be broadcasted to all zones. To stop, press the Siren button again.

C. TO ACTIVATE MESSAGE

Pre-recorded message can be played back either via remote triggering (D15 connectors) or via menu.

1. Playback via MENU

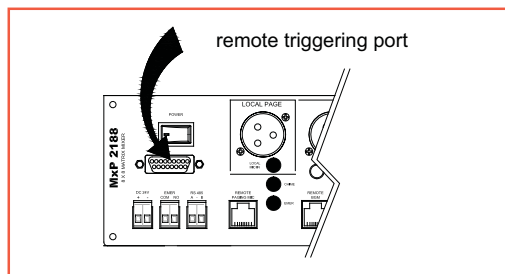
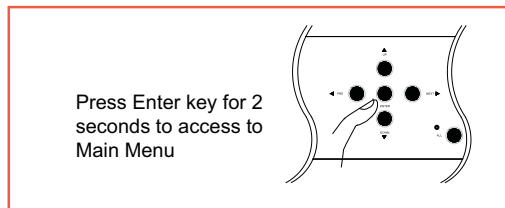
- Press ENTER key for 2 seconds
- Select Sub Menu for message playback
- Select menu 5.2 to activate playback
- To end, select menu 5.5 to exit.

Also refer to section : " Setting Up - Menu 5.0 Voice Recording "

2. Playback via Remote Triggering

Playback using this mode can be automatic (activated by fire alarm), zone by zone or ALL CALL.

Also refer to section : " Connecting The Unit : F. Remote Triggering and E/M Contact "



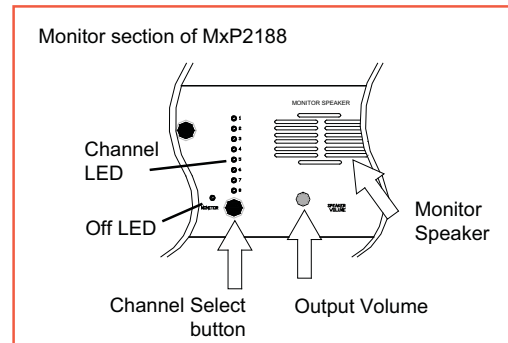


OPERATING THE UNIT

D. TO MONITOR OUTPUT VOLUME

The audio output can be monitored via the front panel speaker with adjustable volume.

- Select channel to monitor via Channel select button
- Adjust volume if required
- To off, press the switch till Off LED lits.



E. TO ADJUST OUTPUT VOLUME OF ZONE

Output volume to each zone can be varied using the menu and the more convenient way is through remote zone control panel - Amperes RP1104.

- Refer to section " Output Channel Setting ; Sub Menu 3 ; (Page 15).
- Refer to Section F below in using RP1104.

F. USING REMOTE PANEL

Amperes RP1104 is used to control volume as well as selecting the required input source for the particular channel.

Amperes RP1105 is for injecting BGM at remote location to the main processor and shall be used together with RP1104.

1. RP1104 remote control panel

- Touch Mode key to select required function (Source/Volume)
- In Source mode, use UP or DOWN key to select the required music source and touch Mode to confirm.
- In Volume mode, use UP or DOWM key to select the required music volume and touch Mode to confirm.
- Use the UP / Down key to select the required bass and treble level and touch Mode to confirm.

Also refer to instruction manual for RP1104.

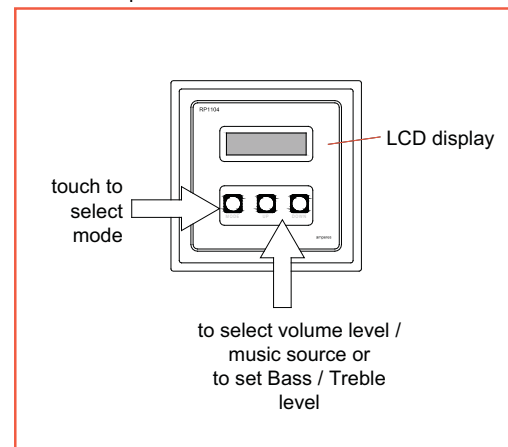
2. RP1105 remote source input panel

A remote source can be injected to the individual channel via RP1105 and must be used together with RP1104 (Refer Page 9).

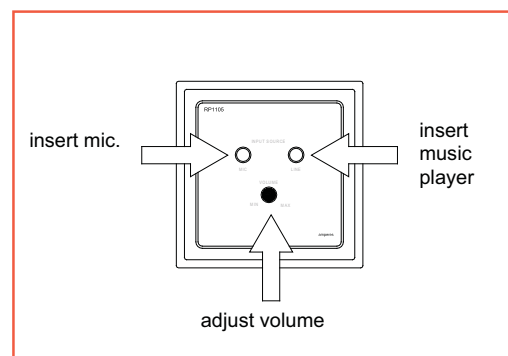
- To insert music, plug in using stereo mini jack either to mic or line input jack for microphone and music source player respectively.
- Adjust volume as required.

Always disconnect the source when not in used.
Availability of signal shall override the music source at the rack.

RP1104 remote zone control panel



RP1105 - remote source input panel





TECHNICAL SPECIFICATIONS

MxP2188 MatriMix Controller

Configurations	8 x 8 ; Cascade up to 16 units : 8 in x 128 outputs
Power source	24V DC ; 2A via external power supply
Inputs	8 local BGM - unbalanced line source or 8 remote BGM via RP1105 remote source input panels 1 x remote paging mic (Amperes PD1160 / PD2400 / PD2800) 1 x local mic input
Input connections	RJ45 (remote control panel - Amperes RP1104) / RCA jacks for stereo / mono link XLR female for local mic
Input volume control	Adjustable at individual output channel ; select digitally
Bass and treble control	+12 dB to -12 dB ; select digitally
Phantom power	12V DC (local mic only)
Priority input	Local page ; Emergency message triggering ; siren triggering
Chime	Built in with tone type selection for 1st and 2nd Chime
Message recording	60 seconds max recording time
Output	8 x balanced line output
Zone selection	Via remote paging microphone (Amperes PD Series microphone) Front panel zone selection with ALL CALL
E/M override contact	3 A dry contact port
Audio monitor	Source monitor with volume control via 3W speaker
Communication	RS485 : 19.2 Kbps
External monitoring	To be available
Dimensions (WxHxD)	482 x 88 x 300 mm
Weight	3.3 kg

RP1104 Remote Zone Control Panel

Power source	24V DC via MxP2188
Communications	RS485 ; 19.2 kbps
Controls	Music Source, Volume,
Indications	Bass, Treble & address LCD display
Cabling to MxP2188	Cat 5e / 6
Dimensions	86 x 86 mm face plate
Weight	200 gms

RP1105 Remote Source Input Panel

Power source	24V DC via MxP2188
Power consumption	100 mA max
Communications	RS485 ; 19.2 kbps
Controls	Volume,
Inputs	1 mic : unbalanced 1 BGM : unbalanced
Input connections	Stereo mini jack
Output	Line balanced
Cabling	6 core to RP1104
Dimensions	86 x 86 mm face plate
Weight	150 gms

Note :

RP1104 has to be used together with RP1105, and cannot be directly connected to the MxP2188 controller

PD1160 Remote Paging Microphone

Power source	24V DC via MxP2188
Power consumption	500 mA max
Zones	8 / 16 ch. with shift key
Communications	RS485 ; 19.2 kbps
Controls	Volume,
Indications	Power, Ready, Busy Zone selection.
Mic	Condenser
Output	Line balanced
Cabling	Cat 5e / 6
Dimensions	150 x 186 62 mm
Weight	550 gms

Note :

The complete system shall consist of few components that are required to be ordered separately.

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 or its authorized master distributor, Amperes Global Marketing. 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.

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.

