

# MA Z6 Series 100V Mixer Amplifiers

## **User Manual**



Order codes: CRAM38 - MA 120Z6 120W CRAM39 - MA 240Z6 240W CRAM40 - MA 350Z6 350W



## WARNING FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY BEFORE YOUR INITIAL START-UP!

- Before your initial start-up, please make sure that there is no damage caused during transportation.
- Should there be any damage, consult your dealer and do not use the equipment.
- To maintain the equipment in good working condition and to ensure safe operation, it is necessary for the user to follow the safety instructions and warning notes written in this manual.
- Please note that damages caused by user modifications to this equipment are not subject to warranty.



CAUTION! KEEP THIS EQUIPMENT AWAY FROM RAIN, MOISTURE AND LIQUIDS



CAUTION! TAKE CARE USING THIS EQUIPMENT! HIGH VOLTAGE-RISK OF ELECTRIC SHOCK!!

#### **IMPORTANT:**

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorised modification to the equipment.

- Speaker & Amplifier systems can produce high sound pressure levels, please operate all controls with caution to ensure people are not exposed to excessive or dangerous sound pressure levels.
- Never let the power cable come into contact with other cables. Handle the power cable and all mains voltage connections with particular caution!
- · Never remove warning or informative labels from the unit.
- Do not open the equipment and do not modify the unit.
- Do not switch the equipment on and off in short intervals, as this will reduce the system's life.
- Only use the equipment indoors.
- Do not expose to flammable sources, liquids or gases.
- Always disconnect the power from the mains when equipment is not in use or before cleaning! Only handle the power-cable by the plug. Never pull out the plug by pulling the power-cable.
- Make sure that the available voltage is 240V, 50Hz AC or 24V DC.

- Make sure that the power cable is never crimped or damaged. Check the equipment and the power cable periodically.
- If the equipment is dropped or damaged, disconnect the mains power supply immediately and have a qualified engineer inspect the equipment before operating again.
- If the equipment has been exposed to drastic temperature fluctuation (e.g. after transportation), do not connect power or switch it on immediately. The arising condensation might damage the equipment. Leave the equipment switched off until it has reached room temperature.
- If your product fails to function correctly, stop use immediately. Pack the unit securely (preferably in the original packing material), and return it to your Prolight dealer for service.
- Only use fuses of same type and rating.
- Repairs, servicing and power connection must only be carried out by a qualified technician. THIS UNIT CONTAINS NO USER SERVICEABLE PARTS.
- WARRANTY: Three years from date of purchase.

#### **OPERATING DETERMINATIONS**

If this equipment is operated in any other way, than those described in this manual, the product may suffer damage and the warranty becomes void. Incorrect operation may lead to danger e.g: short-circuit, burns and electric shocks etc.

Do not endanger your own safety and the safety of others!

Incorrect installation or use can cause serious damage to people and/or property.



## MA Z6 100V Mixer Amplifiers

The MA Z6 series is a range of fully featured, high power mixer amplifiers with 6 zone outputs, each with individual attenuators. The MA Z6 series features an integral MP3/FM Radio/Bluetooth module with IR remote control, microphone record and memory function. Featuring four mono inputs and two stereo LINE/AUX inputs. The mono inputs feature switchable +48V phantom power and adjustable VOX priority over the other inputs. Individual controls for each input channel include bass, treble and volume. To facilitate multi zone paging the MA Z6 series may be used with the PM Z6 paging microphone allowing the user to page one or all of the six output zones. Up to six microphones may be cascaded from one MA Z6 where additional paging stations are required.

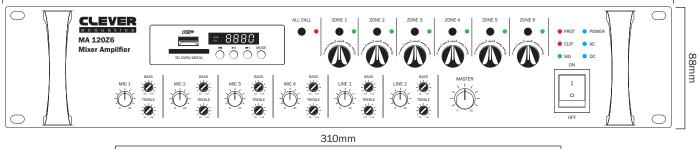


- Six 70V/100V outputs each with separate 6-step volume controls
- 2U Rack mountable chassis
- 70V, 100V and low impedance 4-16Ω loudspeaker outputs
- Integral media player with FM Tuner, Bluetooth and MP3 Player/Recorder
- Four XLR mono inputs each with phantom power and volume control
- 2 stereo RCA line inputs
- MIC 1 with selectable priority over other inputs

- RJ45 sockets for connection to the PM Z6 paging microphone
- Built-in chime (2/4 tone) and siren function with adjustable volume control and contact closure activation
- Five stage priority system for emergency announcements and music mute
- RCA line outputs
- EMC input for emergency alarm with music mute contact closure

- Telephone input with separate volume control
- Master, MIC 1-4, line level volume, bass and treble controls
- LED indicators for signal, clip, protect and power
- FM antenna connection
- Fan cooled
- Optional DC input for use with battery backup power sources

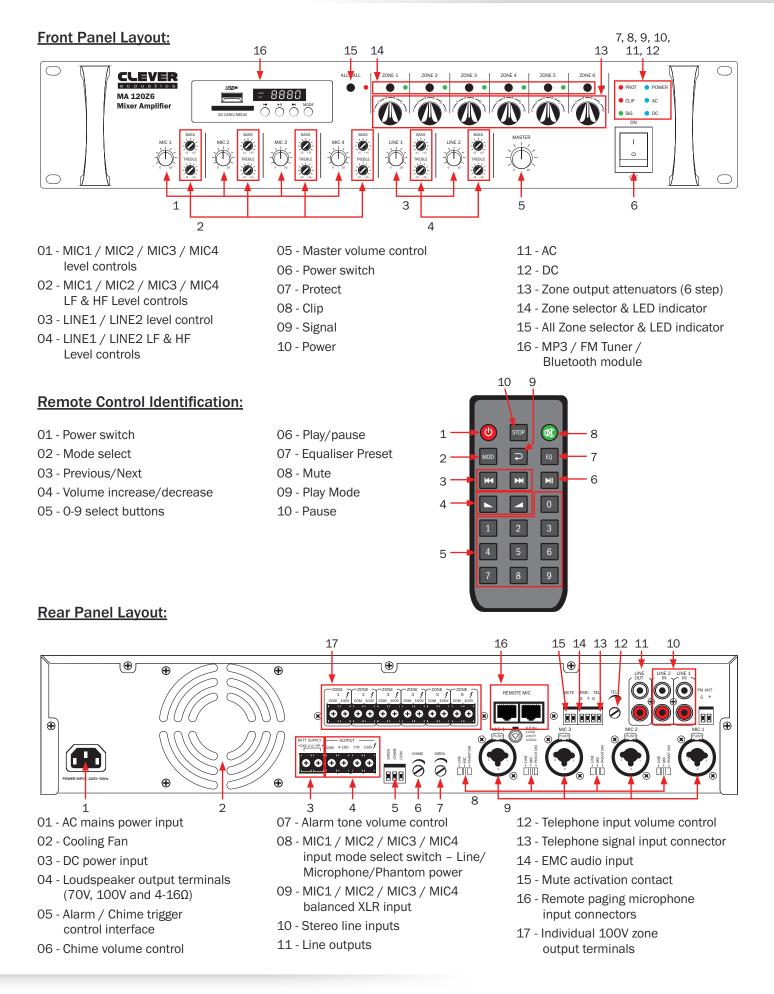
Specifications	MA 120Z6	MA 240Z6	MA 350Z6
Power output	120Wrms / 135Wpeak (total output across all zones)	240Wrms / 260Wpeak (total output across all zones)	350Wrms / 375Wpeak (total output across all zones)
Speaker output	70V, 100V and 4-16Ω	70V, 100V and 4-16 $\Omega$	70V, 100V and 4-16Ω
Minimum output impedance	70V 40Ω, 100V 83Ω, low impedance 4-16Ω	70V 40Ω, 100V 83Ω, low impedance 4-16Ω	70V 40Ω, 100V 83Ω, low impedance 4-16Ω
Frequency response	50Hz-16kHz	50Hz-16kHz	50Hz-16kHz
Power consumption	180W	320W	500W
Power supply	240V AC 50Hz or 24V DC	240V AC 50Hz or 24V DC	240V AC 50Hz or 24V DC
Dimensions	88 x 484 x 310mm	88 x 484 x 310mm	88 x 484 x 310mm
Weight	6.5kg	7.1kg	7.8kg
Order code	CRAM38	CRAM39	CRAM40
		484mm	







## **Panel & connection identification**



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#### Front Panel Identification & Operation:

#### 1. MIC1 / MIC2 / MIC3 / MIC4 level controls

The gain control is used to adjust the input gain (level) for each of the amplifiers mono microphone input channels. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting. Adjustments should be made gradually to avoid any sudden changes to the audio output. If the audio source appears to sound distorted, a reduction in gain may be required.

#### 2. MIC1 / MIC2 / MIC3 / MIC4 HF & LF Level controls

During initial setup the high & low frequency tone adjustment should be set to the zero point (12 o'clock position). Turn the level control anti clockwise to reduce the high frequency tones, or turn clockwise to adjust the increase the high frequency tones. Adjustments should be made gradually to avoid any sudden changes to the audio output.

#### 3. LINE1 / LINE2 Input Channel level control

The gain control is used to adjust the input gain (level) for each of the amplifiers stereo phono input channels. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting. Adjustments should be made gradually to avoid any sudden changes to the audio output. If the audio source appears to sound distorted, a reduction in gain may be required.

#### 4. LINE1 / LINE2 HF & LF Level controls

During initial setup the high & low frequency tone adjustment should be set to the zero point (12 o'clock position). Turn the level control anti clockwise to reduce the high frequency tones, or turn clockwise to adjust the increase the high frequency tones. Adjustments should be made gradually to avoid any sudden changes to the audio output.

#### 5. Master volume control

The master volume control is used to adjust overall level for all inputs on the amplifier. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting. Adjustments should be made gradually to avoid any sudden changes to the audio output. If the audio source appears to sound distorted, a reduction in gain may be required.

#### 6. Power Switch

On/Off control for the zone amplifier. The On/Off switch operates both mains AC and backup DC power sources.

#### 7. Protect LED

The amplifiers feature a built in protection circuit. In the event of the amplifier being overloaded, overheating or the outputs are shorted the amplifier will enter protect mode and the LED indicator will illuminate. If the PROT LED indicator is illuminated, the output connections, load configuration and operating conditions should be reviewed by a competent audio installation engineer. Should the PROT LED remain illuminated after the system has been fully checked, this may then indicate a fault within the amplifier.



#### 8. CLIP

The output to each zone may be monitored visually on the amplifier with a green signal LED. When the amplifier reaches maximum output, the CLIP LED will illuminate orange to indicate a clipped signal within the zone mixer. In this instance, the Input Channel and/or Zone Output Level should be reduced to avoid damage to the amplifier.

#### 9. Signal Indicator LED

The Signal LED will flicker to indicate an audio signal in the output stage of the amplifier. As the signal level is increased, the LED will illuminate fully.

#### 10. Power Indicator LED

When the amplifier is switched on, the Power LED will illuminate blue. If the LED is not illuminated, carefully check the On/Off switch position and power input.

#### 11. AC Power Indicator

The AC Power indicator will illuminate blue to indicate the amplifier has a valid mains voltage input.

#### 12. DC Power Indicator

The DC Power indicator will illuminate blue to indicate the amplifier has a valid DC voltage input.

#### 13. Output Zone Attenuators

The output to each zone may be attenuated down in volume using each of the six-step rotary attenuators on the front panel. Certain functions of the amplifier such as paging and emergency, priority inputs may restore the zones to their full output.

#### 14. Output Zone Selector

The output to each zone may be activated or deactivated by pressing the appropriate button on the front panel of the amplifier.

#### 15. All Call

If the user has the need to page or route audio to all zones, pressing the ALL CALL button will activate all six zones. A second press of the ALL CALL button will restore the amplifier to the original selection of output zones.

#### 16. MP3 / FM Tuner / Bluetooth Module

The Z6 series amplifiers feature a built in USB media player, Bluetooth receiver and FM radio tuner. To change between each of the modes, press the MODE button, please note the USB/SD card function may only be selected if a valid USB/SD card is inserted into the machine. Volume control for the module is controlled using the handheld IR remote control.

NOTE: The Media Player Module will power on automatically when the amplifier is powered on. If the media player is not required, it is best practice to turn the volume to zero using the remote control.



#### **Bluetooth Mode:**

Press the MODE button until the display shows "bt". Switch on Bluetooth on your audio playback device, enable the search function and connect with "PA-02086". Your device should now be enabled for audio playback over Bluetooth. The buttons on the front panel and on the remote control may be used to skip forward/backwards.

#### FM Tuner

Note: Prior to operation, the antenna should be connected on the rear panel to provide optimum RF reception.

To access the FM tuner, press the MODE button until the display shows the frequency in "000.0Mhz" format. Press the PLAY/PAUSE button on either the front panel or remote control to start the automatic station search facility, this will then auto store any stations with good reception. Use the Next or Previous buttons to cycle thru the stored stations. The FM tuner has an automatic memory function upon power off / power on.

#### MP3 Player

The onboard MP3 player can be selected by pressing the MODE button until the display shows USb or Sd. If there is no USB stick or SD card inserted into the media player, the option to select USB or SD will not be shown.

When playing music files from a USB drive / SD Card the MP3 / FM Tuner / Bluetooth module offers five different playback modes. Press the return arrow key on the remote to cycle thru the playback modes.

ONE = Single track repeat, FoD = Auto play in sequential order and repeat all, Nor = Auto play in sequential order and stop, Rdo = Random playback, ALL = Auto play all tracks then loop.

The MP3 player features seven preset EQ modes, these can be selected using the EQ button on the remote control to cycle thru each of the EQ modes. Nor = Normal, POP = Pop Music, rOC = Rock Music, JAS = Jazz, CLA = Classical, Cut = Bass Cut, bAS = Bass Boost.

#### MP3 Recorder

Plug in a USB stick or SD card. Press and hold the PLAY/PAUSE button on either the front panel or remote control to start recording. As recording commences, the display will count up in seconds and minutes to show the total time recorded. To stop recording press the PLAY/PAUSE button briefly. To playback the recording, press the MODE button to cycle thru the modes to MP3 playback. The audio source will be as per the main output of the amplifier.



#### Remote Control:

#### 1. Power Switch

On/Off control for the MP3 / FM Tuner / Bluetooth module.

#### 2. Mode

The mode button switches between the MP3, FM Tuner and Bluetooth modes. Note: if there is no valid media inserted into the SD card slot or USB socket, the module will only cycle between the FM Tuner and Bluetooth functions.

#### 3. Previous/Next

- FM tuner mode, this will change the preset FM frequency up/down.
- Bluetooth mode, this will issue a command to the Bluetooth device paired to change to the previous track / next track.
- MP3, it the built in player will change to the previous track / next track.

#### 4. Volume increase/decrease

Press the Volume Up or Volume Down button to change the output volume of the MP3 / FM Tuner / Bluetooth module. While the volume is being altered, the display will change from UOO at the lowest setting up to U15 at the highest setting. The user may press and hold the buttons to change the volume.

#### 5.0~9 Number buttons

• FM tuner mode – access to FM frequency i.e. for 97.4mhz frequency, you can enter the three digits 974 and the tuner will access the 97.4mhz radio station.

#### 6. Play/pause

#### 7. Equaliser Preset (USB/MP3 only)

When playing music files from a USB drive / SD Card the equaliser function my be accessed via the remote control. Press the EQ button to cycle thru the seven equalizer presets.

#### 8. Mute

Press the mute button to silence the output of the MP3 / FM Tuner / Bluetooth module. When mute is active, the display will flash.

#### 9. Play Mode Button

When playing music files from a USB drive / SD Card the MP3 / FM Tuner / Bluetooth module offers five different playback modes. Press the return arrow key on the remote to cycle thru the playback modes.

ONE = Single track repeat, FoD = Auto play in sequential order and repeat all, Nor = Auto play in sequential order and stop, Rdo = Random playback, ALL = Auto play all tracks then loop

#### <u>10. Pause</u>

Press the pause button to halt the audio playback. Press again to resume playback from the same point in the track.



#### **Rear Panel Identification & Operation:**

#### 1. AC mains input

Before connecting the amplifier to the local mains voltage outlet should be checked to ensure the available supply is 240V~AC 50Hz. This product is CLASS1 and requires a protective mains earth to be connected at all times. DO NOT remove or disconnect the earth. Disconnect from the mains power supply before attempting to replace the mains fuse. Replacement mains fuses must be the same rating as the original. T315mAL 250V for 220-240V AC mains supply.

#### 2. Cooling Fan

The amplifiers feature forced air cooling, exhausting to the rear panel. Do not block or obstruct the airflow around the amplifier. During regular maintenance, the fans should be blown clear of any dust or debris and checked for operation.

#### 3. DC Power Input

The amplifiers features a 24V DC power input for operation from leisure type batteries or from battery DC backup sources. The amplifier should be connected to a fused, 24V DC source via the DC power input terminals ensuring care is taken to observe the correct polarity and avoid any short circuits. The amplifier will automatically transfer to DC operation should be main 240V input fail. The transfer is instantaneous and silent.

#### 4. Power Amplifier Outputs

The main power amplifier output terminals may be used to output into either low impedance  $(4-8\Omega)$  or constant voltage (25V, 70V, 100V). Do not use more than one pair of output terminals on any one output zone. Care should be taken when connecting to the outputs to ensure the load impedance is above the minimum load specified for the output. This set of terminals does not offer any zone functionality.

#### 5. Alarm / Chime Trigger Control Interface

When the terminals are short-circuited by means of a switch or relay (ie fire alarm panel or door entry system), the amplifier will play back either a chime or alarm sound dependant upon which terminals are closed to form a circuit. To activate the Alarm, close the circuit between COM and ALARM, to

#### 6. Chime Volume Control

The gain control is used to adjust the output volume for the chime function. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting. The Chime function is activated by the shorting the COM and CHIME contacts (5).

#### 7. Alarm Volume Control

The gain control is used to adjust the output volume for the chime function. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting. The Alarm function is activated by the shorting the COM and ALARM contacts (5).



#### 8. Input sensitivity & phantom power control

Channels 1, 2, 3 & 4 each feature switchable inputs for use with MIC/MIC+Phantom/Line signals. The MIC position is designed to accept a balanced, low level signal from a standard dynamic microphone (5mV). The PHANTOM position is designed to provide 48V phantom power across XLR pins 2 & 3 for use with condenser microphones. The LINE position is for use with line level sources such as radio microphone receivers, CD players and FM tuners (350mV), the signal may be inputted using either the balanced XLR or balanced TRS 6.35mm (¼") jack.

#### 9. Mono MIC/LINE inputs

Channels 1, 2, 3 & 4 all feature mono audio inputs, each with selector for use with MIC/MIC+Phantom/ Line signals. The audio input is designed to accept a balanced audio signal via XLR or 6.35mm (¼") TRS jack.

#### 10.Stereo LINE inputs

Two stereo audio inputs are provided for sources such as FM Tuners, CD Players or MP3 Players. Each input features a pair of unbalanced phono (RCA) inputs suitable for line level audio input.

#### 11. LINE outputs

Two line level audio inputs are provided for linking to external slave amplifiers or recording devices. Each output features an unbalanced phono (RCA).

#### 12. Telephone Input Volume Control

The gain control is used to adjust the input gain for the telephone paging function. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting.

#### 13. Telephone Input Connection

Unbalanced, line level audio input for the connection of an external telephone paging interface. The input features automatic audio sensing and will activate the priority function when the amplifier senses an audio input (775mV). The input sensitivity can be controlled using the input gain control (12).

#### 14. EMC Input Connection

Unbalanced, line level audio input for the connection of an external EMC paging interface. The input features automatic audio sensing and will activate the priority function when the amplifier senses an audio input (775mV).

#### **15. MUTE Input Connection**

Contact closure terminals for activating the MUTE function. When activated the MUTE function will leave the EMC, Telephone, Siren, Chime and MIC1 inputs at full volume while muting all other inputs.

#### 16. Remote Paging Microphone Input Connection

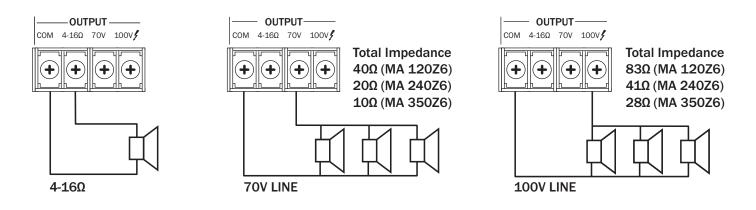
The amplifiers may be used with the PM ZM6 paging microphones. Up to six PM ZM6 microphones may be used with each amplifier. Note: The installation engineer must consult PM ZM6 user manual for configuration information.



#### 17. Six Zone Power Amplifier Outputs

The amplifier features six 100V loudspeaker zones, each with its own independent output. Care should be taken to observe the wiring configuration, output polarity and minimum impedance. In the case that one or more outputs are utilised, the total load impedance must be equal to or higher than the minimum output impedance quoted below:

MA 120Z6 $70V = 40\Omega$ ,  $100V 83\Omega$ MA 240Z6 $70V = 20\Omega$ ,  $100V 41\Omega$ MA 350Z6 $70V = 14\Omega$ ,  $100V 28\Omega$ 



#### **Operation:**

#### Power On/Off Procedure

Prior to making any connection to the mains power or audio inputs/outputs, turn all level controls counter clockwise to the "min" position and all tone (equaliser) controls to the mid (zero) point. Deselect all monitor and zone selection controls.

Switch on the zone amplifier and any audio sources (MP3 players, CD players, Microphones etc) before powering the systems amplifier ON. The last product to be switched on should be the power/slave amplifiers to prevent any unwanted noise or potential damage to speakers or amplifiers. If you wish to power off the system, turn the amplifier's master volume control counter clockwise to the "min" position before switching the amplifier OFF before any audio sources are switched off. By following this procedure it will prevent acoustic shocks to the speakers or potential damage to system components.

After connecting all audio sources and powering on the system, adjust the level of each audio input, select the zone routing in order to achieve the desired "mix" for each zone. Care should be taken to when adjusting microphone input volumes and the master volume, adjust both of these in small increment's to avoid feedback (howl around). The goal is to achieve a clear balance between music and voice ensuring announcements can be clearly heard.

#### MP3 / FM Tuner / Bluetooth Module

To change between each of the modes, press the MODE button. Each press will change the mode .

#### MP3 Playback

The USB/SD card function may only be selected if a valid USB/SD card.



#### **Priority Inputs**

The MA Z6 series features a number of priority inputs, each with their own order in the priority hierarchy. The MA Z6 series does not feature any defeat functions for the priority circuits.

#### 1st - EMC Alarm

The EMC alarm input will override all other inputs and functions on the amplifier. All six output zones will be restored to full volume during EMC alarms.

#### 2nd - Telephone / Remote Microphone

Telephone and Remote Microphones override MIC1/MIC2/MIC3/MIC4, Line 1, Line 2 and Chime functions. All six output zones are outputted at the volume set on the front panel attenuators.

#### **3rd - Built-in Alarm Generator**

The built-in alarm generator, when activated will override MIC1/MIC2/MIC3/MIC4, Line 1, Line 2 and Chime functions. All six output zones are outputted at the volume set on the front panel attenuators.

#### 4th - Built-in Chime Generator

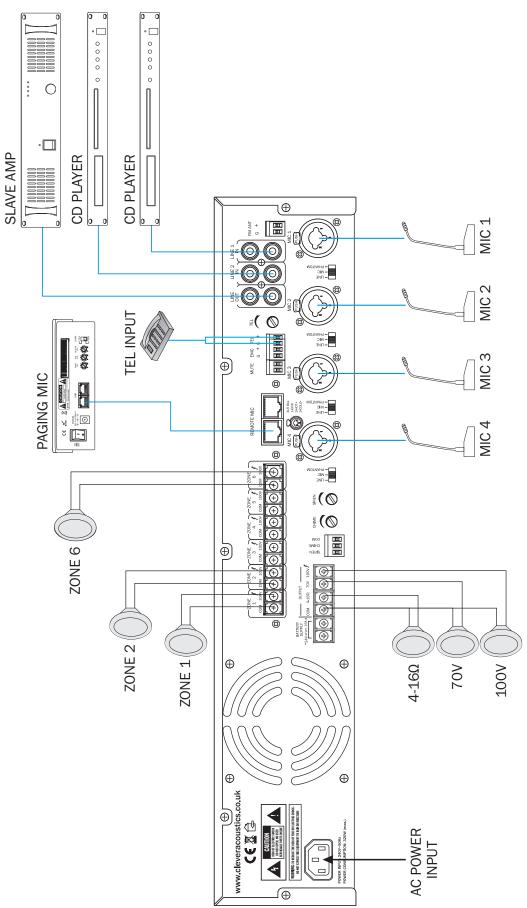
The built-in chime generator, when activated will override MIC1/MIC2/MIC3/MIC4, Line 1 and Line 2 **5th - MIC1** 

MIC1 will override MIC1/MIC2/MIC3/MIC4 automatically.



## **Typical Panel Connections**

#### **Typical Panel Connections:**



www.cleveracoustics.co.uk MA Z6 Series N



#### **Rack Installation**

The MA Series are fully 19" rack mountable. The rack you use should be a Double Door Rack where you can open the front and rear panel. When mounting the amplifier into the rack, please make sure that there is enough space around the amplifier for clear air flow.

Be careful when mounting the amplifier into the rack. Put the heaviest products into the lower part of the rack. The front panel is not designed to absorb acceleration forces occurring during transportation.

Inputs

Short cables runs improve the sound quality remarkably. Input cables should be short and direct, since high frequencies will mostly be absorbed if the cables are unnecessarily long. Besides that a longer cable may lead to hum or noise problems. If the cable runs are unavoidable, you should use balanced cables.

#### Outputs

The high damping factor of your amplifier supplies a clear sound reproduction. Unnecessarily long and thin cables used for low impedance  $(4-16\Omega)$  speakers will influence the damping factor and thus the low frequencies in a negative way. In order to safeguard good sound quality, the damping factor should lie around 50. The longer a cable has to be the thicker it should be. For longer cable runs please ensure the 100V outputs are used for 100V speakers.

Connect your speaker systems via the speaker terminals (COM = -VE)

1) COM + 4-16Ω Examples: 2) COM + 70V 3) COM + 100V

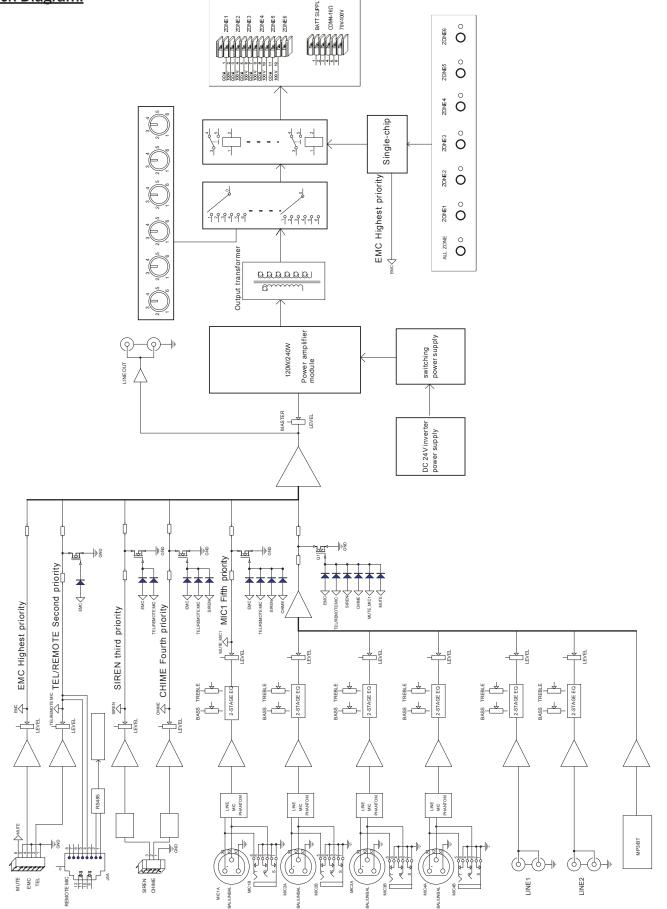
Note: Please do not use more than one pair of output terminals on any one output zone.

#### **Connections To The Mains**

Before connecting the amplifier to the local mains voltage outlet should be checked to ensure the available supply is 240V~AC 50Hz. This product is CLASS1 and requires a protective mains earth to be connected at all times. DO NOT remove or disconnect the earth.



#### **Block Diagram:**





## **WEEE notice**



## Correct Disposal of this Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

