



MA 4120 MKII 480W 4 Zone Mixer Amplifier

User Manual



Order code: CRAM33

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.

- 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 between 240V, 50Hz AC.
- 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.

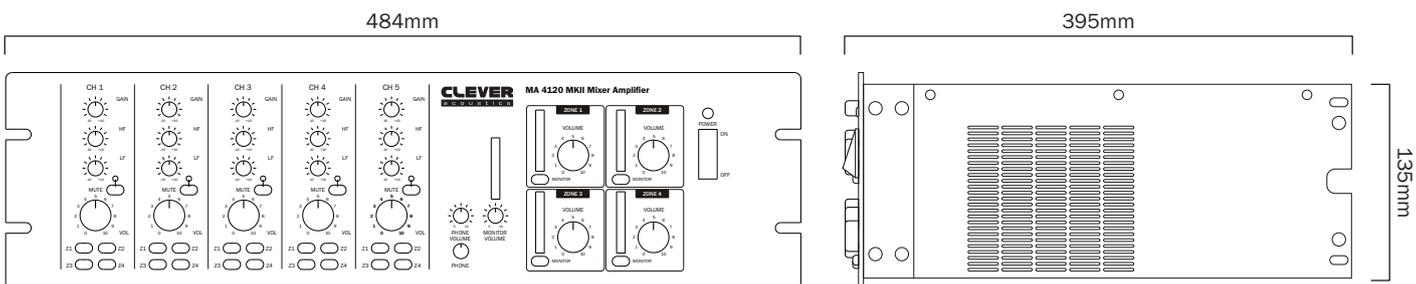
MA 4120 MKII 480W 4 Zone Mixer Amplifier

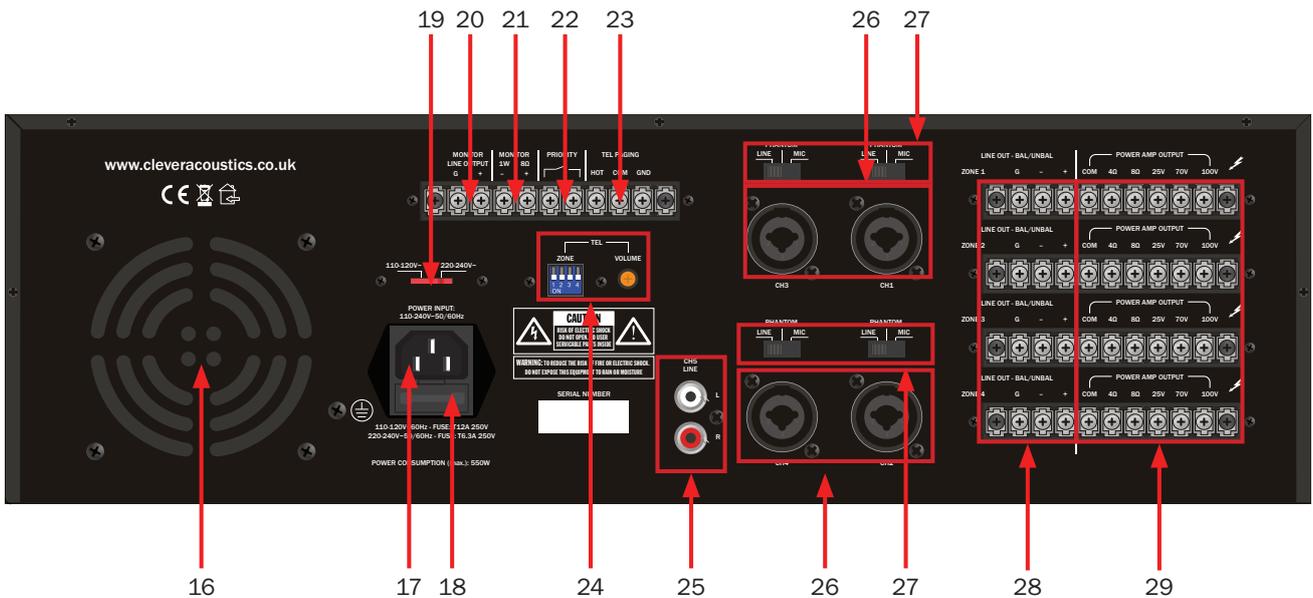
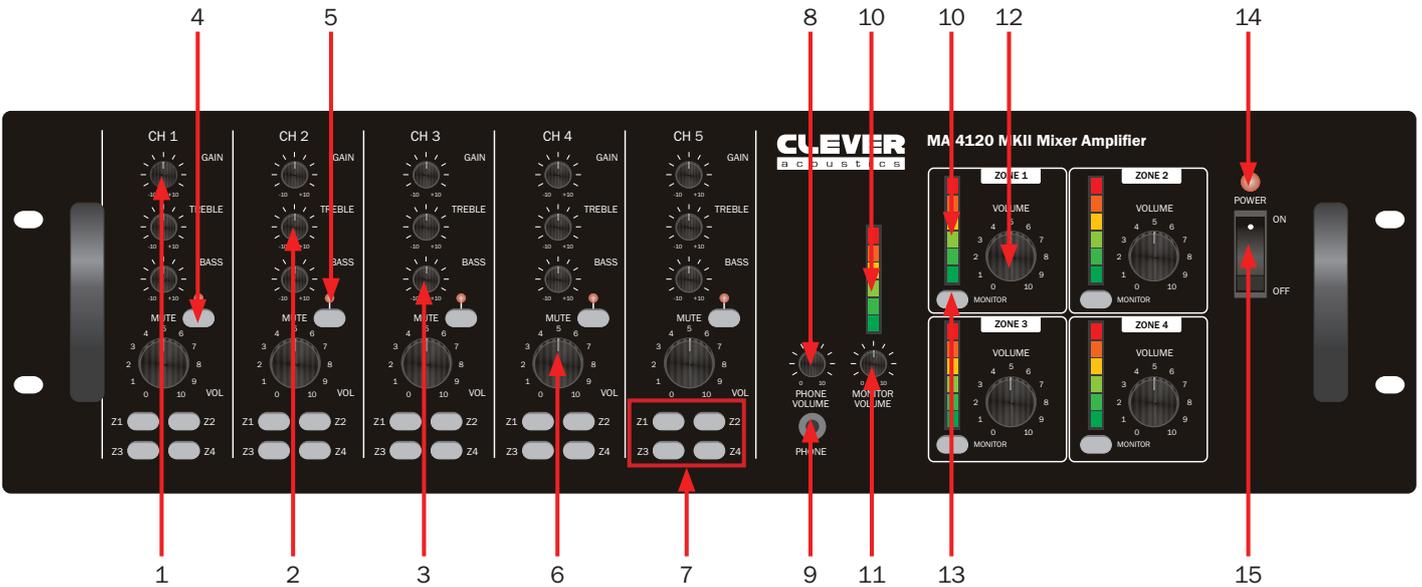
The MA 4120 MKII 4 Zone Mixer Amplifier is ideal for systems where multiple zones are required. Designed for use in venues such as schools, churches, entertainment venues or commercial buildings, the MA 4120 MKII offers multi zone audio routing coupled with four independent 120Wrms amplifiers. The MA 4120 MKII 4 zone mixer amplifier has five input channels, each with selectable independent output routing, input gain, treble bass and volume controls. Input channels 1 thru 4 are via XLR/Jack combo sockets, each with Line/Mic/Mic+Phantom selection, input channel 5 is via a stereo line level input.

Four output zones each feature LED VU indicators, monitor selection and volume controls with outputs for line level, low impedance (4-8Ω) and constant voltage speaker systems (25V, 75V & 100V). The on-board monitor facility, selectable for each zone output features both a line level audio and 1W 8Ω loudspeaker output suitable for driving a loudspeaker local to the MA 4120 MKII zone mixer.

- Four output zones each with level control and monitor selection
- Four independent 120Wrms amplifiers outputting to 4-8Ω or 25, 70, 100V
- Five input channels:
Channels 1-4 are via XLR/Jack combo sockets, each with Line/Mic/Mic+Phantom selection (48V)
Channels 5 is via phono (RCA) stereo line level input
- 3U, 19" rackmount chassis
- Input gain, treble, bass and level controls
- Selectable output routing for all input channels
- Monitor function with level control and LED VU meter
- Output for monitor loudspeaker: 1W, 8Ω
- Headphone output with level control
- Telephone/paging input (zone selectable) with adjustable level
- Priority contact for music mute facility (CH4 and 5 mute, CH1-3 priority)
- VOX operated priority for TEL input
- CH1 input automatic VOX priority (internal jumper for priority override)
- Telephone and MIC1 (music mute facility)
- Input channel mute switches on front panel
- Line level MIX output
- Temperature controlled, variable speed fan cooling

Specifications	MA 4120 480W Mixer Amplifier
Power output	4 x 120Wrms (4 x 240W peak)
Speaker outputs	25V, 70V, 100V and 4-8Ω
Sensitivity	- CH1-4: -50dB (Mic/Phantom), -10dB (Line) - CH5: -10dB (unbalanced)
Frequency response	60Hz-17kHz (±3dB)
Tone control	±10dB-100Hz/±10dB-10kHz (bass/treble)
S/N ratio	>65dB (Mic), >75dB (Line), >65dB (TEL)
THD	<1% (@1kHz 1W output)
Power consumption	550W (max.)
Power supply	110-240V~50/60Hz AC
Fuse	T6.3A 250V
Dimensions	135 x 484 x 395mm
Weight	22kg
Order code	CRAM33





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|----------------------------------|---|---|
| 01 - Gain control | 12 - Zone output level control | 22 - Priority control terminals |
| 02 - HF level control | 13 - Monitor output selector | 23 - Telephone/paging input (TEL) |
| 03 - LF level control | 14 - Power LED | 24 - Telephone/paging input zone selection & volume control |
| 04 - Mute switch | 15 - Power switch | 25 - Stereo LINE inputs |
| 05 - Mute LED | 16 - Cooling fan | 26 - Mono MIC/LINE inputs |
| 06 - Input channel level control | 17 - AC mains power input | 27 - Input sensitivity and phantom power control |
| 07 - Zone selection switches | 18 - AC mains fuse | 28 - Balanced line level zone outputs |
| 08 - Headphone level control | 19 - AC voltage selector | 29 - Power amplifier outputs |
| 09 - Headphone output | 20 - Monitor (MIX) line output | |
| 10 - LED VU output meter | 21 - Monitor loudspeaker output (1W 8Ω) | |
| 11 - Monitor level control | | |

Layout identification:**1. Gain control:**

The gain control is used to adjust the input gain (level) for each of the zone mixers 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. HF level control:

During initial setup the high 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. LF level control:

During initial setup the low frequency tone adjustment should be set to the zero point (12'o'clock position). Turn the level control anti clockwise to reduce the low 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.

4. Mute switch:

Press the mute switch to mute (silence) the selected input channel.

5. Mute LED:

The mute LED provides a visual indication when the input channel is in mute status.

6. Input channel level control:

The gain control is used to adjust the input gain (level) for each of the zone mixers 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. The input channel level control adjusts the level of the selected input channel within the main mix.

7. Zone selection switches:

Each of the five input channels may be routed to any of the four output zones.

Press the switch to the IN position to route the selected input channel to the chosen output zone.

8. Headphone level control:

The headphone output volume is adjustable. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting.

9. Headphone output:

Utilising a standard 3.5mm stereo jack socket, the headphone output is used alongside the monitor function to check the output of individual output zones. If none of the output zones are selected using the monitor selection switches, the headphone output will be muted.

10. LED VU output meter:

The output to each zone may be monitored visually on the amplifier. The VU meter has three green stages, followed by amber and then red. Care should be taken to avoid the signal level reaching the amber or red zones as this will indicate a clipped signal within the zone mixer. In this instance, the Input Channel and/or Zone Output Level should be reduced.

11. Monitor level control:

The monitor output volume is adjustable. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust to the highest setting. This is used to control the volume for the 1W 8Ω loudspeaker output on the rear panel of the zone mixer.

12. Zone output level control:

The master volume control affects all audio sources within the amplifier, routed to the selected zone. Turn the level control anti clockwise to the lowest setting, or turn clockwise to adjust the overall output to the highest setting. Adjustments should be made gradually to avoid any sudden changes to the audio output.

13. Monitor output selector:

To route one of the output zones to the monitor & headphone outputs, press the Monitor selection button. The monitor output volume can then be adjusted using the Monitor Volume Control.

14. Power LED:

The Power LED will illuminate to indicate the zone mixer is powered on. If the power LED is not illuminated, check first the position of the on/off switch and then check the mains (including fuse) or DC power supply.

15. Power switch:

On/Off control for the zone amplifier. Note: The on/off power switch does not have any control over the 24V DC power input.

16. Cooling fan:

The MA 4120 MKII is fan cooled. The cooling fan will start when the internal temperature sensor reaches 50°C. The fan speed will vary according to the internal temperature of the amplifier. Do not block or obstruct the fan port on the rear panel or the air vents on the top or side panels.

17. AC mains power 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.

18. AC mains fuse:

Disconnect from the mains power supply before attempting to replace the mains fuse. Replacement mains fuses must be the same rating as the original. T6.3AL 250V for 220-240V AC mains supply or T12AL 250V for 110-120V AC mains supply.

19. AC voltage selector:

The MA 4120 MKII zone mixer features a dual voltage mains input. Disconnect the unit from the mains voltage power supply before attempting to change the mains input voltage. Care should be taken to select the appropriate mains input voltage to match that of the mains supply voltage.

20. Monitor (MIX) line output:

The monitor line output can be used to feed external amplification or recording equipment. The Monitor line output provides an unbalanced (4V) signal following the front panel "monitor" selection. If several zones are selected, the output will be a mixed signal of all the selected zones.

21. Monitor loudspeaker output (1W 8Ω):

Auxiliary connection for the connection of a small external loudspeaker for local monitoring purposes. The nominal output is 1W with a minimum impedance of 8Ω. If none of the output zones are selected using the monitor selection switches, the headphone output will be muted.

22. Priority control terminals (Music Mute):

When the terminals are short-circuited by means of a switch or relay (ie fire alarm panel), input channels CH4 and CH5 will be muted, leaving input channels CH1, CH2 and CH3 with priority status. Note: The TEL input carries highest priority and will override the Priority (Music Mute) function.

23. Telephone/paging input (TEL):

For emergency paging, the MA 4120 MKII is equipped with a balanced audio TEL input, activated automatically upon the MA 4120 MKII detecting an audio signal present on the TEL input terminals. The input carries the highest priority and will override all other inputs & priority functions on the amplifier.

24. Telephone/paging input zone selection & volume control:

The TEL input features zone control and input volume control. To route the TEL signal to a desired output zone, move the corresponding DIP switch to the down (ON) position. The input volume for the TEL signal may be controlled by the recessed volume control potentiometer. For most applications, it may be best practice to set the minimum possible level to prevent unwanted activation of the priority input. Turn the potentiometer clockwise to increase the volume.

25. Stereo LINE inputs:

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

26. 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.

Channel 1 features automatic priority override over channels 2, 3 and 4. If this feature is not required, the user must refer to a service technician who will be able to follow the instructions on page 9 to defeat the voice priority function.

27. Input sensitivity and 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/1kΩ). The PHANTOM position is designed to provide 15V 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 (100mV/10kΩ), the signal may be inputted using either the balanced XLR or balanced TRS 6.35mm (¼") jack.

28. Balanced line level zone outputs:

The MA 4120 MKII features four, independent zone outputs each utilising barrier strip terminals for the balanced audio output (1.7V). The line level outputs may be used to feed signal to external amplification where additional amplification is required. If the amplifier connected only requires an unbalanced signal, the output contacts "+" and "G" should be used.

29. Power amplifier outputs:

Each of the four output zones on the MA 4120 MKII features both low impedance and constant voltage loudspeaker outputs. Each output zone may be used to output into either low impedance (4-8Ω) 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.

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 "0" position and all tone (equaliser) controls to the mid (zero) point. Deselect all monitor and zone selection controls.

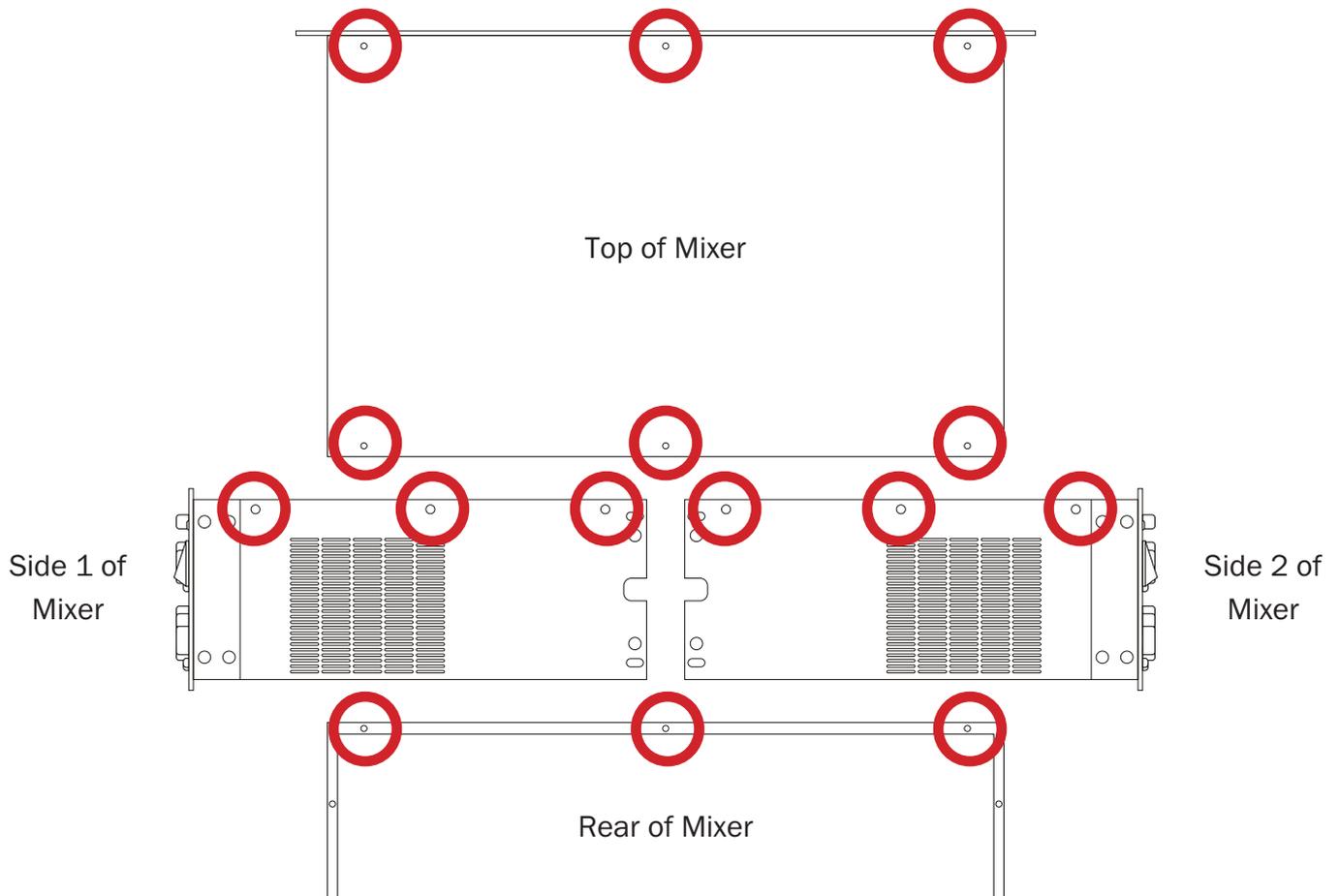
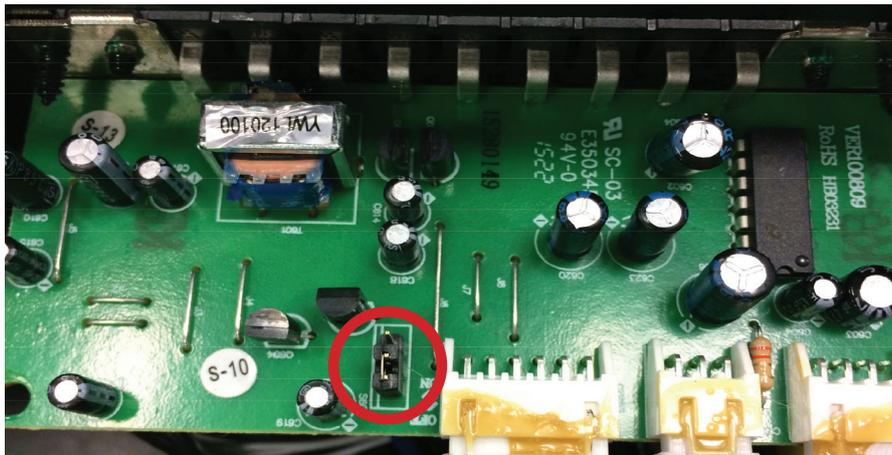
Switch on the zone mixer and any audio sources (MP3 players, CD players, Microphones etc) before powering the systems amplifier ON. The last product to be switched on should be the power/slave amplifiers to prevent any unwanted noise or potential damage to speakers or amplifiers. If you wish to power off the system, turn the amplifier's master volume control counter clockwise to the "0" 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.

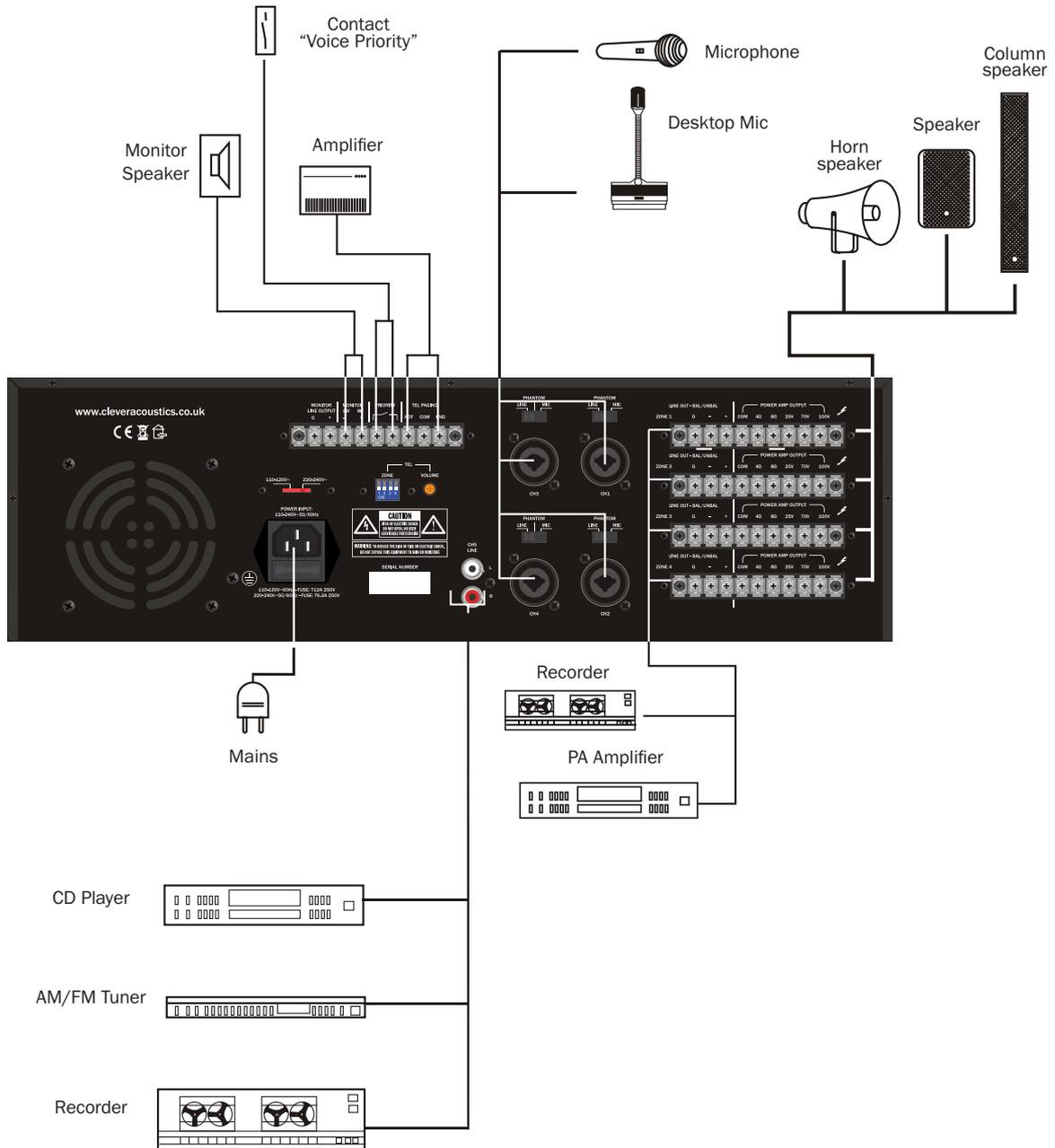
After connecting all audio sources and powering on the system, adjust the level of each audio input, select the zone routing in order to achieve the desired "mix" for each zone. Care should be taken to when adjusting microphone input volumes and the master volume, adjust both of these in small increment's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

MIC priority:

During normal operation the MA 4120 MKII features priority for MIC1 over the other microphone and line inputs. For certain applications, the installation engineer may need to defeat the MIC1 priority function. In order to do this, the product must be fully disconnected from any AC or DC power sources, and disconnected from all inputs/outputs.

Remove the 15 screws from the outer casing as per the diagram below and keep in a safe location. Remove the upper casing and place to one side. Locate the PCB towards the rear of the unit as pictured below. Carefully move the jumper from the "ON" position to the "OFF" position. Refit the outer casing, taking care to avoid damaging the unit. Refit all of the screws to fully secure the outer casing.





Rack installation:

The MA series is 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.

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 humming and 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 (4-16Ω) 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)

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

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



***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.

