



ZM 122 Audio Mixer

User Manual



Order code: CRAM36

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 between 220-240V, 50/60Hz 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!

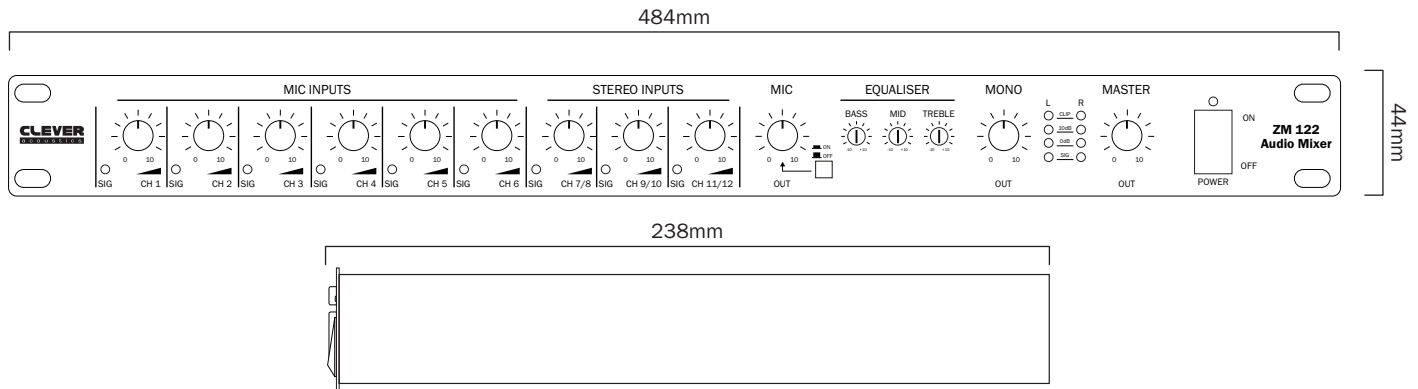
Incorrect installation or use can cause serious damage to people and/or property.

ZM 122 Audio Mixer

Suitable for use in a wide range of applications, the ZM 122 offers the user a clean, simple control surface while retaining a large number of features for complex audio systems. The ZM 122 mixer has 9 input channels, each with adjustable volume controls. Six of the channels are microphone inputs with XLR 1/4" combo sockets, the other three are RCA line level stereo inputs. Adding to the features, the ZM 122 has a 3 band EQ, mono out and microphone out all in a 1U 19" rack mount unit.



- Six mono channels with combo XLR/Jack input, each with Mic/Mic+ Phantom/Line selector
- Three stereo line level inputs via phono sockets
- Low distortion microphone pre-amplifiers with high dynamic range
- CH level control, signal LED to indicate input signal
- Microphone 1 features adjustable priority override
- Input level control with input signal LED
- Stereo line output via balanced XLRs
- Mono output via 6.35mm (1/4") unbalanced jack with volume control
- Microphone mix output via 6.35mm (1/4") unbalanced jack with volume control
- Microphone mix output via 6.35mm (1/4") unbalanced jack with volume control
- Microphone mix output via 6.35mm (1/4") unbalanced jack with volume control and on/off switch
- Stereo record output via unbalanced phono sockets
- 3-band EQ for low, mid, high
- Master volume control
- 4-segment LED signal level meters
- AC 220V-240V or DC 24V operating voltage
- 1U 19" rackmount chassis with brushed aluminium front panel



Specifications		ZM 122 Audio Mixer
Mono input channels (CH1-CH6)	Microphone input	Electronically balanced, discrete input configuration
	Frequency response	20Hz-22kHz +/-2dBu
	Distortion (THD)	≤0.03% @ 1kHz
	Sensitivity	-40dBu
	Max. input	-19dBu
	Max. voltage gain	60dB CH MIC input - MAIN output (XLR, balanced) 50dB CH MIC input - REC output (unbalanced) 60dB CH MIC input - MIC output (unbalanced) 60dB CH MIC input - MONO output (unbalanced)
	Signal to noise ratio	≥103dB
	Phantom power (Mic Pin2/Pin 3 & Pin 1)	+18V~21V with switch control

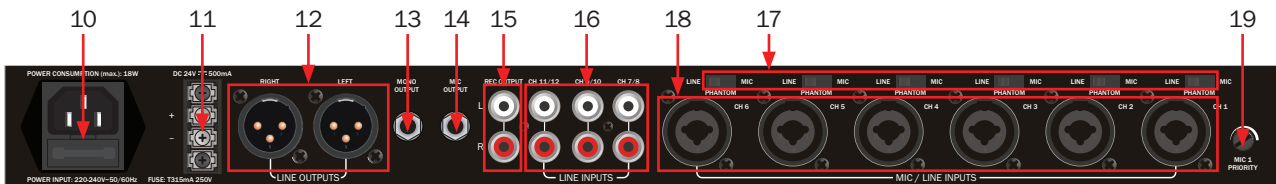
Specifications	ZM 122 Audio Mixer	
Mono input channels (CH1-CH6)	Line input	Electronically balanced
	Frequency response	20Hz-22kHz +/-2dBu
	Distortion (THD)	≤0.03% @ 1kHz
	Sensitivity	0dBu
	Max. input	+21dBu
	Max. voltage gain	20dB CH MIC input - MAIN output (XLR, balanced) 10dB CH MIC input - REC output (unbalanced) 20dB CH MIC input - MIC output (unbalanced) 20dB CH MIC input - MONO output (unbalanced)
Stereo input channels (CH7-CH12)	Line input	Electronically balanced
	Frequency response	20Hz-22kHz +/-2dBu
	Distortion (THD)	≤0.03% @ 1kHz
	Sensitivity	+10dBu
	Max. input	+21dBu
	Max. voltage gain	10dB CH MIC input - MAIN output (XLR, balanced) 0dB CH MIC input - REC output (unbalanced) 4dB CH MIC input - MONO output (unbalanced)
	Signal to noise ratio	≥103dB
Impedance	Microphone input	1.4kΩ
	All other inputs	≥10kΩ
	All other outputs	120Ω
Equaliser	High	±15dB @ 12kHz
	Mid	±12dB @ 2.5kHz
	Low	±15dB @ 80Hz
Crosstalk	Adjacent input	≤-70dB @ 1kHz (CH1-CH6) ≤-68dB @ 1kHz (CH7-CH12)
	Input to output	≤-82dB @ 1kHz (CH level at max, EQ at mid, MAIN level and other at min, sw at LINE)
Main mix selection	Line output	0dBu (±2dBu) Balanced (CH level & MAIN & EQ at mid, other at min, sw at LINE)
	MIC output, MONO output	0dBu (±2dBu) Unbalanced, 1/4" jacks (CH level & MAIN & EQ at mid, other at min, sw at LINE)
	Max. output	+21dBu Balanced/unbalanced, 1/4" jacks
	Noise (busnoise)	≤-83dB @ 20Hz~22kHz (channel & MAIN level & EQ at mid, other at min, sw at LINE)
Dielectric strength	Between Live+Negative to Earth	1500VAC at test frequency 50/60Hz Leakage current: 5mA for 1 minute
	Between Live+Negative to IN/OUT terminal (Positive+Negative)	3000VAC at test frequency 50/60Hz Leakage current: 5mA for 1 minute
Insulation resistance	Between Live+Negative to Earth (500VDC)	>2MΩ
	Between Live+Negative to IN/OUT terminal (Positive+Negative) (500VDC)	>4MΩ
Power consumption	35W	
Power supply	220-240V AC 50/60Hz or 24V DC	
Fuse	T315mA 250V	
Dimensions	44 x 484 x 238mm	
Weight	3.9kg	
Order code	CRAM36	

Front Panel Layout:



- | | | |
|--|---------------------------------|-------------------------------------|
| 01 - MIC Input Volume Controls | 04 - Equaliser (LOW, MID, HIGH) | 07 - Master Volume Control |
| 02 - Signal LED | 05 - Mono Volume Control | 08 - Power Switch and LED Indicator |
| 03 - MIC/LINE Switchable Button and Volume Control | 06 - L/R LED Output Meter | 09 - 19" Mounting Ears |

Rear Panel Layout:



- | | | |
|-------------------------------------|-----------------------------------|-----------------------------------|
| 10 - AC Mains Power Input with Fuse | 14 - MIC Output | 18 - MIC/LINE Inputs 1-6 |
| 11 - DC Power Supply | 15 - REC Outputs | 19 - MIC 1 Priority Potentiometer |
| 12 - LINE Outputs | 16 - LINE Inputs 7/8, 9/10, 11/12 | |
| 13 - MONO Output | 17 - LINE/MIC/PHANTOM Switches | |

Layout identification:

01. MIC Input Volume Control

MIC channel 1 would have priority over other MIC input channels. This function can be disabled by adjusting the MIC priority knob at the back of the unit. When the knob is turned anti-clockwise to the leftmost position, a signal received by the Channel 1 MIC/LINE input will not affect the other input signals at all. Turning the knob from the leftmost position towards the right position will gradually have the Channel 1 MIC/LINE input volume take priority over all other input signals. When the knob is turned to the rightmost position, a signal received by the Channel 1 mic/LINE input will mute all other input signals entirely. The rotary knobs for microphone inputs 1 to 6, 7/8, 9/10, 11/12 are for adjustment of input signal levels. In setup, adjust this gain to the optimum level according to the required output level. Different channel may have different input source (ie: condenser or dynamic MIC, etc).

02. Signal LED

The presence of the input signal is indicated at this LED. The LED will flash or illuminate to show the channel's incoming audio signal is within an optimal range.

03. MIC/LINE Switchable Button & MIC Output Volume Control

Press this to turn enable or disable the MIC output. When the button is depressed (in the down position), the signal from the MIC/LINE inputs (Channels 1–6) will be sent to the MIC Monitor output, and the LINE Outs will be disabled. When the button is raised (in the up position), the MIC Monitor output will be disabled, and all channels will be sent to the LINE Outs.

04. Equaliser

Turn these knobs to increase (“boost”) or reduce (“cut”) the amount of bass frequencies (LOW), mid-range frequencies (MID), and treble frequencies (HIGH) of the main mix.

LOW

This is the bass control. It is used to boost male voice, kick-drum or bass guitar. Your system will sound much bigger than what it is. The gain range goes from -15dB to +15dB with a centre frequency of 80Hz.

MID

This is the midrange control. It provides -12dB to +12dB boost or cut with a centre frequency of 2.5kHz. It can affect most fundamental frequencies of all musical instruments and human voice.

HIGH

This is the treble control. You can use it to get rid of high frequency of human voice or instruments. The gain range goes from -15dB to +15dB with a centre frequency of 12kHz.

05. Mono

The level control knob sets the level of mono output signal, ranging from $-\infty$ to +10dBu.

06. L/R LED Output Meter

The LED meter indicates the level of output signal, this will illuminate green under normal conditions or amber when the signal is high. Also a clipping indicator will indicate red when the output is too high.

07. Master Volume Control

This knob is used for adjusting the LINE output level. To avoid over amplification, it's recommended that this level be set properly. It is advisable that the gain be set to minimum when powering the system on or off as this can eliminate sudden signal peaks to your system which could damage loudspeakers or amplifiers.

08. Power Switch & LED Indicator

This switch controls to power on/off the unit. When the unit is switched on, the LED will light up. The unit is also provided a 24V DC backup power supply. Then the switch will control its on/off.

09. 19" Mounting Ears

The mounting ears are adopted to easily install the unit in a rack enclosure. Care should be taken to install the ZM 122 with adequate space between other items in the rack to avoid overheating.

10. AC Mains Power Input

This connector is meant for the connection of the supplied power cord. Please check the supply voltage accepted by the unit (220-240V AC~50/60Hz) and the voltage available from AC sockets before connecting the unit to the mains power. This product falls under CLASS 1 and must have a protective earth connection at all times.

11. DC Power Input

For connection to battery backup power sources, or for operation from leisure type batteries. The ZM 122 mixer may be used from 24V DC power sources. Care should be taken to ensure an inline fuse is fitted to the +ve supply and the power is connected with observing the polarity. When both the AC and DC source is connected, the ZM 122 shall operate using AC mains whereas the DC supply shall be only consumed whenever the AC supply fails or is disconnected.

12. LINE Outputs

Stereo outputs via male XLR connectors for connection to amplifiers or recording sources. Connection should be made using high quality, balanced XLR cables.

13. MONO Output

A mono sum output of the main L/R mix via a 6.35mm (1/4") unbalanced TRS jack connector. The output level for this output may be adjusted using the MONO control on the front panel.

14. MIC Output

A mono sum output of the main L/R mix via a 6.35mm (1/4") unbalanced TRS jack connector. The output level for this output may be adjusted using the MIC control on the front panel.

15. REC Output

Unbalanced phono (RCA) sockets are to be connected to recording media such as cassette tape recorder. The source for this output is replicated from the main L/R mix.

16. LINE Inputs

Unbalanced phono (RCA) sockets (for stereo music sources). The left and right channels are combined, resulting in a single mono signal that can be directed to one or two the audio outputs.

17. LINE/MIC/PHANTOM Switches

Use these switches to set what type of audio source is connected to each MIC/LINE input: a microphone without phantom power (MIC), a microphone with +18~21V of phantom power (PH), or a line-level device (LINE).

Note: Most dynamic microphones do not require phantom power, while most condenser microphones do. Consult your microphones documentation to find out whether it requires phantom power.

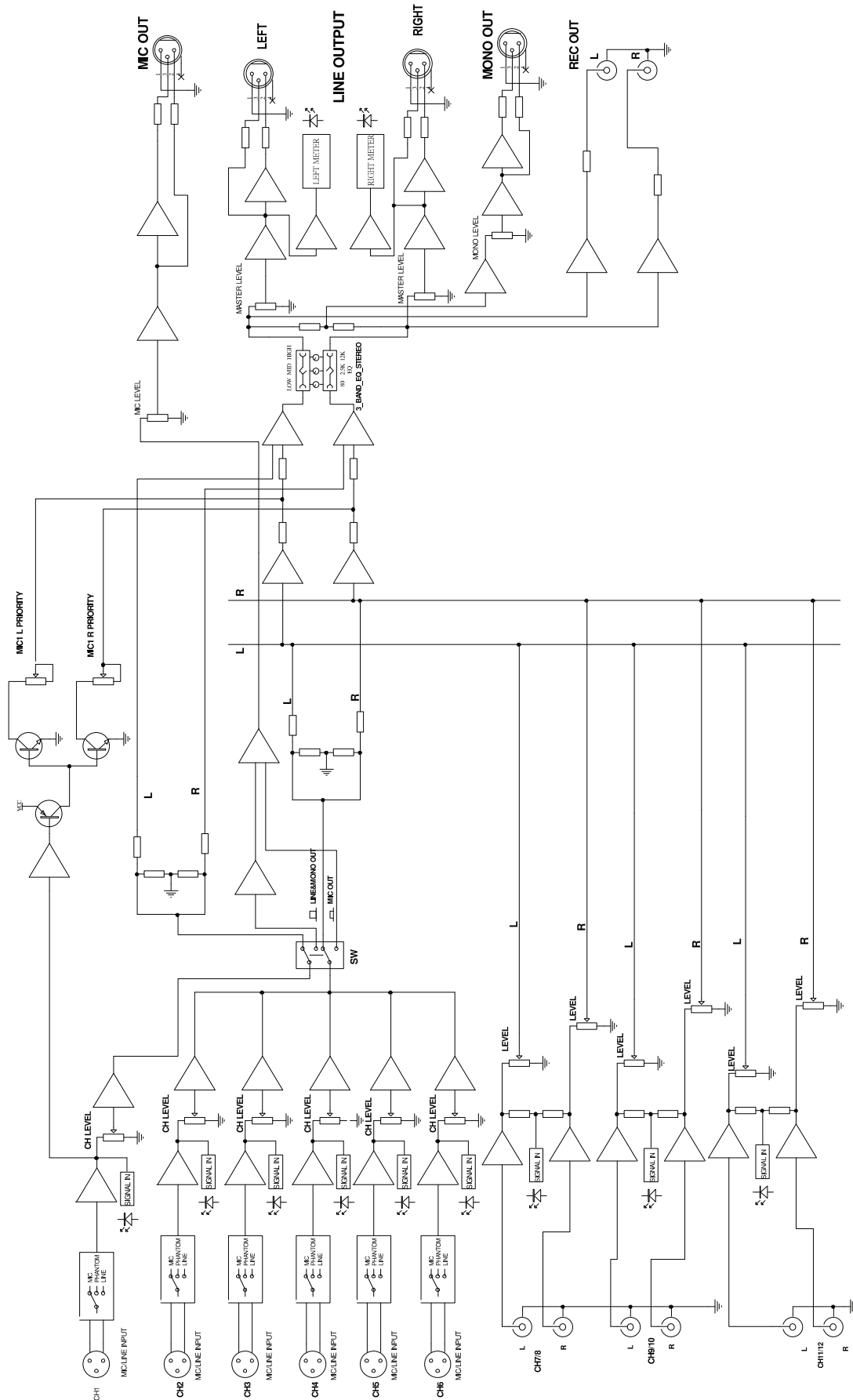
18. MIC/LINE Inputs

Balanced/unbalanced XLR/jack combo connectors are used for the MIC/LINE signal input. Each input maybe switched from LINE, MIC or MIC with PHANTOM POWER.

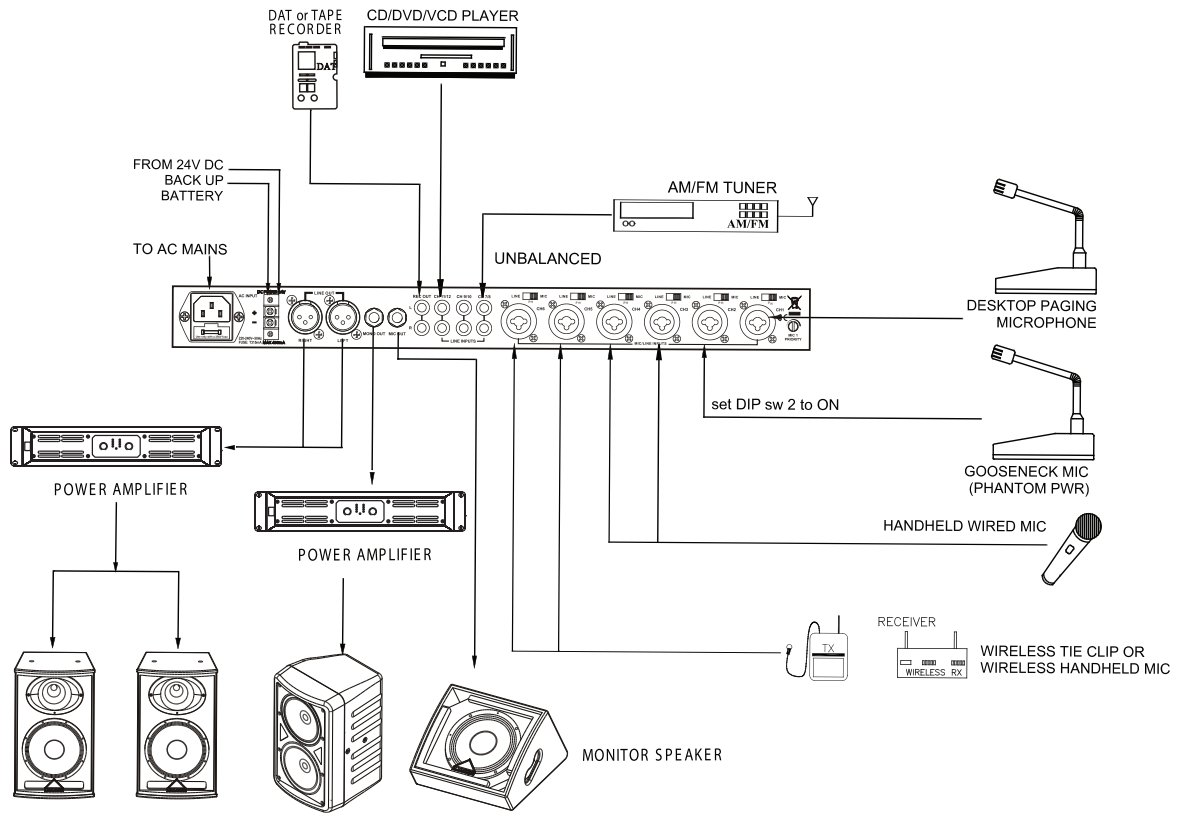
19. MIC 1 Priority Potentiometer

The muting circuitry activates in the presence of signal from MIC 1. This potentiometer determines the mixing level of MIC or LINE input signals with signals of priority channels. Setting it to minimum shall cut off all other inputs when signal is presence in priority channel (MIC 1), whereas setting it to maximum shall allow free mix of all signals including priority input. Some applications may not require this feature, such as in a hall of prayer, thereby to bypass the circuitry, adjust the level to the maximum.

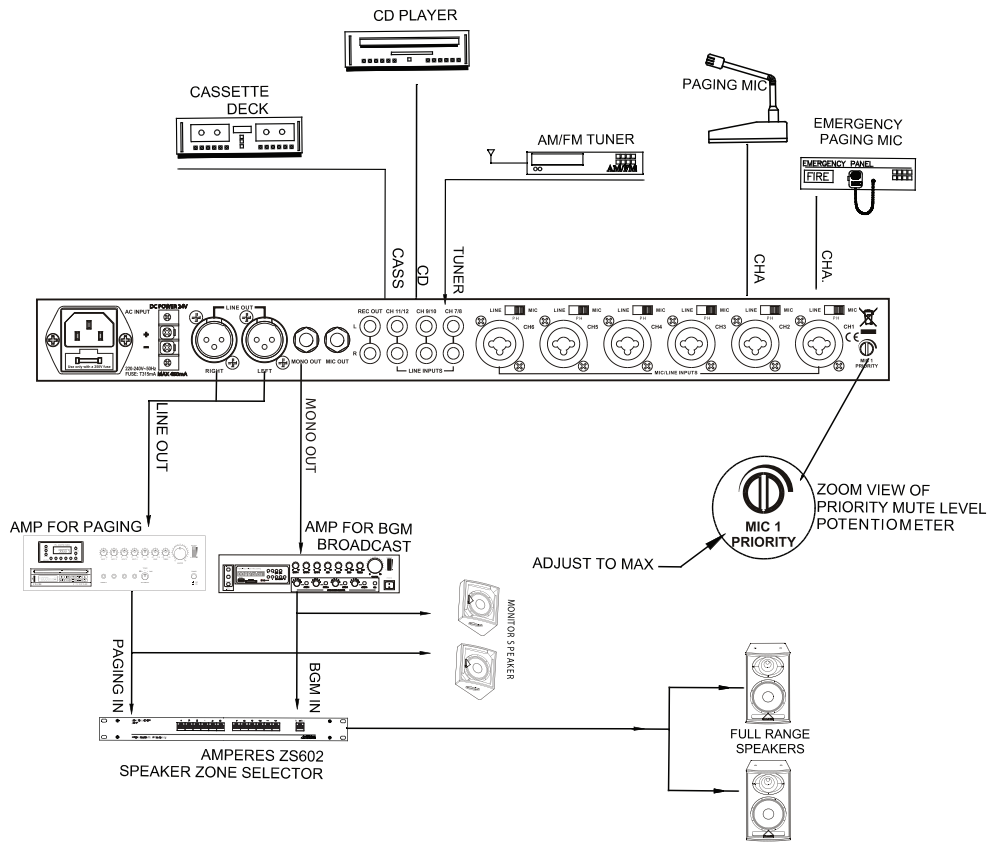
Block Diagram:



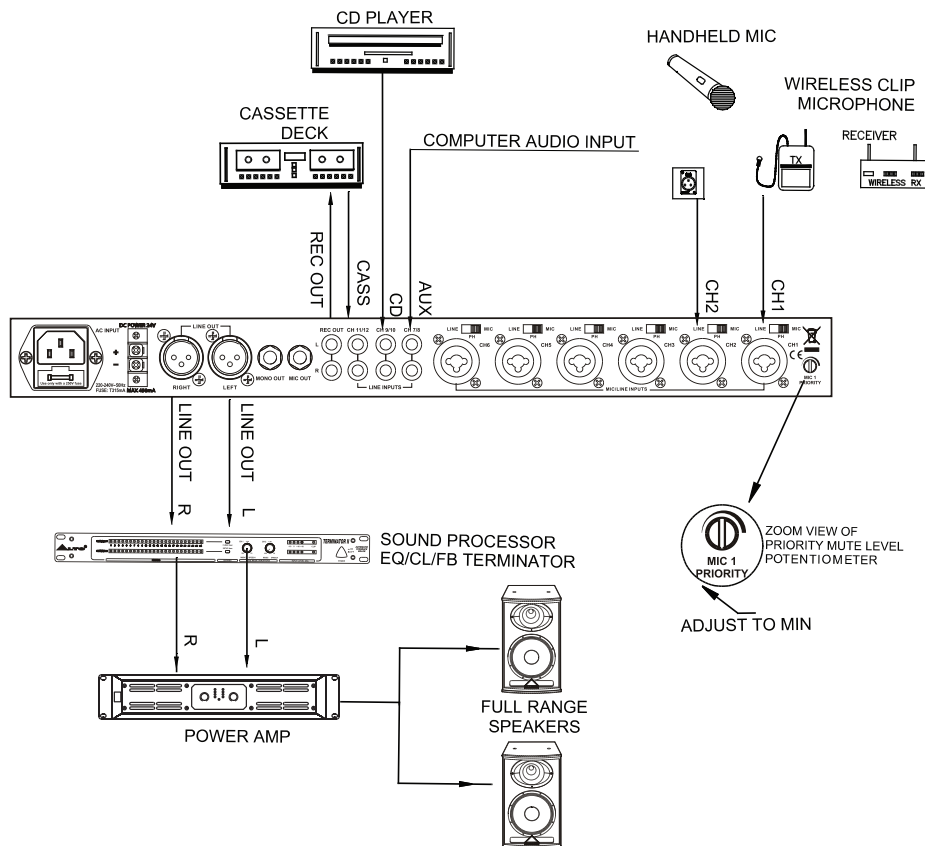
Typical Panel Connections:



Application example - Paging System:



Application example - Lecture Hall/Conference Room:





***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.

