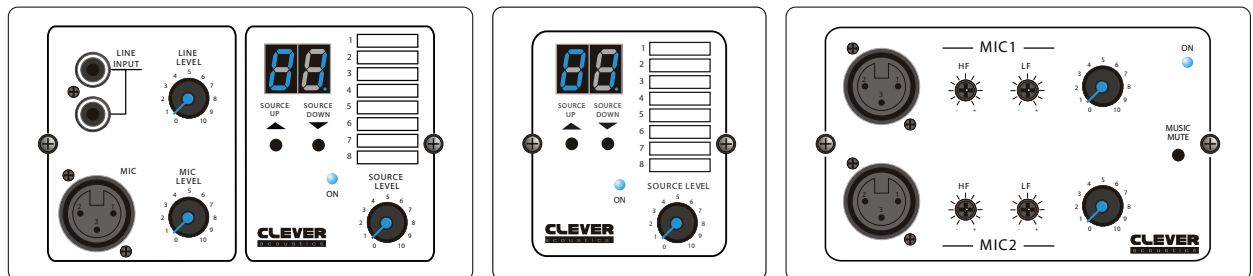
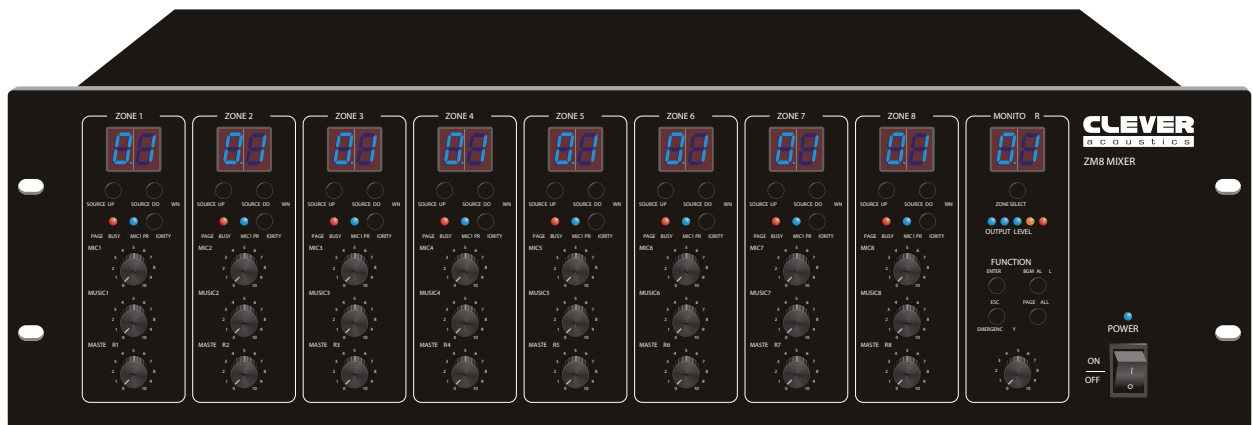




# ZM8 Matrix Zone System 8 Zone Mixer and Wall Controllers

## User Manual



Order codes:

**CRAM19 - Matrix Zone Mixer**

**CRAM19A - BW Wall Plate**

**CRAM19B - CW Wall Plate**

**CRAM19C - DW Wall Plate**

**CRAM19D - PGC Remote Control**

**CRMIC07 - 8 Zone Paging Microphone**

|                                                |               |
|------------------------------------------------|---------------|
| <b>Safety advice.....</b>                      | <b>3</b>      |
| <b>Introduction.....</b>                       | <b>4</b>      |
| <b>Specifications .....</b>                    | <b>5</b>      |
| <b>Operation and controls.....</b>             | <b>9</b>      |
| <b>Overview .....</b>                          | <b>9</b>      |
| <b>Panel and connector identification.....</b> | <b>9</b>      |
| <b>RS 485 Protocol.....</b>                    | <b>13</b>     |
| <b>Remote paging console .....</b>             | <b>12, 14</b> |
| <b>Typical configurations .....</b>            | <b>15, 16</b> |

## 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.



### 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 100~240V, 50/60Hz.
- 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 Pro Light 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:** One year 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.

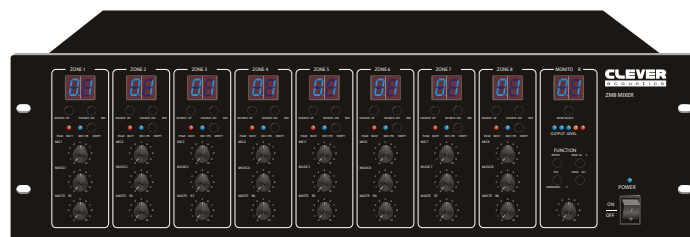
Do not endanger your own safety and the safety of others!

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

## ZM8 Matrix Zone Mixer

The ZM8 Zone Mixer allows 8 signal sources plus 2 dedicated paging microphones to be routed into 8 separate zones. With the addition of more ZM8 zone mixers each system is expandable up to a total of 32 zones. Each zone can be controlled remotely via a wall plate which offers great flexibility, whilst control is also available centrally via the master front panel. In addition to offering control of level and source, the dedicated wall plates can allow a further balanced line input for each zone for connection of a local source, local microphone input or auxiliary input (depending on the plate selected). Installation of the plates requires simple, easy connection via standard RJ45 terminated CAT5 cable.

- Each channel input is provided with individual microphone, music, master volume control, each line and paging console input with gain control, microphone input with gain, bass and treble tone control
- Each channel output is provided with individual gain, bass and treble tone control, a gain control is also provided for each channel's remote wall control
- 8 zone voice alarm contact closure to activate built-in tone voice alarm
- Alert, evacuation and alarm; three styles of pre-recorded chimes are provided with tone control
- EMC and ground for external voice alarm generator input
- Connected via standard RJ45 terminated CAT 5 cable
- 4 swift keys for direct all channel BGM and paging access



- 5 levels of priority from highest to lowest are: MIC 1, fire alarm, remote paging console, remote control panel and background music
- AC 110V or 240V input with voltage switch and DC 24V operation
- Monitor output with independent volume control

| Specifications         | ZM8                                                               |
|------------------------|-------------------------------------------------------------------|
| Line 1-4 input         | 195mV-2V/10kΩ                                                     |
| Line 5-7 input         | MIC: 5mV/600Ω, Line: 350mV-3V/10kΩ, Phantom power: +48V           |
| Microphone 1           | 5mV-280mV/600Ω                                                    |
| Remote paging station  | 300mV-1.1V/10kΩ                                                   |
| Remote control panel   | 300mV-1.1V/10kΩ                                                   |
| Tone control           | 100Hz (±10dB), 10kHz (±10dB)                                      |
| Outputs                | 0.775V/600Ω                                                       |
| Frequency response     | MIC: 80Hz-18kHz (+1/-3dB), Line: 20Hz-20kHz (+1/-3dB)             |
| EMC inputs             | 775mV/10kΩ                                                        |
| Microphone S/N ratio   | >65dB                                                             |
| Line S/N ratio         | >85dB                                                             |
| Degree of separation   | >40dB                                                             |
| Crosstalk              | >65dB                                                             |
| THD                    | <0.07%                                                            |
| Indicator              | Power, MIC1, paging busy and monitor output                       |
| Priority               | MIC1, voice alarm, local mic paging, remote zone paging, line 1-8 |
| Communication speed    | 4800bps                                                           |
| Communication port     | RJ45                                                              |
| Communication protocol | RS485                                                             |
| Power consumption      | 20W                                                               |
| Power Supply           | ~110V/60Hz or ~240V/50Hz & DC 24V                                 |
| Dimensions (H x W x D) | 132 x 484 x 304mm                                                 |
| Weight                 | 6kg                                                               |
| Order code             | CRAM19                                                            |



| Specifications              |                                                                                   |
|-----------------------------|-----------------------------------------------------------------------------------|
| AC power supply             | AC 115-240V/50-60Hz<br>Voltage selector between 115V-240V                         |
| DC power supply             | +24V (±4V)                                                                        |
| Line input sensitivity      | 195mV-2.0V clockwise rotation gain to increase                                    |
| Line input impedance        | 47kΩ                                                                              |
| Local input sensitivity     | 500mV balanced input                                                              |
| Local gain                  | ±8dB                                                                              |
| MIC1 impedance              | 600Ω                                                                              |
| MIC level control           | ±8dB Input 100Hz sine wave signal                                                 |
| Paging console sensitivity  | 500mV Input 1kHz sine wave signal and output 0.775V                               |
| Paging console gain control | ±8dB                                                                              |
| Zone output                 | 0.775mV Balanced output                                                           |
| Zone gain output            | ±8dB                                                                              |
| Zone output level control   | ±10dB Input 100Hz sine wave signal                                                |
| S/N ratio                   | <60db Non-weighting                                                               |
| Isolation degree            | >40dB                                                                             |
| Channel crosstalk           | >50dB                                                                             |
| Gain deviation              | <2dB                                                                              |
| THD                         | 0.07%                                                                             |
| Frequency response          | Line 1-8 inputs and remote source input:<br>20Hz-20kHz<br>MIC 1 input: 80Hz-18kHz |

## ZM8 Wall Plates

Dedicated wall plates for the ZM8 Zone Mixer. Installation of the plates requires simple, easy connection via standard RJ45 terminated CAT5 cable.

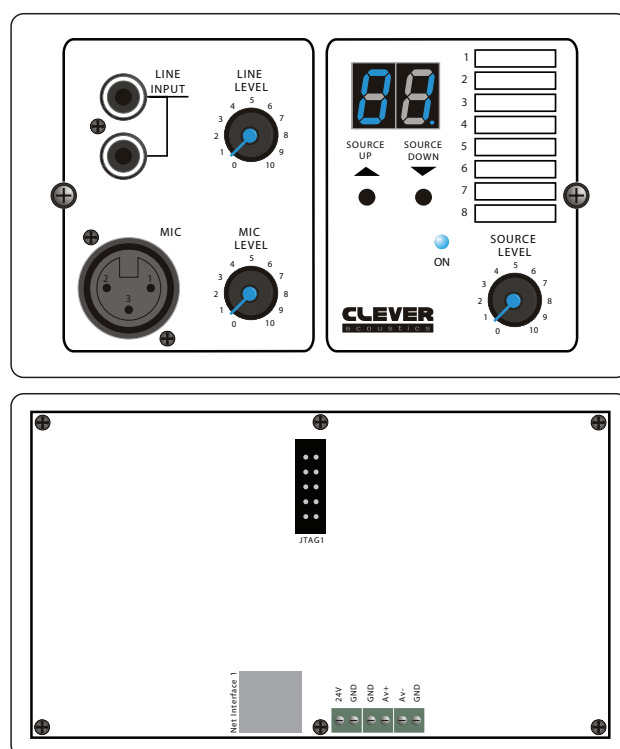
NOTE: The ZM8 wall plates are supplied separately to the main ZM8 system.

- Zone LED indicator with up/down buttons
- Volume controls provided
- DC 24V power supply from controller
- Metal back box supplied

## ZM8 BW Wall Plate

| Specifications                | BW Wall Controller            |
|-------------------------------|-------------------------------|
| Serial communication speed    | 4800bps                       |
| Communication port            | RJ45                          |
| Communication protocol        | RS485                         |
| Serial communication distance | 1km maximum                   |
| MIC input sensitivity         | 5mV/600Ω, Phantom power: +12V |
| AUX input sensitivity         | 350mV/10KΩ                    |
| Audio output                  | 0dB/600Ω                      |
| Frequency response            | 50Hz-18kHz (±1dB)             |
| S/N ratio                     | MIC: >65dB, AUX: >75dB        |
| THD                           | <0.1% @ 1kHz                  |
| Controls                      | Volume control                |
| Power consumption             | 5W                            |
| Power Supply                  | DC 24V                        |
| Dimensions (H x W x D)        | 86 x 146 x 48mm               |
| Weight                        | 150g                          |
| Order code                    | CRAM19A                       |

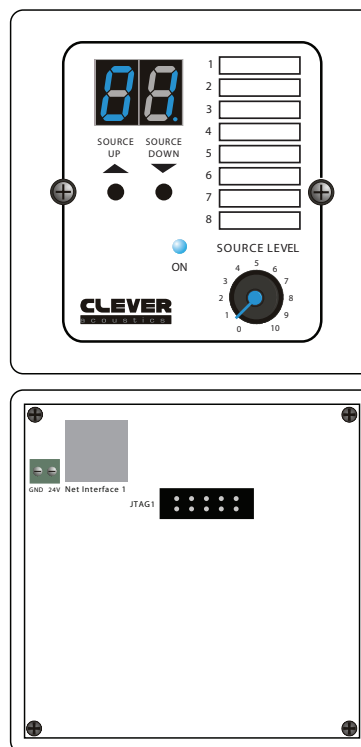
- Remote line and microphone via XLR inputs with gain controls
- Source selection and volume control



## ZM8 CW Wall Plate

| Specifications                | CW Wall Controller |
|-------------------------------|--------------------|
| Serial communication speed    | 4800bps            |
| Communication port            | RJ45               |
| Communication protocol        | RS485              |
| Serial communication distance | 1km maximum        |
| Controls                      | Volume control     |
| Power consumption             | 5W                 |
| Power Supply                  | DC 24V             |
| Dimensions (H x W x D)        | 86 x 86 x 48mm     |
| Weight                        | 70g                |
| Order code                    | CRAM19B            |

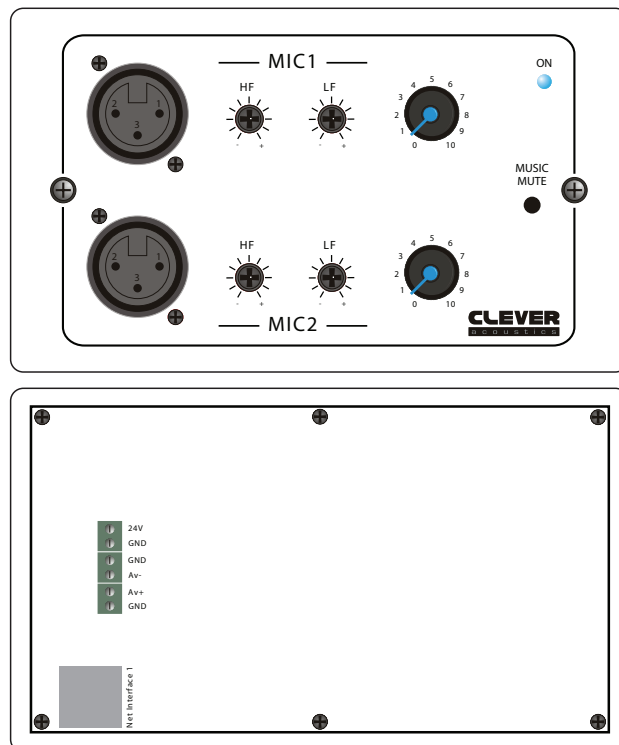
- Source selection and volume control

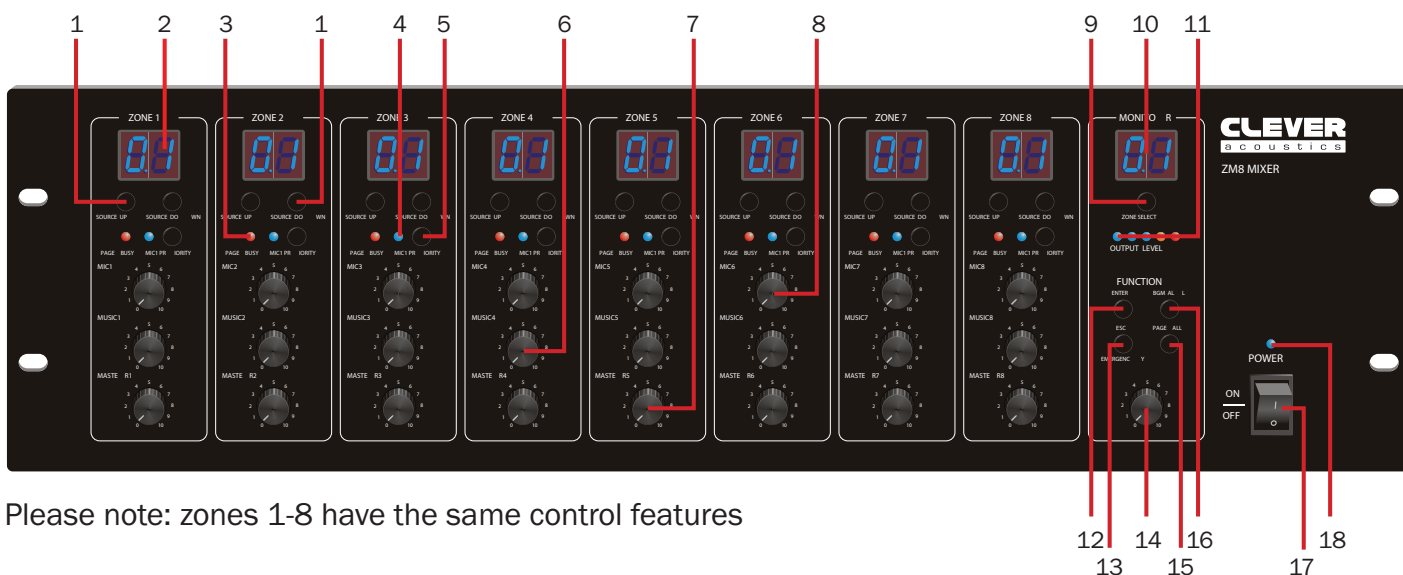


## ZM8 DW Wall Plate

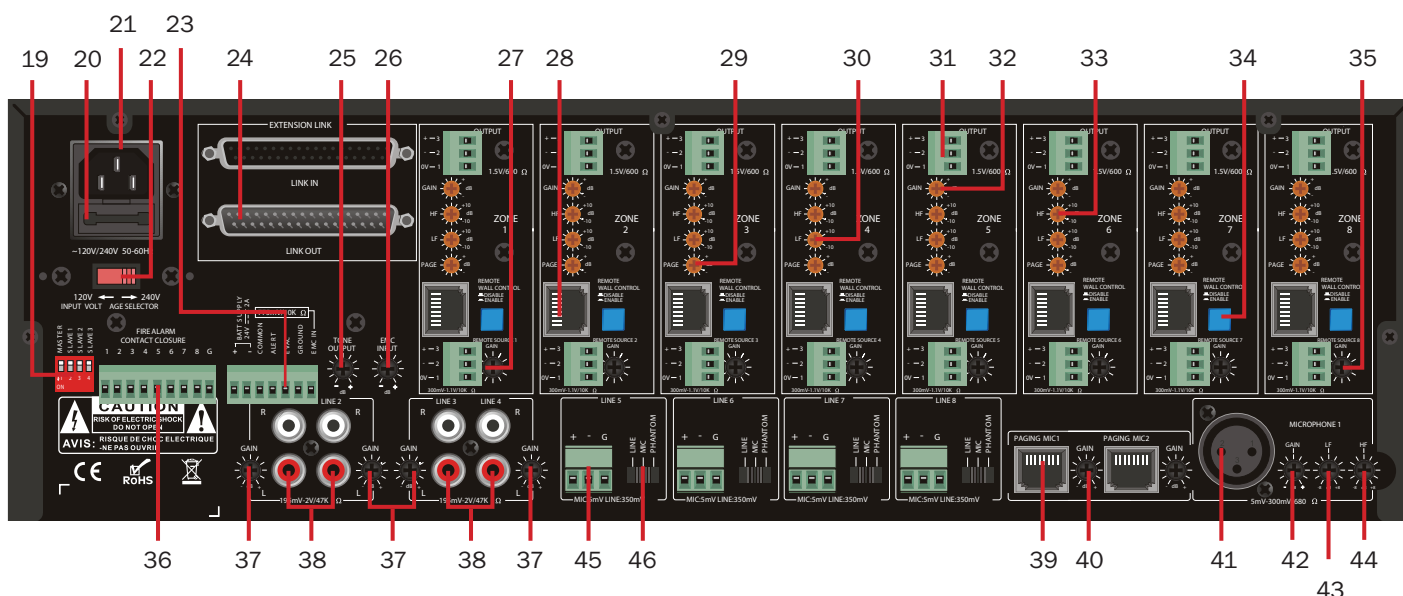
| Specifications                | DW Wall Controller |
|-------------------------------|--------------------|
| Serial communication speed    | 4800bps            |
| Communication port            | RJ45               |
| Communication protocol        | RS485              |
| Serial communication distance | 1km maximum        |
| MIC input sensitivity         | 5mV/600Ω           |
| Audio output                  | 0dB/600Ω           |
| Frequency response            | 50Hz-18kHz (±1dB)  |
| S/N ratio                     | >65dB              |
| THD                           | <0.1% @ 1kHz       |
| Controls                      | Volume control     |
| Power consumption             | 5W                 |
| Power Supply                  | DC 24V             |
| Dimensions (H x W x D)        | 86 x 146 x 48mm    |
| Weight                        | 150g               |
| Order code                    | CRAM19C            |

- Two remote microphone inputs with volume, bass, and treble controls





Please note: zones 1-8 have the same control features



01 - Source selection button

02 - LED display

03 - Page busy indicator

04 - MIC1 priority indicator

05 - MIC1 priority button

06 - Music volume control

07 - Master volume control

08 - MIC1 volume control

09 - Monitor zone select

10 - Monitor zone LED display

11 - Monitor zone output level

12 - ENTER

13 - ESC

14 - Monitor volume control

15 - PAGE ALL

16 - BGM ALL

17 - On/off power switch

18 - Power LED

19 - Master/slave dip switches

20 - Mains fuse

21 - Power input

22 - Input voltage selector

23 - EVAC / Fire system interface

24 - Extension link

25 - Tone output

26 - EMC input

27 - Remote source

28 - Remote control input

29 - Page volume

30 - LF (bass) tone control

31 - Zone output

32 - Zone gain control

33 - HF (treble) tone control

34 - Enable/disable switch

35 - Remote source gain

36 - Fire alarm interface

37 - Line gain

38 - Line inputs

39 - Paging console inputs

40 - Paging MIC gain

41 - MIC1 input

42 - MIC1 gain

43 - MIC1 LF bass

44 - MIC1 HF treble

45 - Balanced MIC/LINE inputs

46 - Balanced input function select

## Layout identification:

### 1. Source select

The source select up button (1) is used to select the source for the zone. Each zone has a separate source selection button. There are 9 selectable sources: Line sources 1 through 8 and a local balanced audio source. A different local source (remote in wall mixer or source select/volume control) can be connected to each zone.

A zone cannot select the local source connected to another zone. Pressing the source select button will cycle through all zones in sequence: 1, 2, 3, 4, 5, 6, 7, 8, L, and OFF. To select the required source, press the source select button (1). Once the display shows the desired source, press the ENTER (12) button to confirm and change to the selected source.

Note:

The source will only change after the ENTER (14) button is pressed. If the ENTER (14) button is not pressed, the source selection will return to the previous setting after 10 seconds. When the system is used in conjunction with remote control panels, the zone source select button will be disabled when a remote control panel is connected to a zone.

### 2. Zone LED display

The zone LED display (2) will display the selected source number: lines 1-8 and local input shown as L.

### 3. Page busy indicator

The zone page busy indicator LED (3) will illuminate amber to indicate a paging microphone is paging to this zone.

### 4. MIC1 priority indicator

The MIC1 priority indicator LED (4) will illuminate blue, indicating the zone MIC1 priority paging function is enabled.

### 5. MIC1 priority button

The MIC1 priority button (5) will enable/disable the MIC1 priority paging function. When enabled, MIC1 will override zones 1-8 and all local inputs, if a signal is present on the MIC1 input. When disabled, MIC1 will mix with lines 1-8 and local inputs if required. This microphone input has been designed to give global priority over all other inputs if enabled via the front panel. The MIC1 priority setting is not saved when the ZM8 is switched off, and will return to its default state when the unit is powered back on. The default of the MIC1 priority is disabled.

### 6. Music volume control

The music volume control knob (6) controls the selected source (zones 1-8 and local input) input levels. If the system is used with remote control panels, the music volume control knob will be disabled for zones where a remote control panel is connected. Source music volume level will be controlled at the remote control panel only.

### 7. Master volume control

The master volume control knob (7) will control the combined MIC1 and source output volume level, if the MIC1 input has been enabled for a zone. The master volume control knob will not control the paging console public address volume level (PM ZM8), or the line 8 source input volume level when the line 8 source input priority function is enabled. This function has been designed as a global BGM input if required.

### 8. MIC1 volume control

The MIC1 volume control knob (8) will control the MIC1 input level if this global mic has been configured to operate within the zone.

### 9. Monitor zone select

The zone select button (9) is used to select one of the 8 zones to be monitored. Pressing the zone select button will cycle through all zones in sequence as follows: 1, 2, 3, 4, 5, 6, 7, 8, and OFF. A zone can be selected by pressing the zone select button. Once the display shows the desired zone, press the ENTER button to confirm and change to the selected zone.

Note:

The zone will only change after the ENTER button (12) is pressed, otherwise the source selection will be returned to its previous setting after 10 seconds. The monitor zone function enables the audio output from a zone to be monitored through a small speaker on the front panel. This is particularly useful when controlling the audio in a remote zone or testing the system.

### 10. Monitor zone LED display

The monitor zone LED display (10) will display the selected zone numbers, 1-8.

### 11. Monitor zone output level

The 5 LED monitor zone output level meter (11) will provide visual indication of the audio signal level for a selected zone.

### 12. ENTER

The ENTER button (12) is used to confirm selection of source select, monitor zone select and BGM function buttons.

### 13. ESC

The ESC button (13) is used to cancel the selection of source select, monitor zone select and BGM function buttons.

### 14. Monitor volume control

The monitor volume control knob (14) will control the built-in monitor speaker volume level.

### 15. PAGE ALL

The PAGE ALL button (15) is used to activate the page function for all 8 zones simultaneously. To confirm the page all selection press the ENTER button (12).

### 16. BGM ALL

The BGM ALL button (16) is used to select the same source for all 8 zones simultaneously. To confirm the BGM all selection press the ENTER button (12).

Note:

The PAGE ALL /BGM ALL selection will only be confirmed after the ENTER button (12) is pressed, otherwise the source selection will be returned to the previous setting after 10 seconds. In the event power is lost, the PAGE ALL/ BGM ALL selection settings will be saved and the unit will return the the selected settings when the unit is powered back on.

### 17. On/off power switch

The on/off power switch (17) is used to power the unit on/off.

### 18. Power LED

The Power LED (18) will illuminate blue when the unit is powered on.

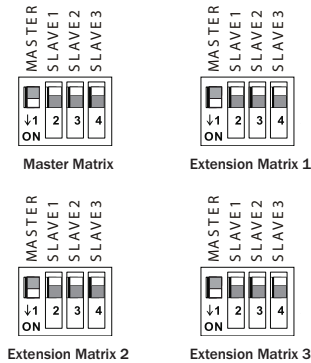
## 19. Master/slave dip switches

Dip switches set the Matrix system address. If the system is to be expanded, each ZM8 unit must be defined as master, slave 1, 2 or 3.

If you are expanding the system, only line inputs 1-8, MIC1 and 2 remote paging consoles of the master Matrix are enabled. All slave Matrix units connected to the master will use the master Matrix inputs.

For the avoidance of doubt, if a Matrix unit is configured as a slave, the slave Matrix inputs 1-8, MIC1 and remote paging console inputs will be disabled. However, the optional wall pates can be used to operate these additional zones.

Dip switch settings are as follows for configuring the ZM8 as a master or slave.



## 20. Mains fuse

If the mains fuse requires replacement use the same type and value fuse as originally supplied.

## 21. Power input

## 22. Input voltage selector

## 23. EVAC / Fire system interface (7 way Pheonic connector)

PINS 1 + 2 DC power supply input (battery backup or UPS).  
PIN 1: +24V DC, PIN 2: -24V DC.

### PIN 4 - ALERT DRY CONTACT

The built-in alert voice message will be broadcast to all 8 zones after being triggered by dry contact between EVAC and COMMON.

### PIN 5 - EVAC DRY CONTACT

The built-in EVAC voice message will be broadcast to all 8 zones after being triggered by dry contact between EVAC and COMMON.

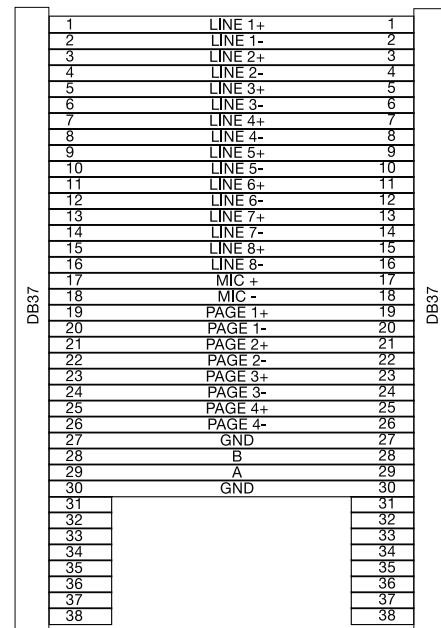
### PIN 6 - EMC IN

An optional external voice alarm message may be broadcast to all 8 zones of the system, when an alarm signal is detected from an external voice message generator. Fire alarm, alert, EVAC, and EMC in are of equivalent priority.

## 24. Extension link (DB37 connector)

The extension link connectors enable 8 zone Matrix units to be connected together to form a larger system. Up to four 8 ZM8 units can be connected to make a 32 zone system.

The ZM8 Matrix can be linked with a DB37 cable. This will enable the line 1-8 sources, MIC1 input, paging consoles 1 & 2, and communication data of the master unit to be shared with any slave ZM8 Matrix units connected to the system.



## 25. Tone output

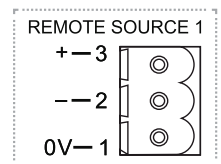
The tone output volume control will adjust the output level of the Fire alarm, alert, and EVAC voice messaging.

## 26. EMC input

The EMC input volume control will adjust the output level of the EMC voice messaging. Fire alarm, alert, EVAC and EMC in are of equivalent priority.

## 27. Remote source

Each zone can have a remote line level source connected. The remote source input connector is shown here. This has been designed to be used if you don't wish to use a local in wall mixer. This could be for example a radio MIC. On selecting this input via the front panel controls, select "L". Please note that this input cannot be distributed to other zones.



Local zone source level has three adjustments, namely:

- Gain control for the local source input on the rear of the Matrix.
- A music level control on the matrix front panel or the remote wall control.
- A master level control on the Matrix front panel.

Please note the input signal sensitivity is 300mV - 1.1V/10kΩ.

## 28. Remote control input

Each of the 8 zones can have a remote control panel connected. The remote control panel will enable the source and volume to be controlled from a remote location. Each zone has it's own RJ45 input connector allowing for a remote control panel to be connected for control over each zone.

Local source connections are as follows:

1. A remote wall panel can be connected to the Matrix, with only one remote wall controller able to be connected per zone.
2. The remote wall panel will be selectable on the syetm. Therefore, selectable sources will be L (local) as well as source line 1-8.

ZM8 BW (CRAM19A) assignment order is as below:

1. RS485B
2. RS485A
3. NC
4. GND
5. DC +24V
6. DC -24V
7. AUDIO IN +
8. AUDIO OUT -

| 1 | 2 | 3  | 4   | 5    | 6    | 7          | 8          |
|---|---|----|-----|------|------|------------|------------|
| B | A | NC | GND | +24V | +24V | AUDIO IN + | AUDIO IN + |

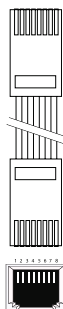
ZM8 CW (CRAM19B) assignment order is as below:

1. RS485B
2. RS485A
3. NC
4. GND
5. DC +24V
6. DC -24V
7. NC
8. NC

| 1 | 2 | 3  | 4   | 5    | 6    | 7  | 8  |
|---|---|----|-----|------|------|----|----|
| B | A | NC | GND | +24V | +24V | NC | NC |

ZM8 DW (CRAM19C) assignment order is as below:

1. NC
2. NC
3. MUTE
4. GND
5. DC +24V
6. DC -24V
7. AUDIO IN +
8. AUDIO IN -



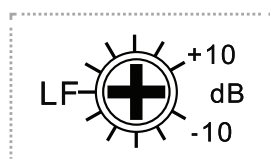
| 1  | 2    | 3   | 4    | 5    | 6          | 7          | 8          |
|----|------|-----|------|------|------------|------------|------------|
| NC | MUTE | GND | +24V | +24V | AUDIO IN + | AUDIO IN + | AUDIO IN + |

## 29. Page

The zone page output volume control will adjust the output paging level for the zone. Every zone has a page output volume control which enables the paging level of each zone to be set independently of other zones.

## 30. LF (bass) tone control

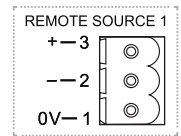
The zone LF bass of the zone output can be controlled by adjusting the LF bass level control. This level control will provide adjustment of the 100Hz audio frequency by  $\pm 10$ dB.



Every zone has an LF bass level control which enables the LF bass level of each zone to be set independently of other zones.

## 31. Output

Every zone has an audio output connector; this should be connected to the audio amplifier for the designated audio zone. Zone audio output connections are as labeled.



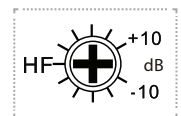
## 32. Gain

The zone gain control will set the maximum source output volume level for the zone. This will ensure the user cannot adjust the audio level too high using the master, MIC1, and music level control knobs on the front panel. The gain will set the maximum output volume of line source and MIC1. It will have no control over the paging level.



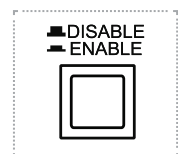
## 33. HF (treble) tone control

The zone HF treble of the zone output can be controlled by adjusting the HF treble level control. This level control will provide adjustment of the audio frequency by  $\pm 10$ dB. Every zone has a HF treble level control which enables the HF treble level of each zone to be set independently of other zones.



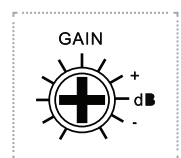
## 34. Enable/Disable switch

If a zone remote wall control panel is to be used with the system, the RJ45 remote control panel input needs to be enabled. The RJ45 remote control panel is enabled/disabled by pressing the Enable/Disable switch. Each zone has an RJ45 remote control panel input Enable/Disable switch. Please note: Only enable when a zone remote wall control panel is connected.



## 35. Remote source gain

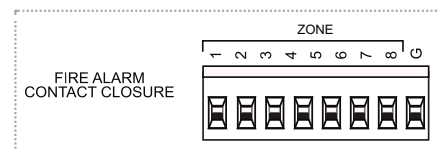
The zone local source input signal level can be adjusted from 300mV - 1.1V using the remote source gain control. This will enable the signal level of all sources to be equalized there by ensuring output volume level remains constant when switching from one source to another source. Each zone remote source input has a gain control.



## 36. Fire alarm

There are Fire alarm dry contacts for zones 1-8. When dry contact is detected the EMC input will be open and take priority over all other inputs.

The EMC input will only take priority and broadcast to zones where there is a zone fire alarm dry contact closure. Each zone has a separate fire alarm dry contact. Fire alarm, alert, EVAC and EMC in are of equivalent priority.





## 37. Line gain

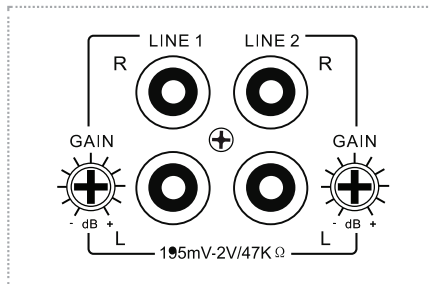
The system line source input signal levels can be adjusted from 195mV - 2V using the line source input gain control. This will enable the signal level of all sources to be equalized there by ensuring output volume level remains constant when switching from one source to another source.

All system source inputs L (lines 1-8) have a separate gain control.

## 38. Line inputs

The system has 4 line inputs, as well as 4 inputs selectable as MIC or line with phantom power available.

Every line source input has a dual RCA photo connector, which will enable a stereo source signal to be connected. Note: however this is a mono system and a stereo input will be combined to give a mono output.



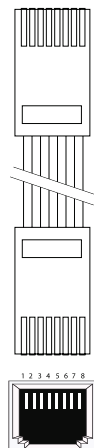
The line inputs will have an impedance of 47kΩ.

1. Line 1-8 source inputs will be selectable using the source select control on the front of the Matrix.
2. The selected source input number will be indicated on the Matrix zone display.
3. Any extension Matrix unit connected to the system will use sources line 1-8 from the master Matrix.
4. Only one set of input sources for the lines 1-8 can be connected per system.

## 39. Paging console inputs

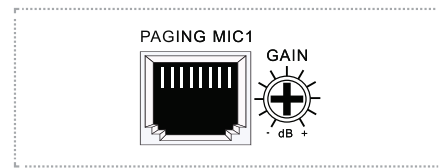
Up to two paging consoles can be connected to the system simultaneously via the two paging console RJ45 input ports. The paging consoles will have equal priority and will operate on a first come first serve basis. The RJ45 pin assignment order is as below:

1. RS485B
2. RS485A
3. GND
4. +24V (OUT)
5. GND
6. +24V (OUT)
7. AUDIO IN +
8. AUDIO IN -



## 40. Paging MIC gain

The paging MIC gain control will adjust the paging MIC input signal level. Each paging MIC will have its own gain control. There by each paging MIC can be set independently of the other paging MICs.



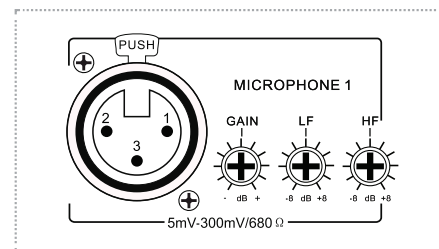
## 41. MIC 1 input

The balanced MIC1 input XLR type has an impedance of 600Ω. Each zone has a MIC1 priority button.

Each zone has a MIC 1 priority button. When the MIC1 priority button is not enabled, MIC1 will be mixed with the line inputs on each zone (1-8 or L). When the MIC 1 priority button is enabled, MIC1 will take priority over all line inputs (1-8 or L) as well as the wall control panel for that zone.

MIC1 will have priority only on zones where the MIC1 priority switch is enabled on the front panel. Zones where the MIC1 priority switch is not enabled, MIC1 will mix the source selected for the zone. The MIC1 level will be controlled by the MIC1 level adjustment knob and the master level adjustment knob.

The MIC1 signal will be sent to any extension Matrix connected to the system.



## 42. MIC1 gain

The MIC1 gain controls the MIC 1 range from 5mV to 300mV.

## 43. MIC1 LF bass

Adjust clockwise to increase or anti-clockwise to decrease the low frequency (bass) contour for the MIC1. Centred at 100Hz (±10dB).

## 44. MIC1 HF treble

Adjust clockwise to increase or anti-clockwise to decrease the high frequency (treble) contour for the MIC1. Centred at 100Hz (±10dB).

## 45. Balanced MIC/LINE inputs

## 46. Balanced input function select



**RS 485 COMMUNICATION PROTOCOL**

## RS 485 Communication Protocol

Baud rate: 57600bps/S parity

Check: Odd parity check

Data 16 bytes

Accumulation: 2nd + 3rd + 4th data byte

## Inquiry Data

The ZM8 sends inquiry data to 2 remote paging consoles, 8 remote wall panels and extension Matrix. The new data will feedback to the Matrix when any new data has been checked. Any extension ZM8 will only enquire to its own 8 remote wall panels.

## Inquiry Data to Paging Console

The ZM8 sends the inquiry data to remote paging consoles in the following format:

AA 10 00 00 AM (accumulation)

AA: data head

10: inquiry to the paging console

00: meaningless

AM: (accumulation: 2nd + 3rd + 4th data byte).

## Feedback Data from Paging Console

The feedback data from the remote paging console to the Matrix after got inquiry and ready for paging format as:

AA 11 Matrix address code zone data AM

AA: data head

11: zone pagong command

## Matrix Address code

01: master matrix

02: extension matrix 1

03: extension matrix 2

04: extension matrix 3

Zone data: the zone data is in 8 bytes

0: no paging

1: paging, ie: binary system

00000011 B: zone 1 and zone 2 paging

0000100 B zone 3 paging

11111111 B: all 8 zone paging

AM: (accumulation: 2nd + 3rd + 4th data byte).

## Status Data to Paging Consoles

After getting paging data from the remote paging console, the Matrix sends zone status data to the paging console in the following format:

hA 1 E Matrix address code zone data AM

AA: data head

1 E: zone status feedback to paging console

Matrix address code:

01: master matrix

02: extension matrix 1

03: extension matrix 2

04: extension matrix 3

Zone data: the zone data is in 8 bytes

0: no paging

1: paging, ie: binary system

00000011 B: zone 1 and zone 2 busy

0000100 B zone 3 busy

11111111 B: all 8 zone busy

AM: (accumulation: 2nd + 3rd + 4th data byte).

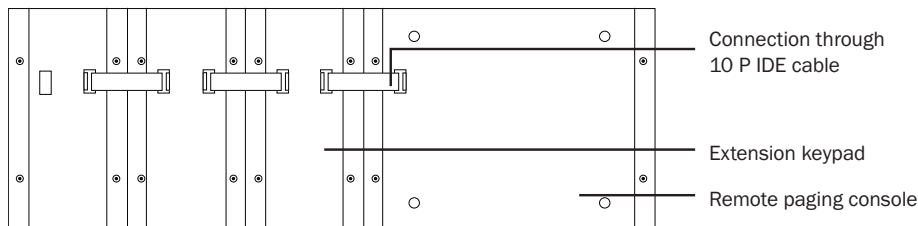
## Connections and settings

### Power Supply

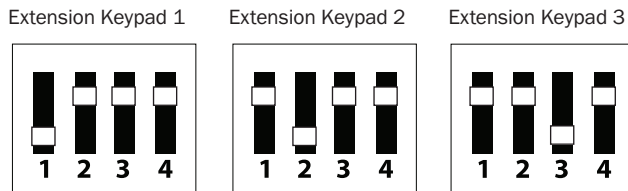
The remote paging console is powered by the Matrix through the RJ45 communication port when the communication distance is less than 50m. An extra DC 24V power input is equipped on the back part of the paging console to supply power when the communication distance is greater than 50m.

### Connection between Remote Paging Console and Extension Keypad

The IDE communication cable is used to provide connection between the remote paging console and the extension keypad as well as between the two extension keypads.



Extension Keypag Dip Switch setting

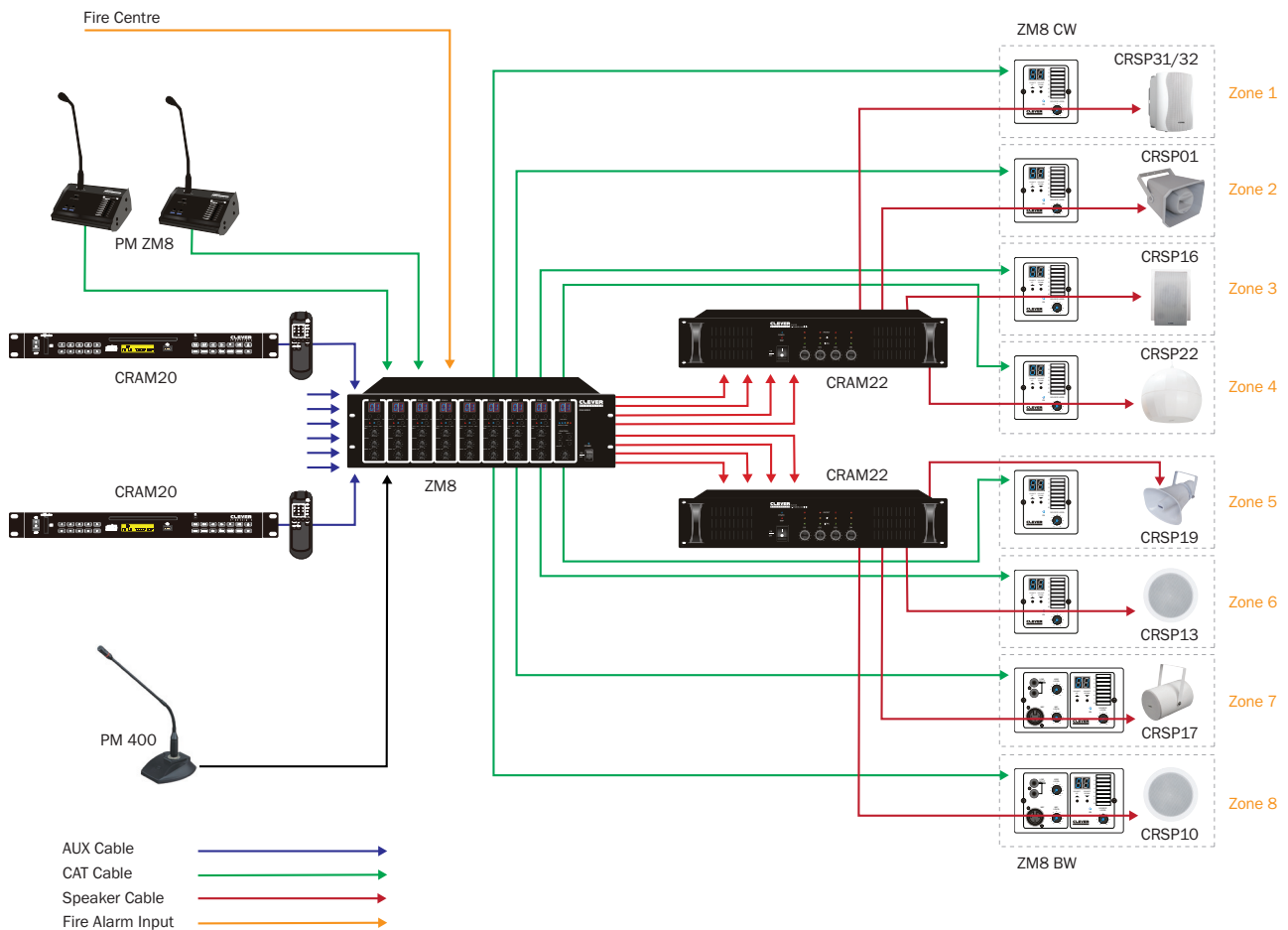


There are 4 address codes on both the remote paging console and the extension keypad which are used to identify these.

### Please Note:

Only one address code switch of each dip switch can be placed in the downward position. If any of the dip switches are set at different addressed to those shown above, the console will not operate.

Extension keypad remote paging console connection is made through the supplied 10P IDE cable. Once either two or three ZM8 PGC extension panels are connected, the operation of paging announcements is the same as described previously for individual zone paging or all call actions.



The ZM8 (CRAM19) is an 8 zone audio matrix and remote paging system which is versatile for multi-music room solutions including homes, fitness centres and hotels. The system is capable of broadcasting to 8 different zones all with different outputs. It is also possible to expand the system to 32 zones using 4 of the ZM8 units. The controller can connect up to 8 remote wall plates and 2 remote paging microphones. The system uses CAT-5 cables for communication control as this helps for an easy and cost effective installation. The unit has a dual voltage 110V-230V and DC 24V operation.

The PM ZM8 (CRMIC07) is a remote 8 zone paging microphone for office admin and reception desk use. The zone paging will not interrupt the other zones on the system.

The PM 400 (CRMIC04) is a condenser microphone is used by firemen/electricians in the control room, which have highest priority announcement in cases of emergency.

The SL 4120 (CRAM22) is a four channel power amplifier with 120W power output per channel.

The ZM8 BW (CRAM19A) is a remote wall plate with AUX/LINE input. The ZM8 CW (CRAM19B) is a remote wall plate. Both of them are used for volume control and source selection, an LED display provides direct visual volume level and source channel. The ZM8 BW/CW is supplied with mounting box.

The BGS 35T (CRSP31/32) are indoor 100V background music loudspeakers featuring ABS enclosures and sturdy metal grilles. Suitable for bookshelf or wall mounting via the adjustable fixing bracket supplied. The trapezoidal design allows for the enclosures to be mounted neatly into corners, making them ideal for installation in bars, cafés, hotels and offices.

The MH 50 (CRSP01) is an ideal paging and sound reinforcement horn loudspeaker for large open, outdoor spaces. Utilising a two-way design the MH 50 delivers a wider frequency range than traditional 100V horn loudspeakers.

A sleek ABS, wall mount cabinet loudspeaker for installation into offices, schools and commercial premises. Utilising a 2-way design the CSW 56 (CRSP16) is designed for background music and voice reinforcement.

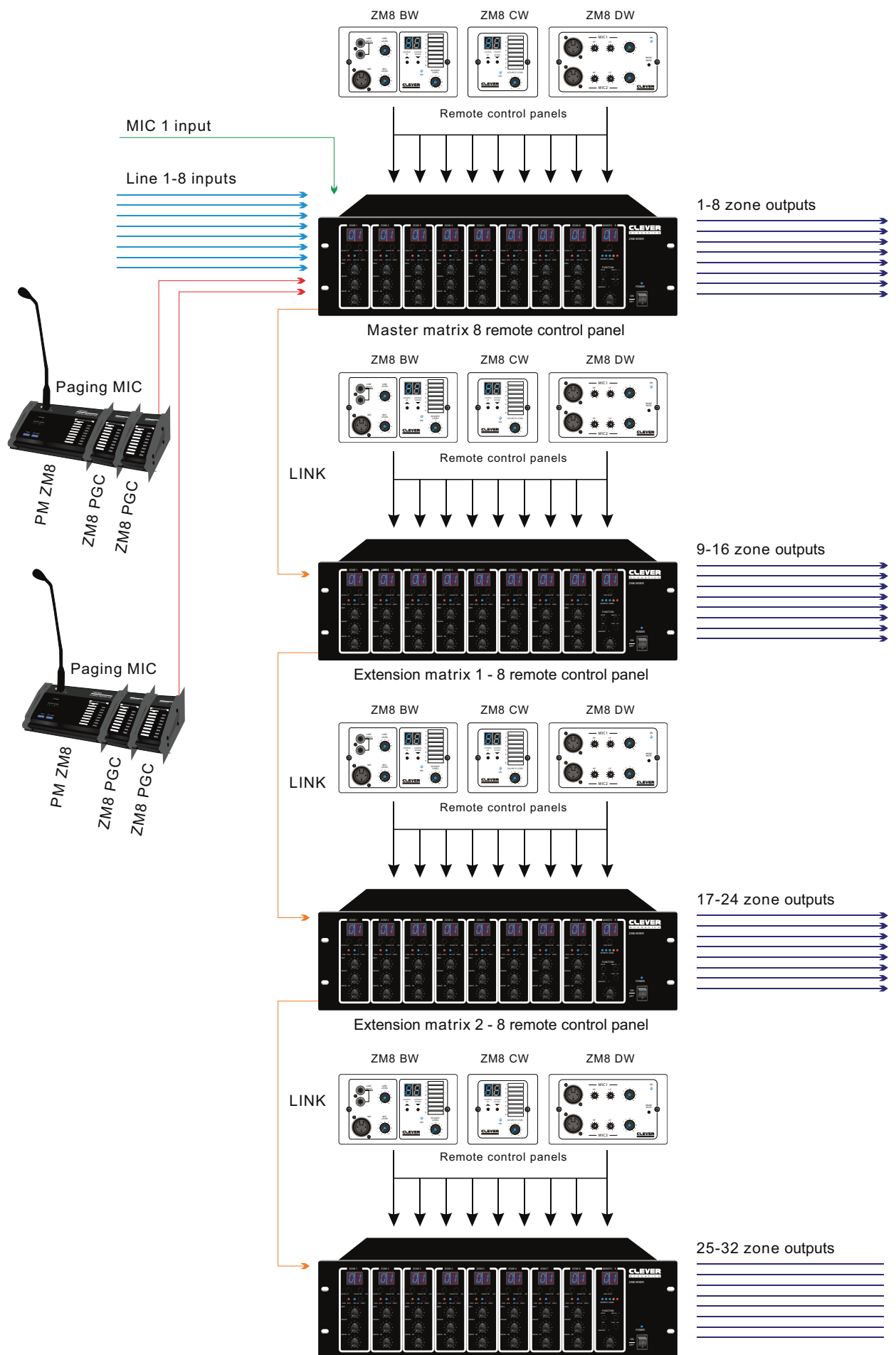
This elegant pendant ball loudspeaker, which is suitable for installation into venues with high ceilings offers full range audio delivered utilising a dual cone woofer. The PDS 615 (CRSP22) loudspeakers are ideally suited for general background music and speech reinforcement in supermarkets and warehouses.

The HS 730 (CRSP19) is a weather resistant horn loudspeaker suitable for paging and voice reinforcement. The high efficient design projects the spoken word or warning tones delivering high intelligibility across its frequency. Featuring ABS construction complete with metal mounting brackets, the sound projectors rugged build quality is ideal for installation into large open venues such as sports venues, car parks and warehouses.

The CS 840 HP (CRSP13) is a high powered ceiling loudspeaker with extended frequency response ideal for playback of music and speech reinforcement where audio quality is important. The CS 840 HP (CRSP13) utilises a coaxial design complete with HF tweeter for crystal clear high tones plus a metal enclosure for enhanced low frequency.

Weather resistant these IP44 rated PS 620 (CRSP17) projector speakers are suitable for paging and background music applications. Featuring an aluminium construction complete with metal grille and mounting brackets, the sound projectors rugged build quality is ideal for installation into public spaces such as sports venues, market halls, and shopping centres.

Cost effective these CS 69LC (CRSP10) loudspeakers offer full range audio delivered utilising a dual cone woofer. The loudspeakers are ideally suited for general background music and speech reinforcement.





***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.

