MZ-SERIES

ZONE AMPLIFIERS

MZ-140D   MZ-280Q

MZ-140Q   MZ-64P

USER MANUAL

CONTENTS

MZ-SERIES OVERVIEW

The MZ Series from HH is a range of high-performance commercial install amplifiers and pre-amplifiers. Providing industry leading audio performance and ultra high power in a compact 1U enclosure. Remote control options are available using a standard CAT5 cable allowing easy installation.

Suitable for a wide variety of applications such as Retail, Restaurants, Conferences, Bars, Houses of Worship and Fitness Centres, or indeed anywhere high quality, multi-zone amplification is required.

FEATURES

- Two or four ZONE install amplifiers.
- Four ZONE line level pre-amplifier.
- Class leading audio performance.
- Ultra reliable, high quality PASCAL amp modules.
- EUROBLOCK input and output connectors, Dual balanced XLR MIC/LINE inputs.
- Independent BASS and TREBLE shelving EQ adjustment on each ZONE.
- Compact 1U design (19" rack mountable).
- Universal 100-240V~ worldwide operation.
- Remote volume control capability via RJ45.

WHAT'S INCLUDED

As well as your MZ device, the box will also contain:

- 2x 1U rack mounting wings.
- 6x CSK M4 10mm machine screws for rack wings.
- EUROBLOCK connector plugs for each header.
- IEC Mains Lead (Country specific).
- User Manual download card and safety warning information.
- Blank Self-adhesive stickers for input and zone identification.

CONTROLS

NOTE: This image is a representation of the MZ-140Q, other models follow a similar layout

1. INPUT LEVELS

Each input allows granular control of the input sensitivity. By default, you should ensure these are all set to the centre position which is unity gain.

- Each input gain control has a range -20dB to +20dB of gain adjustment with 0dB being the centre.
- Each input includes an LED indicator that turns GREEN when a signal is present and RED when the input starts to clip. If you find the RED LED illuminating, reduce the gain control so the RED LED does not light, to avoid distortion.

2. ZONE CONTROLS

Each ZONE has an input source select control, two band EQ, led indicator and volume for that zone.

- **SOURCE** selects which input will play out of the zone from 1-5. If you are using a wall controller ensure you set this to Remote, otherwise the wall controller will not be able to control the source. If you don't want the end user to be able to select a source, you can preset the input here instead.
- **VOLUME** attenuates the power amplifier for that zone. This control sets the absolute power available from the zone. When using a wall controller, its maximum volume will only go to the maximum set here, not full power. This allows you to control relative levels of the zone, and limit actual maximum levels. *See the wall control user guide for more information.*
- **BASS/TREBLE** Two shelving type EQ controls to alter the low and high frequencies for each zone. Typically keep them in the centre to start with. Turning clockwise will increase the relevant frequencies whilst turning anti-clockwise will reduce them.

Note: When the Treble control is set to absolute minimum, the MZ amplifier changes the zone mode to include a Low-Pass filter set to 150Hz. This allows you to connect the zone directly to a subwoofer without needing any external filtering.
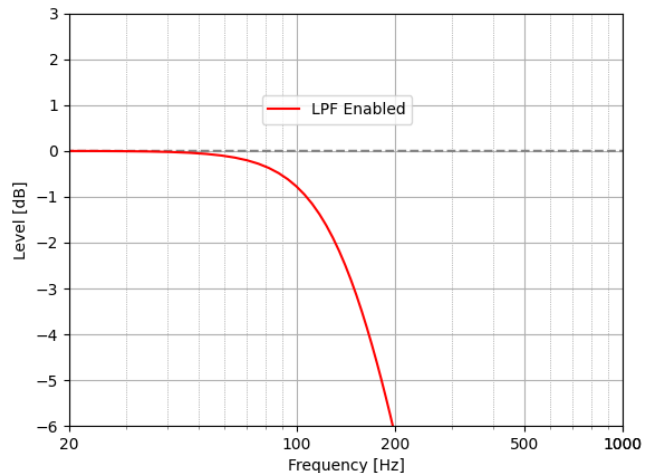
- The bicolour LED near the volume control illuminates GREEN when a signal is present and RED when the onboard limiter is active. Avoid the RED LED being on continuously, but illuminating on peaks is perfectly fine for maximum headroom.
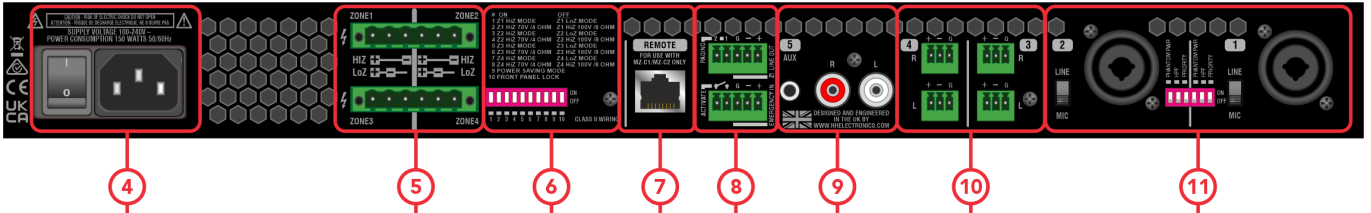
3. **POWER LED**
   - Lights up GREEN to indicate the amp is connected to mains power and switched on via the power switch on the back. Will go off when in power saving mode. See POWER SAVING MODE for more information.
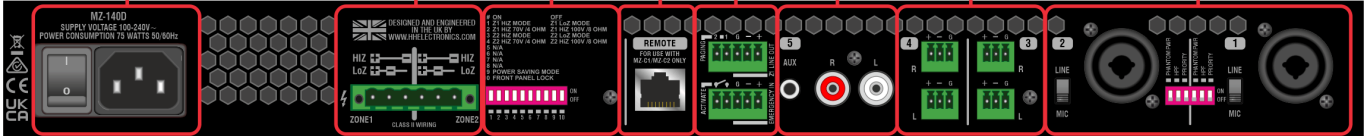
REAR PANEL (MZ-140D/140Q/280Q)

MZ-140Q/280Q

MZ-140D

4. POWER SOCKET

Connect the included IEC power cable here. The MZ series includes a universal AC 100-240V~ 50/60Hz power supply and can be used worldwide without modification. The power switch will isolate the mains power from the unit.

5. ZONE OUTPUTS

5.08mm Euro block connectors are provided to connect to your loudspeakers. There is one six-way connector on the MZ-140D and two connectors on the MZ-140Q and MZ-280Q. Ensure you wire the plugs correctly depending on the ZONE mode. See ZONE OUTPUTS.

6. DIP SWITCH SETTINGS

Use the DIP switches to configure the ZONE output mode, toggle power saving mode and set the front panel lock.

7. REMOTE WALL CONTROLLER SOCKET

RJ45 socket to connect to the first wall controller in the chain. Multiple wall controllers may be connected in series. See WALL CONTROLLER WIRING for more information.

8. EMERGENCY AND LINEOUT SOCKETS

The top connector contains three pins which carry a balanced, post-volume line level signal from ZONE 1 to allow for system expansion. The top connector also contains two pins for manual priority activation. See PAGING/LINE OUT for further details.

The bottom connector contains three pins to connect a balanced audio source along with two normally open pins to activate the emergency override function. See EMERGENCY OVERRIDE for details.
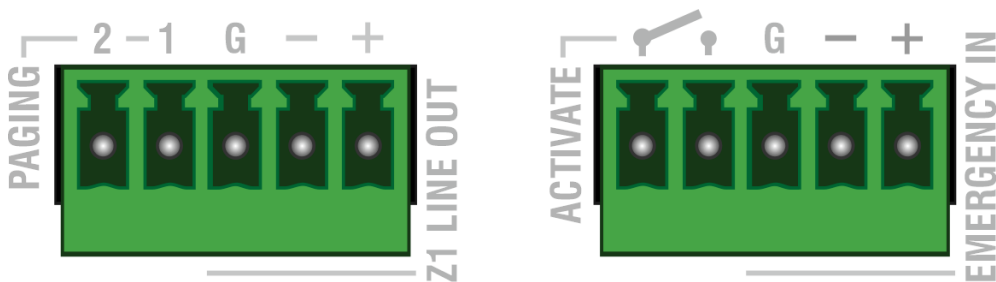
9. INPUT 5

Input 5 consists of a stereo 3.5mm stereo AUX in socket along with a stereo RCA socket. All inputs are summed to mono internally. Don't connect balanced signals here.

10. INPUT 3 & 4

Dual balanced 3.5mm Euro block inputs are provided per input channel to connect to a line level output. Both connectors are summed to mono internally. Use both L+R for stereo sources or either L or R for mono sources. You may also connect unbalanced signals here, typically it is better to use the + and – pins to avoid ground loops but this will depend on your configuration.

11. INPUT 1 AND 2

A balanced combi input is provided on each input. This will accept either a balanced XLR or balanced/mono 6.3mm Jack. Each input is equipped with a MIC/LINE level switch. LINE mode is configured for a 0dBu nominal, and MIC mode adds 40dB of gain. Additionally, 3 DIP switches for each input to enable priority, phantom power, and a high pass filter. See INPUTS 1 AND 2 for more detail.

REAR PANEL (MZ-64P)
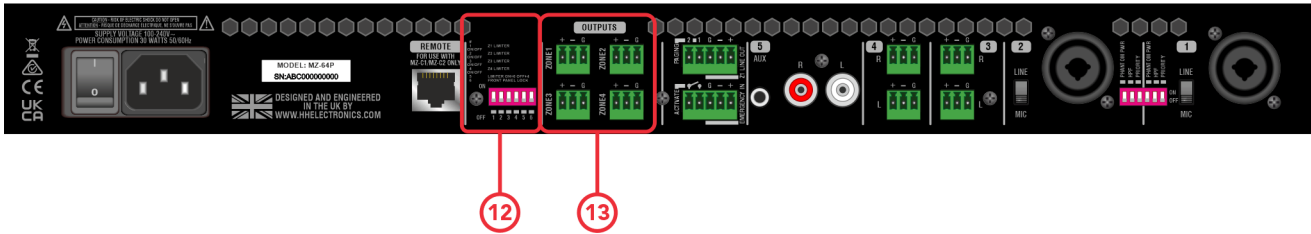
12. DIP SWITCH SETTINGS

The MZ-64P has a limiter for each ZONE that can be toggled on or off here. There are additional settings for the limiter threshold level to match your power amplifiers sensitivity along with power saving mode and front panel lock switches. See LIMITERS and

FRONT PANEL LOCK.

13. ZONE OUTPUTS

Every ZONE output features a balanced line level 3.5mm EUROBLOCK socket. See ZONE OUTPUTS (MZ-64P).

NOTE: All other rear panel controls/inputs are the same as the other models. Refer to REAR PANEL (MZ-140D/140Q/280Q).

INSTALLATION GUIDE

We recommend following the installation procedure below in the order it is written to ensure safe use of your MZ product. Pay attention to any notes or warnings throughout this document to keep your devices protected.

It is advisable to perform a test installation before making any permanent installation measures. Fully wire up all input devices, speaker connections and wall controllers to ensure full functionality beforehand. The following sections will guide you through this.

PRIOR CHECKS

After unboxing your MZ product check it over for any damage that may have occurred in transit.

Plan out which cables are required for each ZONE, as well as the length these will need to be and the routes they will have to take through your space. Also plan out the location of the speakers and wall controllers for each ZONE. Ensure the maximum loading specs are adhered to.

Further guides may be found on the website, including MZ-Series Max Loading documents.

POWER

Your MZ is powered by an IEC power cable and contains a universal 100-240V~, 50-60Hz power supply. Connect the included IEC cable to the MZ amplifier and the other end to a suitable mains source. Don't turn on the MZ until all input and output connections are made.

Once turned on, the front panel LEDs will run through their startup cycle which will take a few seconds, and the power LED on the front will light a solid green to indicate that it's complete.

POWER SAVING MODE

The power amps all have an auto mute feature for each output amplifier. Any ZONE will mute after 20 seconds if it is not receiving a signal on any input (-30dBu or more). Plug in a signal or change the ZONE's source to an input where there is a signal present to unmute automatically.

Additionally, POWER SAVING MODE can be turned on from the back panel. After 10 minutes without any audio signal on any of the 5 inputs, all ZONES will mute and after 25 minutes, the amplifier will enter standby mode, greatly reducing its power consumption.

To exit out of standby and unmute a ZONE, reintroduce an audio signal to any input and the device will wake up. The amplifier will come out of mute condition immediately whereas out of standby will take around 30 seconds. If you need instant on, then it is suggested to leave POWER SAVING MODE turned off.

The POWER SAVING MODE switch can be found next to the HiZ/LoZ switches on the rear panel, turn on switch number 9:
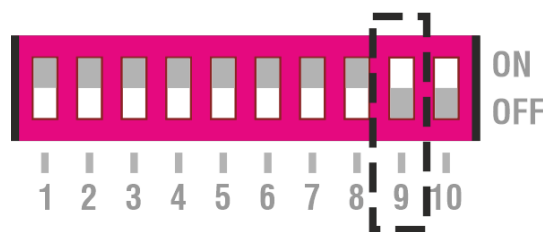
MOUNTING

All MZ series models are designed to fit a 1U rack mount. 2 rack wings are provided along with 6 screws to allow your model to be securely fastened to a shelf. When choosing a location for mounting your amplifier, make sure you are choosing a rack location away from other heat sources, as well as preventing any foreign bodies from entering the chassis. The amplifier must have sufficient airflow, leaving enough room for ventilation and cooling.

For full dimensions of all models see DIMENSIONS

NOTE: Before mounting, easy access to the back panel is useful should any changes to your setup be required.

To rack mount, first remove the two screws on each side highlighted in red on the image below. Then attach the two front brackets with the screws provided and slot your MZ model into the cabinet. Depending on your rack, the two rear side fixings can be used. Depending on your rack, additional rear support may be required.
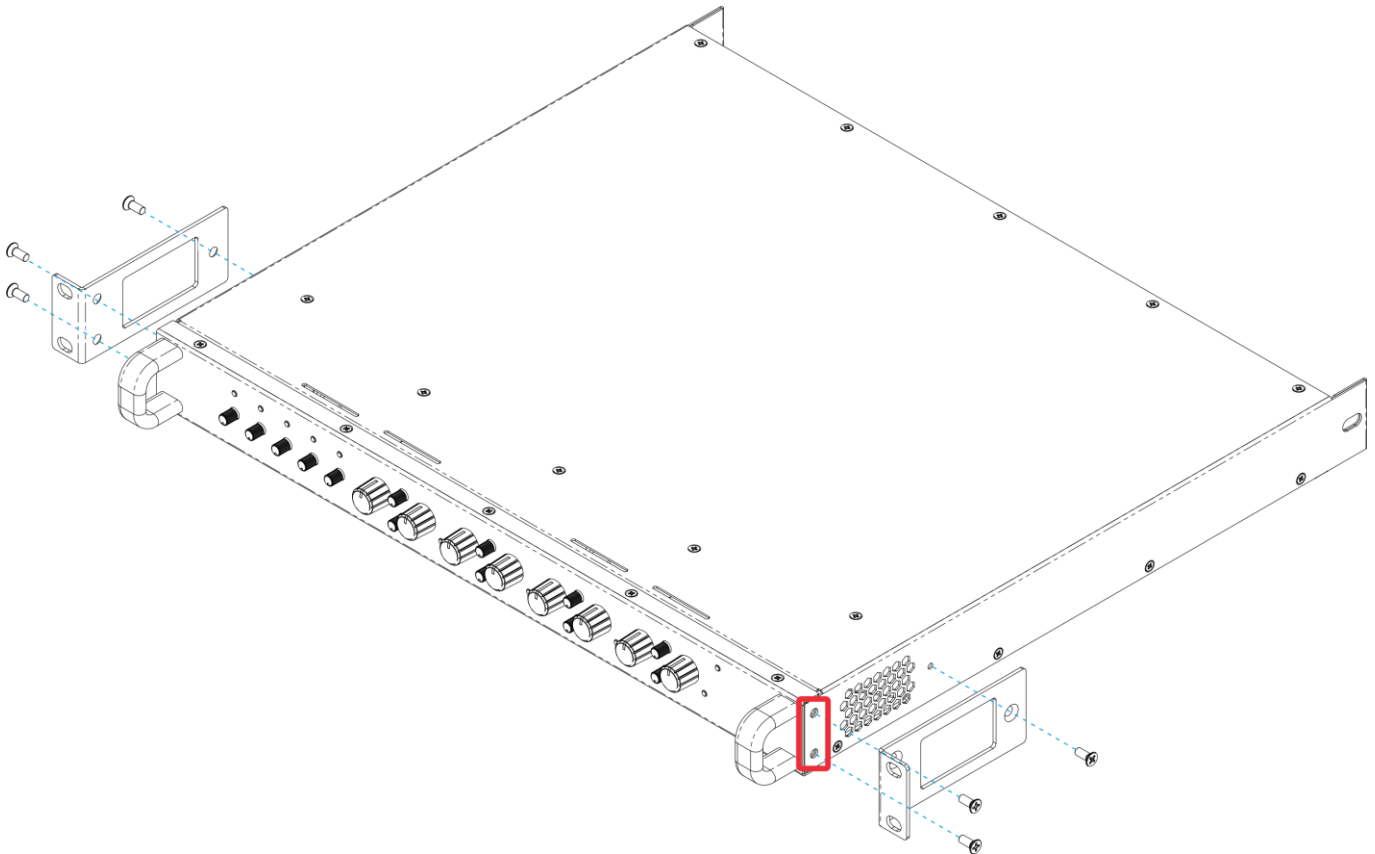
COOLING

The MZ-140D/140Q/280Q all come with inbuilt automatic fan cooling should the amplifiers get too hot during operation. The MZ amplifier sucks air in through the front side mounted vents and expels it from the rear panel.

WARNING: Ensure the amplifier is securely fastened and any air vents on the sides and back are not obstructed in any way.

WIRING

EUROBLOCK WIRING

Follow these steps when wiring up a Euroblock connector. You will need a flathead screwdriver with a 1.2mm or smaller head, as well as wire strippers *(not provided)*.

1. Strip back the insulation using wire strippers, leaving around 7-10mm of exposed cable to allow ample wire to go into the plug. Twist the strands tightly so there are no loose wires.
2. Fully unscrew the plug screws for the pins you will be using.
3. Insert each cable to the correct pin and proceed to tighten the screws for all sockets with wires inside – it is easiest to do one wire at a time. Inputs 3 and 4 wiring used as example below:
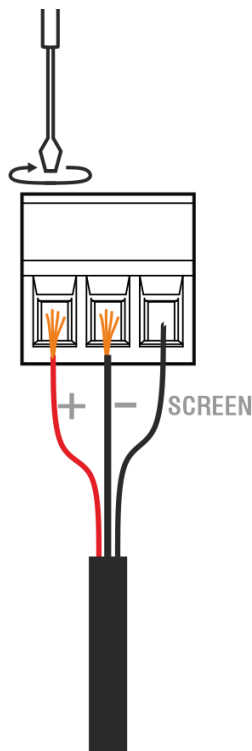
4. Check there are no stray strands of cable sticking out of the connector that could contact one of the other pins.
5. Test each wire is securely fastened by gently tugging on it. Do not perform this step whilst the connector is plugged into the rear panel of the amplifier.
6. Plug in the Euroblock connector to its corresponding socket.
7. For the speaker connectors, you should tighten the two horizontal fixing screws on either side of the plug to ensure it cannot come loose.
8. Ensure the wires aren't too tight nor pulling on the connector, additional support may be required depending on the installation location and type.

Use either single-core or multi-core cables, avoid plating cables with solder as this can lead to unreliable connections. If a plug is to be frequently connected and disconnected a crimped rod terminal with insulation may be preferred.

For **3.5mm** EUROBLOCKS we recommend using wire gauges between 16 - 28AWG (0.14 - 1.5mm^2). For **5.08mm** EUROBLOCKS we recommend using wire gauges between 14 - 24AWG (0.2 - 2.5mm^2). These guides prevent potential loose connections and shorts with cables falling out of pins.
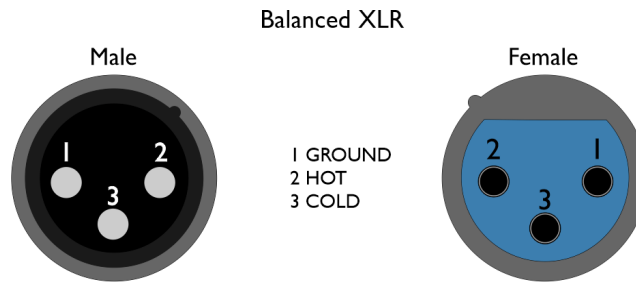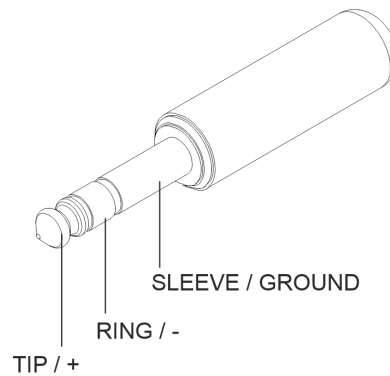
INPUTS

The MZ models have 4 different types of input connectors: EUROBLOCK, RCA, AUX, and XLR. The input cable required will depend upon the device being connected.

INPUTS 1 AND 2

Two combi XLR and 6.3mm jack connectors, typically used with a microphone, mixer, or audio interface. Connect a standard XLR cable or 6.3mm jack from your signal source to input 1 and/or 2. Select the correct sensitivity level for your input (line or mic) and choose the input settings needed from the back panel. XLR sockets are wired pin 1= ground, pin 2 = hot and pin 3 = cold.
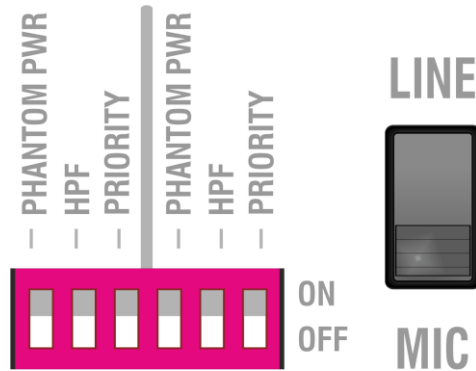
Balanced XLR

Male

Female

1 GROUND
2 HOT
3 COLD

6.3mm jacks are wired: Tip = Hot, Ring = Cold and Sleeve = Ground.

SLEEVE / GROUND

RING / -

TIP / +

INPUT CONFIGURATION

The 2 XLR inputs each have 4 settings per input. It is advisable to set them up prior to start up.

LINE/MIC LEVEL - Changes the input sensitivity depending on the setting. Inputs from an audio interface should use line level (0dBu gain). Switch to MIC if connecting a microphone to add 40dB gain. Typically keep at line level unless the input is a microphone.

PHANTOM POWER - If the microphone you are using requires PHANTOM POWER, the XLR socket comes with a switch to enable 15V phantom power.

HIGH PASS FILTER (HPF) - Use the high pass filter to reduce low frequencies, typically enabled for microphones to reduce vocal plosives and the proximity effect. The roll off frequency is set to 120Hz.
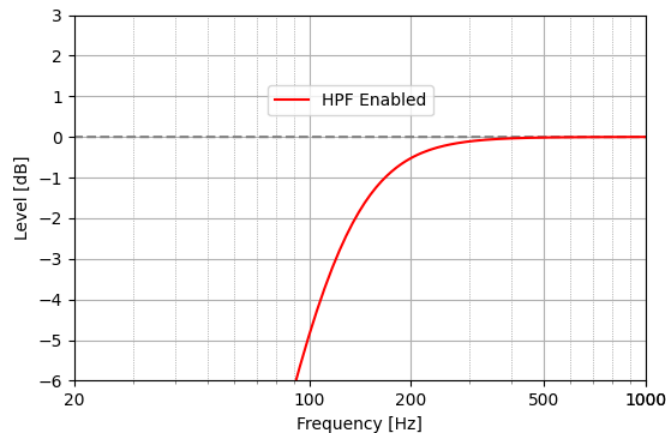

PRIORITY - With this enabled, all other inputs (except emergency) will be ducked by -20dBu and this input will play over them. When both 1 and 2 priorities are on, input 1 will have priority over 2. Also see manual paging detail on PAGING/LINE OUT

INPUTS 3 AND 4

Two sets of balanced EUROBLOCK L/R inputs. If your input is mono, it can be plugged into either port. Your MZ will come with some provided EUROBLOCK male plugs to wire your cable into. Note the order of the pins for each socket when wiring.

For a balanced input, connect the wires to the EUROBLOCK connector Hot = +, Cold = -, Ground = G. Unbalanced signals may be connected using either Signal= + and Ground = - (No ground reference) or Signal = + and Ground = G (With ground reference) Which you use will depend on your equipment and whether you are experiencing any ground loops.
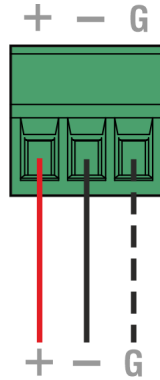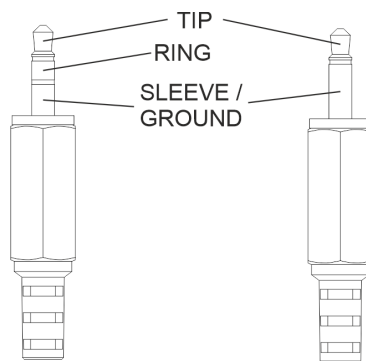
INPUT 5

Stereo RCA input, that can alternatively be used as a mono input if only one socket is used. Also includes a 3.5mm stereo AUX input. All signals are summed to mono internally.
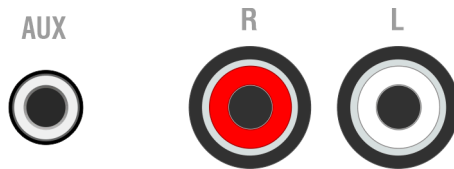
Either stereo or mono unbalanced AUX cables can be used at the AUX input, as shown below:

EMERGENCY OVERRIDE

When the EMERGENCY override switch pins are closed, the amplifier will stop all signals from all inputs and override them with whatever signal is on the emergency in signal pins. The EQ and front panel ZONE volume controls will still be respected to ensure maximum levels are adhered to. However, any wall controller volumes will be set to their maximum level, ensuring the EMERGENCY input is heard at the maximum set volume regardless of mute state.

The EMERGENCY in switch is normally open (NO) and should be shorted to activate the emergency function. To avoid ground loops, this will ideally be closed via a relay on your control device.

A 3.5mm EUROBLOCK connector is used, the EMERGENCY socket should have one switch and one input signal connected. The switch connected to pins 1 and 2 will toggle the override. Pins 3-5 are for the input signal.
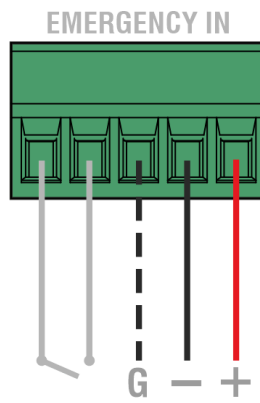
OUTPUTS

ZONE OUTPUTS (140D/140Q/280Q)

MZ amplifiers can drive either LoZ (4 or 8 ohm) or HiZ (70V or 100V) loudspeakers via a 5.08mm EUROBLOCK connector. Each zone will need two connections, positive and negative. Pay attention to which setting your ZONE speakers will use, HiZ or LoZ, as this will affect which pins should be connected (see image below).
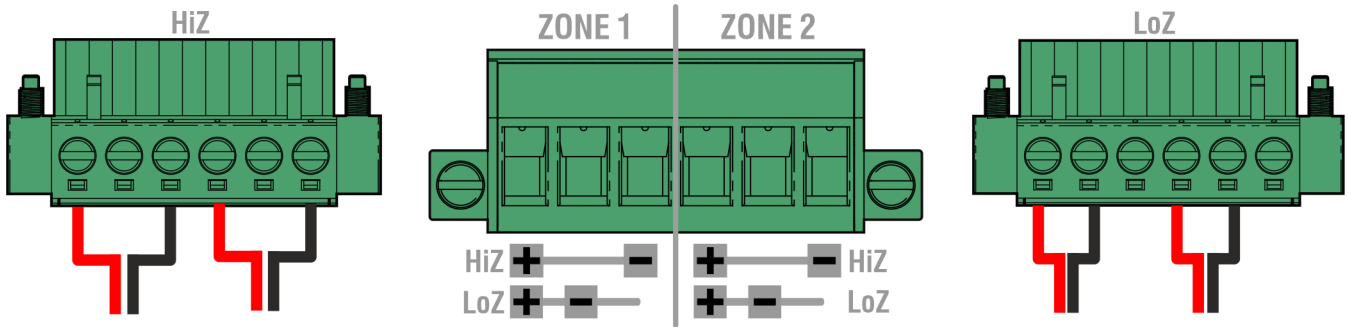
These can be selected by using switches 1, 3, 5 and 7 on the rear panel. Switches 2, 4, 6 and 8 further specifies between 100V or 70V (high impedance) and 4ohm or 8ohm (low impedance).

Check the speakers you are connecting to determine which mode and setting you require.

HiZ MODE

Connect to a 70/100V speaker line, which can be distributed around a large area. The total power consumption of all speakers on the same ZONE output, plus 10% for cable losses, must add up to **less** than the amplifiers output power. For example, an MZ-280Q is rated 240W in 100V mode so you may connect Eleven TNi-C8 loudspeakers running in 100V/20W mode (20W*11 = 220W) allowing a safe margin.

The total number of speakers you can connect on a single ZONE is determined by the power output of the amplifier. See this table for more details on power ratings.

Below shows a parallel connection for high impedance speakers. Each speaker you use will be equipped with a step-down transformer that will determine that speaker's power level.
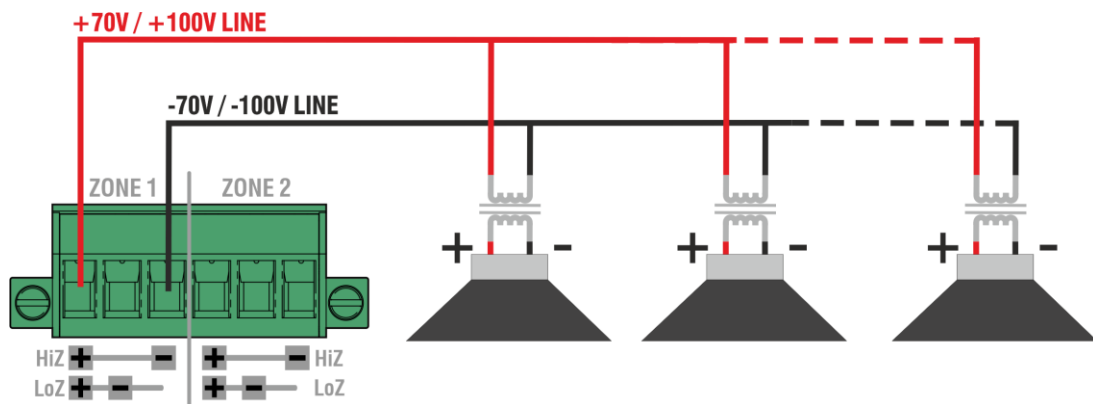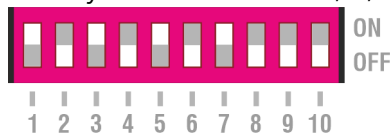

All high impedance settings will have an automatic high pass filter applied at 150Hz

**70V –** Connect to 70V line speaker systems. Switches 1-8 on.
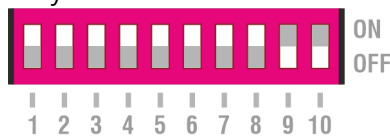
100V – Connect to 100V line speaker systems. Switches 1, 3, 5, 7 on.

LoZ MODE

Make sure to check the combined impedance of all the speakers you are connecting to a zone – this should be equal to the LoZ setting (4 or 8 ohm) that it's set to. If you have multiple low impedance speakers going into the same ZONE, these can either be connected in series or parallel like so:
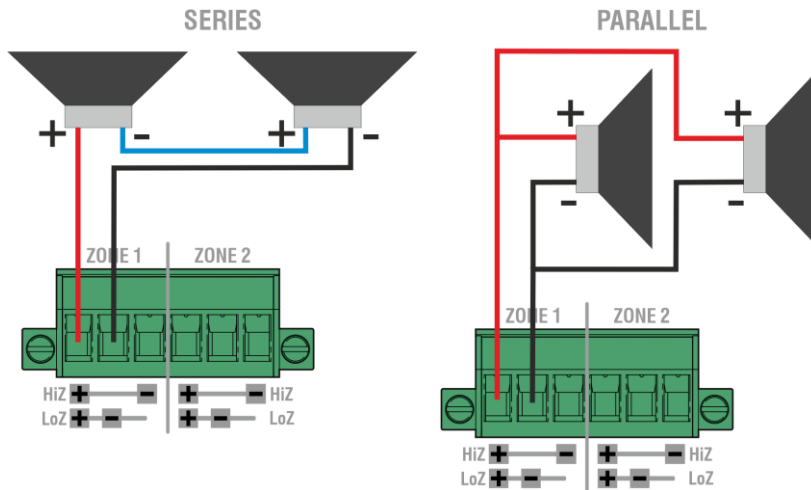

Doing so will affect how the total impedance of that zone should be calculated. For speakers connected in series, simply add the impedances of all speakers together. For speakers connected in parallel, use the following equation:

$$\frac{1}{\frac{1}{Z_1} + \frac{1}{Z_2} + \frac{1}{Z_3} + \frac{1}{Z_n}}$$

Knowing the combined impedance will allow you to choose one of the two LoZ settings:

- **4 Ohm** – Ensure the speaker(s) connected have a collective impedance of 4 ohms. For example, two 8-ohm cabinets in parallel, or one 4-ohm cabinet. Switches 2, 4, 6, 8 on.
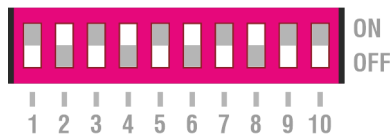
- **8 Ohm** – Ensure the speaker(s) connected have a collective impedance of 8 ohms. For example, two 16-ohm cabinets, or one cabinet of 8-ohm. All switches 1-8 off.
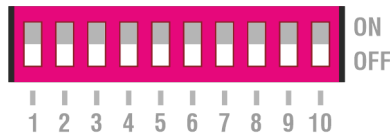
WARNING: When using LoZ mode, the total combined impedance of all speakers on the same ZONE must always be equal to or higher than the LoZ minimum impedance setting.

Do not mix HiZ and LoZ speakers on a single ZONE.

POWER RATINGS

The table below should be used for reference when working out the total power ratings of speakers:

HIZ / LOZ MODE	POWER RATING	
	280Q*	140D/140Q**
4 OHM	280W	95W
8 OHM	245W	140W
70V	250W	140W
100V	240W	120W

250W max when running from a 120V mains voltage

***130W max when running from a 120V mains voltage**

ZONE OUTPUTS (MZ-64P)

Each ZONE on the 64P uses a 3.5mm, balanced 3 pin EUROBLOCK socket. Plug the other end of this into your power amplifier or active speaker.
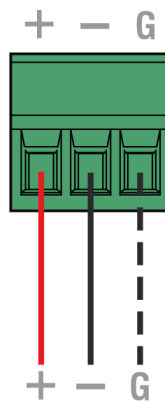
PAGING/LINE OUT

The 3.5mm PAGING/LINE OUT EUROBLOCK connector has two separate functions.

LINEOUT – A balanced line out for ZONE 1 is available on pins 3,4,5. The line out signal is post ZONE 1 volume controls so that it can be used for system expansion, for example connected to further external amplifiers.

MANUAL PAGING – Pins 1 and 2 are used to enable manual paging for inputs 1 and 2. To enable manual paging for input 1, pins 1 and 3 (Ground) should be connected. To enable manual paging for input 2, pins 2 and 3 should be connected. Typically, this connection will be made using a switch inside your paging microphone. The ground pin (3) is shared for both manual PAGING and LINE OUT functions. When manual paging is enabled, all other inputs are muted (as opposed to ducked with auto muting). Paging for input 1 always takes priority over input 2.
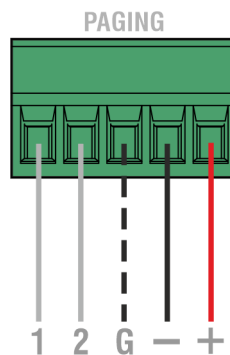
WALL CONTROLLER WIRING

To connect MZ-C2 wall controllers, use any standard Cat5 or higher cable with RJ45 connector (not provided), connecting one end to the remote socket on the back of your amplifier, and the other into the input of the wall controller.

A single controller can control up to 4 zones set via the DIP switch on the back, with more than one controller able to control the same zone.

NOTE: Make sure the controller has its control ZONE set before connecting to the amplifier.

Multiple controllers can be connected in a daisy chain via other RJ45s to allow the controlling of each zone via one or multiple controllers.

NOTE: Only use the HH range of wall controllers with your MZ amplifier. Full details may be found in the MZ-C2 user manual, available on the HH website.

EU wall controllers should be placed in standard square pattress boxes. The front plate has dimensions 86 x 86mm and requires at least a 36mm depth box.

US controllers fit a standard US junction box. The front plate has dimensions 70 x 114mm and typically uses a standard 48mm depth box.
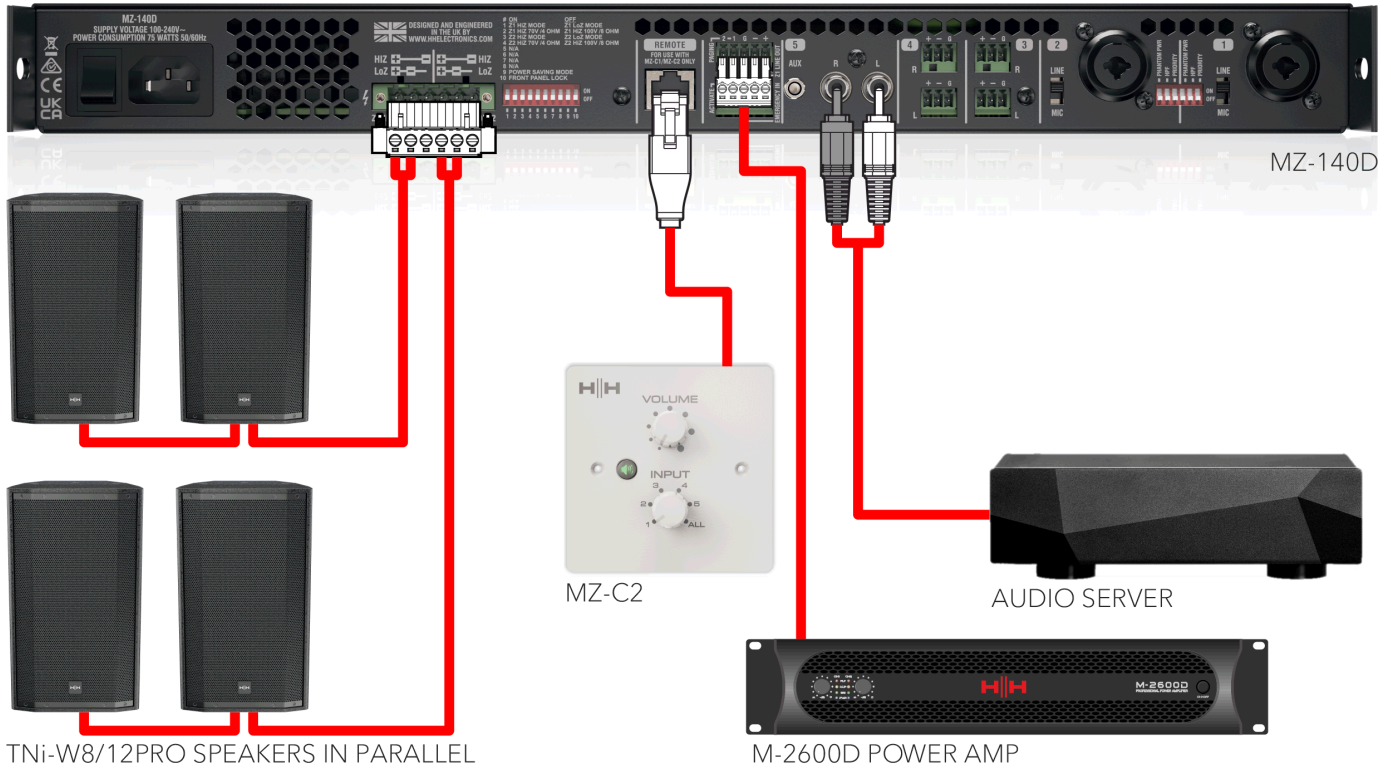
Full details are available in the MZ Series wall controller user manual available on the website.

EXAMPLE CONNECTIONS

EXAMPLE 1

DUAL 8 OHM SPEAKERS OR 4 OHM LOAD PER CHANNEL

MZ-140D

MZ-C2

AUDIO SERVER

TNi-W8/12PRO SPEAKERS IN PARALLEL

M-2600D POWER AMP

In this example, the MZ-140D is used to power 2 ZONEs, each consisting of 2 TNi-W8/12PRO speakers at the low impedance 4ohm setting (two 8ohm speakers in parallel). The input comes from an audio server plugged in via 2 RCA cables to input 5, with an MZ-C2 wall controller connected via a standard CAT5e cable and set to control both zones.

From the line out, an M-2600D power amplifier can be connected to extend the system. Further speakers can be connected to this such as a TNA-1800S passive subwoofer.

The DIP switch settings for the above example would be as follows:
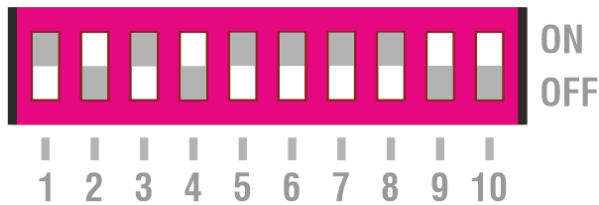
ZONES 1 and 2 in 4ohm mode and POWER SAVING MODE / FRONT PANEL LOCK both on.

EXAMPLE 2

A SERIES OF 70V OR 100V HIGH IMPEDANCE SPEAKERS WITH INTERNAL TRANSFORMERS

MZ-140D

ZONE 1

ZONE 2

MZ-C2

MZ-C2

AUDIO SERVER

FIRE ALARM   FIRE SYSTEM
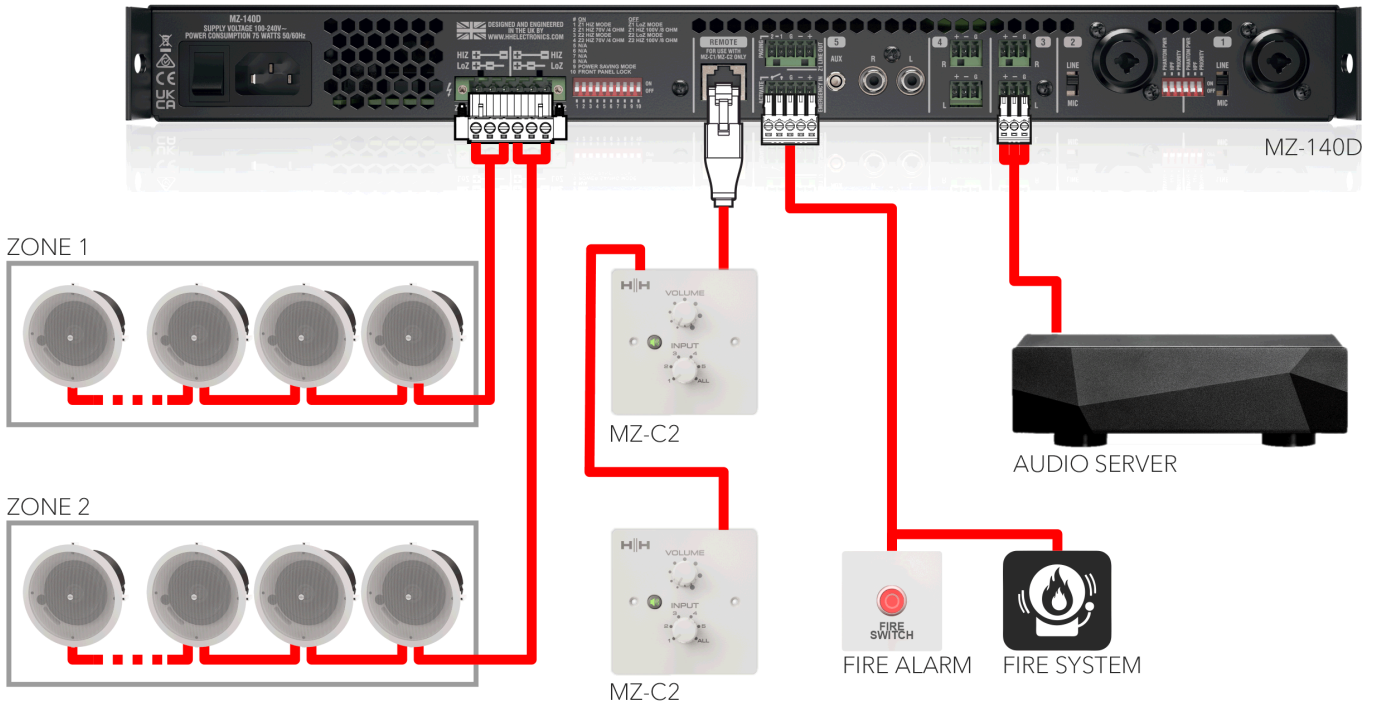
In this example, both ZONEs are connected to high impedance ceiling speakers from the HH TNi-C series. Two wall controllers are connected in daisy chain formation, one to control each ZONE and a fire alarm switch/alarm system are both plugged into the EMERGENCY input.

The DIP switch settings for the above example would be as follows:
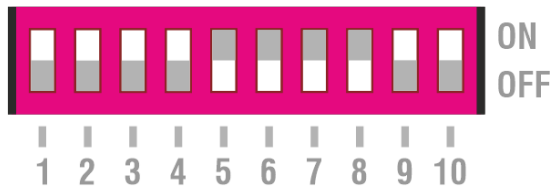
ZONES 1 and 2 in HiZ 70V (can also be 100V depending on speaker transformers) mode, and POWER SAVING MODE / FRONT PANE LOCK switched on.

EXAMPLE 3

MIXED 70/100V AND LOW IMPEDANCE SPEAKERS ZONES

MZ-140D

TNi-W SERIES
SATELLITE

MZ-C2

MICROPHONE WITH
PRIORITY

TNA-1200S G2
SUBWOOFER

AUDIO SERVER
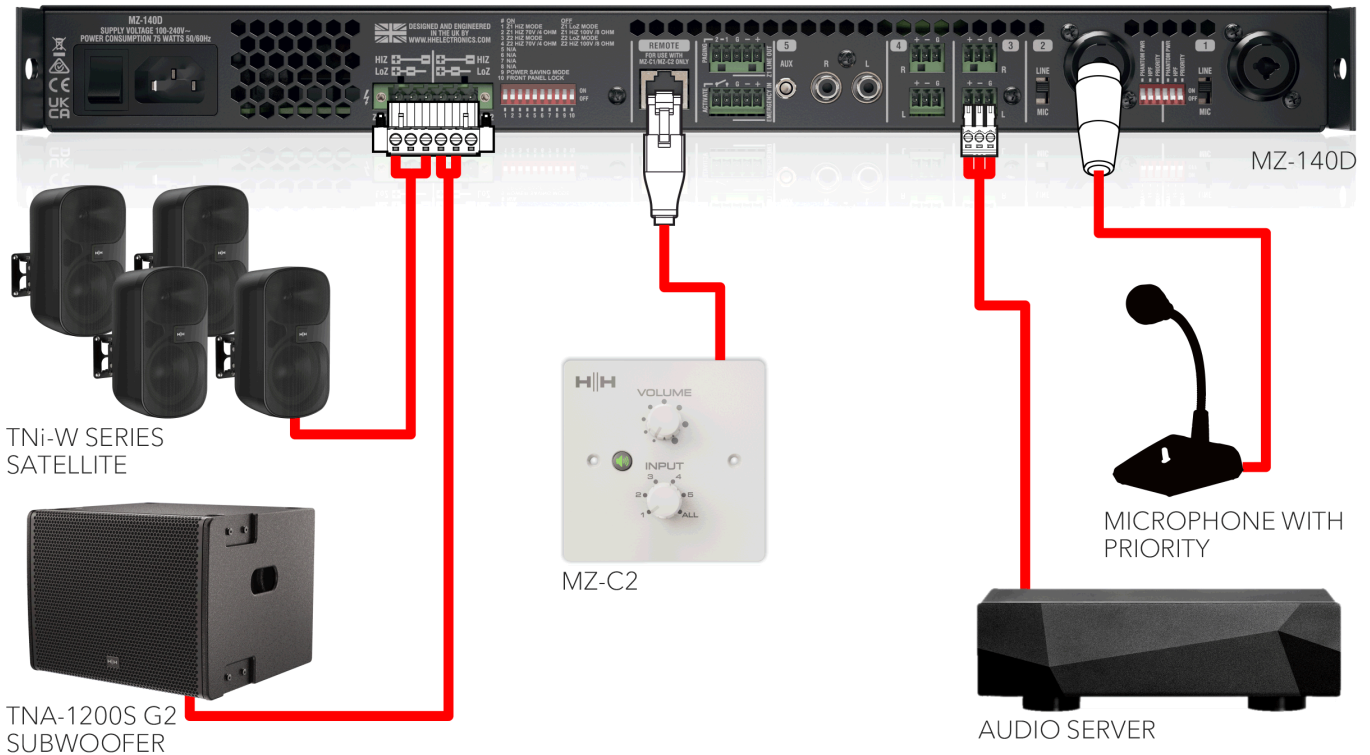
Here the MZ-140D is used for a two-ZONE setup this time with a TNA-1200S subwoofer connected to LoZ and the TNi-W series to HiZ. ZONE 2 is configured with in high pass filter to enable the sub to be used without additional filtering. An additional microphone is plugged into XLR channel 2, where the priority can be turned on to automatically duck the other inputs when used.

The DIP switch settings for the above example would be as follows:

ON
OFF

1 2 3 4 5 6 7 8 9 10
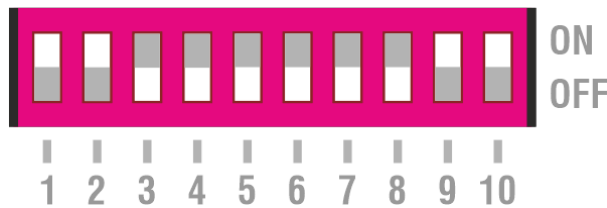
ZONE 1 in HiZ 70V mode (can also be 100V depending on speaker transformers), and ZONE 2 in LoZ 8ohm mode. POWER SAVING MODE and FRONT PANEL LOCK healing.

SOURCE   TREBLE   VOLUME

BASS

REMOTE

LIMIT
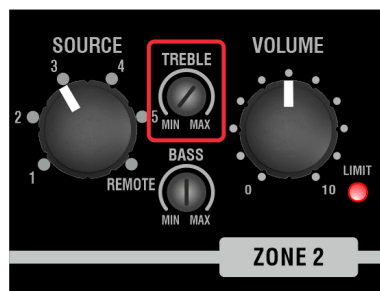
ZONE 2

For ZONE 2 connected to the sub, turn the TREBLE all the way down to minimum to enable the LOW PASS FILTER mode.

OPERATION

TEST STARTUP

Once all inputs and outputs are wired correctly and plugged into the ZONE amp, an initial test run should be carried out.

When first powering up your amplifier follow these steps:

1. Check all back panel settings are correct to your setup.
2. ZONE volumes are all turned to minimum.
3. Input gains are centred at 12 o'clock.
4. Make sure all your connected input sources are at an appropriate level.
5. If using Wall controllers, ensure the ZONES are selected correctly and they are plugged in. For testing set the volume to maximum
6. Check all ZONES are set to the right input source, via either the front panel or wall controller.
7. Power up the amplifier from the back – the front panel LEDs will perform their start up routine and the power light on the far right of the front board will light GREEN. The Wall controllers front panel light will illuminate.
8. Check input signal lights turn GREEN (flashing is ok) where an input is present – if the LED is not GREEN try turning up the input gain slowly until it lights up. If the LED is RED turn down the gain until it turns GREEN. A comfortable amount of headroom before the signal starts clipping is recommended.
9. Turn up each ZONE VOLUME one at a time until they are each at a suitable level out of your speakers. The front panel volume controls the maximum available volume.
10. If a ZONE is at max volume and needs to be louder gradually turn up the input gain or the volume of the input signal itself if it is too low. Avoid the input LEDs turning RED as this indicates clipping the front end.
11. Check all paging/emergency switches override the ZONES correctly and that these signals are a suitable level.

NOTE: If any changes need to be made to the wiring or rear panel settings, power off the device first before unplugging any cables.

Once the test startup is complete and you are happy with the levels and connections of all the speakers, ensure all speakers and wall controllers are correctly installed and once again perform a full test of operation.

LIMITERS

MZ series contains comprehensive signal monitoring and limiters to ensure you get the best sound.

Should the ZONE LIMIT LED go RED, it means the internal power amplifier limiter has switched on for that ZONE. Momentarily this is perfectly fine, however if the LED stays RED for long periods you should turn down the ZONE volume.

MZ-140D/140Q/280Q

Each ZONE individually has an automatic limiter that differs based on the HiZ or LoZ setting. These limiters are preset in the ORIGIN DSP. Each ZONE has a peak limiter to prevent sudden large audio spikes as well as an RMS limiter for continuous long term signal levels.

MZ-64P

The 64P back panel has a DIP switch for controlling the limiters for each ZONE individually as well as the FRONT PANEL LOCK. Switches 1-4 toggle the limiter on/off for ZONEs 1-4 respectively and switch 5 globally toggles the limiters threshold between 0dBu on and +4dBu when off for RMS (or +6dBu on, +10dBu when off for peaks levels).

```
#
1 Z1 LIMITER    ON/OFF
2 Z2 LIMITER    ON/OFF
3 Z3 LIMITER    ON/OFF
4 Z4 LIMITER    ON/OFF
5 LIMITER ON=0 OFF+4
6 FRONT PANEL LOCK
```
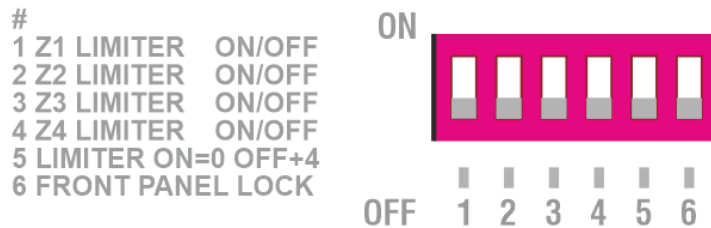
FRONT PANEL LOCK

With this setting turned on, the current settings on the front panel are saved and then none of the controls on the front panel will be active. All VOLUME, GAIN, SOURCE and EQ knobs will have no effect on the output of each zone. The only way to override this setting is to turn it off again from the back panel switch.

NOTE: When turning off this setting, the current front panel controls are not refreshed to the active position. They are only updated when they are next moved. This allows you to increase one level without worrying that the controls may have been moved since last locking the panel.

When setting up your MZ amplifier, it is recommended you turn this setting on once THE GAINS, VOLUMES and SOURCES are set, to stop accidental changes to the levels and then to use Wall controllers for user changes.

Both the POWER SAVING MODE and FRONT PANEL LOCK switches can be found on the rear panel DIP switch, beside the HiZ/LoZ switches:
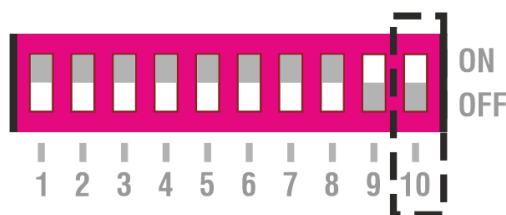
TROUBLESHOOTING

If reading through this manual doesn't solve any problems you may have, here are some common issues that could occur if the MZ is not setup properly.

Signal Present light not coming on or flashing:

- Check input signal is at a high enough level first, anything below -30dBu is likely too quiet.
- Input gain may be too low to trigger the LED (you may still be able to hear signal from your speakers).
- Check it is plugged into the correct input and source set correctly.
- If flashing, the gain is likely at the exact level that triggers the LED, meaning the signal will be constantly going above and below this. This is not an issue but turn the gain up a little and the LED should be a solid green to achieve the best headroom.

No output from speakers:

- Turn off front panel lock and check the volume/gain levels are high enough.
- Check any wall controllers for that zone aren't muted or on minimum volume.
- If using input 1 or 2, check you are on the correct setting for line or microphone level.

Microphone paging not working:

- Check the wires from the switch are connected to the right pins in the EUROBLOCK connector.
- Check you are paging the correct input the microphone is connected to (input 1 or input 2?).
- Check you have connected the correct wires on the microphone itself, consult the datasheet for your chosen microphone to make sure.
- Does your chosen microphone require power? If so the phantom power switch for the corresponding input must be turned on via the back panel.

Wall controller source select not switching:

- Check front panel lock is off and then that zone is set to "REMOTE". You can wedlock the panel after setting.
- Check wall controller DIP switch is set for the right zone (this should be changed with the MZ powered down as it is only monitored on power up).

General points to check:

- The front panel lock can easily be left on accidentally when trying to make changes – nothing on the front panel will have any effect with this setting on.
- Check the emergency override or paging switches aren't left on as this could mute all the zones.
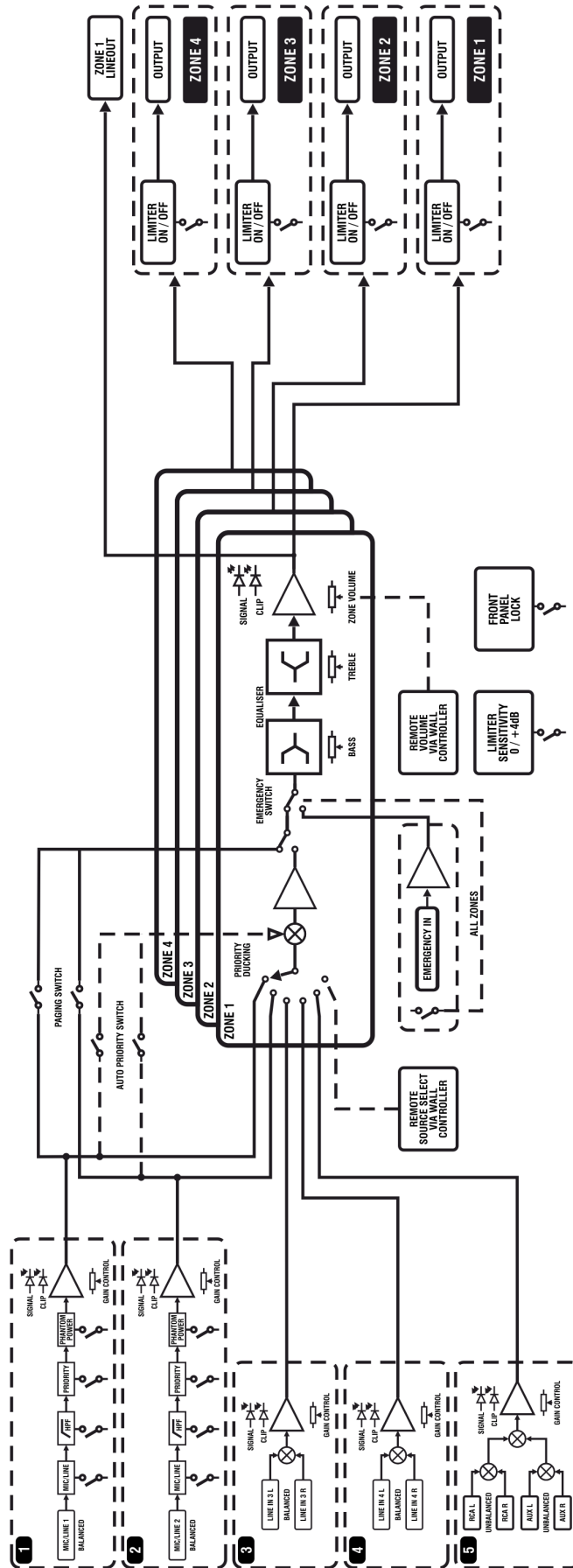
SPECIFICATIONS

| Model	MZ-140D	MZ-140Q	MZ-280Q	MZ-64P
System type	*Zone Power Amplifier with Input Routing*			*Zone Pre-Amplifier with Input Routing*
Specifications				
Input Channels	*5*			
Output Channels	*2*		*4*	
Power Per Output Channel	*140W*		*280W*	*N/A*
Output Limiter	*Yes*			*Yes (0dBu/+4dBu/Off)*
Frequency response	*20-20KHz ±0.1dBu (LoZ Mode) 80-20KHz ±0.1dBu (HiZ Mode)*			*20-20KHz ±0.1dBu*
Configurable Routing	*Yes*			
Priority Muting	*Yes (Auto and Manual CH1/2)*			
Fire System Integration	*Yes*			
Input Channel 1 & 2	*Balanced XLR & 6.3mm Jack Combi Socket. Mic/line modes, Auto Priority (ducks the other channels by 20dBu) and 120Hz High pass Filter*			
Phantom Power	*+15VDC*			
Input 3 & 4	*L & R balanced 3.5mm EUROBLOCK inputs per channel*			
Input 5	*3.5mm stereo aux in and stereo RCA socket.*			
Emergency Input System Override	*Balanced 3.5mm EUROBLOCK connector for integration with fire systems, overriding the normal inputs and master volume controls.*			
Input Sensitivity CH1 & 2	*Mic 40dBu, Line 0dBu Nominal, ±20dBu with Input gain sensitivity adjustment.*			
Input Sensitivity CH3/4/5	*0dBu Nominal, ±20dBu with Input gain sensitivity adjustment.*			
Input Sensitivity Emergency In	*0dBu Nominal*			
Maximum Outputs (Line levels)	*+21dBu*			
Input Impedance	*Mic Input: 220Ω, Line In: 20KΩ, Aux In: 10KΩ*			
THD+N	*< 0.001%*			*< 0.008%*
Crosstalk	*< -95dB*			*< -105dB*
Noise Floor (A-weighted)	*< -70dBu (unmuted), < -110dBu (muted)*			*< -90dBu*
SNR (A-weighted)	*>110dB*			
Cooling	*Thermally controlled 40x20mm Low noise brushless dual bearing fans for reliable performance in high ambient temperatures.*			*Fanless Design*
Output Connectors (Amplifier)	*5.08mm EUROBLOCK connectors per Zone*			
Output Connectors (Other)	*Balanced 3.5mm EUROBLOCK Connector, follows Zone 1 Volume (For System Expansion)*			
Controls	*All inputs feature front panel mounted input sensitivity gain controls with signal detect and peak level indicators. Each input contains gain level controls, each zone contains Source select, Bass, Treble and master volume controls. Rear panel includes front panel lock and zone amplifier mode options*			
EQ	*Bass 250Hz Shelving Control, ±12dB per zone. Treble 2kHz Shelving Control, ±12dB per zone, Low pass filter setting*			
Indicators	*Power/Standby, all channels feature signal present and peak LEDs, Zone outputs feature power amp clip LEDs*			
AC Power	*Universal AC 100-240V~ 50/60HZ*			
Power Consumption	*17W Idle, 150W Typical, 200W Max, 0.4W Standby*	*27W Idle, 300W Typical, 450W Max, 0.4W Standby*	*30W Idle, 300W Typical, 650W Max, 0.2W Standby*	*Typical <8W, Maximum < 30W*
Standby Modes	*Individual channel standby and power saving mode, both with signal override. Energy star & ErP 1275/2008/EC Compliant*			*N/A*
Dimensions				
Unit dimensions (HWD)	*44 x 483 x 417 mm, (1.7" x 19" x 16.4")*			*44 x 483 x 198 mm, (1.7" x 19" x 7.8")*
Net Weight	*3.9Kg, 8.6 lbs*	*4.5Kg, 9.9 lbs*	*4.9Kg, 10.8 lbs*	*2.3Kg, 5.1 lbs*
Carton dimensions (HWD)	*150 x 630 x 510 mm, (5.9" x 24.8" x 20.1")*			*150 x 630 x 290 mm, (5.9" x 24.8" x 11.4")*
Gross Weight	*6.6Kg, 14.6 lbs*	*7.1Kg, 15.7 lbs*	*7.6Kg, 16.8 lbs*	*3.8Kg, 8.4 lbs*
Accessories	*Rack Mounting Kit included. 4x 3.5mm 3 way, 2x 3.5mm 5 way, 1x 5.08mm 6-way Euro Plugs included*			
	Optional MZ-C2 wall controllers			
EAN13	*5060109458237*	*5060109458343*	*5060109458244*	*5060109458251*

BLOCK DIAGRAM (64P)

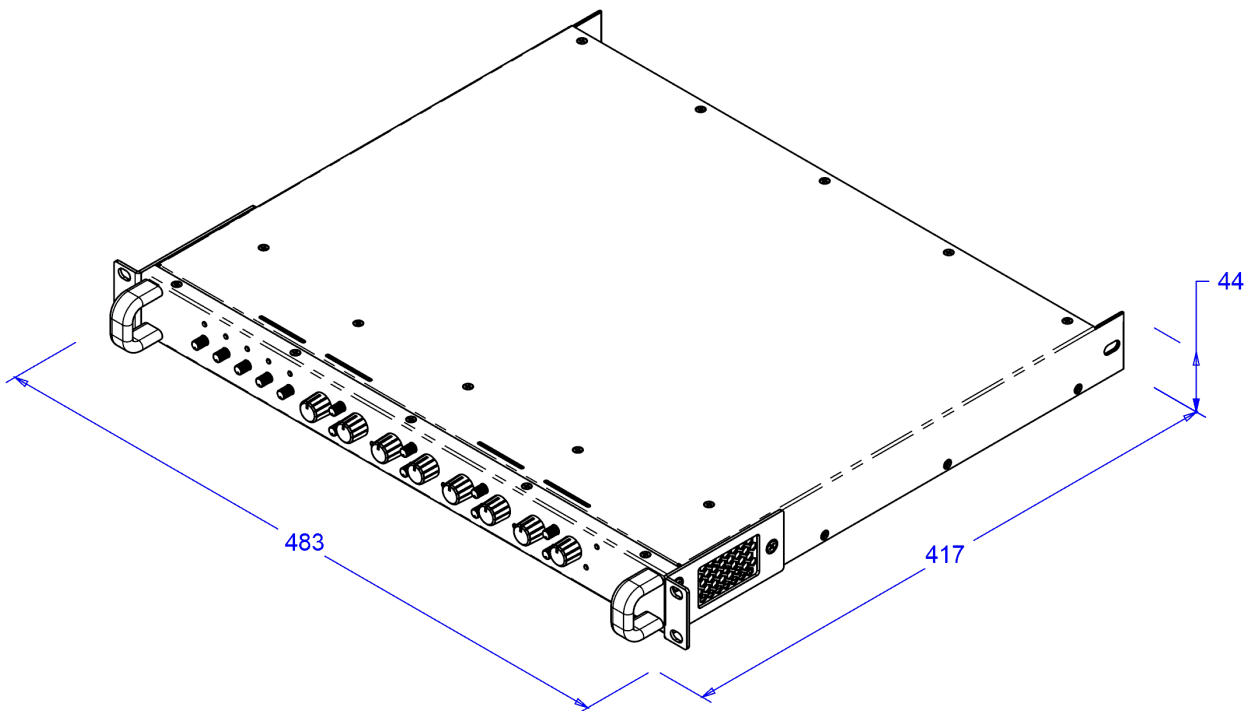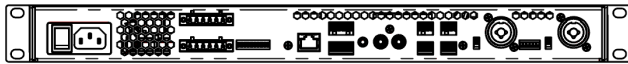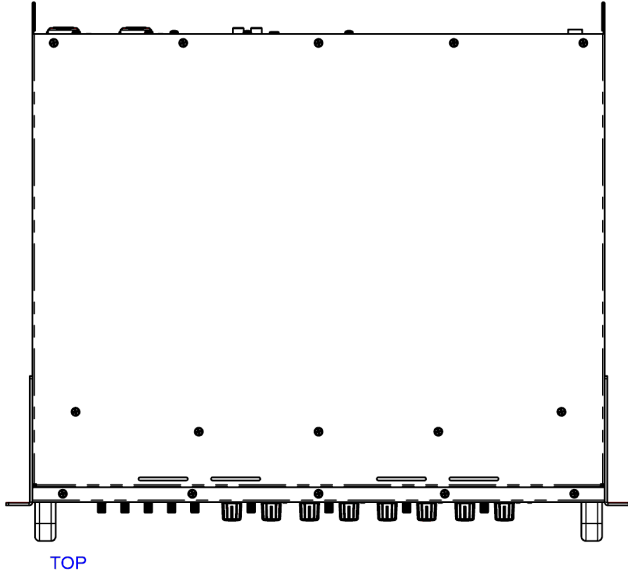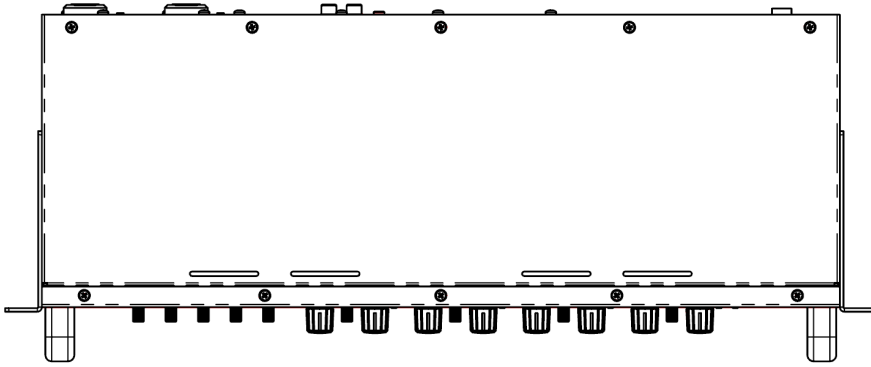# BLOCK DIAGRAM (280Q)

MZ-280Q block diagram shown. 140D/140Q models follow a similar layout
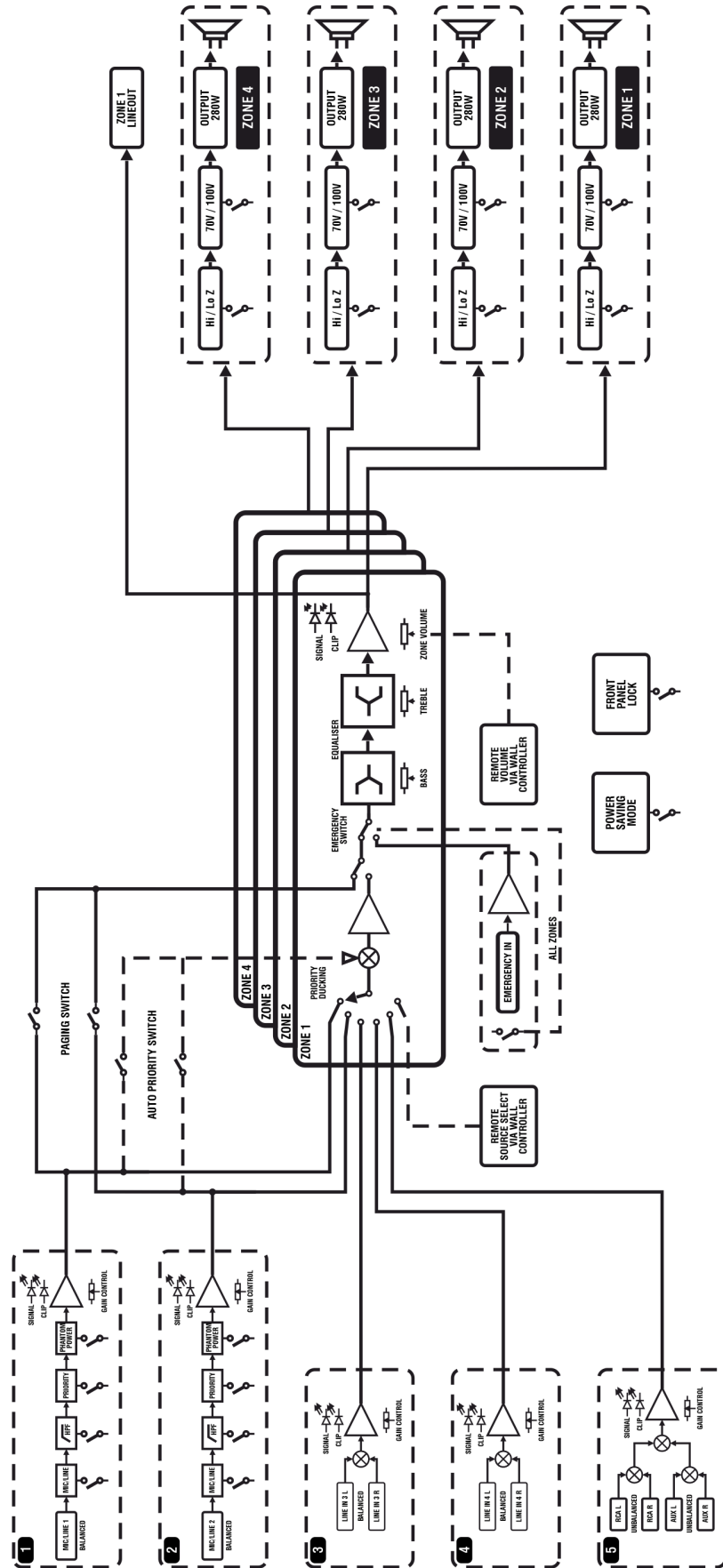
DIMENSIONS

MZ-140D/140Q/280Q

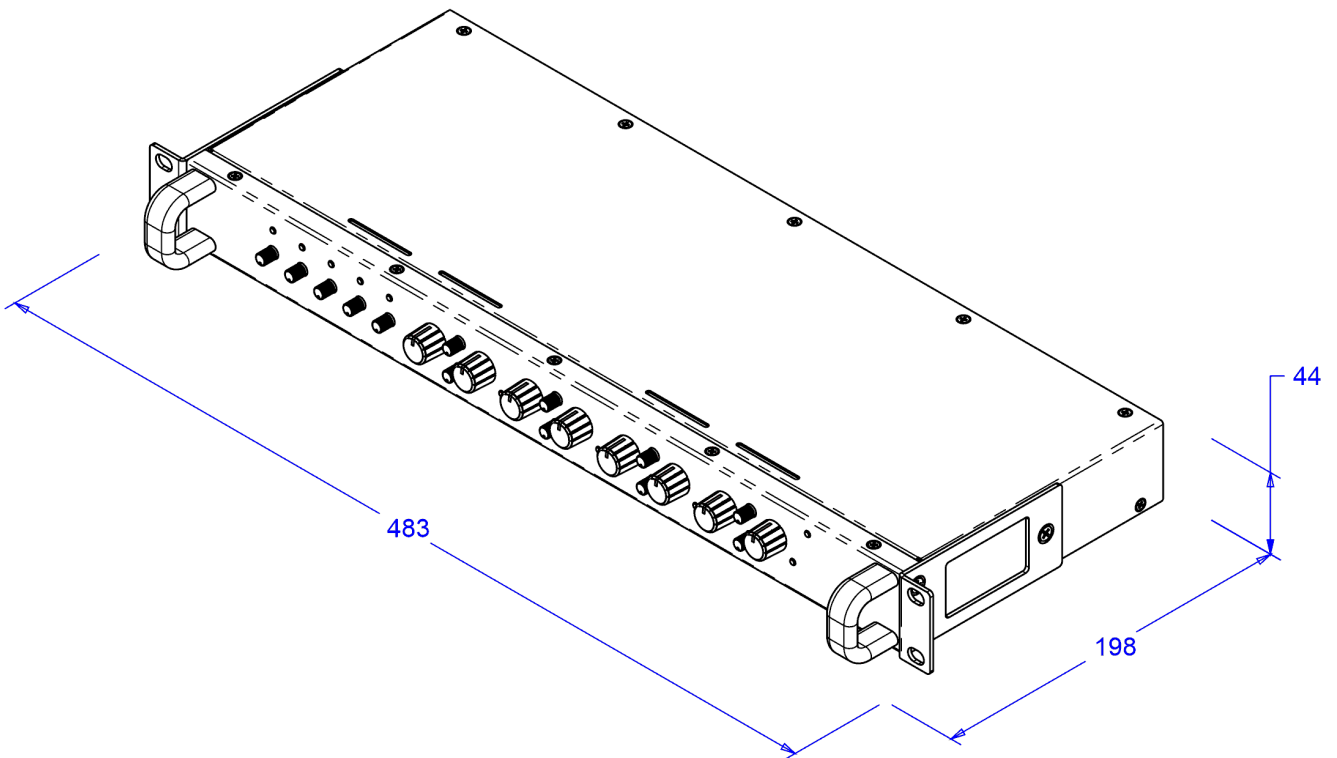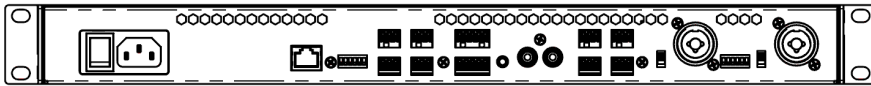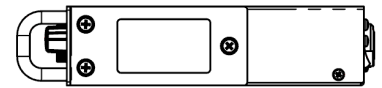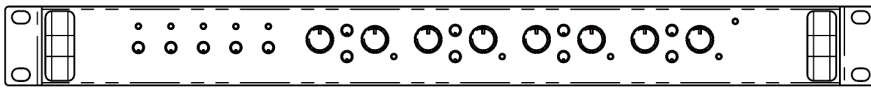*Note: All dimensions shown are in millimetres.*

TOP

483

417

44

MZ-64P

TOP

483

44

198

SAFETY AND WARNINGS

To take full advantage of your new product and enjoy long and trouble-free performance, please read this owner's manual carefully, and keep it in a safe place for future reference.

1) Unpacking: On unpacking your product, please check carefully for any signs of damage that may have occurred whilst in transit from the Laney factory to your dealer. In the unlikely event that there has been damage, please re-pack your unit in its original carton and consult your dealer. We strongly advise you to keep your original transit carton, since in the unlikely event that your unit should develop a fault, you will be able to return it to you dealer for rectification securely packed.

2) Amplifier Connection: To avoid damage, generally it is advisable to establish and follow a pattern for turning on and off your system. With all system parts connected, turn on source equipment, mixers, effects processors etc, BEFORE turning on your amplifier. Many products have large transient surges at turn on and off which can cause damage to your speakers. By turning on your amplifier LAST and making sure its level control is set to a minimum, any transients from other equipment should not reach your loudspeakers. Wait till all system parts have stabilised, usually a couple of seconds. Similarly, when turning off your system always turn down the level controls on your amplifier and then turn off its power before turning off other equipment.

3) Cables: Never use shielded or microphone cable for any speaker connections as this will not be substantial enough to handle the amplifier load and could cause damage to your complete system. Use good quality shielded cables everywhere else.

4) Servicing: The user should not attempt to service these products. Refer all servicing to qualified service personnel.

5) Heed all warnings.

6) Follow all instructions.

7) Do not use this apparatus near water.

8) Clean only with a dry cloth.

9) Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.

10) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

11) An apparatus with Class I construction shall be connected to a mains socket outlet with a protective connection. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

12) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.

13) Only use attachments/accessories provided by the manufacturer.

14) Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

15) The mains plug or appliance coupler is used as the disconnect device and shall remain readily operable. The user should allow easy access to any mains plug, mains coupler and mains switch used in conjunction with this unit thus making it readily operable. Unplug this apparatus during lightning storms or when unused for long periods of time.

16) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

17) Never break off the ground pin. Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.

18) If this product is to be mounted in an equipment rack, rear support should be provided.

19) Note for UK only: If the colours of the wires in the mains lead of this unit do not correspond with the terminals in your plug, proceed as follows:

   o The wire that is coloured green and yellow must be connected to the terminal that is marked by the letter E, the earth symbol, coloured green or coloured green and yellow.

   o The wire that is coloured blue must be connected to the terminal that is marked with the letter N or the colour black.

   o The wire that is coloured brown must be connected to the terminal that is marked with the letter L or the colour red.

Duration Per Day in Hours	Sound Level dBA, slow response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ ou inférieur	115

20) This electrical apparatus should not be exposed to dripping or splashing and care should be taken not to place objects containing liquids, such as vases, upon the apparatus.

21) Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures: According to OSHA, any exposure more than the above permissible limits could result in some hearing loss. Earplugs or protectors to the ear canals or over the ears must be worn when operating this amplification system to prevent a permanent hearing loss, if exposure is more than the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

22) If your appliance features a tilting mechanism or a kickback style cabinet, please use this design feature with caution. Due to the ease with which the amplifier can be moved between straight and tilted back positions, only use the amplifier on a level, stable surface. DO NOT operate the amplifier on a desk, table, shelf or otherwise unsuitable non-stable platform.

23) Symbols & nomenclature used on the product and in the product manuals, intended to alert the operator to areas where extra caution may be necessary, are as follows:

CAUTION:	Intended to alert the user to the presence of uninsulated 'Dangerous Voltage' within the products enclosure that may be sufficient to constitute a risk of electrical shock to persons.
	Ce symbole est utilisés pur indiquer a l'utilisateur de ce produit de tension non-isolée dangereuse pouvant être d'intensité suffisante pour constituer un risque de choc électrique.
	Este símbolo tiene el propósito de alertar al usuario de la presencia de '(voltaje) peligroso' que no tiene aislamiento dentro de la caja del producto que puede tener una magnitud suficiente como para constituir riesgo de corrientazo.
	Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von ausreichender Starke sind, um einen elektrischen Schlag verursachen zu können.
WARNING:	Intended to alert the user of the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.
	Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von ausreichender Starke sind, um einen elektrischen Schlag verursachen zu können.
	Este símbolo tiene el propósito de la alertar al usuario de las presencias de instrucciones importantes sobre la operación y mantenimiento en la literatura que viene con el producto.
	Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.
CAUTION:	Risk of electrical shock - DO NOT OPEN. To reduce the risk of electrical shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified personnel.
ATTENTION :	Risques de choc électrique - NE PAS OUVIRIR. Afin de réduire le risque de choc électrique, ne pas enlever le couvercle. Il ne se trouve a l'intérieur aucune pièce pouvant être réparée par l'utilisateur. Confier l'entretien a un personnel qualifié.
PRECAUCION:	Riesgo de descarga eléctrica - NO ABRIR. Para reducir el riesgo de descarga eléctrica, no quite la cubierta. No hay piezas reparables por el usuario en el interior. Remita el servicio a personal calificado.
VORSICHT:	Risiko - Elektrischer Schlag! Nicht offen! Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung entfernen. Es befinden sich keine Teile darin, die vor Anwender repariert werden konnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.
WARNING:	To prevent electrical shock or fire hazard, do not expose this appliance to rain or moisture. Before using this appliance, please read the operating instructions for further warnings.
ADVERTISSEMENT :	Afin de prévenir les risques de décharge électrique ou de feu, n'exposez pas cet appareil a la pluie ou a l'humidité. Avant d'utiliser cet appareil, lisez les avertissements supplantais situes dans le guide.
ADVERTENCIA:	Para evitar descargas eléctricas o peligro de incendio, no exponga este aparato a la lluvia ni a la humedad. Antes de usar este aparato, lea las instrucciones de funcionamiento para conocer más advertencias.
ACHTUNG:	Um einen elektrischen Schlag oder Feuergefahr zu vermeiden, sollte dieses Gerat nicht dem Regen oder Feuchtigkeit ausgesetzt werden. Vor Inbetriebnahme unbedingt die Bedienungsanleitung lesen.
FCC	This device complies with Part 15 of the FCC rules Operation is subject to the following two conditions:
	1) This device may not cause harmful interference.
	2) This device must accept any interference received, that may cause undesired operation.
	Warning: Changes or modification to the equipment not approved by Laney can void the user's authority to use the equipment.
	Note: This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures. Reorient or relocate the receiving antenna. Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/TV technician for help.
CE	This product conforms to the requirements of the following European Regulations, Directives & Rules: CE Mark (93/68/EEC), Low Voltage (2014/35/EU), EMC (2014/30/EU), RoHS (2011765/EU), ErP (2009/125/EU)
	SIMPLIFIED EU DECLARATION OF CONFORMITY
	Hereby, Laney Electronics Ltd. declares that the radio equipment is in compliance with Directives 2014/53/EU, 2011/65/EU, 2009/125/EU. Full text of the EU declaration of conformity is available at the following internet address:
	https://support.hhelectronics.com/approvals
UKCA	The object of the declaration described above is in conformity with the relevant statutory requirement Electrical Equipment (Safety) Regulations 2016, Electromagnetic Compatibility Regulations 2016, The Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, The Ecodesign for Energy-Related Products and Energy Information, (Amendment) (EU Exit) Regulations 2012
	In order to reduce environmental damage, at the end of its useful life, this product must not be disposed of along with normal household waste to landfill sites. It must be taken to an approved recycling centre according to the recommendations of the WEEE (Waste Electrical and Electronic Equipment) directive applicable in your country.

V1.0

IN THE INTEREST OF CONTINUED DEVELOPMENT, HH RESERVES THE RIGHT TO AMEND PRODUCT SPECIFICATION WITHOUT PRIOR NOTIFICATION.

V1.0