Sound and Lighting Crew

General Operations Guide

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Updated: 31/01/2018
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Welcome to the Sound and Lighting Crew!
*Ycah, that group that **someday** people will stop laughing at for 'screwing up'...*

Before you flick through the pages of this document, I want to say a few things to set you on track to using the sound and lighting equipment as best as possible.

1) **There is no correct or incorrect way to do anything**
There are only 'tested' ways that work. If you want to achieve something through another method, by all means go ahead. If it works then good, otherwise, try again!

2) **Pay attention**
If you're in charge of sound or lights for the day, make sure to pay attention to what is happening on the stage. You definitely don't want to miss the cue for the anthem!

3) **Have fun**
The best way to learn how to use the equipment is by using them! Play around with the different things in the room (don't blow anything up), learn from your peers, volunteer at the school musical events, volunteer at community events, volunteer at church... Just be involved! I mean, who wouldn't want extra things to add in their resume!

Also, **the only time when people will notice you is when you screw up...**
So if no one's complaining, you're doing it right!

Enjoy!

Andrew Wong
Class of 2017
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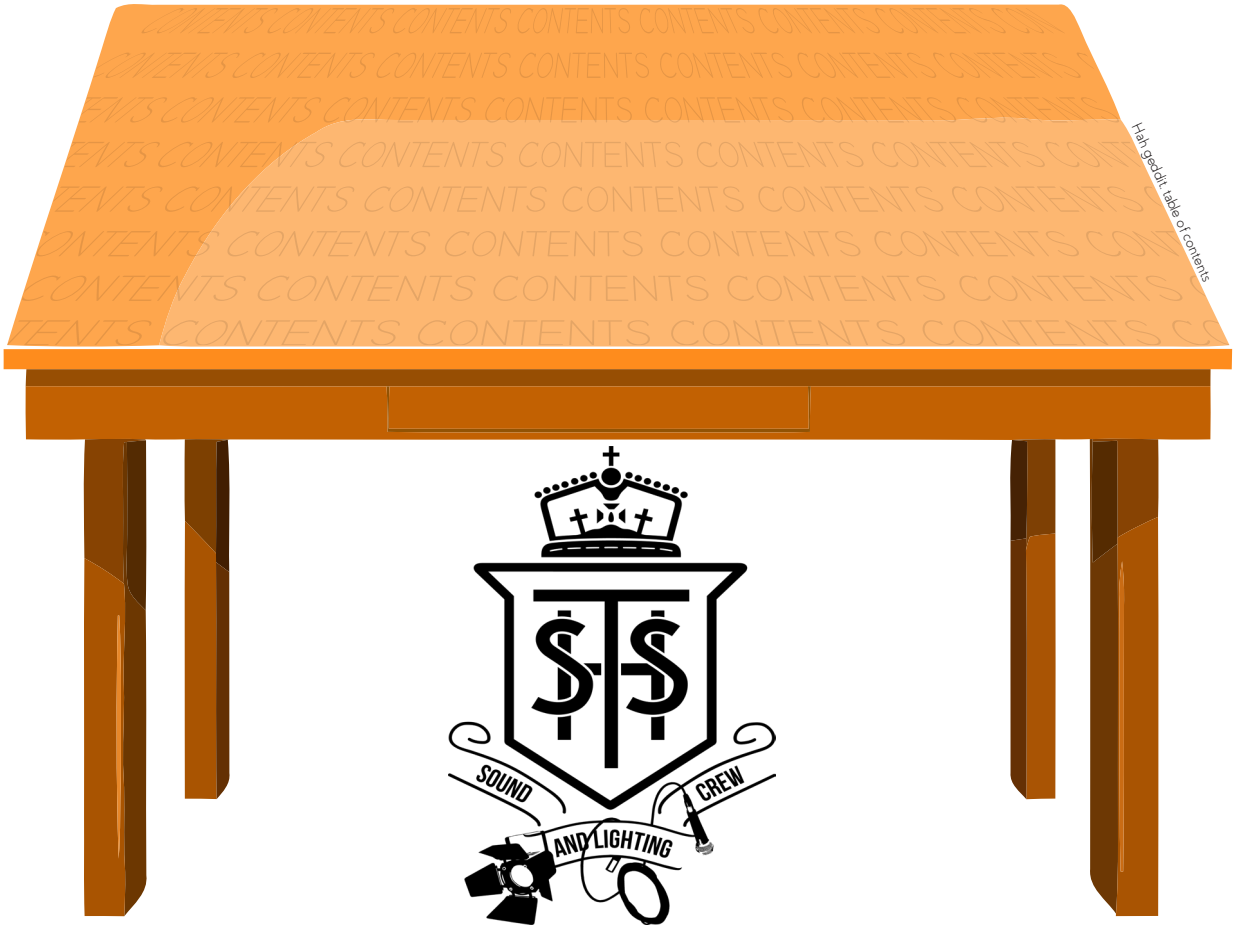
Table Of Contents

The following topics are not covered due to their complexity and/or non-essentialness:
- Matrices, DCAs
- EQ / Equalisation
- Effects
- Group assignments
- Fresh setup




SOUND
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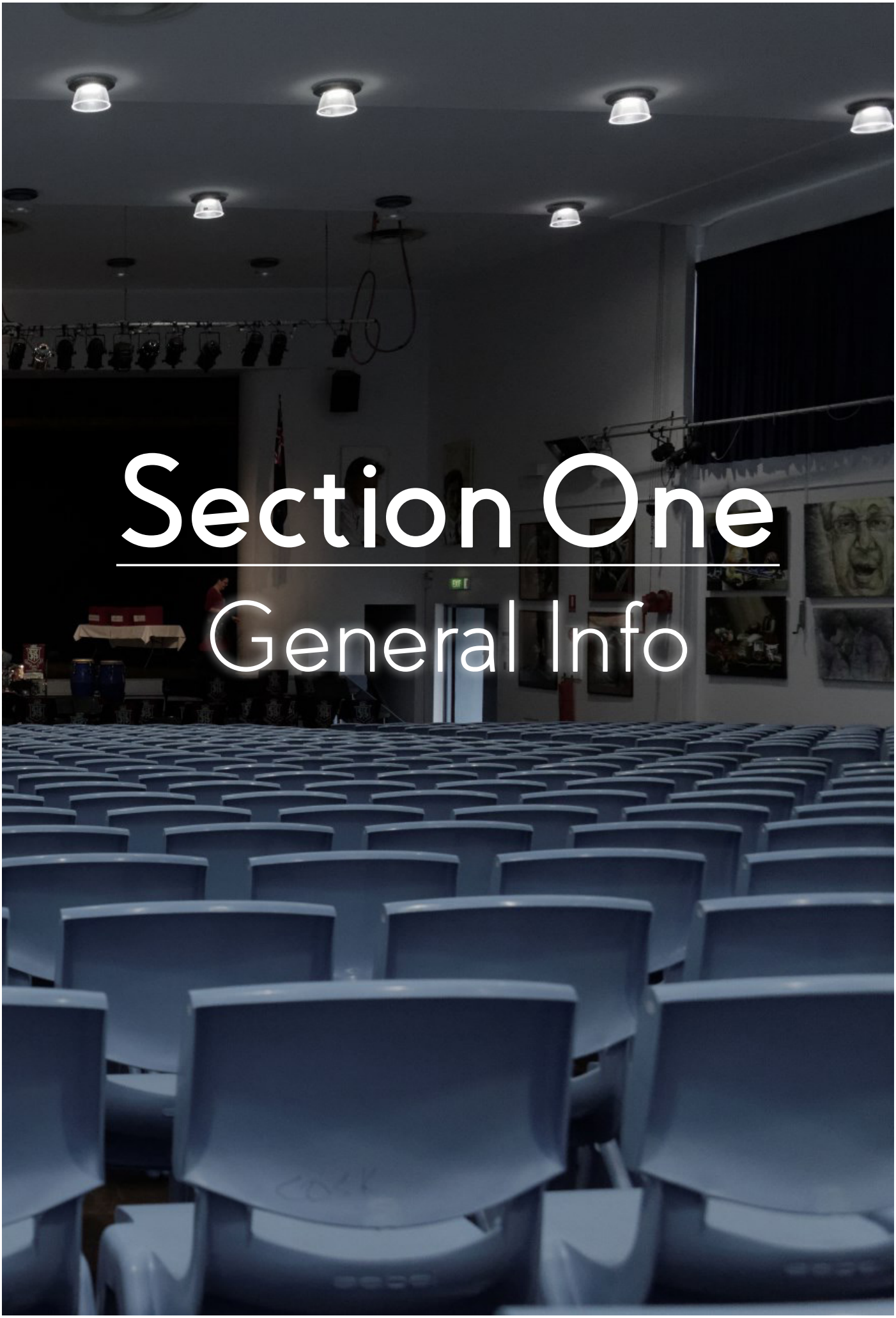


Section One

General Info

Disclaimer

This document was written as a guide to help new crew members - It does not have every single detail, but will hopefully be enough to get a good understanding of what goes on and what needs to be done.

Things you should know...

The **Sound and Lighting Crew**, or **S&L** or **SAL** for short, is an extra-curricular activity for students who wish to gain practical experience in stage production and commercial audio-visual and lighting systems. This is achieved by giving the students an opportunity to learn by supporting the school's multimedia systems.

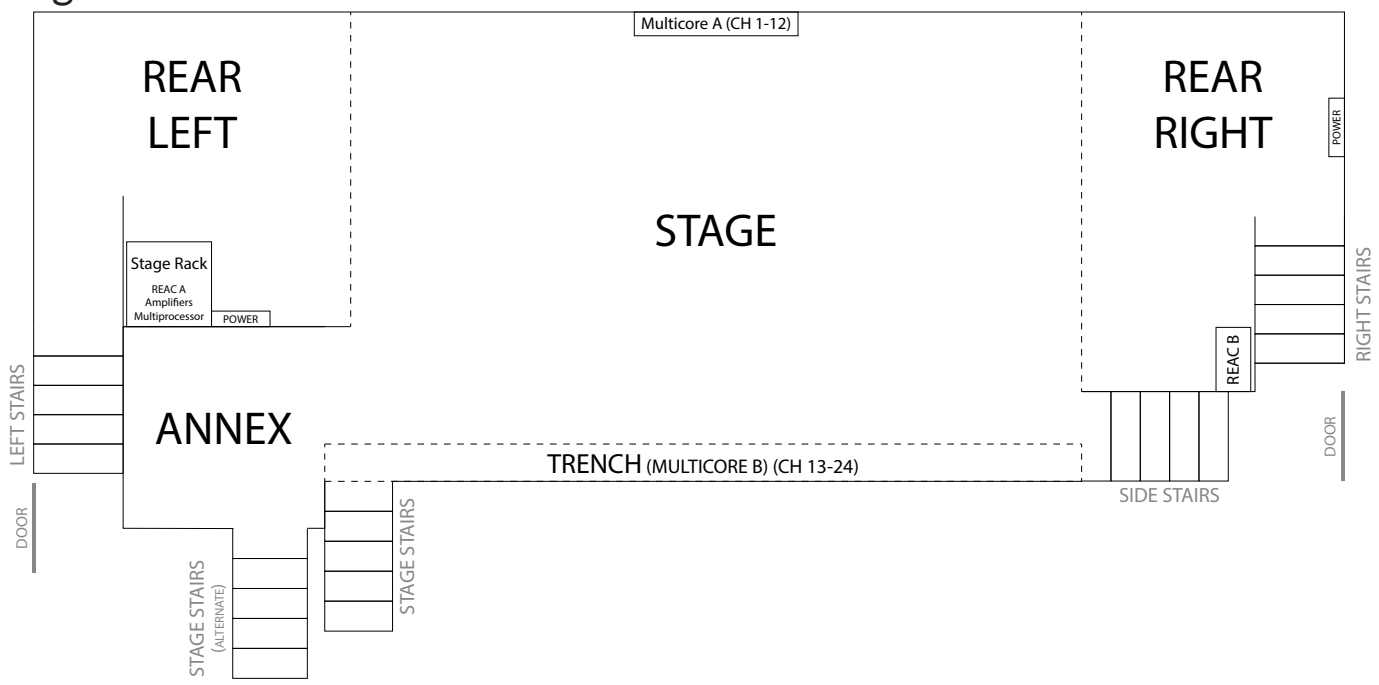
Events include school assembly, special assemblies such as ANZAC day, the two major music ensemble concerts (the mid-year Musicale and end of year Summer Ensembles).

Some crew member responsibilities!

The Sound and Lighting Crew is a very hands-on team. Here's the deal:

- Safety first. Ensure your safety, as well as the safety of others before doing something
- *It is **not your responsibility** to fix anything broken - inform your co-ordinator (Mr Coulston)*
- We expect each team member to contribute!
- If for any reason you are not able to voluneer, let someone know.
  For example, seniors (Year 11/12) have a priority first to their class time.
- Keep things tidy in both the Sound and Lighting room, and on/behind stage

Stage Floor Plan



Acknowledgements

The SAL manual's first revision (December 2016) was put together by Andrew Wong with the help of Jeremy Wong and Liam Bruton. Icons from the Noun Project.
For future changes, this document can be located at https://sydneytech.github.io/sal

POP QUIZ!

What is this cable known as?

3...

2...

1...

Answer: IEC Cable

Guessed it right? Good job!
Got it wrong? Whatever, you know now.

IEC cables are a commonly used power cable for all sorts of audio and visual equipment.

How about this one? Seen it before?

Answer: XLR Cable

These fancy cables are used in the professional audio field to connect all sorts of audio devices together. They carry a *balanced signal*, which basically means that the sound is free of *noise*. Yay!

(Noise is unwanted sound produced by electromagnetic interference)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Section Two

Sound

Audio Terminology

- ***XLR*** cables are balanced audio cables that are used to connect audio devices together
- ***Phantom power*** / ***+48V*** refers to power that supplied through an XLR cable

- ***Aux cord*** = ***3.5mm*** cable = ***1/8"*** cable (eighth inch)
- ***Instrument*** cable = ***Guitar*** lead = ***6.25mm*** cable = ***1/4"*** cable (quarter inch)
- ***Microphone*** cable = XLR cable

Get To Know Your Equipment

Microphones

Shure SM57

Dynamic Instrument Microphone

The Shure SM57 is your 'go to' microphone for any scenario, and is by far one of the most common microphones used professionally. They work well for piano, drums, vocals, and band instrumens.

Rode M1

Dynamic Microphone

Need a microphone for a vocalist or for someone talking? Use this. It has an inbuilt 'pop filter', which minimises the natural plosive and sibilant sounds from our voices and is therefore preferred over the Shure SM57 for vocal performances.

Behringer XM1800S

Dynamic Microphone

The Behringer XM1800S is a basic microphone for singers and vocalists. Not advised to use unless necessary. A switch is built-in to the microphone to turn the microphone on and off.

Summary

SM57 - Universal microphone. Use as often as possible.
M1 - Best microphone for vocalists.
XM1800S - Basic vocal microphone. Use when out of 57s and M1s.

Electro-Voice RE-2 Wireless Microphone System

This wireless microphone system consists of a transmitter (the microphone) and a receiver unit. The microphone requires a 9V battery to operate.

Rode NT-4 | THE "CHOIR MIC"

X-Y Stereo Microphone

This microphone is great for the choir due to the way its two audio capsules (microphones) are positioned. They are set up in such a way that allows the microphone to capture a stereo sonic profile, which creates a surround effect. Phantom power (or a 9V battery) is required, as well as a special XLR cable.

Audio Equipment

Australian Monitor XRS10P

Stage Foldbacks / Wedges

Known as a foldback, monitor, floor wedge (or a mixture of those) these speakers are placed on the stage facing the presenter so they can hear themselves (the sound coming from the speakers that face the audience is delayed to the presenter, so it is crucial that these foldbacks are set up).

Direct Inject Boxes (DI Boxes)

Radial Pro48 Active DI

Radial ProDI Passive DI

The units convert an unbalanced line signal (i.e. a guitar) into a balanced signal which can be used with the mixer.

The school has a Radial Pro48 (requires phantom) and a Radial ProDI.

Understanding Diagrams

It is essential to have a basic understanding of how a system is wired up as it can often save a lot of time and effort when trying to troubleshoot a malfunctioning system.

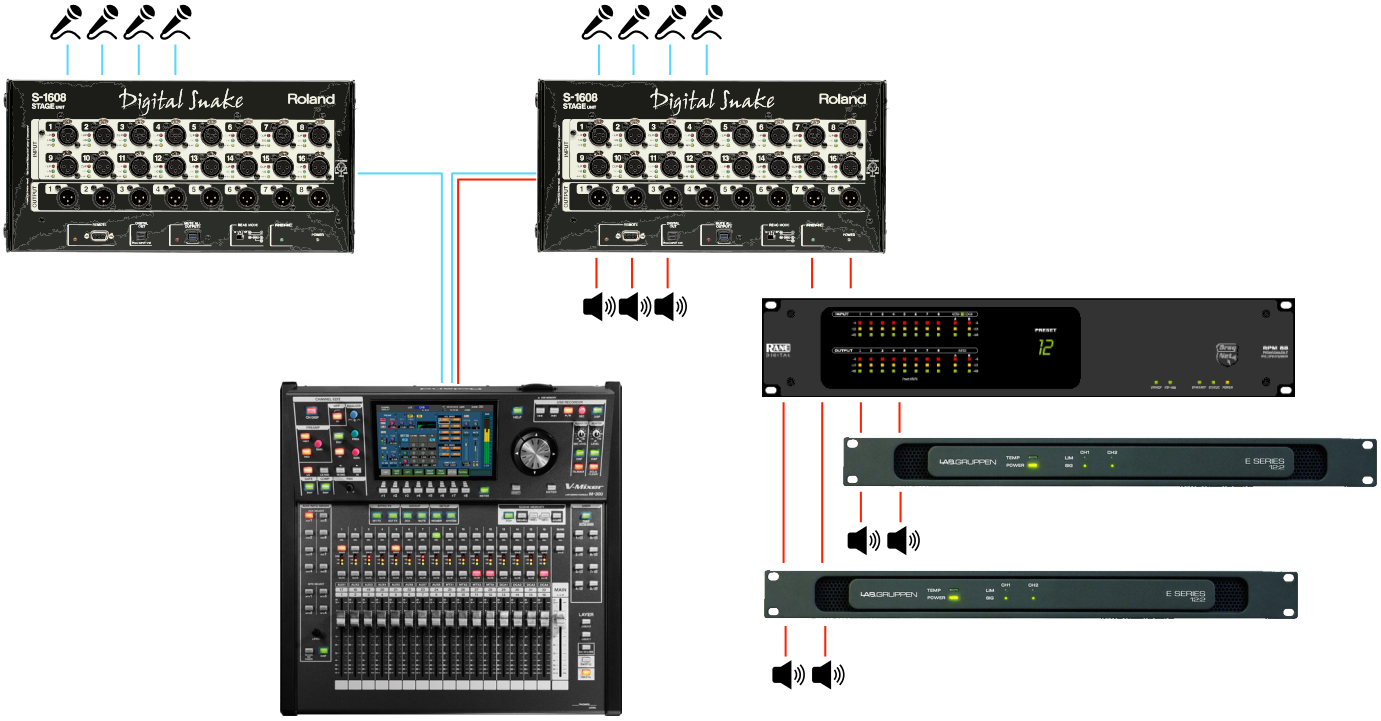
Two types of diagrams are **connection diagrams** and **signal flow diagrams**.

Connection Diagrams

A connection diagram visually represents the audio devices used in a system, and provides an overview of the path that an audio signal travels through the system.

Below is a simple diagram of the school's sound system from the microphone to speakers.

Lines in BLUE represent a signal heading towards the mixer
Lines in RED represent a signal heading towards the speakers



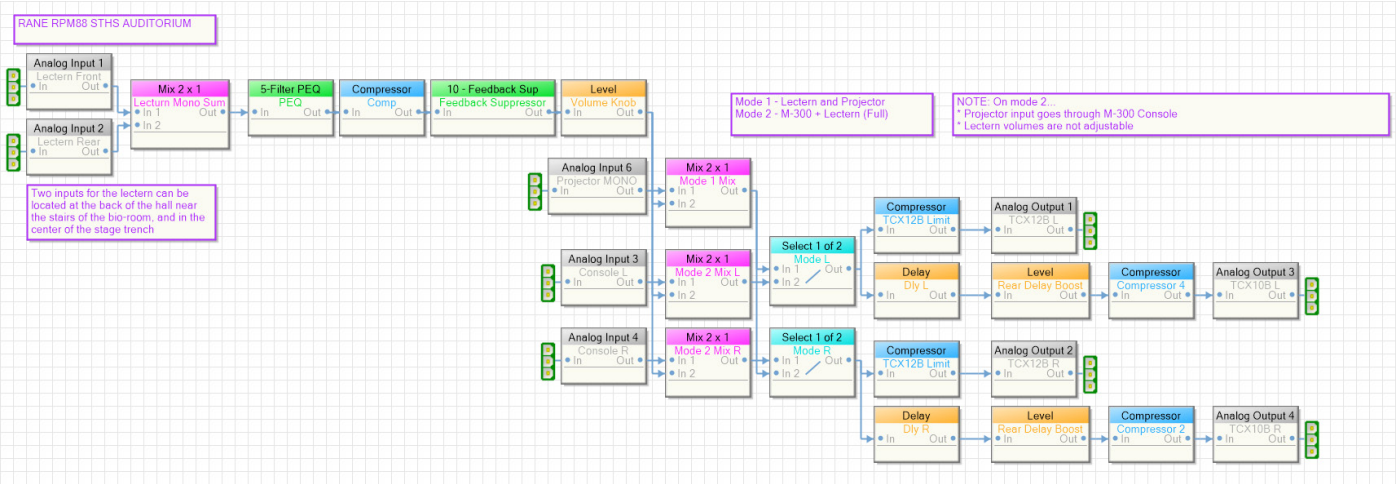
Signal Flow Diagrams

Think of a flowchart, the signal goes through a series of different processes to make it sound nice.

A signal flow diagram takes a further look into what actually happens to the signal in each device that is passes through. Devices in the signal's path alter the audio signal, such as compression, echo, delay, reverb and panning.

In the olden days, each effect required a physically large device that occupied a lot of space in the studios where they were kept, however in the current age digital technologies have allowed these effects to be replicated electronically with special audio processors.
These audio processors are known as DSPs, short for Digital Signal Processors.

Below is a diagram of the school's DSP configuration (Rane RPM 88)
(See appendix for more information)



First Steps > > >

First Steps: **Roland M-300**

The Roland M-300 is the school's 32 channel digital sound mixing console.
"*32 channel*" - The console is capable of processing 32 individual sound inputs (channels).
"*digital*" - Audio processing is done through a special processor inside the console.

It looks quite complex at a first glance, and it most definitely is...
However after learning the basics, you will realise that the console is quite intuitive and easy to operate. As there are many features on the M-300, some which are not used in a school context, only the most important features will be explored in this guide.

First Steps: **XLR Cables**

These cables are used in professional audio systems, and are capable of carrying a noise-free signal for very long distances.
They have three pins, and a release button on the 'female head'.

- TO INSERT: Push the head into the audio device until it clicks.
- TO REMOVE: Hold the release button and pull the cable out.

DISCLAIMER

This guide is not a rule book.

Any microphone could work for any instrument, however it is about getting the best sound with the right microphone - some microphones will work better than others.

In the same way,
The instructions in this guide is only an outline of the recommended procedures to operating the sound system. Play around and do what is most comfortable for you.

First Steps: Planning

Before touching a console, microphone, cable or any equipment, first think of what and whom you are setting up for...

Setting up for a keynote presentation? You will need a microphone (Gooseneck Mic)
Setting up for a singer? You will need a vocal microphone (Rode M1 or Shure SM57)
Setting up for an acoustic guitar performance? You will need a DI Box
Setting up for the choir? You will need a choir microphone (Rode NT-4)

Each of these microphones and equipment require an XLR Cable to connect to the sound system. So grab what you need, and bring them to the stage!

(Also, don't forget to bring microphone stands, and the necessary microphone clips)

First Steps: Physical Patching

'Patching' is the term used to describe the process of connecting your audio device to the sound system. It is simply a matter of connecting both ends of the cable to the audio device and the sound system. Digital patching is briefly covered on page 17.

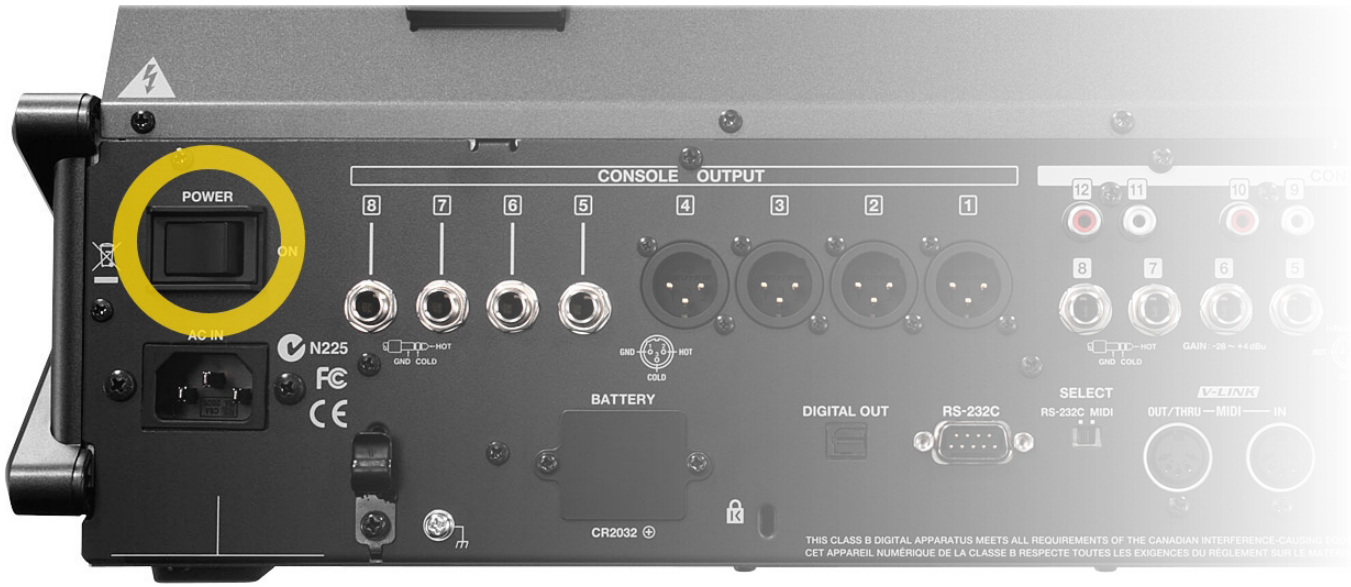
XLR to Microphone >>

XLR to System >>

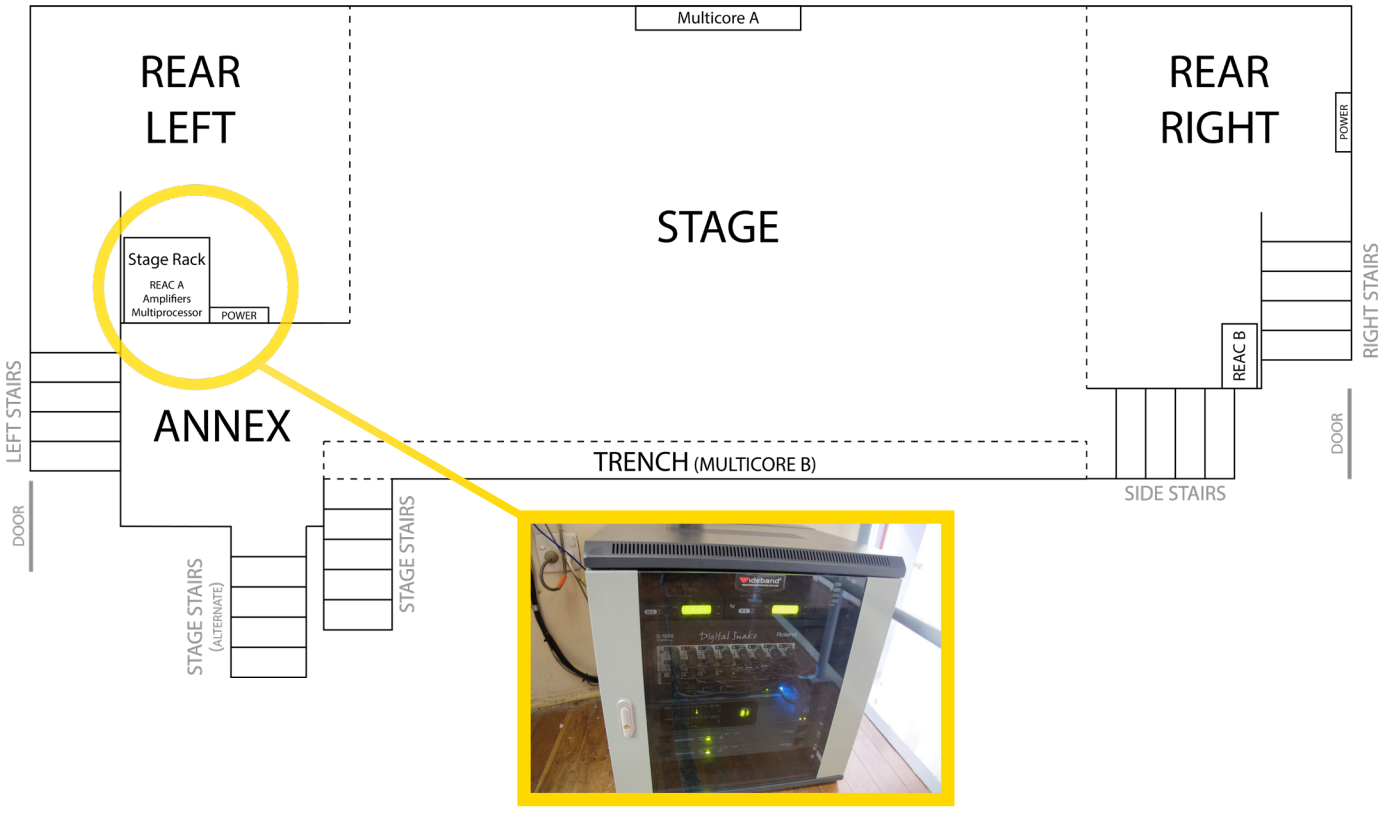
First Steps: **The Power-On Procedure**

Turn on all the sound system devices!

1. Mixer (Located inside the SAL Room)



2. Stage Audio Rack (Located on the Rear Left wall)



<u>Turn off the sound system in the reverse order (stage audio rack BEFORE the console)</u>

The Console: **Navigating the Console**

Channel Strips

- SEL button - Selects channel to edit
- SOLO button - Isolates the channel through the monitor mix
- Peak Indicator - Visualises the signal level of the channel
- MUTE button - Silences the channel
- Volume Fader - Controls the volume of the channel in the main mix.

Layer Select

Changes what channels the channel strips control
(There are only 16 channel strips on the mixer which has 32 channels...
so these 32 channels are divided into two sets of 16 channels)

Top Panel

LEFT: Main controls to adjust the parameters of the selected channel.
RIGHT: Controls to use the inbuilt USB audio player, and to adjust monitoring.

- Recording Panel - Controls to record and playback audio tracks on a USB device (used to play the School Song and National Anthem)
- ENTER button - OK button for menu dialogs and confirmations
- PREAMP Panel - Alters the input sensitivity of the selected channel
  - +48V button - Enables phantom power
  - PAD button - Reduces the input sensitivity by 20 dB
  - GAIN knob - Adjusts the input sensitivity

The Console: **Basic Operating Instructions**

1. Turn everything on
Power on the Roland M-300 (the sound mixing console), and the stage audio rack.

2. Load the 'default scene'
// This scene reverts all adjustments and patches to channels, giving you a fresh start
Beneath the circular control (to the right of the LCD display) is a Scene Memory section.
Select the **DISP** button, and use the arrows on the circular control to select #0 - Default.
Then press **RECALL** (next to the DISP button), and press **F8**.

3. Patch the channels *(skip this step if you are not doing anything fancy)*
Press the **PATCHBAY** button (underneath the LCD display).
The horizontal axis (top) represents the inputs into the sound mixing console.
The vertical axis (left) represents the channels on the mixer.
Use the circular control to select the respective channels to patch.

4. Configure the desired channels
Note: There are two layers to control channels 1-16 or 17-32, use the **LAYER SELECT**.

For each desired channel, first press the **SEL** button on the respective channel strip.
This will change the LCD display to reflect the parameters for the chosen channel.

If Phantom Power / +48V is required, press the **+48V** button on the PREAMP panel (top)
(This is required for the Rode NT-4 Choir Microphone, and the Radial Pro48 DI Box)

Ask the performer to make some noise into the microphone / play some music.
Adjust the **GAIN** knob in the PREAMP panel (top) so that the **Peak Indicator** never lights up red, and only occasionally goes amber.

NOTE: There are two knobs labeled GAIN, ensure you adjust the one under PREAMP panel.
There is also a digital peak indicator on the far right of the LCD display.

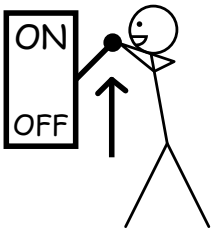
5. Set the MAIN fader to 0 db
(This fader is located immediately to the right of the channel strips)
Professionals encourage setting this fader to 0 as it implies the true or original signal.

6. Mix in the channels
As there are two layers for channels 1-16, and 17-32, use the **LAYER SELECT** function.

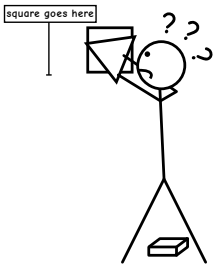
For each desired channel, press the **MUTE** button on the respective channel strip.
The red light under the button should now turn off, indicating the channel is un-muted.
Then bring up the **VOLUME FADER** to the desired level.

NOTE: It is advised to mix in each channel one by one, so you do not get confused with which channel corresponds to which instrument or audio device.

THE CONSOLE: **Summary of Operating Instructions**
(in comic sans)



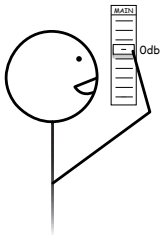
POWER



(RESET)

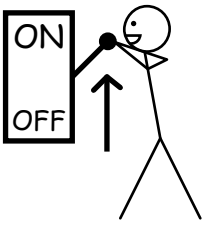
(PATCH)

CONFIG

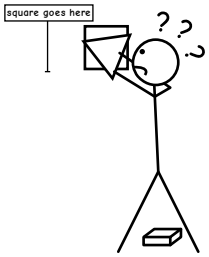


ZERO

MIX

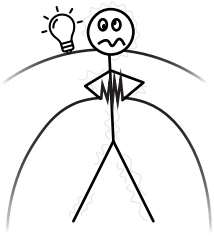


TURN EVERYTHING ON

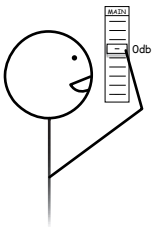


optional - RESTORE THE DEFAULT SCENE

optional - PATCH THE CHANNELS



CONFIGURE THE CHANNELS



ZERO THE MAIN MIX

MIX

The Console: **Foldbacks**

Hearing yourself is an important part of using your voice as it aids in your brain's thinking.
What are the different ways you hear yourself?
One - Sound that is emitted from the mouth and received by the ears.
Two - Vibrations that reverberate around your body.

Hearing sound on stage is a very different experience to hearing sound as the audience. This is because of the differing 'sonic landscapes' - sound from the auditorium speakers will sound good to the audience, however it will not be loud enough, or even worse, be a delayed sound that the people on stage receive.

Foldback assist performers and those on stage by reamplifying sounds back to their ears, so it feels more natural standing in a large empty space, like the stage.

Floor Wedges are one form of foldback devices, and are the type the school uses.
They are commonly placed in the front centre of the stage as well as both ends.

Ever seen singers with earphones in their ears?
Those devices are *(overpriced)* earphones called In-Ear Monitors, or IEMs for short. They replicate the function of a floor wedge, and provide extra benefits at the expense of more equipment and money.

To set up the foldbacks in school, simply bring the floor wedge to the stage, and connect the XLR cable into the LINE IN port (white) at the back of the wedge, and the IEC (power) cable to its respective port.

After the cables have been connected, turn the wedge on by flicking the red switch.

Then adjust the **LEVEL**, **BASS** and **TREBLE** knobs for the LEVEL section (in white).

To disconnect the wedge, first turn off the power, and then remove the connected cables.

It is recommended to MAX the **LEVEL** knob, and to set the **BASS** and **TREBLE** knobs to the 12 O'Clock position (as shown)

Only connect the XLR cable into the **LINE IN** port as the MIC IN port is more sensitive, and will lead to unwanted noise

Once the foldbacks have been connected and turned on, repeat the following process for each channel that you need to set up.

1) Select the channel with the **SEL** button on its respective channel strip.

2) Select the desired foldback by the corresponding **AUX** button in the SENDS panel.

AUX1 - Annex (Left of stage)
AUX2 - Stage (Centre of stage)
AUX3 - Flag (Right of stage)

3) Adjust the foldback level with the **LEVEL** knob. The LCD display should update with the new foldback level. Do not pass the white marker on the LCD display.

- Repeat these steps for other channels that need foldbacks to be set up

The Console: Solo and Talkback

Solo

When operating the sound mixing console for a lot of audio sources, it is often very hard to hear a specific instrument amidst all the noise.

Luckily, modern sound mixing consoles have a feature that allows you to isolate a single channel (or several channels if you choose) into the monitors, those speakers in the room.

In each channel strip there is a button called **SOLO** which enables this feature.
When the solo mode is enabled, sound coming from that channel will be heard through the monitor mix, regardless if the channel is muted or not. This feature can be utilised on several channels at once.

To clear a channel that is solo'd, simply press the SOLO button on that channel.
To clear all channels from being solo'd, press the **SOLO CLEAR** button on the top panel.

To adjust the volume of the monitor mix, turn the **MONITOR LEVEL** knob (top panel)

Word of Advice: Don't solo a channel to fine tune!

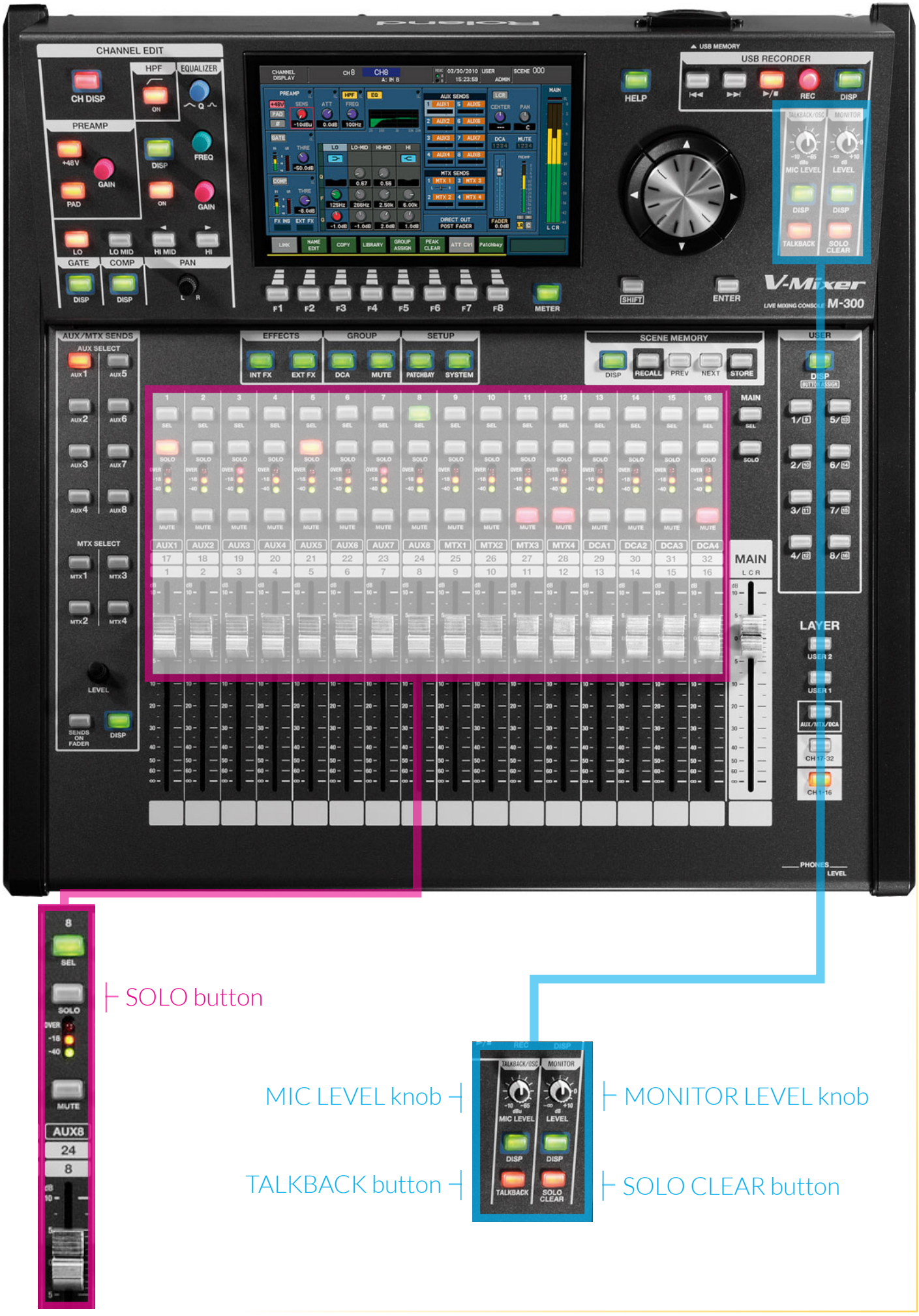
Talkback

Sometimes you will need to communicate with people on stage while in the SAL room. Your options are either to text them, send someone down as a messenger, or to scream all the way across the auditorium at the top of your lungs.

OR, use the talkback microphone!

The talkback microphone is a microphone connected to the console itself, that allows you to speak into it, and for the sound to come out of the foldback speakers on stage.
(Make sure that the foldback speakers are set up, and that they're turned on!)

Press or hold the **TALKBACK** button on the top panel and speak into the microphone.
Volume is adjustable by turning the **MIC LEVEL** knob above the talkback button.


SOLO button
MIC LEVEL knob
MONITOR LEVEL knob
TALKBACK button
SOLO CLEAR button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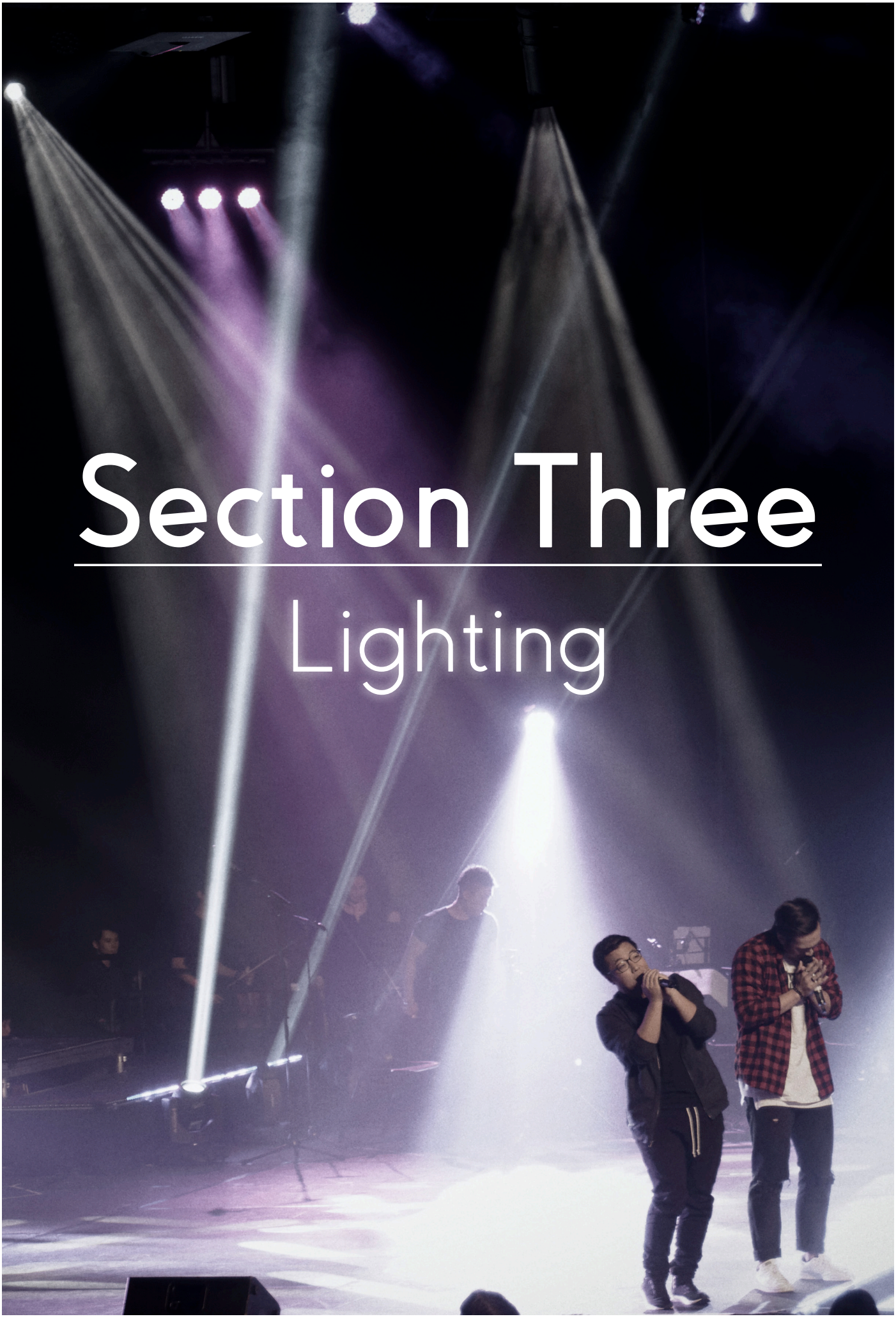


Section Three

Lighting

Lighting Terminology

- ***Flood/wash*** lights refer to lights that illuminate a wide area
- ***Spot*** lights refer to lights that illuminate a narrow area
- To "***fill*** an area" simply means to illuminate that area
- ***DMX*** stands for **D**igital **M**ultiple**X**, and is the protocol used to remotely control lights

Get To Know Your Equipment

Stage Lighting Fixtures

PAR Cans | PARABOIC ALUMINISED REFLECTOR

Fill: Flood

These illuminate a wide area, and should generally be used to light the entire stage. Coloured gels can be inserted into the PAR cans to change the colour. The school has PAR56 and PAR64 cans. *(Number indicates the diameter of the lamp in eighths of an inch)*

Fresnels | PRONOUNCED "FRA-NEL"

Fill: Flood / Spot

Fresnel lights produce a similar light cast as PAR cans. The focus can be adjusted by moving the slider on the light unit, allowing operation as either a flood or spot light. Fresnels are generally used for used for accent lighting.

ERS | ELIPSOIDAL REFLECTOR SPOTLIGHT

Fill: Spot

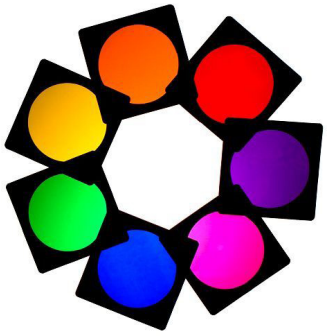
ERS spotlights have an adjustable focus as well as beam shape by moving the sliders on the light, allowing the diameter of the light to be adjusted, as well as its sharpness. In general, spotlights should be used for accent lighting , and illuminating stationary objects. Gobos can be inserted to produce a specifically shaped light.

Summary

PAR Cans - General stage lighting. Can change colour with gels.
Fresnels - Narrower beam of light. Good for lighting up people.
ERS - Very narrow beam of light. Can insert gobos to project shapes.

Stage Lighting Fixtures

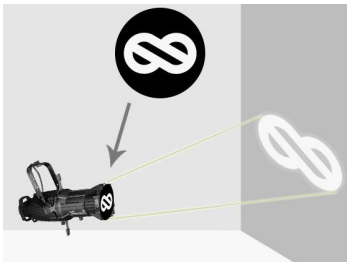
Gels



Gels are coloured sheets of polyester or polycarbonate that are used to change the colour of a light source. They are secured with a gel bracket, and can be installed in the PAR Cans.

Usage example: Christmas colour theme for band showcase night

Gobos



Gobos are metal stencils that are used to project a certain shape on a surface. They can be installed on spotlights like the ERS's.

Usage example: A ribbon gobo for White Ribbon Day assemblies

Effects Equipment

Smoke Machine

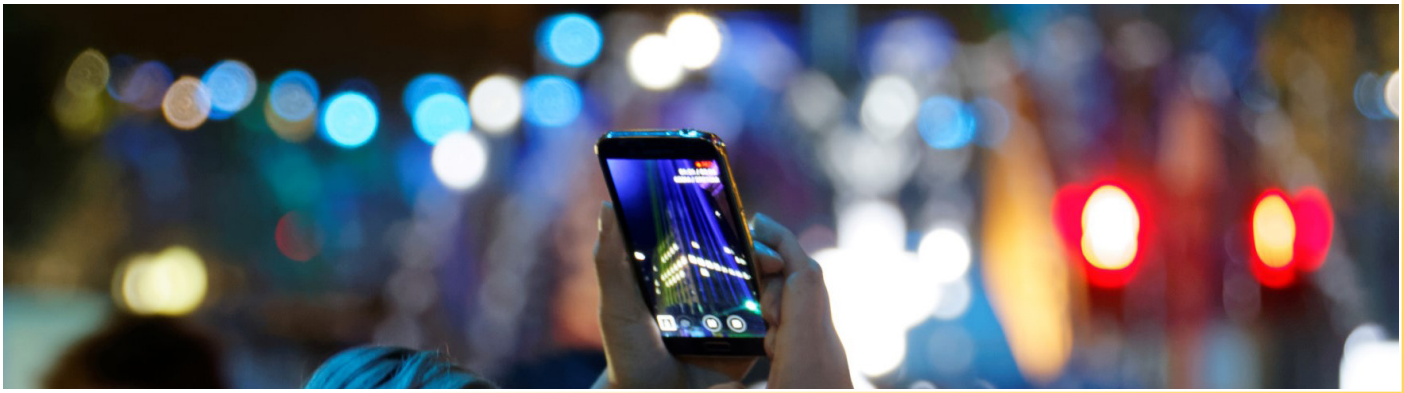
Smoke machines are used in special effects to create a mysterious atmosphere. However in stage lighting, smoke machines are used to emphasise light beams by making the light more visible.

The school's smoke machine (Acme iFOG-280), uses a water-based fogging fluid, and takes roughly 5 minutes to warm up.

LED Disco Light

LED Disco Lights add more 'fun' to the atmosphere, by providing different shapes and colours that alternate in time with the music.

The school has an Acme iLED-130 Stormbird



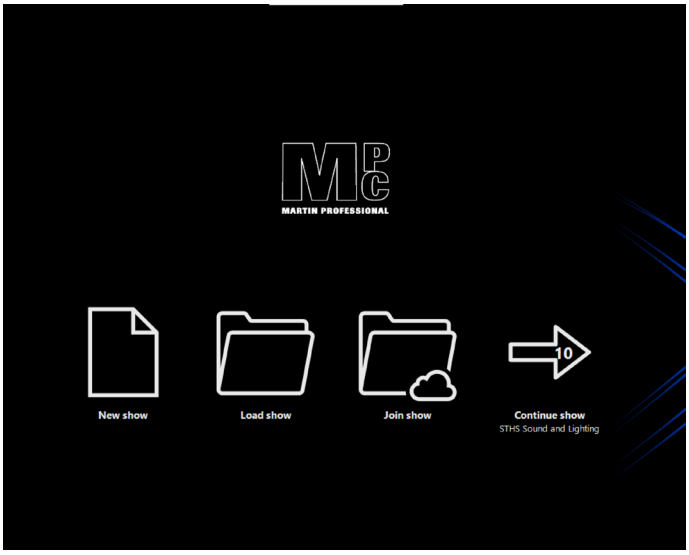
First Steps > > >

First Steps: **Lighting Control PC**

In order to operate a set of lights (also referred to as 'fixtures'), a lighting controller is required. These lighting desks exist as physical consoles, but can also exist as computer software. The school uses computer software to manage the control of the fixtures.

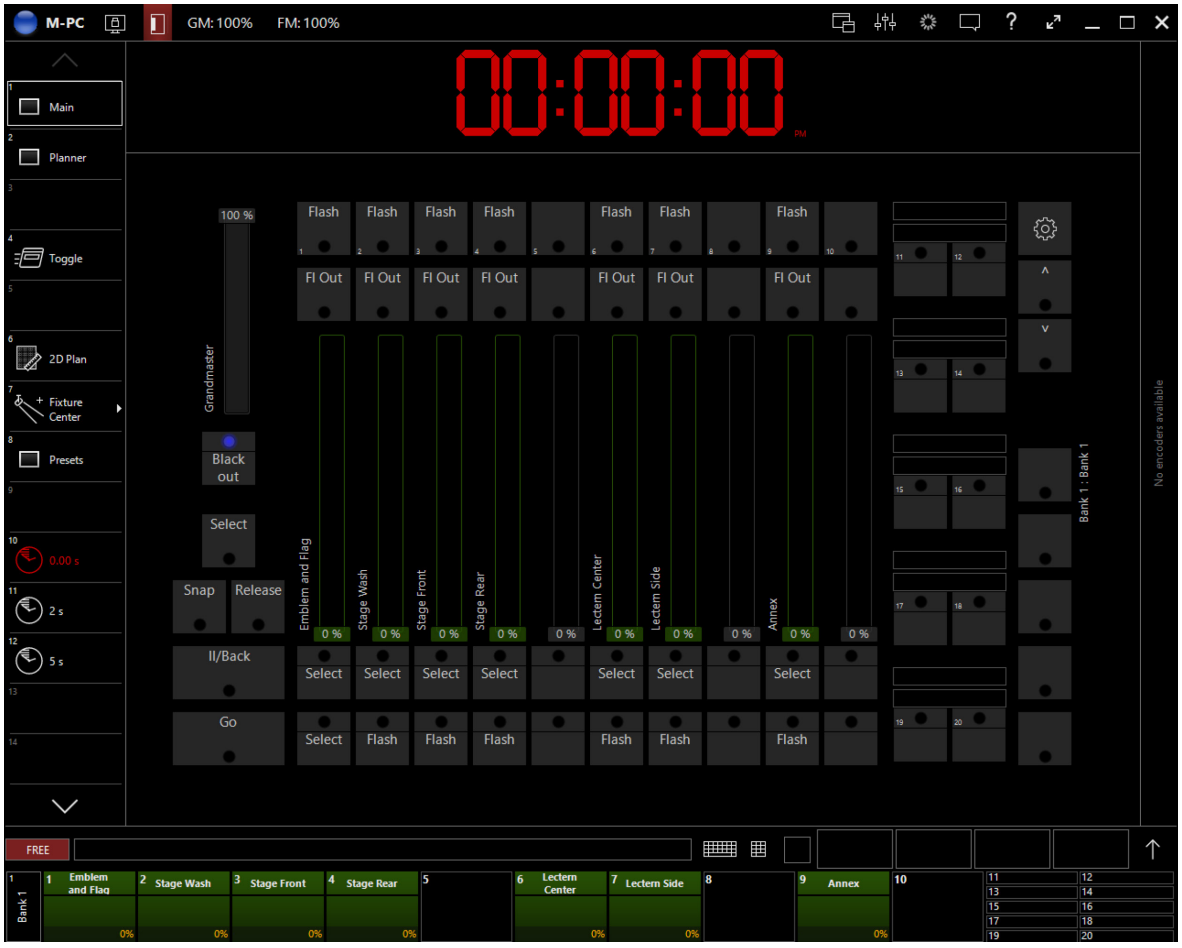
The lighting computer uses a professional lighting control software called Martin M-PC.

Loading Screen



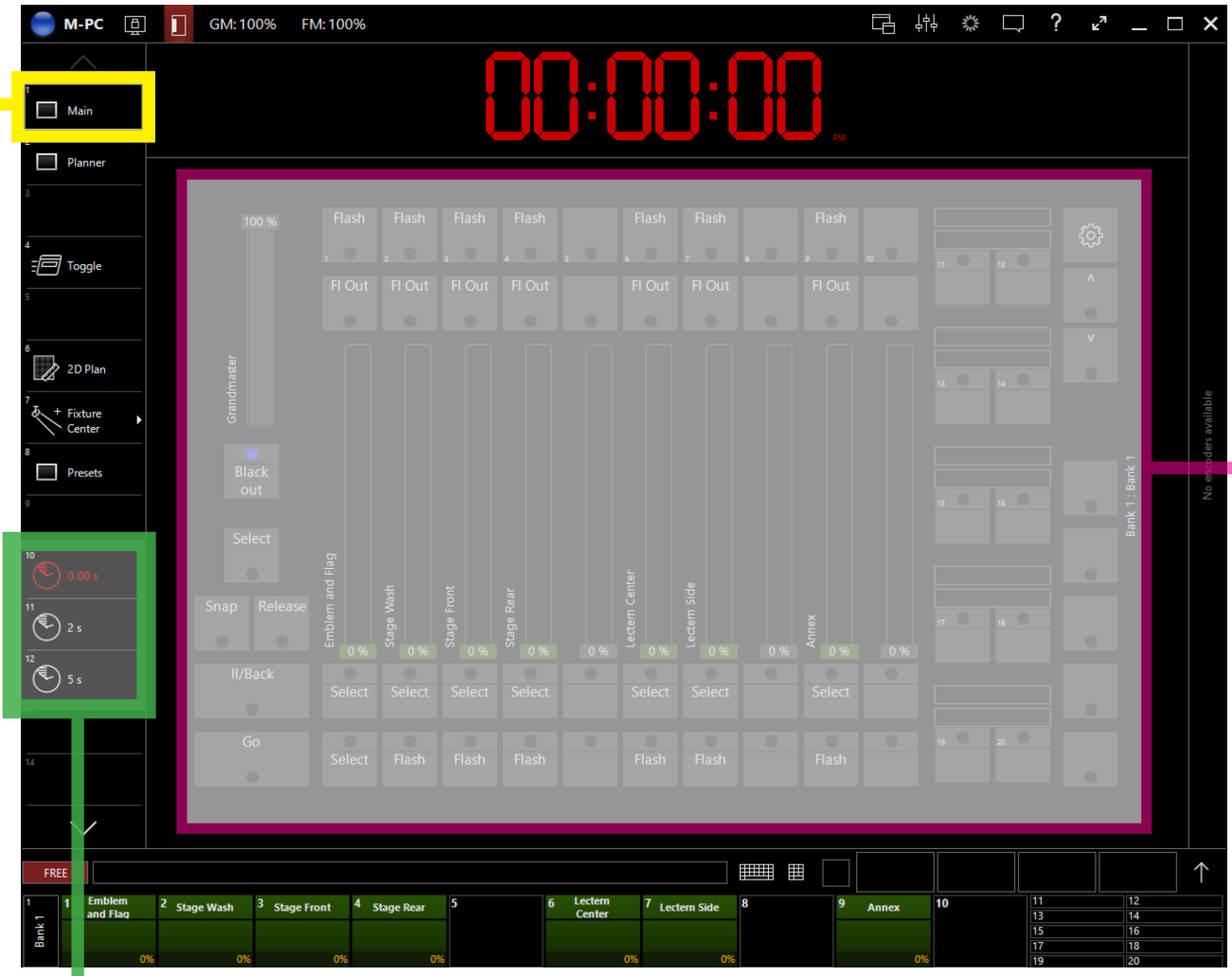
Landing Screen

Once the above two screens have been disappeared , you should be presented with the main interface of the Martin M-PC lighting control software, as seen below.



Main Interface

The Console: Navigating Martin M-PC



Fade Timer

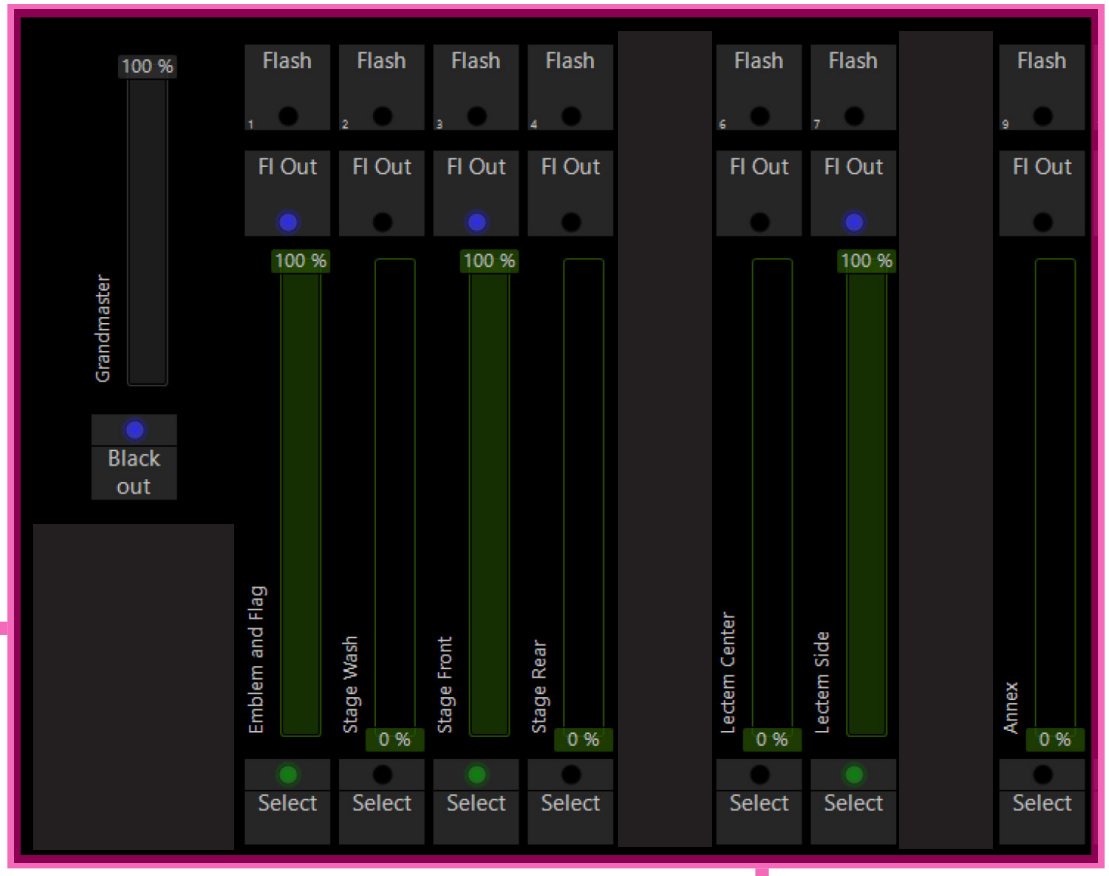
Sets the duration it takes for a channel to change from its initial value to its final value

0s - instant
2s - 2 seconds
5s - 5 seconds

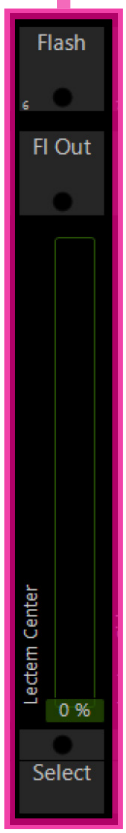
Main View

The software is configured for school with two main views - the Main and Planner view.

The main view allows the operator to quickly adjust the levels of preset fixture groups.

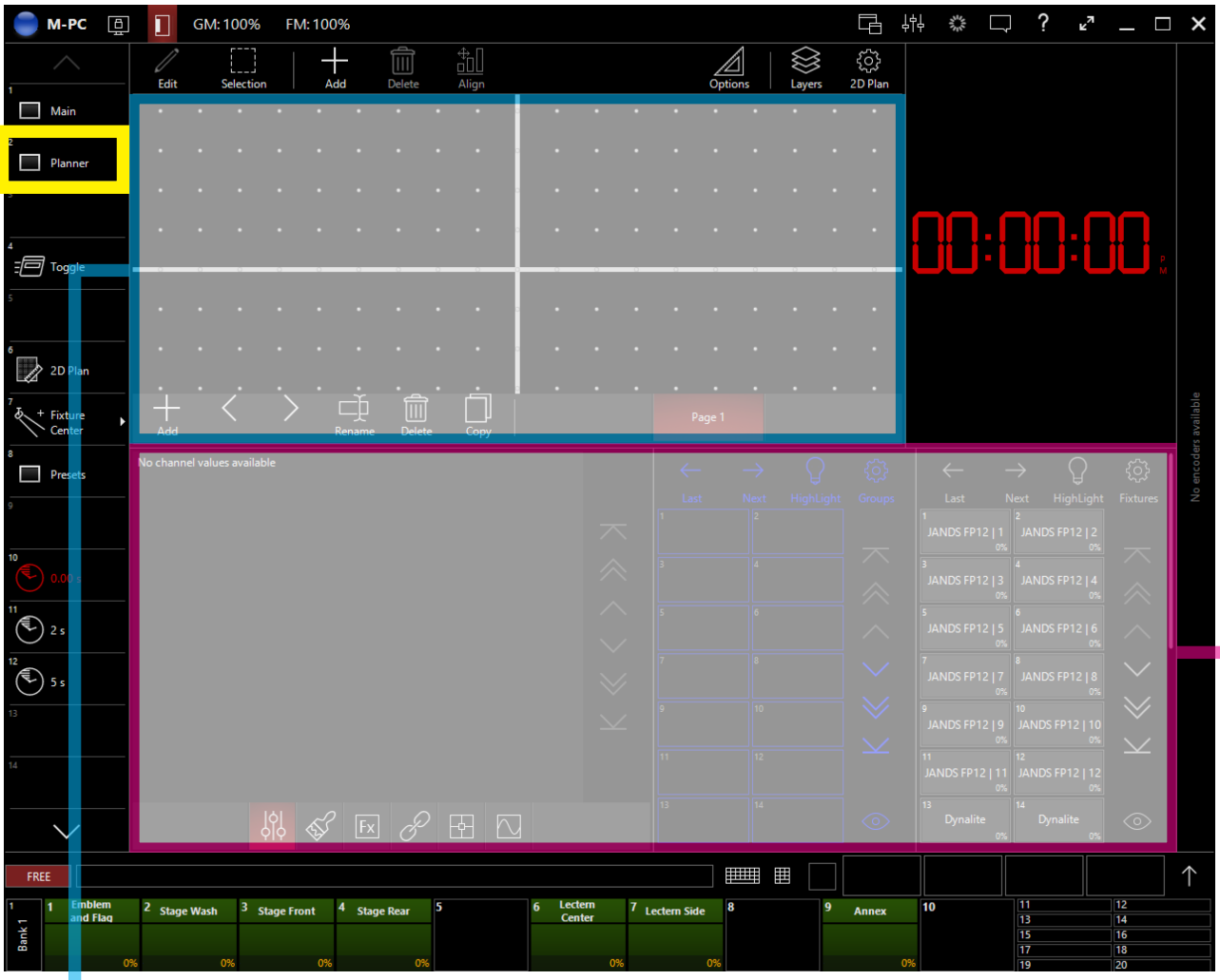


Channel Strips



- Flash - Temporarily sets the channel to its maximum value
- Flash Out - Temporarily turns off the channel (blackout)
- Level Fader - Changes the intensity of the channel
- Select - Sets the channel to edit (for configuration only)

The Console: Navigating Martin M-PC

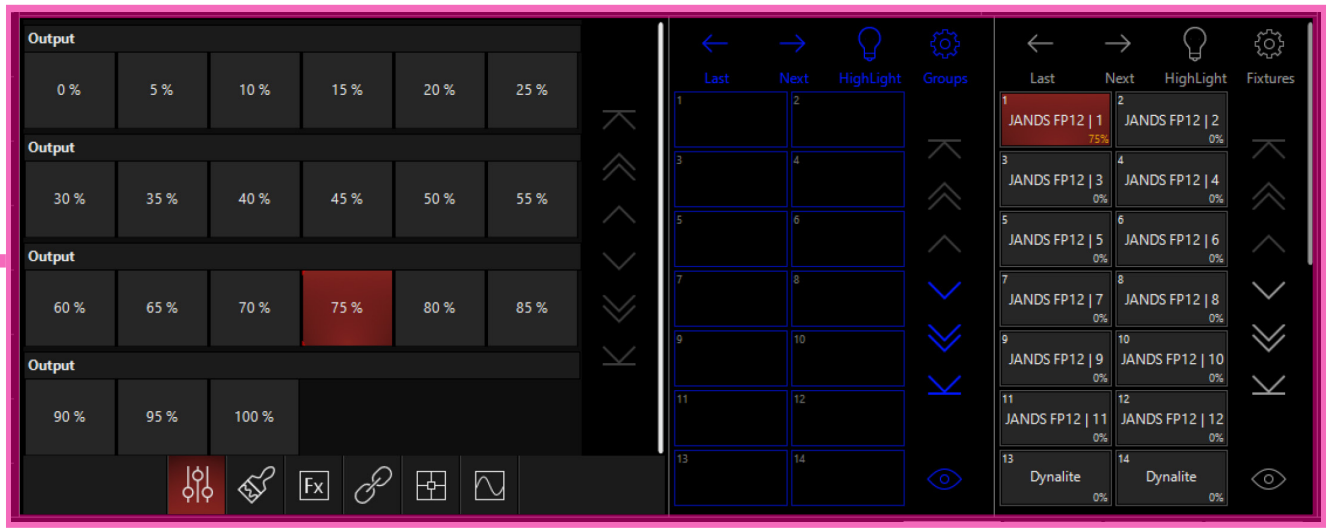


Stage Planner

A visualisation of the fixtures in 2D space. Fixtures can be directly selected here

Planner View

The planner view gives the operator access to manual control of each fixture, and can be used for on-the-fly level selection.



Value Configurator

Sets the value of the channels

Group Selector

Selects the channels that are associated to a group

Channel Selector

Selects the channels in the system

The Console: **Operating Instructions**

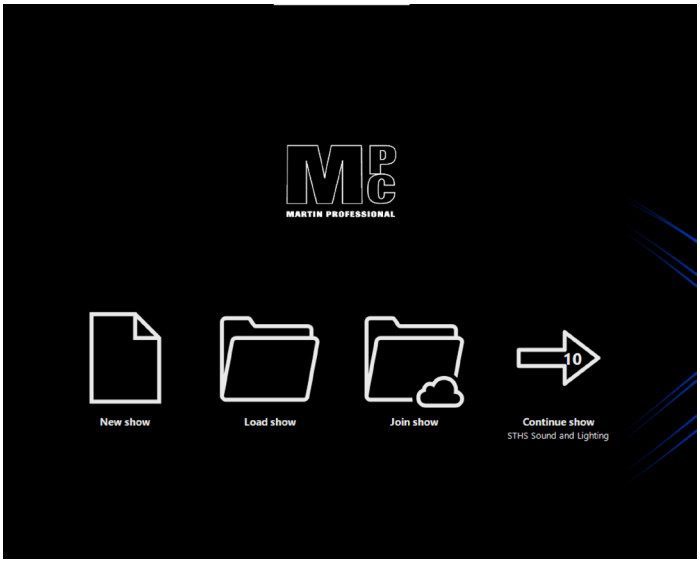
1. Turn everything on
Power on the lighting computer in the room and the two three phase outlets on stage.

2. Select the preferred operation view
For simple operation, select the Main button on the left panel.
For advanced operation, select the Planner button on the left panel.

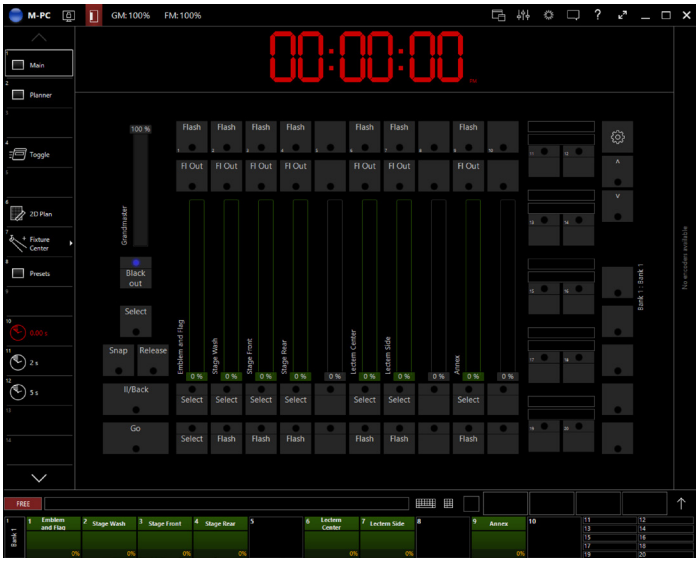
3. Configure the desired channels
If using the Main View
For each channel or channel group, adjust the fader to the desired intensity.

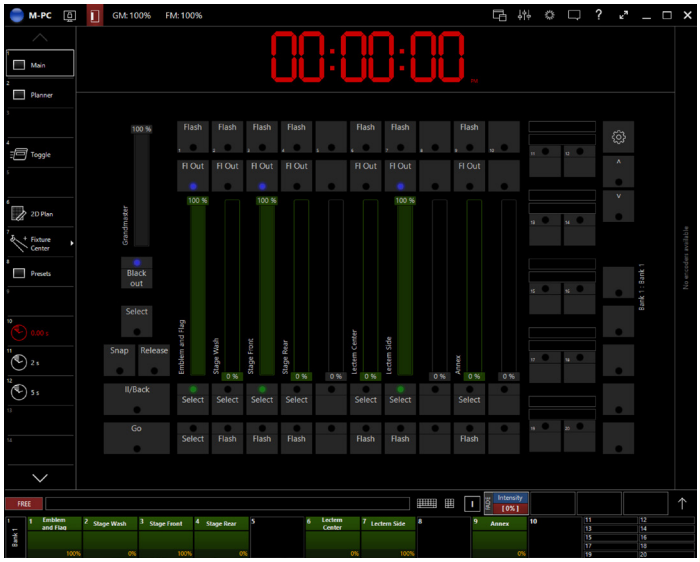
If using the Planner View
First select the channels to change by either selecting a group, or the channel itself.
Then select the desired intensity value.

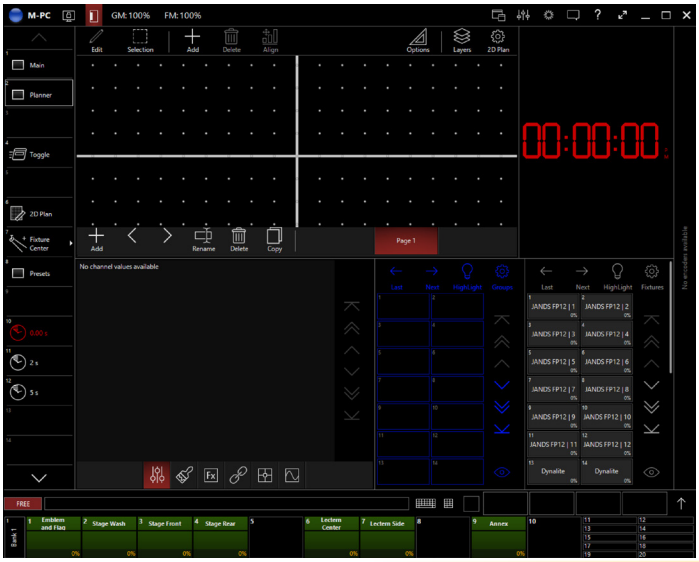
4. Transition
If needed, adjust the fade time for future value changes by selecting either 0s, 2s or 5s on the fade timer selector on the left panel.

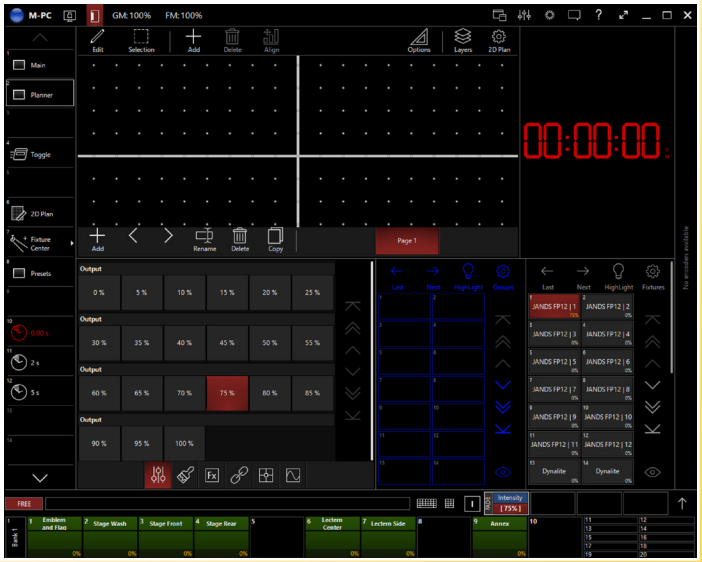

MARTIN PROFESSIONAL
New show
Load show
Join show
Continue show
STHS Sound and Lighting


MARTIN PROFESSIONAL
Starting graphical user interface...
Release, Build 3.70.885.0


M-PC
GM:100%
FM:100%
00:00:00


M-PC
GM:100%
FM:100%
00:00:00


M-PC
GM:100%
FM:100%
00:00:00


M-PC
GM:100%
FM:100%
00:00:00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Section Four

Presentations

Get To Know Your Equipment

3.5mm / 1/8" Cable | THE "AUX CORD"

The 3.5mm auxiliary cable, or the 1/8th inch cable, or commonly referred to as the "aux cord", is the standard for consumer-grade audio device interconnectivity. You would have seen these types of cables in your earphones, speakers and other wired audio devices. For use in school projections, this cable is used with the VGA cable.

VGA Cable | VIDEO GRAPHICS ARRAY

VGA cables are one of the old standard of video cables used to connect a device to a display. The signal they transmit is analogue, and therefore extra care needs to be made to ensure that the connection between the devices is secure. VGA cables can only transmit video, and therefore an additional audio cable is needed.
(ie the above 3.5mm auxiliary cable)

HDMI Cable | HIGH DEFINITION MULTIMEDIA INTERFACE

HDMI is one of the recent technologies that is used for the transmission of multimedia, allowing the transfer of not just video but audio and other content as well - all over a single cable. Due to the nature of the digital signal they transmit, HDMI cables support high bandwidth media, such as 4K content, 60fps media, etcetera

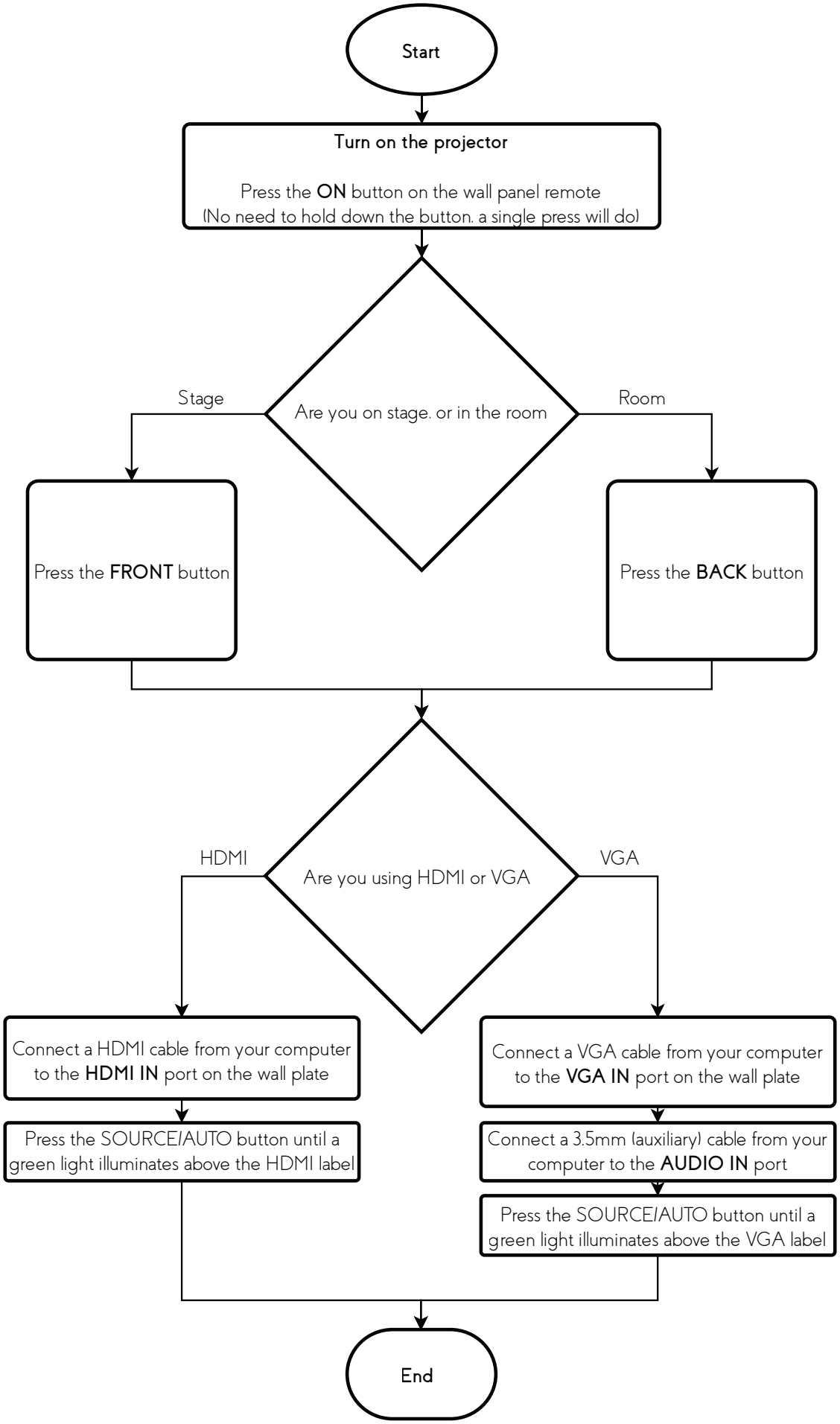
Projector Remote Wall Plate

This remote control panel, located on the stage as well as the Sound and Lighting Room is used to control the settings of the projector. Functionality exists to turn on and off the projector, switch the projector video input, and adjust the projector audio.

Projector Input Wall Plate

These input panels, located next to the remote wall plates, are used to connect devices to the projection system. In auto mode, the system will change the display to the last connected device. Manual selection can be achieved by pressing the button on the left until a green light illuminates above the desired input.

Projection System Guide

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Section Five

Advanced Info

Setup: Electro-Voice RE-2 Wireless Microphone

To successfully set up the Electro-Voice RE-2 Wireless Microphone System, ensure you have all of the following items:
1x Transmitter unit (the wireless microphone)
1x 9V battery (goes into the wireless microphone)
1x Receiver unit
2x Receiver antennas
1x XLR Cable (Male to Female)
1x 12VDC Power Adapter (output current ≥ 300mA)

Receiver Unit Assembly

1) Screw both antennas onto the receiver unit
2) Connect the female end of the XLR cable into the respective port of the receiver unit.
3) Connect the male end of the XLR cable into the desired input port
4) Connect the 12V power adapter to the receiver unit

Operation

To turn on the wireless microphone, move the switch up (towards the mouthpiece). After two seconds, the wireless microphone should be connected to the receiver and is ready for usage. (Ensure that the wireless microphone is also unmuted from the console)

If the red LED lights up constantly, the battery level is low. Prepare for a battery change! Please turn off the microphone when not in use to conserve battery power.

Changing Battery

To change the battery of the wireless microphone, simply unscrew the base of the unit and replace the 9V battery.

Changing Wireless Channels

Occasionally it is necessary to change the wireless channel frequency which the wireless microphone system is using, to remove noise caused by electromagnetic interference.

To change the wireless channel frequency (match the receiver and transmitter values):
1) Press the SET button
2) Use the up and/or down arrow to change the 'GP' value
3) Press the SET button again
4) Use the up and/or down arrow to change the 'CH' value
5) Press the SET button once more to save changes

Alternatively, hold the SET button on the receiver for three seconds
A scan will initiate and automatically select the best wireless channel frequency to use.


RE 2
WIRELESS
ClearScan
power
set
GP
CH
04
05
AF
RF

SETUP: Roland M-300 Standard Configuration

Patchbay

Name / Purpose	Console Channel	Patch Channels
CH1	1	A1
CH2	2	A2
CH3	3	A3
CH4	4	A4
CH5	5	A5
CH6	6	A6
CH7	7	A7
CH8	8	A8
CH9	9	A9
CH10	10	A10
CH11	11	A11
CH12	12	A12
CH13	13	B1
CH14	14	B2
CH15	15	B3
CH16	16	B4
CH17	17	B5
CH18	18	B6
CH19	19	B7
CH20	20	B8
CH21	21	B9
CH22	22	B10
Wireless Microphones	23-24	A15, A16
CD Player	25-26	C9, C10
Projector / Wall Input	27-28	C7, C8
3.5mm Auxiliary Cable	29-30	C11, C12
USB Flash Drive	31-32	PLAY L, PLAY R

Device Configurations

Type / Model	Phantom Required (+48V)	Notes
Rode M1	No	
Shure SM57	No	
Electro-Voice RE-2	No	Wireless channels 2:2 and 4:4
Behringer XM1800S	No	Microphone has a on/off switch
Radial ProDI	No	Check the unit for PAD
Radial Pro48	Yes	Check the unit for PAD
Lectern Microphone	Yes	Set gain to around -20dB
Rode NT4	Yes	Phantom power to left channel

Setup: Martin M-PC Standard Configuration

Patchbay

M-PC Channel	Patch Channels
1	Dynalite 12x2.4kW | 1
2	Dynalite 12x2.4kW | 2
3	Dynalite 12x2.4kW | 3
4	Dynalite 12x2.4kW | 4
5	Dynalite 12x2.4kW | 5
6	Dynalite 12x2.4kW | 6
7	Dynalite 12x2.4kW | 7
8	Dynalite 12x2.4kW | 8
9	Dynalite 12x2.4kW | 9
10	Dynalite 12x2.4kW | 10
11	Dynalite 12x2.4kW | 11
12	Dynalite 12x2.4kW | 12
13	Jands FP12 | 1
14	Jands FP12 | 2
15	Jands FP12 | 3
16	Jands FP12 | 4
17	Jands FP12 | 5
18	Jands FP12 | 6
19	Jands FP12 | 7
20	Jands FP12 | 8
21	Jands FP12 | 9
22	Jands FP12 | 10
23	Jands FP12 | 11
24	Jands FP12 | 12

Group Assignments

Group Name	M-PC Channels
Emblem and Flag	5, 7
Stage Front	23
Stage Centre	4
Stage Rear	3, 22
Spot Center	1
Spot Side	6
Annex	20; 8
(MISC) ERS	2

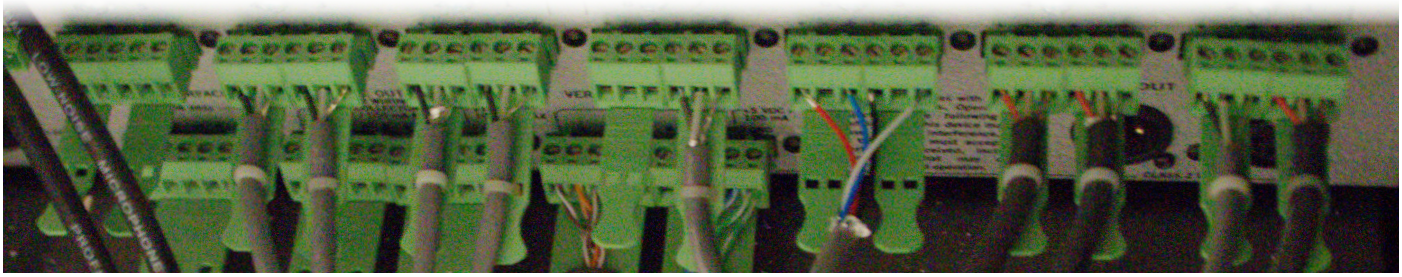
ArtNet Bridge Configuration

ArtNet Subnet & Universe	0:3 [M-PC 4]
ArtNet Receiver Node IP	192.168.0.2

SETUP: **Stage Audio Rack**

Wiring Configuration

Output (From)	Input (To)
Roland S-1608 | o1	Stage Foldback | Annex
Roland S-1608 | o2	Stage Foldback | Center
Roland S-1608 | o3	Stage Foldback | Flag
Roland S-1608 | o4	-
Roland S-1608 | o5	-
Roland S-1608 | o6	-
Roland S-1608 | o7	RPM 88 | i3
Roland S-1608 | o8	RPM 88 | i4
Lectern | Trench	RPM 88 | i1
Lectern | Rear	RPM 88 | i2
Roland S-1608 | o7	RPM 88 | i3
Roland S-1608 | o8	RPM 88 | i4
-	RPM 88 | i5
Projector (Mono)	RPM 88 | i6
-	RPM 88 | i7
-	RPM 88 | i8
RPM 88 | o1	Lab.gruppen E 12:2 A | i1
RPM 88 | o2	Lab.gruppen E 12:2 A | i2
RPM 88 | o3	Lab.gruppen E 12:2 B | i1
RPM 88 | o4	Lab.gruppen E 12:2 B | i2
RPM 88 | o5	-
RPM 88 | o6	-
RPM 88 | o7	-
RPM 88 | o8	-
Lab.gruppen E 12:2 A | o1	FOH L
Lab.gruppen E 12:2 A | o2	FOH R
Lab.gruppen E 12:2 B | o1	BOH L
Lab.gruppen E 12:2 B | o2	BOH R
Mode Panel / Volume Knob	RPM 88 | VIP



Service: Infrastructure and Backend Setup

Access to Presentation Computer

No password to the SAL account

Access to Lighting Control Computer

No password to the SAL account

Access to Stage Audio Rack

Restricted access - contact school staff

Access to Wireless DMX Network

Restricted access

Access to Rane RPM88 Multiprocessor

Connect an Ethernet cable directly between the computer and the multiprocessor, and configure your computer's static IP to 192.168.69.XXX (subnet 255.255.255.0)

Open DragNet and add the multiprocessor to the project

Operator (view only) password: <empty>
Administrator (edit) password: <contact school staff>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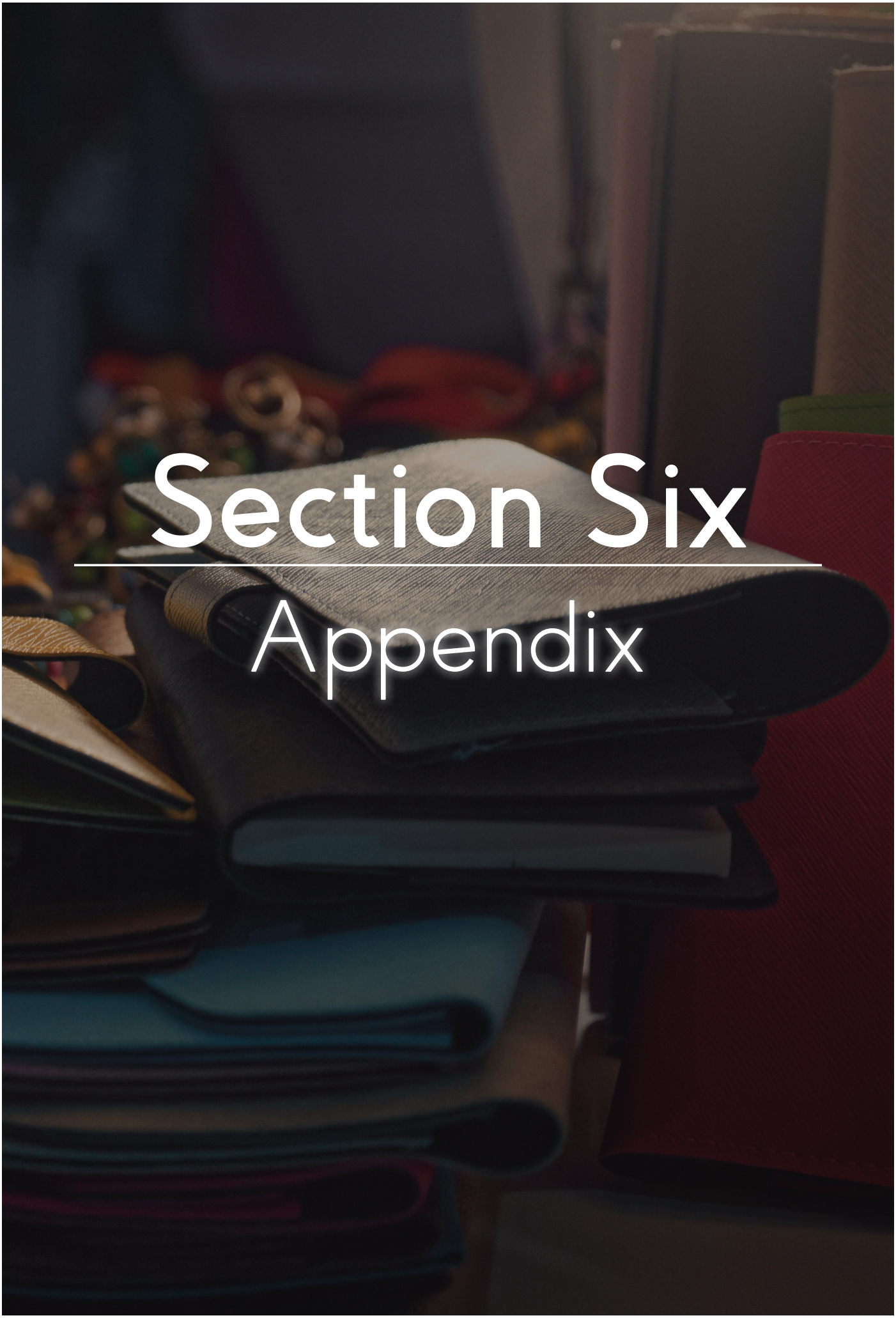
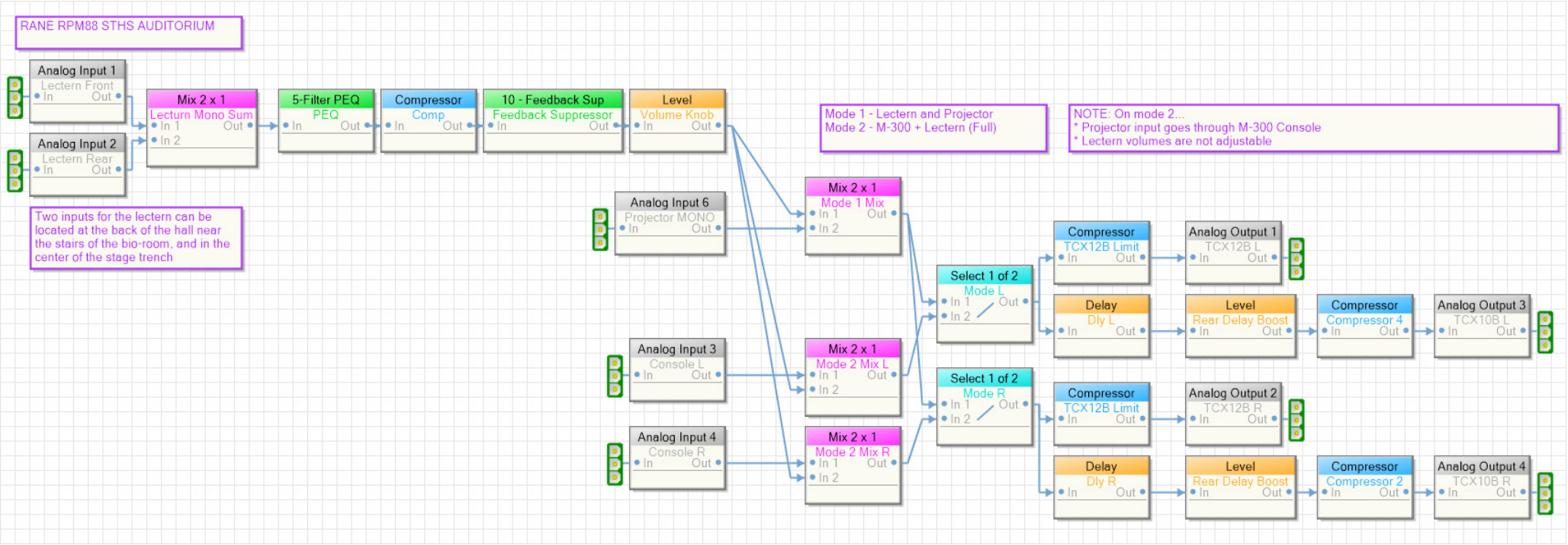


Section Six

Appendix

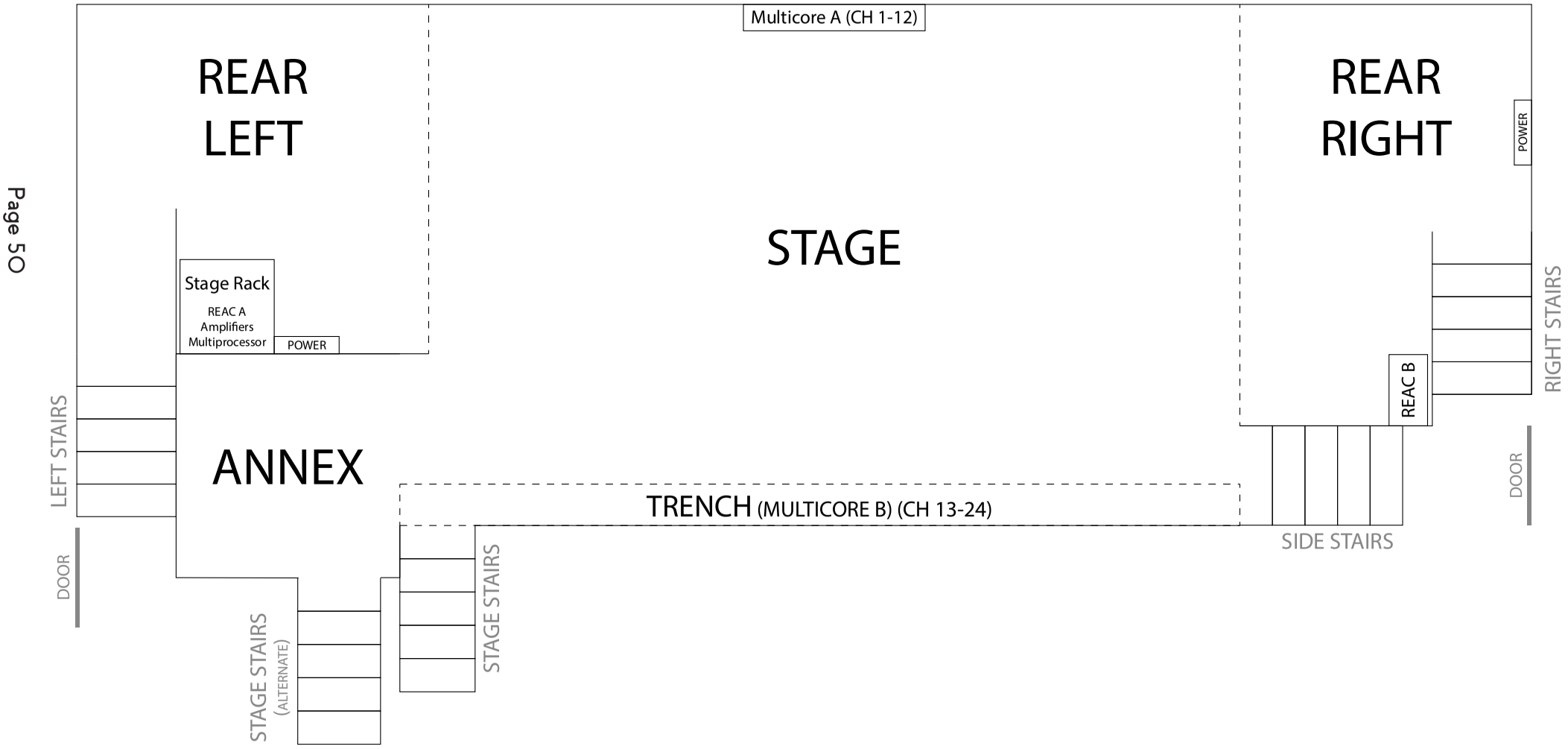
Appendix: **Rane RPM 88 Configuration**

This diagram details the signal of the Rane RPM 88 Multiprocessor.
left - Lectern inputs (back of the stage, and in the trench) are combined together and slightly tweaked.
centre - The system selects which audio signals to output to the speakers depending on what mode the system is set to.
right - Audio is sent to the four speakers in the school auditorium.



APPENDIX: **Stage Layout**

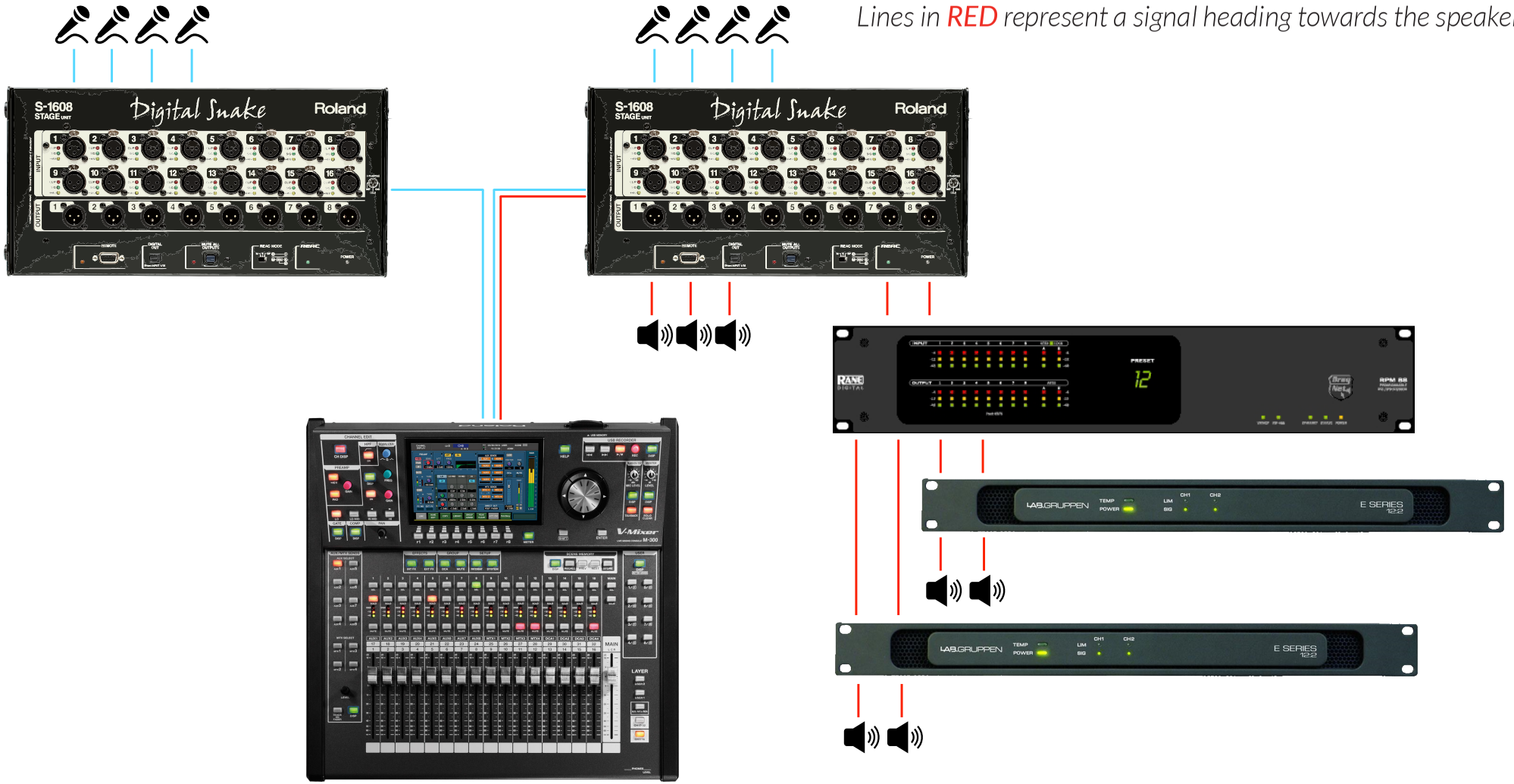
This stage diagram is a 2D representation of the layout of the stage, in respect to the devices that are found on stage.



Appendix: **Connection Diagram**

This diagram visualises the top level connections between the audio devices at school.
Microphones and devices are connected to the Digital Snakes (Roland S-1608) which transmit the audio to the Roland M-300.
The output mix is then sent back to the Digital Snake (specifically, the one behind the annex) and is fed into the Rane RPM 88.
The multiprocessor mixes the additional lectern inputs and applies a bit of extra processing before the signal is sent to the speakers.

Lines in BLUE represent a signal heading towards the mixer
Lines in RED represent a signal heading towards the speakers



Appendix: **Projector Wall Plate Panels**

These wall plates allow for the control of the projection system.
To turn on and off the projector, press the ON or OFF button once (You do not have to hold the button down)
There are two of these wall plate combinations, located on the stage, and in the Sound and Lighting Room. To change between these plates, press the FRONT or BACK button, respectively for the stage or for the room.
To adjust the volume, press VOL UP or VOL DN. Alternatively, to mute audio, press the MUTE button.
Video switching is automatic, selecting the last connected device - however this can be overridden by pressing SOURCE/AUTO.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