
1ST
1ST IN THEATRE
TECHNICAL THEATRE
TRAINING


LIGHTING

LIGHTING TERMS

LANTERNS / FIXTURES / INSTRUMENTS
These are the names commonly used in theatre to describe the lights that we use. This can include automated lights such as Moving Heads.

MOVING HEADS
These are Lanterns that can be focused and have their colour changed remotely from the Lighting Console.

LED LANTERNS
These are the same as Conventional Lanterns but do not require Lamps to produce light and they change colour when controlled by a Lighting Desk.

CONVENTIONAL / GENERIC LANTERNS
Are traditional Theatre Lights that require Lamps and Dimmers to be operated. These Lanterns also need to be focused manually

LIGHTING CONSOLE / LIGHTING DESK
This is the name of the piece of equipment that allows us to control Lanterns remotely.

DIMMER
A Dimmer is what enables a Lantern to be faded on and off again.

LAMP
A Lamp is the 'light bulb' that goes inside of the lantern to create light.

'FOCUS'
The "focus of a Lantern" is a phrase used to describe the position on stage in which a Fixture is lighting. It can also be used to describe the action of the changing the direction of the Lantern.

'RIG'
'Rigging' is the process of hanging a Lantern on a Lighting Bar or other pre-made structure.

DMX CABLE
DMX is the cable that sends commands between a Lighting Console and Dimmer or Automated Fixture.

15 AMP / 13 AMP CABLE
These are power cables used to provide electricity to equipment.

PROFILE SPOT LIGHT

A Profile Spotlight can produce both Hard and Soft Edged beams of light. These can be used to project light over long distances precisely.

GOBO SLOT

This is where you add a gobo holder and gobo to shape the beam.

SHUTTERS

Used to give the beam of light straight edges.

LENS ADJUSTMENTS

Used to soften/sharpen the beam and to also change the beam size.

COLOUR FRAME HOLDER

This is where you add Lighting Gel to change the colour of the beam.

A Fresnel has a Soft Edged diffused beam creating a soft shadow. The are used to project light across large areas over very short distances.

FRESNEL WASH LIGHT

COLOUR FRAME HOLDER

This is where you add Lighting Gel to change the colour of the beam.

LENS ADJUSTMENTS

Used to change the beam size.

ACCESSORIES

BARN DOORS

These help shape the beam of light and also reduce light spill.

COLOUR FRAME

This holds the Lighting Filter in front of the Fixture.

GOBO

These project a shape in light and come in different patterns.

A TYPICAL LIGHTING SET-UP

LIGHTING DESK

DMX

DMX SPLITTER

DMX

DMX

DIMMER

15 AMP

LED LANTERN

LANTERN

REMEMBER

All Dimmers and Automated Lanterns require DMX Addresses as each fader on the Lighting Desk can control a seperate Dimmer Channel or LED function. LED Lanterns use more than one Channel so that you have individual control of the Lanterns Colours so remember to spread out their addresses. MAKE SURE that you do not give two lanterns the same DMX Address or they will come on together.

If you have a 24 Channel Lighting Desk you might want your 3 Channel Dimmer on Address 1 and your 6 Channel LED on Channel 4.

PROGRAMMING A ZERO 88 FROG

RECORDING A MEMORY

1. Ensure that the '**A Master**' and '**Grand Master**' are at Full.
Press the '**Memories**' Button and check that the Red Light on the button turns on.
On the Consoles Monitor you should see a blank Cue List.

2. Build your state using the '**Preset A**' Faders.

3. Once happy, press the red '**Program**' button to record the Lighting State.

4. Once you have finished Programming, bring down the '**Preset A**' Faders and the '**A Master**' Fader to turn off all manual channels.
Fade up the '**Playback Master**' Fader to full and you will see the last Memory you programmed.

RECORDING A SUBMASTER

1. Ensure that the '**A Master**' and '**Grand Master**' are at Full.
Press the '**Submasters**' Button and check that the Red Light on the button turns on.
On the Consoles Monitor you should see a list of the recorded Submasters.

2. Build your look using the '**Preset A**' Faders.

3. Once happy, press the button below the '**Submaster**' Fader you want the state recorded to select it and then press the red '**Program**' button to record the State.
On the screen the '**Contents**' for the '**Submaster**' you just recorded should read '**CH Data**'.

4. Once you have finished Programming, bring down the '**Preset A**' Faders and the '**A Master**' Fader to turn off all manual channels.
Fade up the '**Submaster**' Fader to full and you will see the state you programmed.

RECORDING A CHASE

1. Ensure that the '**A Master**' and '**Grand Master**' are at Full and the '**Memories**' Master is Down.
Press the '**Memories**' Button and check that the Red Light on the button turns on.
On the Consoles Monitor you should see a blank Cue List.

2. Using the Up and Down arrows hover over an available Cue Number you want to record the chase to. The Cue you have chosen should be highlighted on your screen in Yellow.

3. Press and Hold the '**Mem Type**' Button to choose Chase.
An '**Edit Chase**' box should pop up on your screen.

4. Bring up the '**Preset A**' Faders to create the first Look of your Chase and once ready hit '**Program**'.

5. Repeat Step 4 as many times as you need and remember to hit '**Program**' to record each new Look for your chase.

6. Once you have programmed the steps of you chase, determine how many times you want the chase to repeat by adjusting the '**Shots**' Number on the Screen. Remember that 0 = Infinite and 1 = 1 Cycle etc.
When ready use the down arrow to select '**Finish**' and press the '**Enter**' Button.


SOUND

SOUND TERMS

ACTIVE (SPEAKER / DI)
When something is 'Active' that means that it has an in-built Power Supply Unit or Battery. When using Active Speakers you would not need an external Amplifier as it has one built in.

PASSIVE (SPEAKER / DI)
When something is 'Passive' that means that it requires power from an external source. When using Passive Speakers you will need an amplifier.

AMPLIFIER / AMP
This is a device that increases the strength of the sound signals it receives from the Mixing Desk allowing the use of Passive Speakers.

ANALOGUE MIXING DESK / MIXER
These are the older kinds of Mixing Desks that require additional pieces of external equipment to achieve similar functionality to Digital Desks.

DIGITAL MIXING DESK / MIXER
These are moden Mixing Desks that have in-built features such as additional Effects Processors and Dynamic Processors such as Noise Gates and Compressors.

EFFECTS PROCESSOR
This is a device that allows a Sound Engineer to alter the sound of a Voice or Instrument through adding Effects such as Echo, Reverb, Delay etc.

NOISE GATE
This is a device that stops sound from transmitted from the unit until it reaches a predetermined volume. This can stop Ambient Noise from being outputted.

LOW FREQUENCY
Has a wider Wavelength and sounds deeper. This can be made by; Bass Guitars, Kick Drums, the lower notes on a piano and the rumble of an Earthquake

HIGH FREQUENCY
Has a shorter Wavelength and sounds more harsh. This can be made by; an Electric Guitar, Cymbals, a Flute, a Violin and also sizzling food.

PEAKING / CLIPPING
When a sound becomes noticably distorted due to an audio signal being too loud for the device to cope.

ANALOGUE MIXING DESK

The Mixer shown below is a Soundcraft EPM 12. This is similar to other Analogue mixers in many ways but does not have an on board Effects Processor.

INPUT

This is where you connect a Microphone, Instrument, PC or Phone.

OUTPUT

This is where you plug your Speakers into the Mixing Desk.

GAIN

This controls the volume entering the sound desk.

EQ

This alters the volume of frequencies bands per channel.

PAN

This alters the output between the left and right speakers.

MUTE BUTTON

This is where you mute individual Channels.

CHANNEL FADER

This is how you control the output volume of an individual Channel.

MASTER FADERS

This is how you control the overall output from the Mixing Desk.

The Mixer shown below is a Behringer X32 Compact. This is a small digital desk and has a limited number of faders but is as powerful as many larger Mixers.

DIGITAL MIXING DESK

CHANNEL ALTERATIONS

Unlike Analogue Mixers where each Channel has its own dials, many Digital Mixers require you to select the channel first and use the general dials.

SELECT

This selects the chosen channel to be altered.

INPUTS

This selects which channels are on the faders to the right.

SOLO

Selects this channel to be heard alone on your headphones.

YOU SHOULD KNOW

When setting the level of **Gain** on a Channel, set the Channel's Fader to 0 and increase the gain so that the sound levels are reaching the top of the Green Lights on the Meters. This makes sure that everything you are about to mix is at the same volume. Adjust slightly if you need to.

If any of the Meters are in the red you are likely to hear distortion in the audio you are outputting. If this happens, try reducing the Gain on any channels that show they are reaching the Red lights so that they are at the top of the Green lights and this should get rid of any distortion.

Always power on the Mixing Desk before any Speakers or Amplifiers. Do not turn the speakers on if you are already outputting audio as you risk damaging the Speakers.

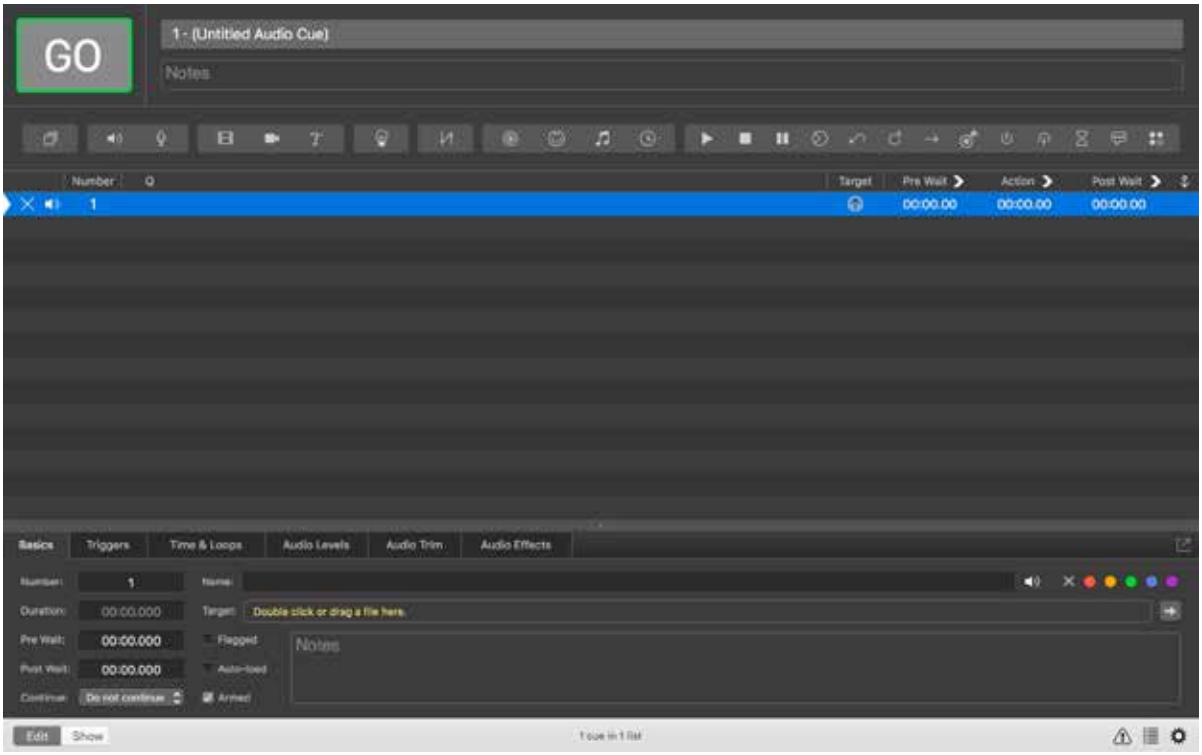
PROGRAMMING QLAB

AN INTRODUCTION TO QLAB

QLab by Figure 53, is an industry standard and free to use Playback software that is similar to the Windows based software Multiplay. Unlike Multiplay, QLab can also control Video playback and it is now also being developed to include Lighting Control.

The way QLab is programmed for both Sound and Video is very similar and once you have learnt one, the other is fairly easy to understand.

The free version of QLab has some limitations such as; being restricted to only two channels of Audio Output, no additional external Video output and there is no ability to Fade Video Cues. Figure 53 do offer a Rent to Buy feature so that every time you rent a Pro License of QLab it goes towards your eventual ownership of the software.



HOW TO OPERATE QLAB

Use the **Space Bar** on your computer to start the selected Cue.
Use the **Escape Key** to fade out and stop all tracks that are currently playing.
Use the **Up and Down Arrows** to navigate between Cues.

ADDING A CUE

When you first open QLab you will be greeted by an empty work space. Below the GO Button you can click any of the icons to add a new cue.

ADD AUDIO ADD VIDEO ADD FADE

PLAY STOP PAUSE

ADDING A SONG / VIDEO

Once you have added a new Content Cue, under the '**Basics**' tab at the bottom of the window you should notice the '**Target**' box as shown below. This is where you choose the Audio or Video file that the Cue will be playing.

FADING A SONG IN

First you will need to set the Master Fader in the '**Audio Levels**' tab of the chosen Cue from '**0**' to '**-**' and hit enter. (*Shown below in Fig. 1*)

Add a **Fade Cue** by pressing the button shown in **Adding A Cue** above.

Set the **Fade Cue's** target by dragging and dropping the **Audio Cue** onto the **Fade Cue**. (*Shown below in Fig. 2*)

Set the **Fade Cue's** master '**Audio Level**' to your chosen level and hit enter. Set **Fader 1 and 2** to '**0**' as shown in Fig. 1

FADING A SONG OUT

1. Add a **Fade Cue** by pressing the button shown in **Adding A Cue** on the previous page.
2. Set the **Fade Cue's** target by dragging and dropping the **Audio Cue** onto the **Fade Cue**. (*Shown below in Fig. 2*)
3. Set the **Fade Cue's** master '**Audio Level**' to '**0**'. (*Shown below in Fig. 4*)
4. Tick the '**Stop Target When Done**' to end the song once it has faded out. (*Shown below in Fig. 3*)

Fig. 1 - Master at '-' and 1 & 2 at '0'.

Fig. 2 - Setting a Fade Cue's Target.

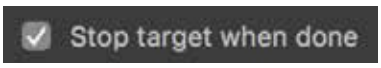


Fig. 3 - Stopping a Cue once it has faded out.

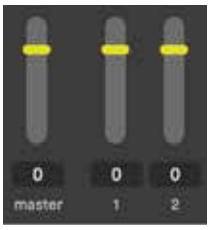
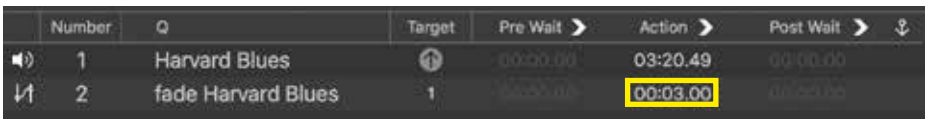


Fig. 4 - Master at '0'

CHANGING A FADE TIME

You can alter the time it takes for a Song / Video to fade on and off by changing the '**Action**' time of the relevant **Fade Cue** as shown below. Simply double click to alter.



STARTING TWO CUES AT THE SAME TIME

You can start two cues at the same time in QLab by only hitting go once. This could be so you can build a sound-scape or so you can begin fading up a song as soon as it starts. To do this click below the anchor icon on the Cue you would like the next cue to follow, see below.

FOLLOW IMMEDIATELY

FOLLOW AFTER COMPLETE

A TYPICAL SOUND SET-UP

RADIO MICS

QLAB

XLR

3.5MM JACK TO STEREO XLR

MIXING DESK

XLR

XLR

SPEAKER LEFT

SPEAKER RIGHT


1ST