

LIGHTING TRAINING

# DMX BASICS

- DMX (Digital Multiplex) is a protocol used to control devices such as lights or fog machines. The signal is unidirectional, meaning it only travels in one direction; from the controller or first light, all the way to the last. In its most basic form, DMX is just a protocol for lights, like how MIDI is for keyboards or DAW controllers.

# DMX BASICS

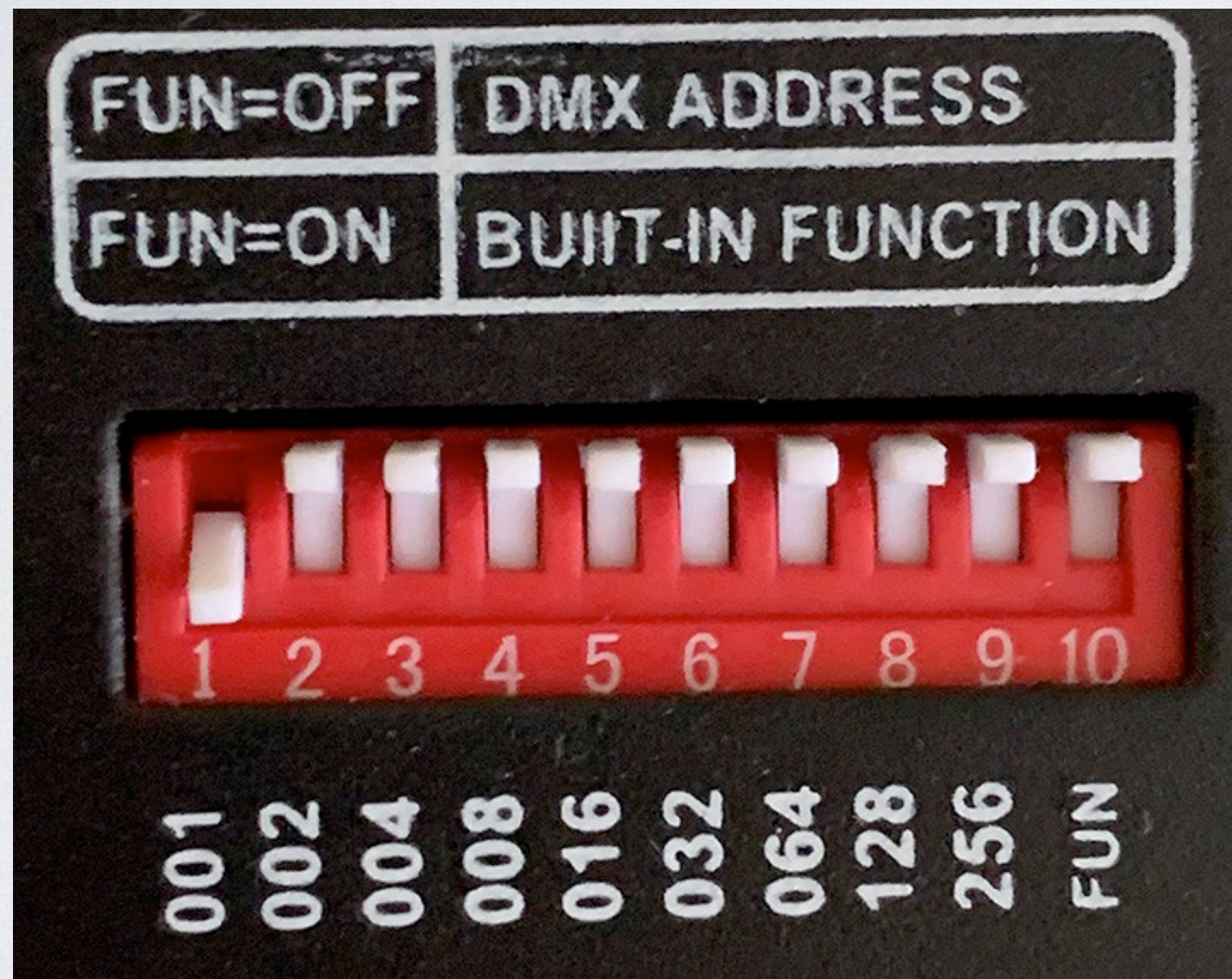
- DMX-compatible products will have different modes of operation such as sound-active mode, 4-channel mode, 7-channel mode, etc. The modes available will vary based on the device and will be explained in your product's user manual. It is possible to connect a group of DMX fixtures without using a controller if you set them all to sound-active or automatic mode. Since they are all connected to each other, this will allow them to sync up to create an automatic light/effect show.

# DMX BASICS

- A DMX Fixture is essentially a light or group of lights assigned to one or more channels. How lights respond to the DMX depends on their DMX personality and starting address. Different fixtures have different amounts of channel modes.
- For example spot lights would use one channel, but basic color LED's would use 3 channels.

# DMX BASICS

All DMX Fixtures can be addressed from the actual fixture using a few basic methods



Older Fixtures use physical dip switches to set mode and address them. This requires an address calculator or knowledge of basic binary math.



Most fixtures currently use a basic menu system to set mode and addresses. All McDonough Campus Lights use these. Each manufacturer is a little different but they all follow similar workflows.

# DMX BASICS

- DMX consists of 512 individual channels which are known as a Universe. Each channel or channels are assigned to control different parameters (known as a personality) of the light, such as color, rotation, or strobe, and have data values of 0-255. Think of the data values like a fader on the mixer; the higher the data value, the more intense the function becomes.
- DMX channels are also commonly referred to as addresses.

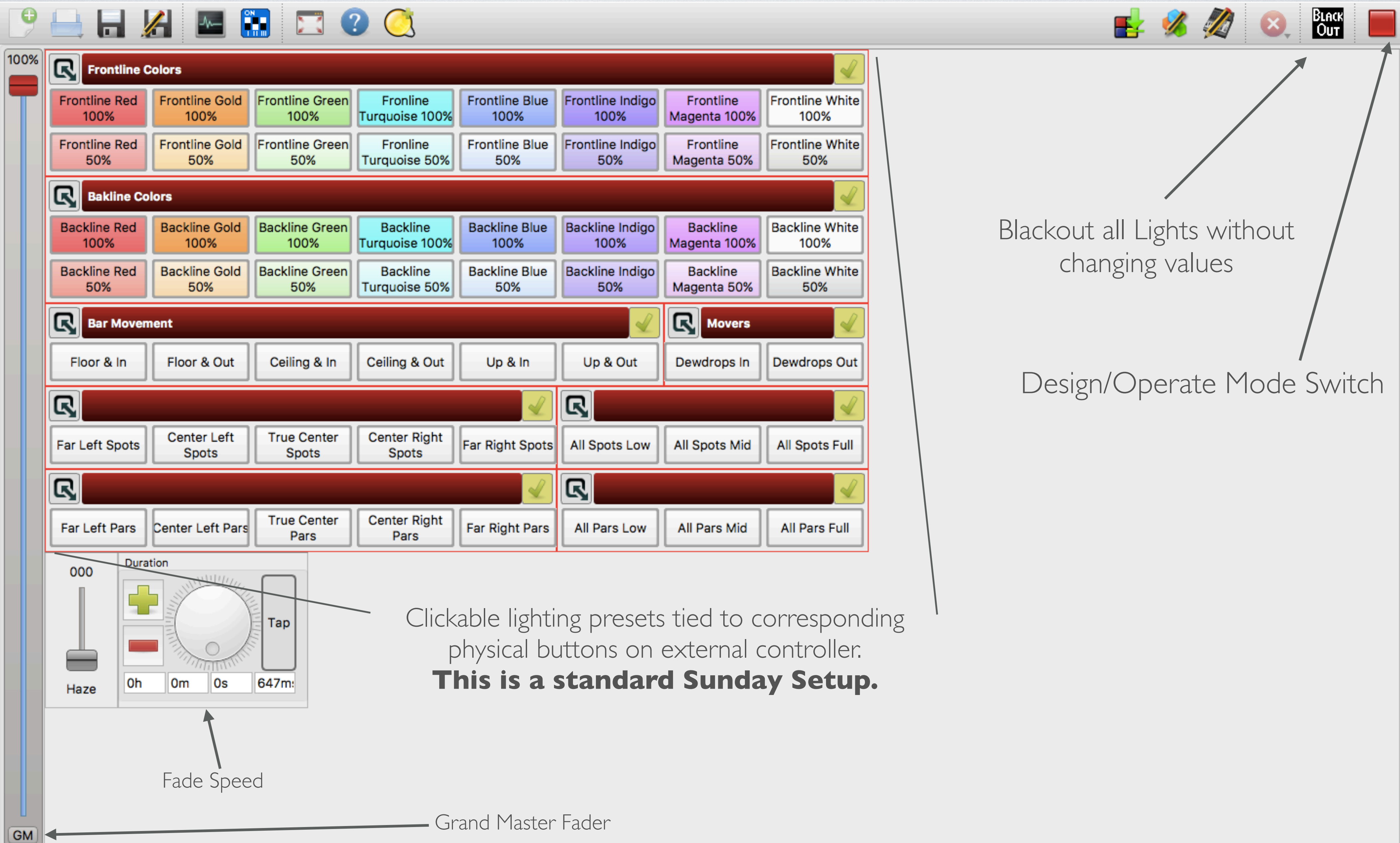
# DMX BASICS

- DMX controllers are the brain of a lighting rig and transmit the DMX messages which trigger the lights.
- At the McDonough Campus we currently use a DMX decoder paired with an open source software called QLC+ as our controller.
- Depending on your needs and your setup you can run multiple DMX universes in any given space. (\*as long as your hardware is capable)



QLC + SOFTWARE





Blackout all Lights without changing values

Design/Operate Mode Switch

Clickable lighting presets tied to corresponding physical buttons on external controller.  
**This is a standard Sunday Setup.**

Fade Speed

Grand Master Fader



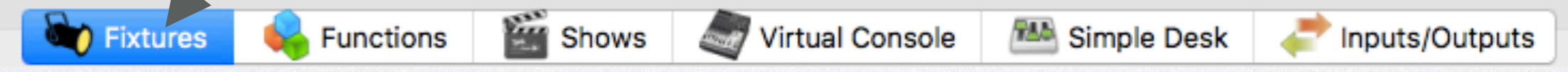
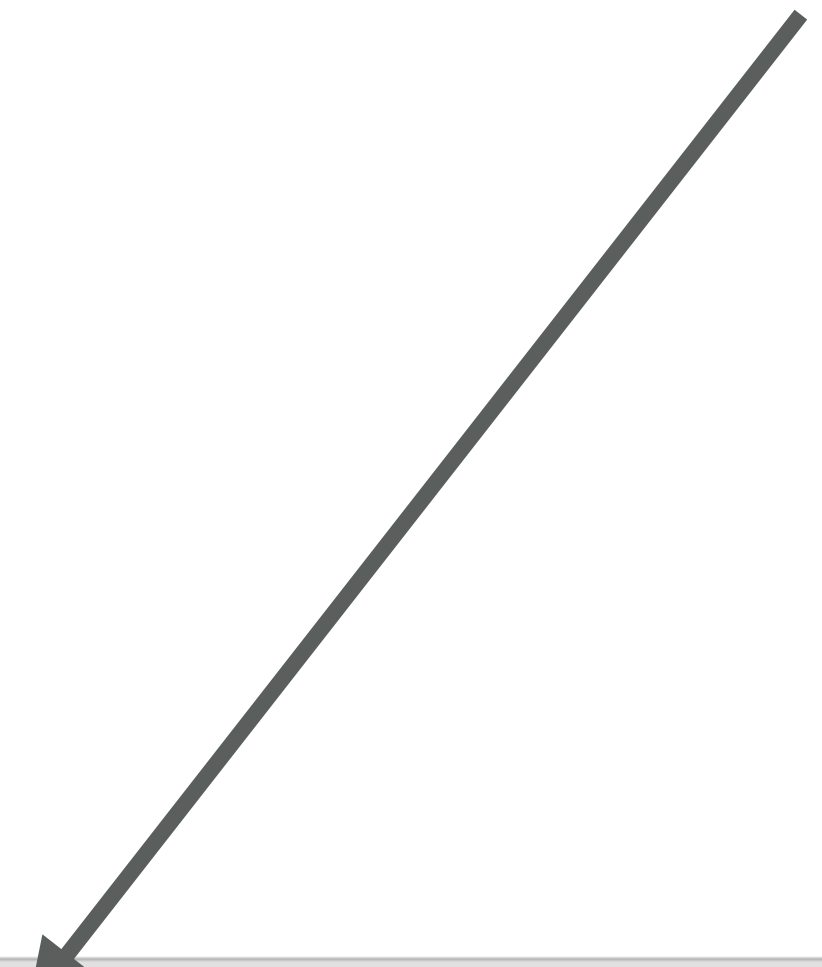
Fixtures Groups Channels Groups

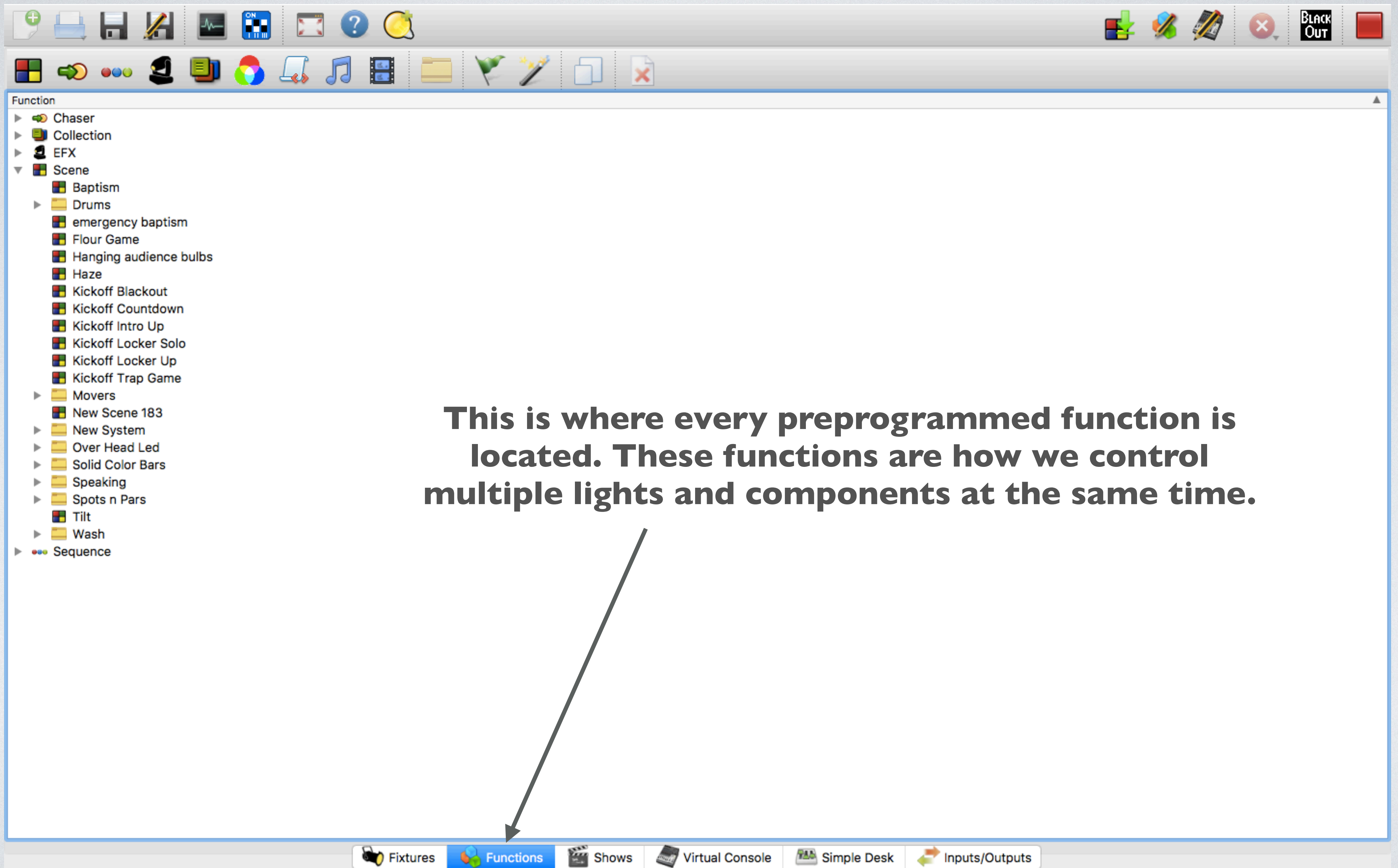
Name	Universe	Address
▶ ColorBand Pix-M - RGB Group		
▶ EZPar 64 RGBA - RGB Group		
▶ Generic RGB - RGB Group		
▶ BackLights		
▶ Front Lights		
▶ Moving Bars		
▶ Dancy Time		
▶ Daniels Stage		
▶ Circle Movers		
▼ Universe 1		
BackLight Pars #1	1	001
BackLight Pars #2	1	002
BackLight Pars #3	1	003
BackLight Pars #4	1	004
BackLight Pars #5	1	005
BackLight Pars #6	1	006
BackLight Pars #7	1	007
BackLight Pars #8	1	008
Front Elips Spots Left 1	1	009
Front Elips Spots Left 2	1	010
Front Elips Spots Left 3	1	011

Nothing selected

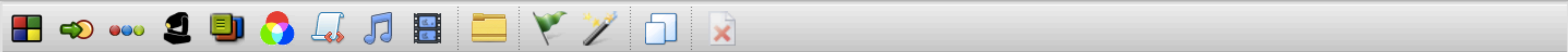
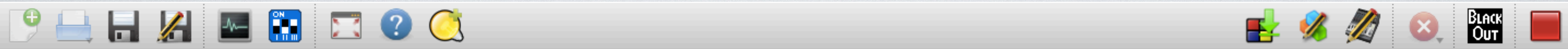
Select a fixture from the list or click to add fixtures.

**Every Lighting Fixture or theatrical component in our system or that we add will be located here.**





**This is where every preprogrammed function is located. These functions are how we control multiple lights and components at the same time.**



Function

- ▶ Chaser
- ▶ Collection
- ▶ EFX
- ▼ Scene
  - ▶ Baptism
    - ▶ Drums
    - ▶ emergency baptism
    - ▶ Flour Game
    - ▶ Hanging audience bulbs
    - ▶ Haze
    - ▶ Kickoff Blackout
    - ▶ Kickoff Countdown
    - ▶ Kickoff Intro Up
    - ▶ Kickoff Locker Solo
    - ▶ Kickoff Locker Up

**This is an example of a function utilizing multiple fixtures.**

Scene name:

G...l  
  Cr...ot  
  Moving B...ter Left  
  Movin... Left  
  Moving Ba...ter Right  
  Movin...Right  
  Left Ov...d Mover  
  Right O...d Mover  
  Moving B...een Left  
  Moving B...en Right  
  Mover... Left  
  Mover ... Right

Fixtures used in this scene	Channel groups used in this scene
<input checked="" type="checkbox"/> Cross Spot <input type="checkbox"/> Moving Bar Center Left <input type="checkbox"/> Moving Bar Left <input type="checkbox"/> Moving Bar Center Right <input checked="" type="checkbox"/> Moving Bar Right <input type="checkbox"/> Left Overhead Mover <input type="checkbox"/> Right Overhead Mover <input type="checkbox"/> Moving Bar Screen Left <input type="checkbox"/> Moving Bar Screen Right <input type="checkbox"/> Mover Stage Left <input type="checkbox"/> Mover Stage Right	<input type="checkbox"/> Mover Dimming

100% GM

100%	R	G	B	R	G	B	A	Lightbulb	R	G	B	↕	⌚	R	G	B	↕	⌚	R	G	B	↕	⌚	R	G	B	↕	⌚	R	G	B	↕	⌚				
	0	0	0	0	0	0	0	0	0	0	0	130	0	0	0	0	130	0	0	0	0	130	0	0	0	0	130	0	0	0	0	130	0	0	0	66	0
	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66				
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			

Cue Stack Channel groups

Playback

✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★

Cue Stack - Playback 1

Navigation: left arrow, stop, right arrow, copy, edit, record

Number	Fade In	Fade Out	Duration	Cue
<p><b>Simple Desk allows you to affect a single channel(address) regardless of current applied functions. This is mostly for design and troubleshooting.</b></p>				

Universe name:  Passthrough

Universe	Input	Profile	Output	Feedback
Universe 1	1: APC MINI	None	1: DMX USB PRO - DMX Output 1	1: APC MINI
Universe 2	None	None	None	None
Universe 3	None	None	None	None
Universe 4	None	None	None	None

**The input/output page is where you set up connections to dmx decoders and external controllers.**

As long as these are the settings the system will work. You never need to be in here.

Plugin	Device	Input	Output	Feedback
ArtNet	1: 127.0.0.1	<input type="checkbox"/>	<input type="checkbox"/>	
ArtNet	2: 192.168.1.99	<input type="checkbox"/>	<input type="checkbox"/>	
DMX USB	1: DMX USB PRO - DMX Input	<input type="checkbox"/>		
DMX USB	1: DMX USB PRO - DMX Output 1		<input checked="" type="checkbox"/>	
E1.31	1: 127.0.0.1	<input type="checkbox"/>	<input type="checkbox"/>	
E1.31	2: 192.168.1.99	<input type="checkbox"/>	<input type="checkbox"/>	
ENTTEC Wing	None			
HID	None			
Loopback	1: Loopback 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loopback	2: Loopback 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loopback	3: Loopback 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loopback	4: Loopback 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MIDI	1: APC MINI	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OS2L	1: OS2L line	<input type="checkbox"/>		
OSC	1: 127.0.0.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OSC	2: 192.168.1.99	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peperoni	None			
uDMX	None			

**ArtNet**

This plugin provides DMX output for devices supporting the ArtNet communication protocol.

**Input 1: 127.0.0.1**  
Status: Not open

**Output 1: 127.0.0.1**  
Status: Not open

# BASIC MOXIE LIGHTING WALK-THROUGH

- Once we start practice first check to ensure the fixtures are responding to the function buttons in QLC using either the buttons on the screen or the buttons on the external controller.
  - You will notice that the system is set up in such a way that you cannot apply two conflicting functions. This is denoted by the red headers in the software. Anywhere there is a red header you can only apply one function at any time.
- Once we start Queue to Queue you will want to have on the headphones with them plugged into the wireless pack.
  - As you listen you will hear either the MD or the Song guide director directing the band and you. When the director in your ear moves the band along in the song just follow their directions

100%

Duration

0h 0m 5s 165ms

000 Black Out

Haze

Walk In

Walk In Swell In

Let Go

Verse 1 Prechorus Chorus Chorus 2 Interlude Verse 2 Prechorus Chorus Chorus 2 Interlude Instrumental

Chorus Instrumental Interlude Chorus 2 End

Hosting

Hosting Game Hosting Senior Last Words Senior Prayer

Teaching

Bumper Teaching Prayer

What a Beautiful Name

Jill Call to Worship Verse Chorus Verse 2 Chorus & Tag Instrumental Bridge Bridge Half Bridge Bridge Half Chorus & Tags

End

So Will I

Intro Verse Chorus Interlude Verse 2 Chorus Instrumental (x2) Bridge Bridge Instrumental Verse

Chorus Chorus Chorus Chorus End

Dismissal

Dismissal

GM

Fixtures Functions Shows Virtual Console Simple Desk Inputs/Outputs

**This is what a usual Moxie Night looks like in QLC+. However the night is programmed will match in the software and the buttons will be named the same as the directions you hear in your headset from the director.**



EVERYTHING YOU COULD EVER WANT  
TO KNOW ABOUT QLC +

[https://www.qlcplus.org/docs/html\\_en\\_EN/index.html](https://www.qlcplus.org/docs/html_en_EN/index.html)

# HOUSE LIGHTS

- House lights are an intentional part of the services.
- They require as much attention as the stage lighting to ensure we minimize distraction and promote intentional focus.
- As with our stage lighting it is important to consider the people group we are serving. There will be differences in how we deal with lighting based on the people in the room.

# HOUSE LIGHTS

- Sunday Morning Services
  - Our People group consists mostly of young families - middle aged adults.
  - House lights should be at 100% at the beginning of a service to ensure people entering a little late are able to find a seat easily.
  - House lights should be dropped to 50% once we have been in service for 7-10 minutes or in the middle of the first worship song depending on which comes first.
  - Once we are in worship house lights should be dropped to their lowest value without clicking them completely off.
  - During our hosting times house lights should be between 75-100%.
  - During Table house lights should be set to 50%.
  - House Lights should be raised to 100% once the host dismisses the people.
  - During videos house lights should be their lowest value without clicking them off.
  - During teaching house lights should be around 75% to ensure people can see their notes and their bibles.

# HOUSE LIGHTS

- Moxie Services
  - Our People group consists mostly of 6-12th grade students.
  - House lights should be their lowest value without clicking them off until the countdown ends.
  - House lights should be clicked off at the end of the countdown unless otherwise stated in planning center.
  - House lights are clicked off during all worship songs.
  - During our hosting times house lights should be between 75-100%.
  - House Lights should be raised to 100% once the students are dismissed to small group.
  - During videos house lights should be clicked off.
  - During teaching house lights should be around 100% to ensure people can see their notes and their bibles.