



Audio Visual Reference Manual

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Quick Start Checklist

Turn items ON in the following order. Reverse this order when turning items OFF.

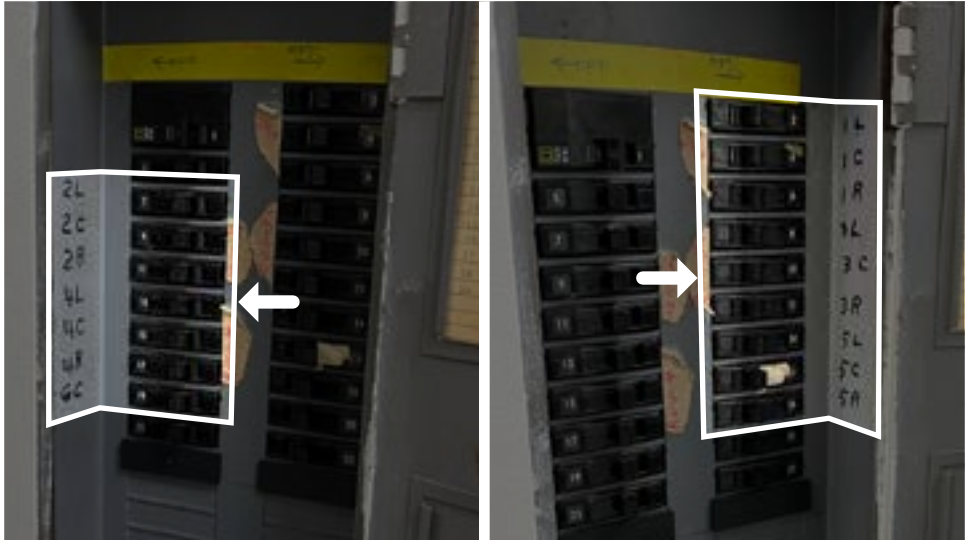


Task	Sunday	Wednesday
1. Turn on sanctuary lights (office hallway breaker panel – Numbered switches ONLY).	✓	✓
2. Connect SSD to ATEM for video recording message.	✓	
3. Turn on sequencer power.	✓	✓
4. Turn on two LG displays (front of room).	✓	✓
5. Turn on Dynex display (back of room).	✓	✓
6. Turn on computer display (switch underneath, lower right) Wake computer by pressing SHIFT key on the keyboard.	✓	✓
7. Log into the New City account using the password.	✓	✓
8. Launch ProPresenter app.	✓	✓
9. Launch Lightkey app and turn on platform lighting.	✓	✓
10. Open the lens cover and turn on camera.	✓	
11. Turn on ATEM audio – Channel 1.	✓	
12. Turn on platform spotlights, switches 1, 3, and 5 (In balcony storage room).	✓	
13. Turn on QSC speakers on platform.	✓	✓
14. Turn on Behringer sub-woofer on platform.	✓	✓
15. Install mic and lavalliere batteries NOTE: Only ONE mic (blue) is used on Wednesday night.	✓	✓
16. Load NCC Scene preset on the X32.	✓	✓
17. OPTIONAL – Turn on Connections video in lobby.	✓	

Refer to the “**Quick Start Guide**”, pages 4 – 13 for more detailed information on the tasks 1 to 16 in the above list.


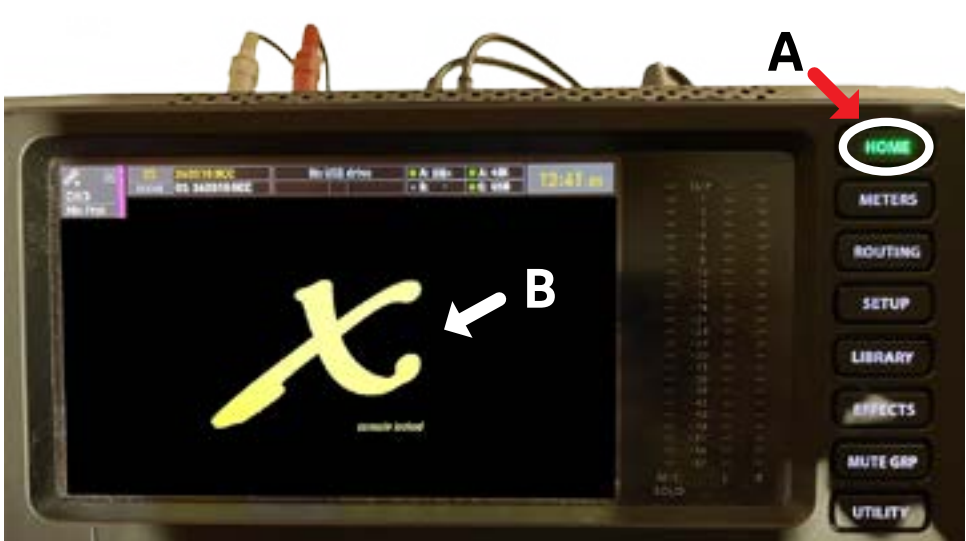
Quick Start Guide

Use this guide as a checklist of items that need to be done for Sunday and Wednesday night.





To AVOID DAMAGING EQUIPMENT: Follow these order of steps when turning equipment ON. **REVERSE** these steps when turning equipment OFF.

Task	Sunday Morning	Wednesday Night	
<p>1. Turn on sanctuary lights (office hallway breaker panel).</p> <p>NOTE: Only the breakers that are numbered need to be turned on.</p>	✓	✓	
<p>2. Connect the Sandisk SSD (Solid State Drive) into the back of the ATEM video switcher via the attached USB-C cable (not shown).</p> <p>The SSD is used to record the service from the Canon video camera.</p> <p><i>SanDisk Extreme SSD</i></p> 	✓		


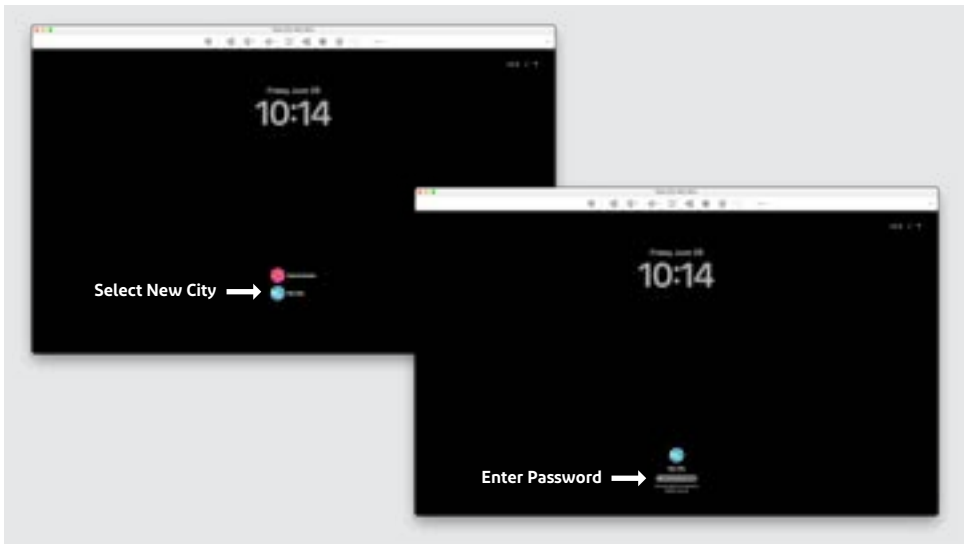
Quick Start Guide

Task	Sunday Morning	Wednesday Night	
<p>3. Turn ON the Sequencer Switch.</p> <p>The Sequencer Switch turns on various items, one at a time, in the appropriate order.</p> <p>NOTE: The switch turns ON, clockwise 180° and OFF counter-clockwise 180°.</p>	✓	✓	
<p>4. A.) Unlock the X32 Compact by pressing and holding the "Home" button...</p> <p>B.) ...until X logo screen disappears.</p> <p>Lock X32 before shutting down by pressing and holding the "Home" button until you see the X logo screen.</p>	✓	✓	

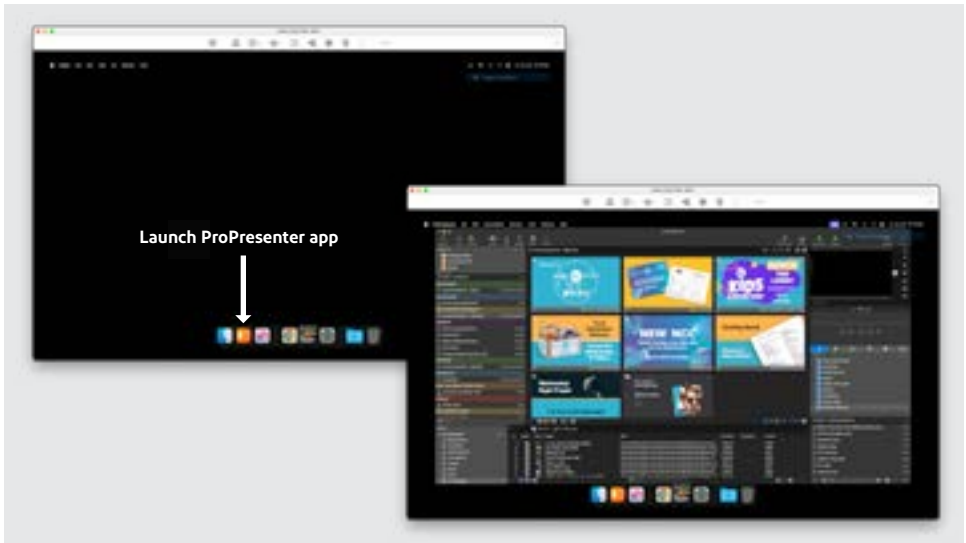
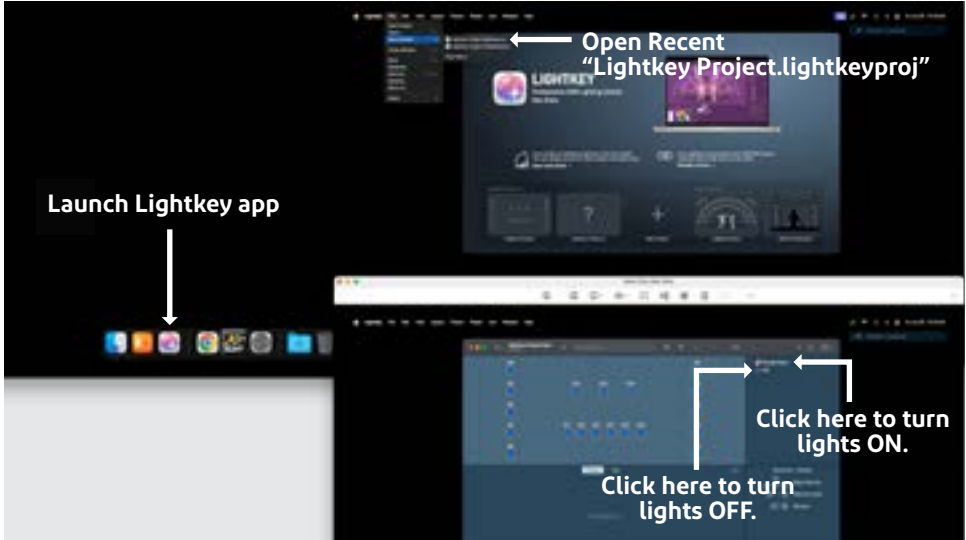
Quick Start Guide

Task	Sunday Morning	Wednesday Night	
<p>5. Turn on the LG monitors above the platform.</p> <p>NOTE: Aiming the LG remote at the cross between the monitors usually turns on both monitors at once.</p> <p>NOTE: Remotes are located in the cabinet behind the computer-AV area.</p>	✓	✓	  <p>LG Remote</p>
<p>6. Turn on the Dynex monitor on the balcony wall.</p> <p>NOTE: Light will blink (arrow) when display is turned on.</p> <p>NOTE: Remotes are located in the cabinet behind the computer-AV area.</p>	✓	✓	  <p>Dynex Remote</p>

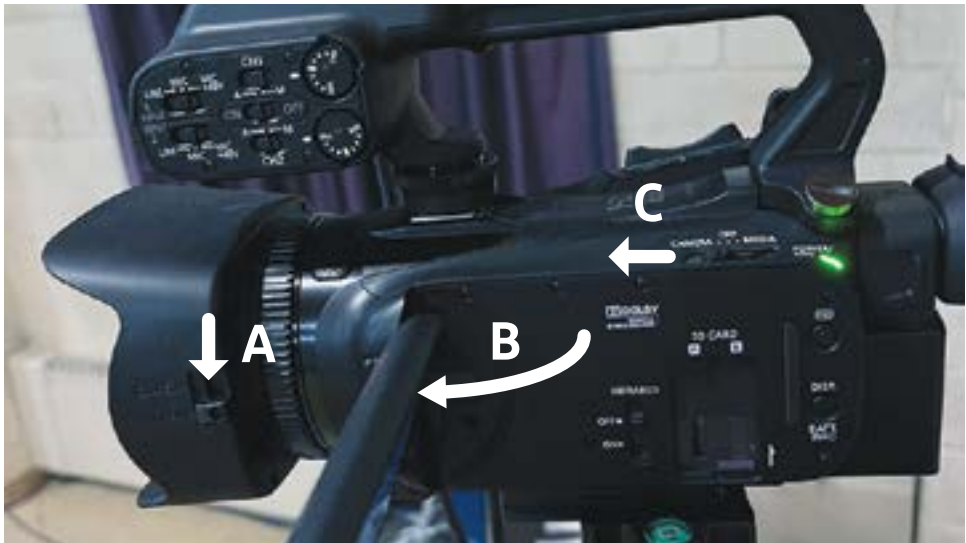

Quick Start Guide

Task	Sunday Morning	Wednesday Night	
<p>7. A.) Turn on the display by pressing the power switch underneath the bottom right side of the display (Not Shown).</p> <p>B.) Wake the computer by pressing the "Shift" key.</p>	✓	✓	
<p>8. Log into the computer using the password.</p>	✓	✓	

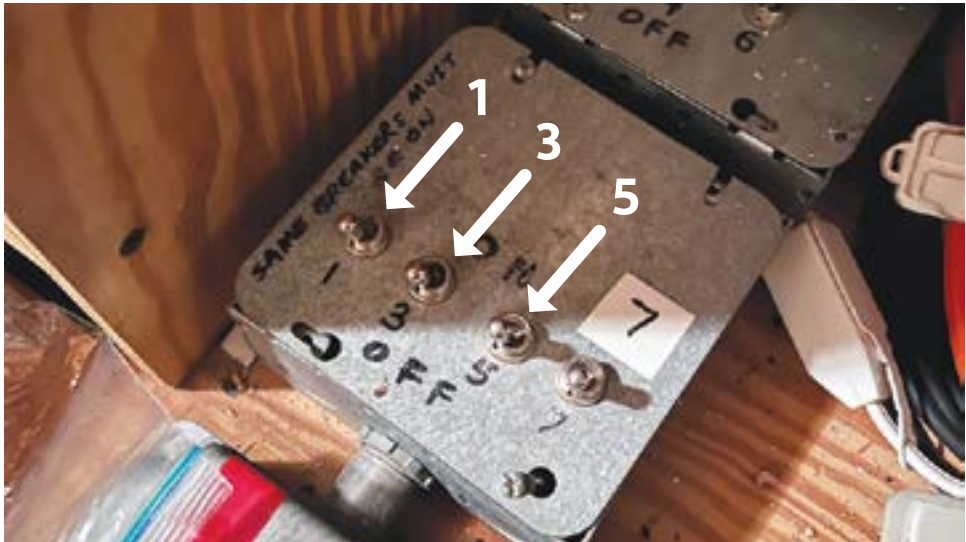

Quick Start Guide

Task	Sunday Morning	Wednesday Night	
9. Launch ProPresenter app.	✓	✓	
10. Launch Lightkey app. Open the file “Lightkey Project.lightkeyproj” from the File menu, “Open Recent”. Turn on the platform lights by selecting the appropriate preset on the right of the screen.	✓	✓	

Quick Start Guide

Task	Sunday Morning	Wednesday Night	
<div>11. Turn on the Canon Video camera</div> <div>A.) Open the lens cover. Press the lens cover button downward to open, and upward to close.</div> <div>B.) Open the camera display door.</div> <div>C.) Press the power switch forward.</div>	✓		
<div>12. Turn on the "Audio" for input "1" on the ATEM Video Switcher.</div>	✓		

Quick Start Guide

Task	Sunday Morning	Wednesday Night	
13. Turn on platform spotlights, switches 1, 3, and 5 located on the table in the upstairs balcony storage room.	✓		
14. Turn on the QSC speakers located on the right and left side* of the platform.	✓	✓	

*Looking at the platform from the room.



Quick Start Guide

Task	Sunday Morning	Wednesday Night	
<div>15. Turn on the Mackie subwoofer located on the left side* of the platform.</div> <div>The power switch is located on the back at the bottom of the subwoofer.</div>	✓	✓	
<div>16. Install mic and lavalliere batteries.</div> <div>NOTE: Only ONE mic is used on Wednesday night.</div>	✓	✓	

Quick Start Guide

Task	Sunday Morning	Wednesday Night	
<p>17. Load the New City (NCC) Scene preset on the X32.</p> <p>A.) Press the “View” button in the “Scenes” panel.</p> <p>B.) If the “NCC” scene is not highlighted, use the first knob to scroll to the appropriate scene.</p> <p>C.) Select the “NCC” scene by pressing down on the scroll knob (B).</p> <p>D.) Confirm your selection by pressing the “Confirm” knob when the next menu appears on screen.</p> <p>Press A again to leave the Scenes menu.</p>	✓	✓	
<p>Mute Groups</p> <p>A.) Select a “Mute Group”. Mute Groups are used to mute and unmute specific faders depending on what is being done during a service.</p> <p>B.) Make sure that the “House Volume” is turned up to infinity, “0” on the fader.</p> <p>Mute Group Identification (A):</p> <ol style="list-style-type: none"> 1.) Worship: Instruments, Singer’s mics, etc. 2.) Currently not being used 3.) Music from Computer/ProPresenter Only 4.) Message, Speaker (lavalier) 5.) Wednesday Night Prayer (Blue mic) 6.) Mutes ALL Channels <p>NOTE: Only ONE mute groups should be selected at a time.</p>	✓	✓	

Quick Start Guide

Task	Sunday Morning	Wednesday Night	
<p>Recording the Sermon</p> <p>To video record the message, first, make sure that the audio button (A) is "ON". To begin recording press the record "REC" (B) button on the ATEM Switcher as shown.</p> <p>Remember to press "STOP" recording (C) BEFORE turning the system off, and disconnecting the SanDisk SSD.</p>	✓		
<p>Using a Mobile Phone to Play Music Through the System</p> <p>OPTIONAL: To play music from an iPhone, connect using the dongle that is connected to X32 Compact Sound Board.</p>	✓	✓	

Audio Visual Reference

Lighting – Lightkey App

The Lightkey app is used to control the platform lighting.

1. Launch the Lightkey App
2. From the “File” menu, “Open Recent” —> “LightkeyProject.lightkeyproj”
3. There are two settings currently in the Lightkey app. “Sunday Basic” turns all the lights ON. “Off” turns all the lights OFF.

Display Monitors

Turn on LG displays in the front of the room.

One remote turns on both display in front of the room. Aim the remote between displays to turn both on at same time

Turn on Dynex display on the balcony wall.

This is a separate remote.

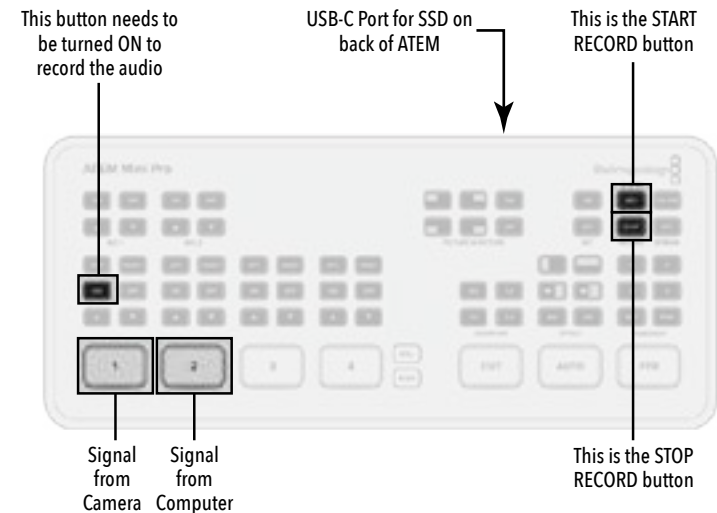
ATEM Video Switcher

Connect the SSD (Solid State Drive) to the ATEM Video Switcher (for recording the message) using the USB-C cable that is attached to the ATEM Video Switcher.

NOTE: The buttons and connection below are the only items to be concerned with on the ATEM video switcher. This device allows the recording of the message and the slides in one video recording.

When Button 1.) “Signal from Camera” is selected, the signal from the camera is being recorded through the ATEM to the SSD.

When Button 2.) “Signal from Computer” is selected, the images from ProPresenter are being recorded through the ATEM to the SSD.

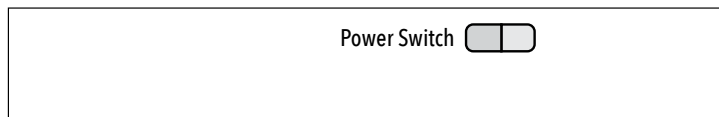


Audio Visual Reference

Power

Main Power Switch

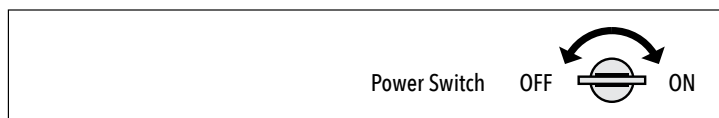
Top item in the rack. (NOTE: This switch **remains ON**)



Turn on Sequencer Power Switch

The Sequencer Power Switch turns on: The X32 Compact sound board, the ATEM Switcher, and the display screen (far right) for video monitoring.

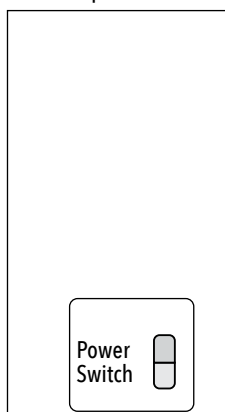
Sequencer Power Switch (with key switch)



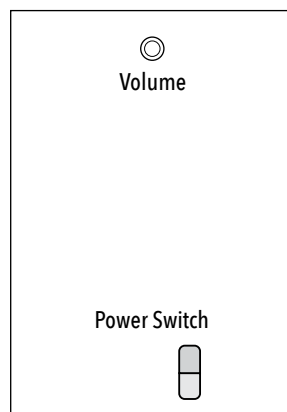
Speakers

Turn on QSC Speakers and the Sub Woofer on the Platform

Two QSC Speakers



One Sub Woofer



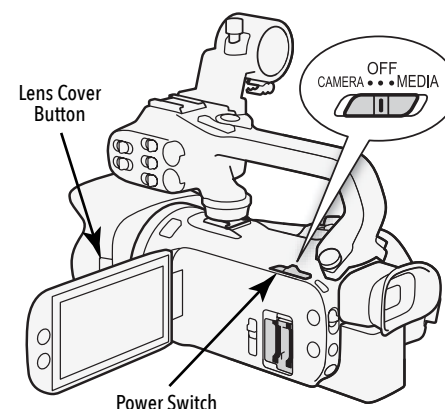
Computer

1. Turn on the computer display. The power button is underneath the bottom edge of the display to the far right.
2. Log into the account "New City Church" using the password.
3. Launch the ProPresenter app.
 - The ProPresenter app is used to display announcements, song lyrics, message slides, and play music and videos from the computer.
4. Launch the Lightkey app.

Canon Video Camera

NOTE: A User Manual for the camera is on the computer in PDF.

The Canon Video Camera is used to record the message. A signal is sent to the ATEM Switcher, and the message is recorded onto the SSD.



1. Turn ON Camera
 - Slide the power switch to the LEFT.
2. Open Lens Cover
 - Open the lens cover using the button on the side of the lens cover.

Audio Visual Reference

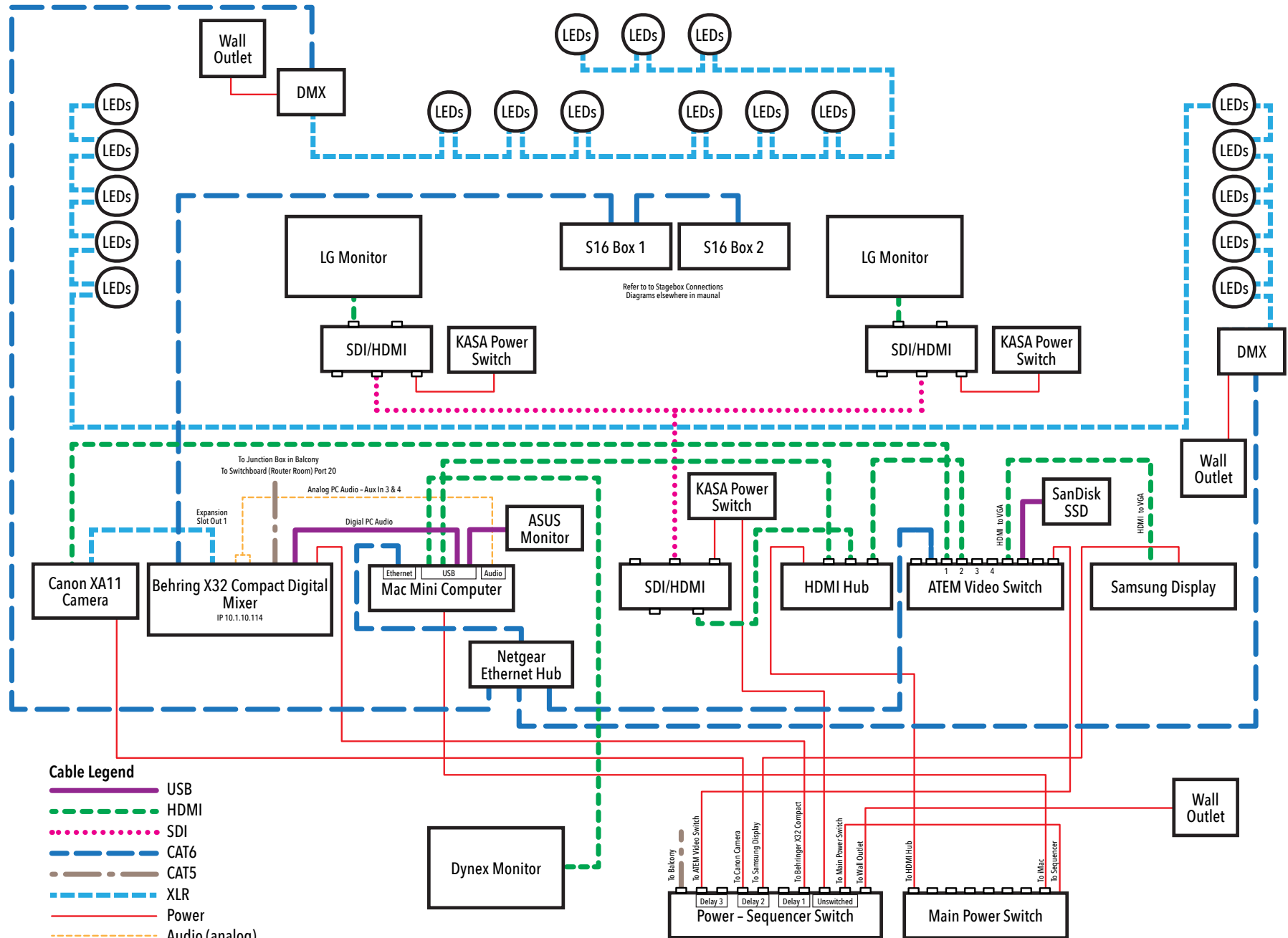
Wireless Mics and Lavalier

Rechargeable Batteries

iPowerMAX batteries are rechargeable. According to the manufacturer they will hold a charge of 1.5V for 12 hours, then will suddenly drop to 0V. Time used on each battery is recorded. Batteries are charged when the remaining time on the batteries reaches 2 hours.

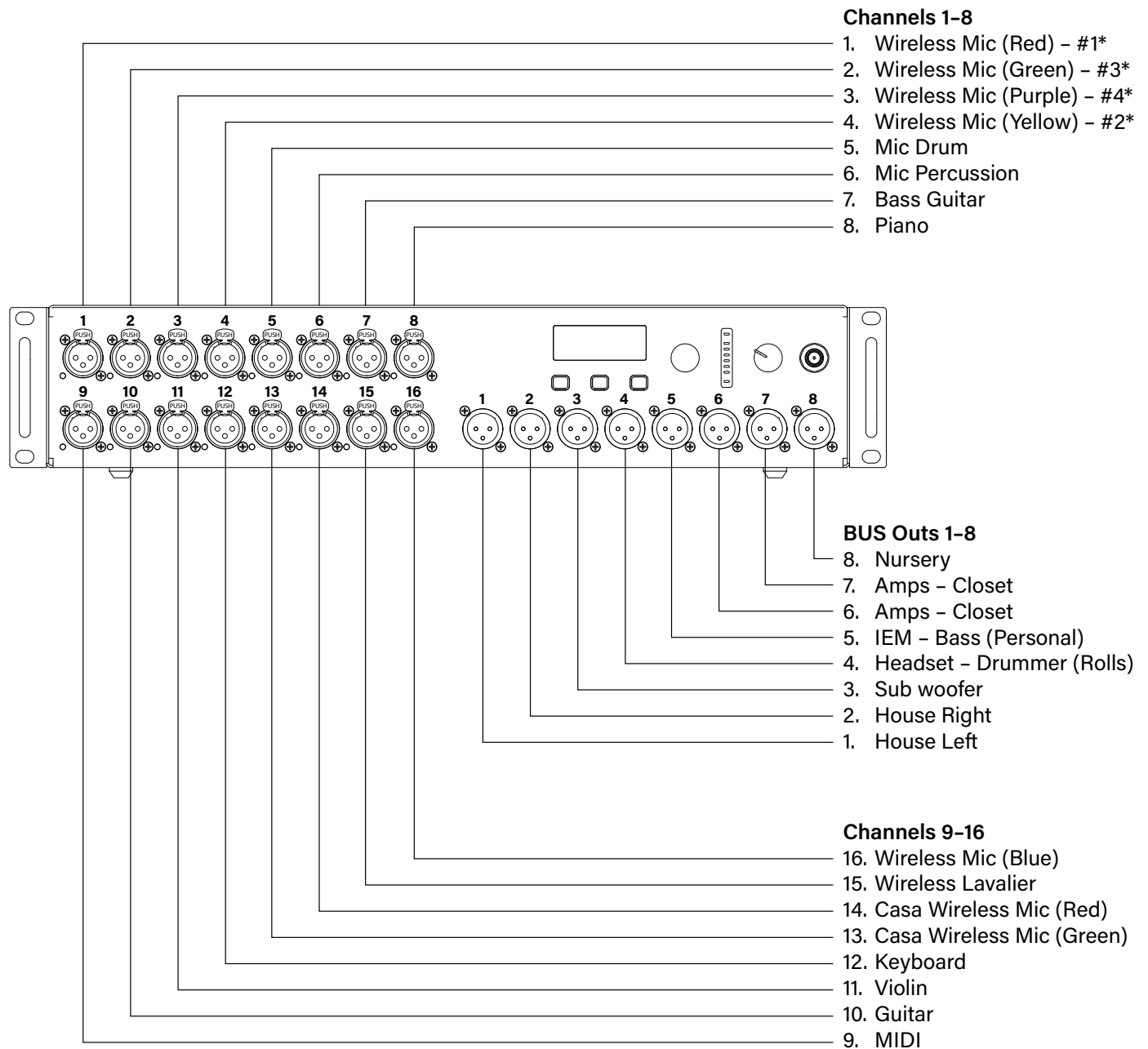
Audio Visual Reference

AV and Lighting Cabling Schematic



Behringer S16 Stagebox Connections

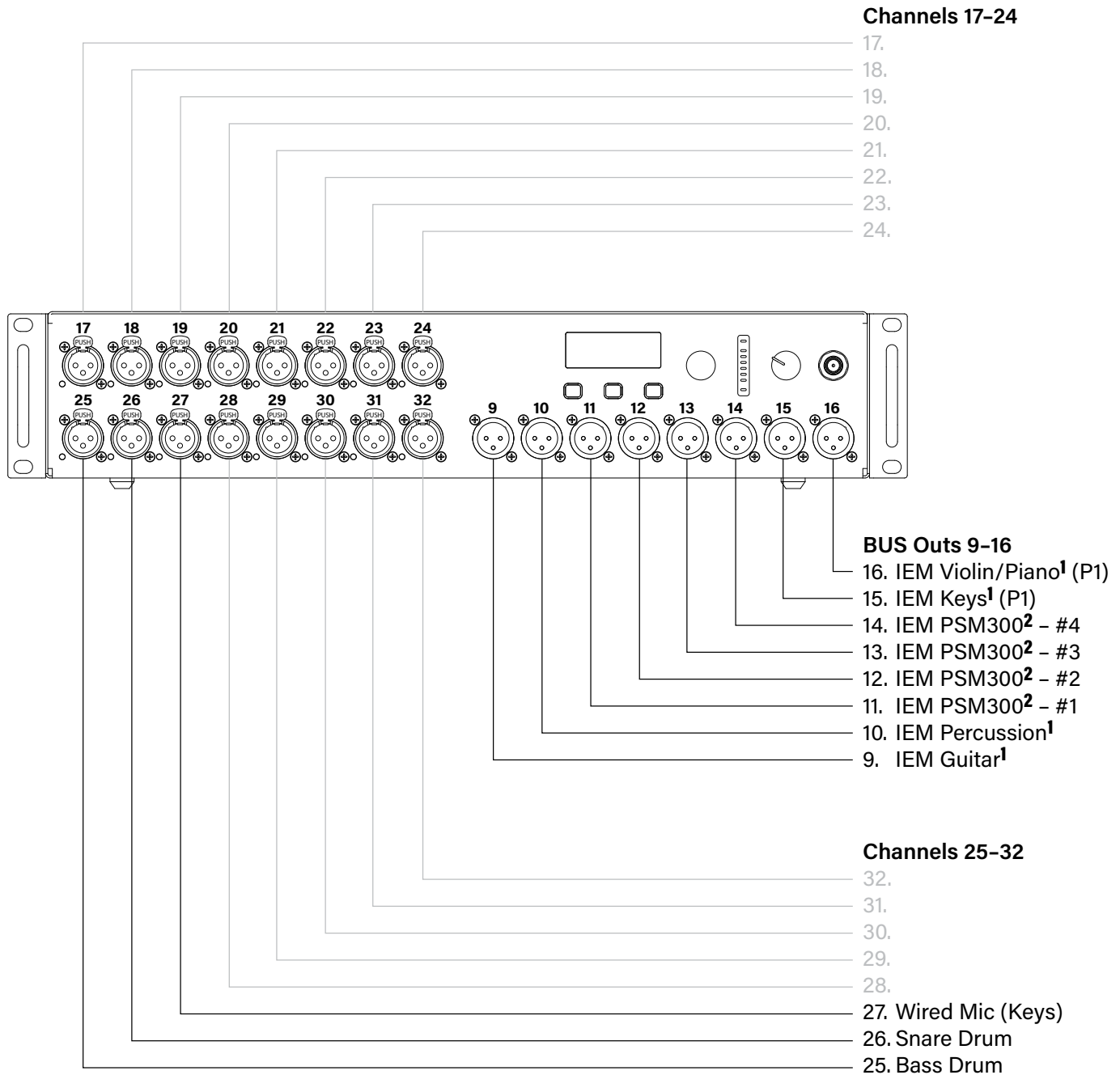
Stagebox 1



*Numbers correspond to wireless pack to be used with that mic.

Behringer S16 Stagebox Connections

Stagebox 2



¹ Behring P1 wired pack

² Shure P3RA wireless pack

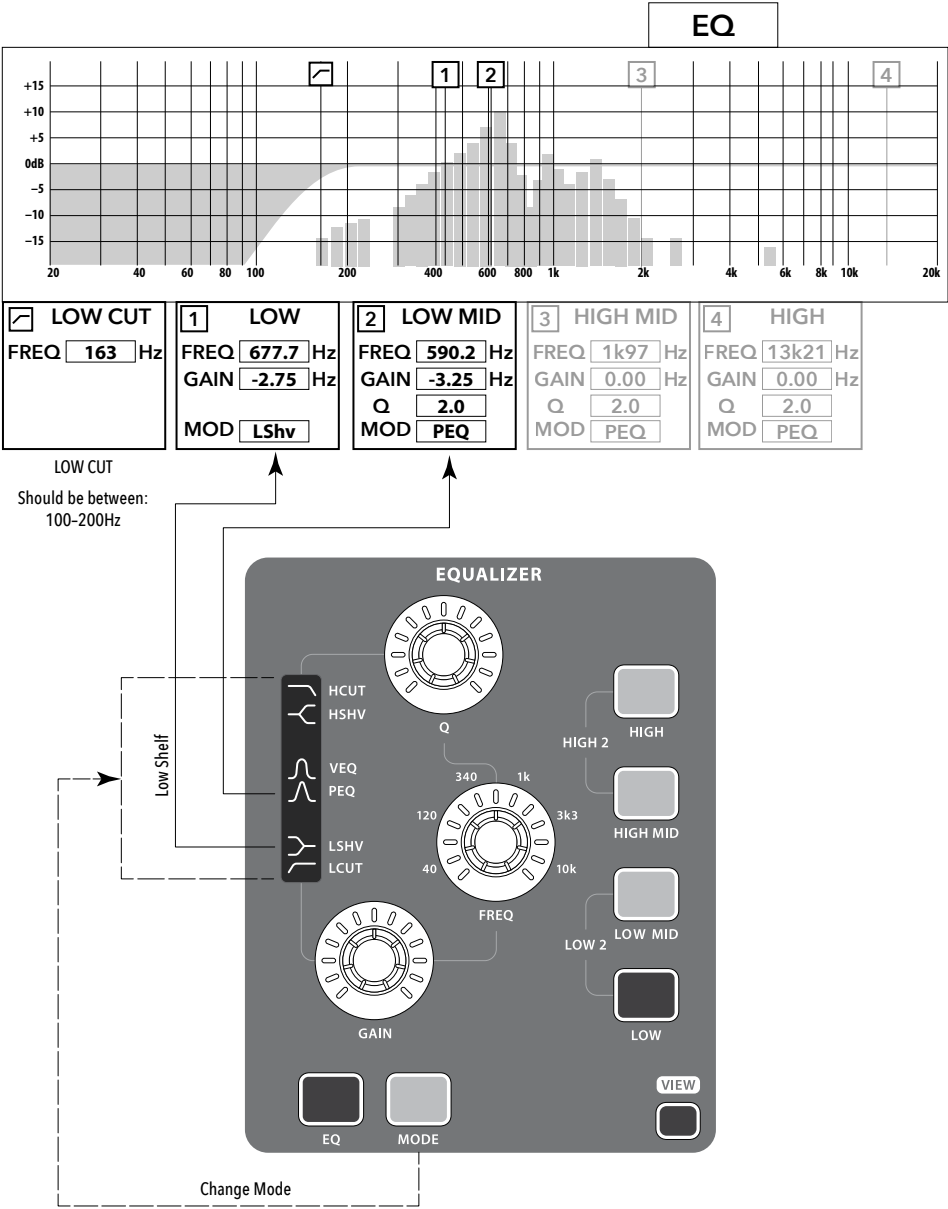
EQ Settings Information

Suggested EQ Settings

These are suggested settings wireless microphones and lavallieres

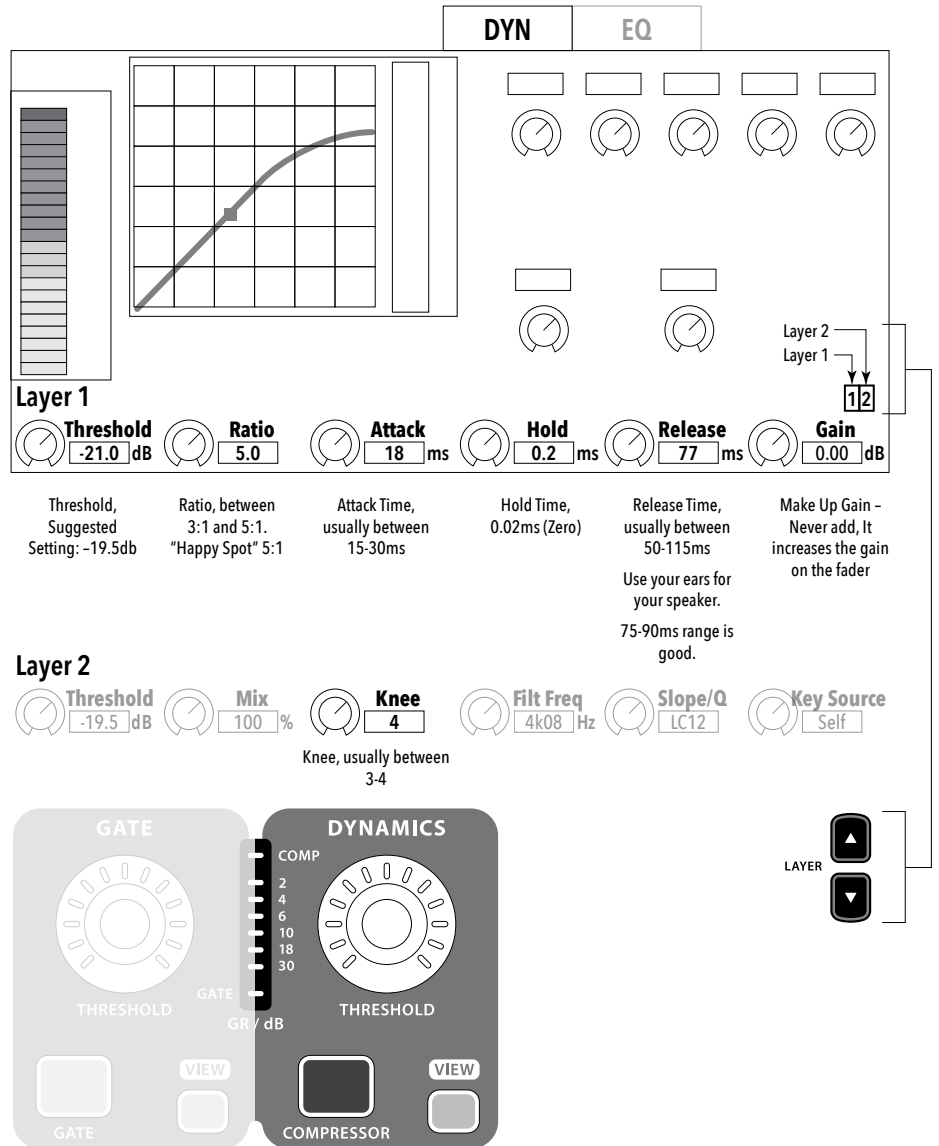
by Drew Brashler

Equalizer - Low Cut and Low Shelf



Suggested EQ Settings

Compressor - Dynamics and Knee



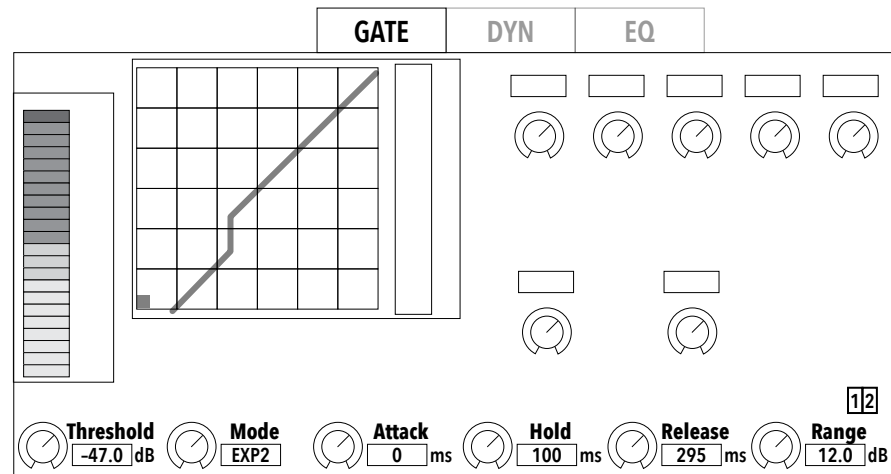
EQ Settings Information

Suggested EQ Settings

These are suggested settings wireless microphones and lavallieres

by Drew Brashler

Compressor - Gate



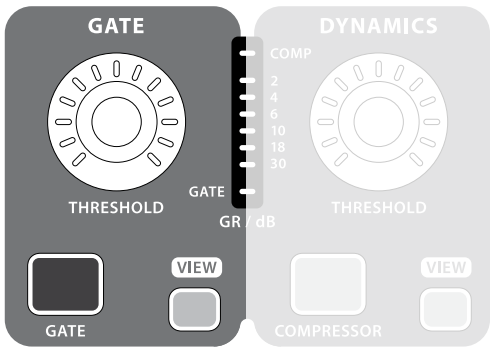
Threshold -
Suggested
Setting: -47db

Changing a "Gate"
Mode to an
"Expander" Mode
for a more natural
sound. This is
optional.

Attack,
@ 0 or 1ms

Release, 150 to
300ms
depending on the
room.

Range, 6 to 12db



EQ Settings Information

The Most Important EQ Techniques

by Kade Young

It doesn't matter if you are a beginner or have been mixing for years, EQ is probably the most overwhelming thing on your mixer.

But turns out, there are actually a few simple EQ techniques that can really improve your sound without having to become an EQ master.

So, let me give you some simple EQ techniques that also turn out to be the most important when it comes to creating a great mix.

The EQ Golden Rule

When you are looking to get more clarity out of a vocal, your first thought might be to boost high frequencies...but, don't do it. Instead, let your first thought always be,

"What frequency range can I cut to solve this problem."

In other words, to get more clarity from a vocal you need to remove what is making it unclear, which happens to be the low frequencies. So, you cut this out with a low cut filter at about 120Hz and voila! You fixed the problem.

"EQ Golden Rule: **Cut frequencies before you boost.**"

Of course, there are times when boosting is the answer to your EQ problem, but when it comes to live sound, you'll cut way more often.

Stay Simple with EQ

One of the most important things I can tell you about EQ is keep it simple.

Just because you have four filters available for each channel does not mean you should use all of them. Every EQ setting should be well thought out and used to solve a specific problem.

If there is not a frequency problem, then no need to use EQ.

Be Generous with the Low Cut Filter

I know I just told you to be stingy with your EQ filters, but there's actually one place I recommend using EQ every time, and that is to **put a low cut filter on vocals.**

Start by activating the low cut filter and setting the frequency to 120Hz. If it still lacks clarity, move the frequency up. But you most likely do not want to go higher than 180Hz on a vocal low cut filter.

The goal is to get a nice, clean sound from the vocal that still has plenty of warmth and power.

The frequency placement may be slightly different for each vocal, but it is going to land somewhere between 120Hz and 180Hz.

Low Cut Filter Cheat Sheet

Refer to the Low Cut Filter Cheat Sheet in this Manual.

EQ Settings Information

The Most Important EQ Techniques

by Kade Young

continued

Frequency Sweeping

For pretty much every other type of EQ issue you need to solve, there's one method that will help you solve it every time called frequency sweeping.

For example, let's say you are having problems with a vocal still lacking clarity after you've applied a low cut filter. You may not know which frequency range is causing the problem, but you can easily find it with frequency sweeping.

1. Activate a peaking filter (often called PEQ)
2. Set the filter's gain to +9dB
3. Set the Q value to 4
4. Then, while the vocal is singing, use the Frequency knob to slowly sweep through the full frequency spectrum until the problem area really stands out
5. Once you've found the annoying frequency range, go ahead and cut it using the EQ filter's gain control until you achieve the desired result

The Most Important EQ Techniques

1. Cut frequencies before you boost.
2. Keep EQ simple.
3. Use the Low Cut Filter generously.
4. Use Frequency Sweeping to solve EQ problems.

EQ Settings Information

Cheat Sheets

Setting Gain

GAIN CHEAT SHEET



Digital Mixers

1. Select the channel
2. While the musician is singing/playing with “live performance” energy, adjust gain to where it averages around where the yellow and green lights meet (e.g. -18dB on the Behringer X32).



Analog Mixers

1. Set everything back to default
 - a. Set all EQ on channel to default (12 o'clock)
 - b. Turn down all aux sends (monitor levels)
 - c. Turn down fader
 - d. Bypass any external processing (compressors, EQ, etc)
2. Make sure the Solo (PFL) button is not engaged on other channels
3. Engage the Solo (PFL) button for the channel you are working on
4. While the musician is singing/playing with “live performance” energy, adjust gain to where it averages around where the yellow and green lights meet (e.g. 0dB on on most analog mixers).
5. Disengage the Solo (PFL) button
6. Reset EQ, monitor levels, external processing and fader

EQ Settings Information

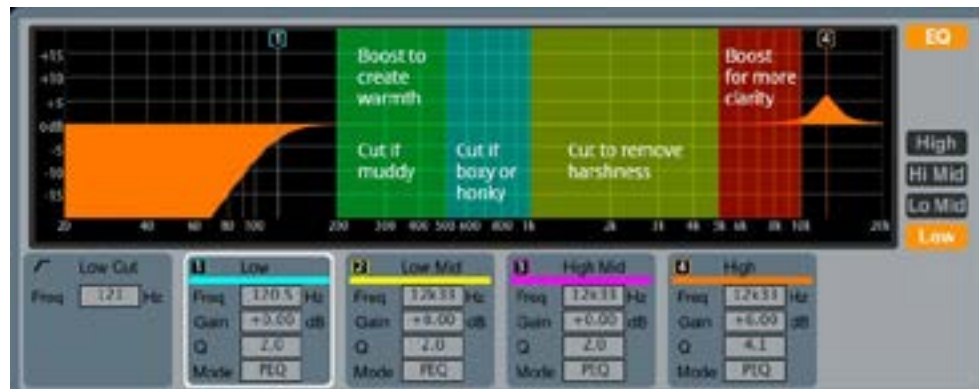
Cheat Sheets

Vocal EQ v1

VOCAL EQ CHEAT SHEET



Low Cut	Always use a low cut filter on vocals between 120-180Hz
200-500Hz	Cut if muddy or boost to create warmth
500Hz-1kHz	Cut if boxy or honky
1-5kHz	Cut to remove harshness
5-10kHz	Boost for more clarity
12kHz	Boost to create air and brilliance



churchsoundmadesimple.com

EQ Settings Information

Cheat Sheets

Vocal EQ v2

VOCAL EQ CHEAT SHEET



Low Cut	150-200Hz	Always use a low cut filter on vocals
Low Shelf	900Hz	Cut to increase clarity, if needed
PEQ (Q:3)	400-700Hz	Cut if nasaly, boxy, or honky
PEQ (Q:3)	2-4kHz	Cut to remove harshness, if needed
High Shelf	12kHz	Boost to add sparkle / brilliance

EQ Settings Information

Cheat Sheets

Setting Low Cut Filter

LOW CUT FILTER CHEAT SHEET



Recommended Frequency for Low Cut Filter	
Vocals	Between 120Hz and 180Hz
Acoustic & Electric Guitars	100Hz
Pianos & Keyboards	100Hz
Bass Guitar	40Hz
Snare & Toms	50Hz
Drum Overheads	80Hz
Kick Drum	30Hz

Additional Tips

Vocals

Start at 120Hz. If the sound is still unclear, move the frequency up. If the sound becomes too “thin”, move the frequency back down. You will most likely not set it higher than 180Hz.

Kick Drum

Only use a low cut filter on your kick drum if your subwoofers are having a hard time.

EQ Settings Information

Cheat Sheets

Setting Vocal Compression

VOCAL COMPRESSION CHEAT SHEET



Ratio	3
Attack	10ms
Hold	0
Release	50ms
Gain	+6dB
Threshold	See below

Setting the Threshold

While the vocalist is singing out, adjust the threshold so that the **gain reduction meter** reads around **-6dB** at their loudest moments.

During the quiet moments, it may not register at all, and that's okay. You just want it to be compressing the vocal down about -6dB whenever they are really singing out.

Additional Tips

- If you compress more than -6dB, the vocal starts to sound lifeless. If you start to notice a vocal losing its shine, the first place to check is the compressor.
- The best time to set vocal compression is when they are singing with the full band. Because if you single them out, they aren't going to sing the same.

EQ Settings Information

Cheat Sheets

Compression

COMPRESSION CHEAT SHEET



	Kick	Snare	Toms	Vocals	Bass Gtr
Ratio	5	5	5	3	4
Attack	10ms	20ms	20ms	10ms	10ms
Hold	20ms	20ms	20ms	20ms	0
Release	120ms	200ms	300ms	50ms	100ms
Gain	+6dB	+6db	+6dB	+6dB	+6dB
Threshold	See below	See below	See below	See below	See below

Setting the Threshold

DRUMS

Have someone give the drum a solid hit over and over and adjust the threshold so that the **gain reduction meter** reads around **-6dB** on average with each hit.

VOCALS

While the vocalist is singing out, adjust the threshold so that the **gain reduction meter** reads around **-6dB** at their loudest moments.

BASS GUITAR

While the bass is playing during the loud moment of a song, adjust the threshold so that the **gain reduction meter** reads around **-6dB** on average.

EQ Settings Information

Other Helpful Resources

Websites

Suggested EQ Settings for a Pastor's Mic
by Drew Brashler.

<https://www.youtube.com/watch?v=Jmu4Desml6U>

How to use a Behringer X32* Mixer

<https://www.youtube.com/watch?v=Reutqh5siLQ>

The Basics of the X32* Sound Console

<https://www.youtube.com/watch?v=Ua8RaR6ZwlY>

The Most Important EQ Techniques

by Kade Young.

<https://www.youtube.com/watch?v=dGrYjubzNkw>

Manual Downloads

Audio-Visual Reference Manual (This manual)

http://newcityde.org/pdf/New_City_AV_Tech_Manual.pdf

Behringer X32 Compact Manual

https://mediadl.musictribe.com/media/sys_master/h1f/h56/8849797021726.pdf

*The X32 Compact is very similar to the X32. The YouTube videos are helpful in learning the basics of the X32 Compact.

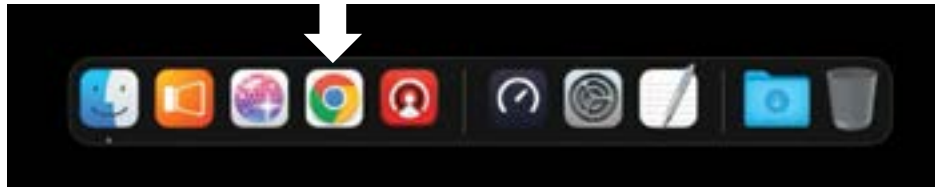
YouTube Live Streaming

Notes

1. The Google Chrome browser must be used.
2. When opening the YouTube page, it should default to the New City account.
3. It is a good idea to reboot the router beforehand. This is done by logging into the Verizon account online, manage equipment. This is optional.
4. Refer to [page 14](#) of this manual for information pertaining to the ATEM switcher.

Step 1

Launch Google Chrome



Step 2

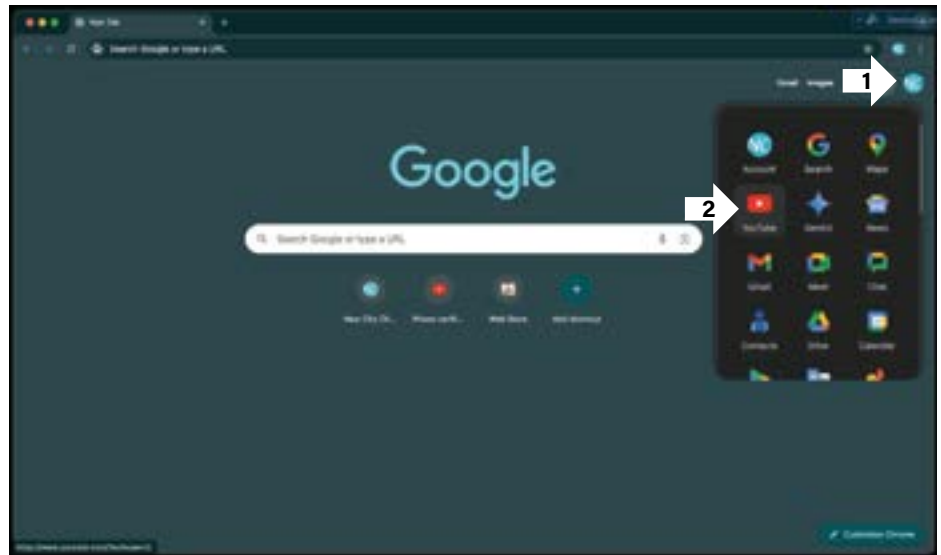
Select the "New City Church" account



YouTube Live Streaming

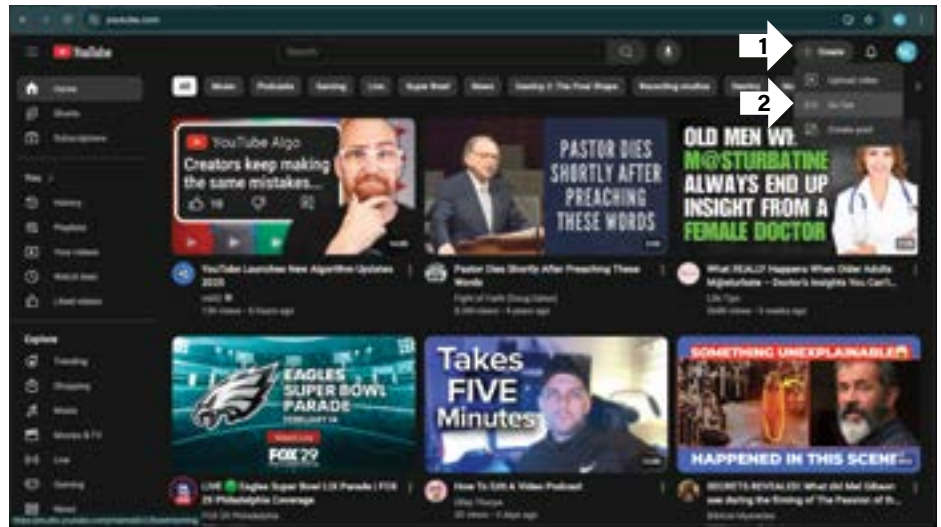
Step 3

1. Click on the "NC" logo
2. Select "YouTube"



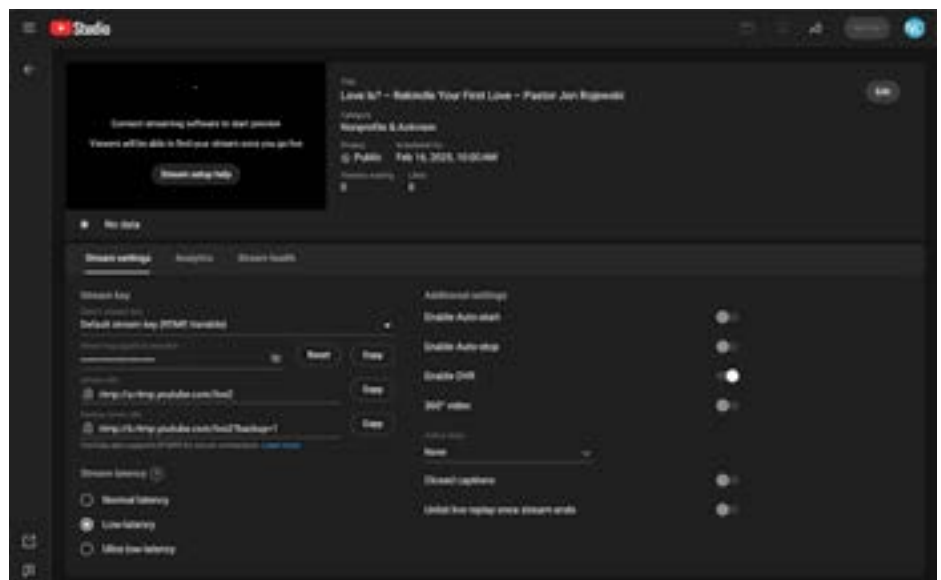
Step 4

1. Select "Create"
2. Select "Go Live"



Step 5

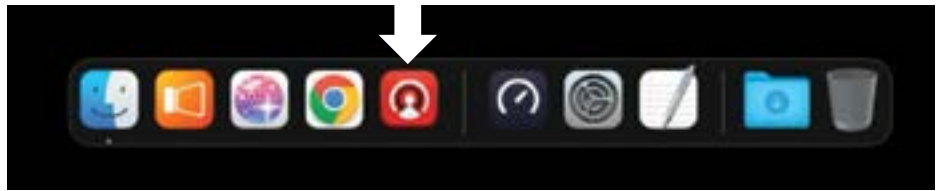
The YouTube Live Stream Channel will appear.



YouTube Live Streaming

Step 5

Launch ATEM Software



Step 6

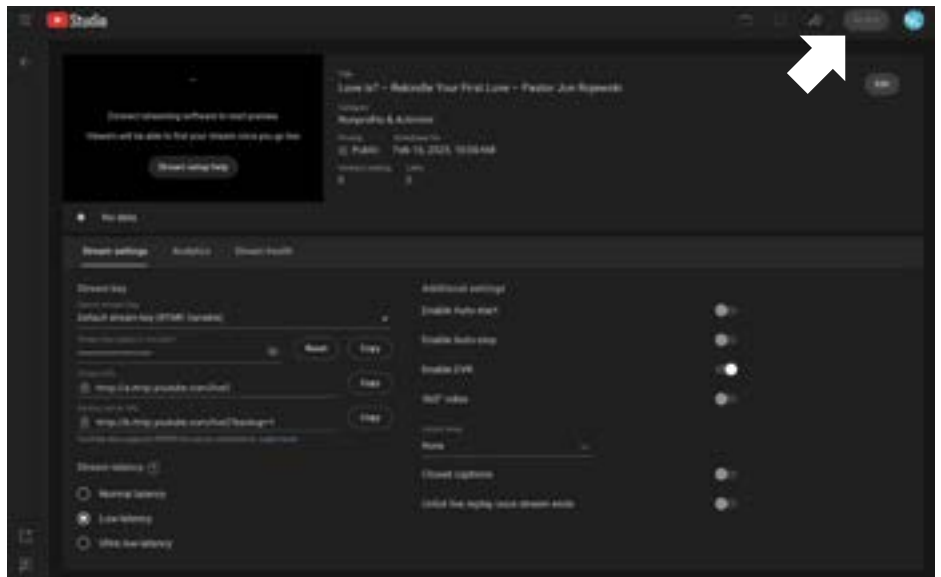
1. Click on the "On Air" button
2. The "ON AIR" should appear.
3. If the "REC" button on the ATEM has been pressed to record to the SSD, then "REC" will appear.



Step 7

Return to Google, The YouTube Live Stream Channel, and click on the "GO LIVE" button.

Streaming should begin after a few seconds. Note that the stream will lag behind the live performance from 30 seconds to as much as 2 minutes.



YouTube Video Tutorial

These instructions were obtained from this complete YouTube video tutorial using the ATEM by Dennis Russell. <https://www.youtube.com/watch?v=Tkgz4l67QY4>