Calvary Church of the Brethren
X32 Compact/Sound Instructions
Dan Trout – May 2022

About the X32 Compact

The X32 Compact is split into two fader banks (collections of faders - the silver "sliders"); in general, the left half of the board displays anything coming in (e.g. mics), while the right half shows controls for what's going out (e.g. the main speakers).

There is a vertical bar to the left of each fader bank; the buttons in each one display different "layers" for each bank. Each layer is a collection of channels; the X32 Compact has many more inputs and outputs than faders, so you can page through them using these buttons. Pressing them will cause the faders to move, signifying that you're looking at different channels.

- The left one starts with the "CH 1-8" button at the top. This section controls the leftmost 8 faders.
- The right one starts with the "Sends on Fader" button at the top. This section controls the 8 faders to its right.
- The last fader on the right is separate from these banks and is called the "Main Fader" or "Master Fader."

Each layer is just showing controls for different channels that are available to use (for example, pressing "CH 1-8" will show you the controls for input channels 1 through 8, while pressing "CH 25-32" will show you the controls for input channels 25 through 32). You can switch between them without worry of affecting anything. The only button in these sections that will have a direct effect on the mix is "Sends on Fader" and is covered later.

Prep

1) Make sure the light switch in booth labeled "TURN ON LAST" is off - this controls the PAs (and one TV)
2) Turn on the X32: hold down the power button on the UPS under the desk until it beeps
3) In the "Scenes" section on the X32, press the "View" button. A scene selection menu will appear on the LCD display. Use the encoders directly below the screen to select the "JONATHAN" scene
   a) A "scene" is a way to save groups of board settings, such as input layouts and audio routing.
4) Press the "Mute" button for the MAIN LR fader so it's lit up red (all the way on the right)
5) Turn on the light switch in the booth labeled "TURN ON LAST" to turn on the PAs
6) Make sure all wireless mic receivers - the boxes with antennas on the shelf above the console - are on (press power button if it has one, otherwise ensure it is plugged in at the back)
7) Clear off the top of the wall behind the receivers that's labeled "NOT A SHELF." The goal is to have nothing blocking the antennas
8) Plug headphones into headphone jack on the right side of the X32 (in the handle)
9) Place two AA batteries in each wireless handheld mic (in pull-out drawer), along with the body pack transmitter. The handles on the mics spin off. Use as many rechargeables

from one charger as possible (to keep each set together) - they are located behind the livestream laptop

10) Replace the tan over-ear mic found in the body pack with the headset mic; it's hidden in the pull-out drawer underneath the X32

11) Take the wireless handhelds (and an iPad if you're using the X32-Mix app) to the stage; yellow goes downstage right, white goes upstage right (next to the drumset), and blue goes upstage left on the music stands

    a) Turn them all on for the musicians; they should already know how to use them, but just in case:

        i) Yellow: has a switch on the bottom. The LED will light up

        ii) White: hold down the button at the bottom for a few seconds until the LED indicator in the button turns green (red means it's muted, short press to change)

        iii) Blue: Hold down the button at the bottom for a few seconds until the display on the side of the mic turns on; the indicator light is green when unmuted (red means it's muted, short press to change). The number should match the number on the receiver

    b) Blue mic is often used for a violin during the first service; I usually put it on a boom mic stand and angle it down from above

        i) The stand is in the sound closet, along with different sized mic clips for wireless/wired

12) Grab the two handheld wired mics from the inside of the pulpit. Plug them into the two microphone cables underneath the Velcro cable management - hidden behind the organ pit (next to the electronic keyboard)

    a) The cable closest to the side door is for the vocalist sitting in that chair, while the one closest to the middle of the stage is for the vocalist standing downstage left

13) Make sure the upright piano's mic is turned on and pointed at the soundboard (the back of the piano)

14) Turn on the two subs on the floor; they're powered and have a switch on the back of each

15) Turn on the S16 digital snake in the organ pit - the switch is on the back (make sure the UPS it's plugged into is on)

    a) There are 2 light indicators on the S16's display that should be lit up (and most likely will be)

        i) "AES50 Network Link, Port A" should be solid green

        ii) "HA Locked" should be solid orange

    b) The important indicator is the AES50 Network Link; if it isn't lit up/green:

        i) Try turning the snake off and on again and wait a few seconds

        ii) Unplug and re-plug the ethernet cable from the back (use the release tab, similar to an XLR jack)

        iii) If it's still not being recognized, leave the S16 on. Turn off the light switch in the booth. Then turn the X32 off and on again (see the "**Turning Off the X32**" section at the bottom). Turn on the light switch again.

        iv) If it's still not working, you're welcome to plug the piano and wired mics into the wall pockets and do some re-patching ***if you feel confident in what you're doing***. Please note what you changed. Otherwise, work with the limitation and speak with Maria about next steps.

16) Back at the console: In the "Mute Groups" section (beneath the "Assign" section on the right of the X32), make sure everything except for #6 is unmuted (none of the buttons will red, except for #6). I utilize these during the service, you won't need to if you don't want to though

17) Press the "Bus 1-8" button in the middle layer select bar. Unmute busses 3 and 4 (the monitor mixes that output to the floor wedges on-stage) and set the faders to 0 ("unity")

18) Unmute busses 1 and 2 (labeled "Out L" and "Out R") and set them to unity. This is the livestream mix

19) Press the "Matrix Main C" button in the middle layer select bar. Make sure all matrices (the faders on the right) are unmuted. The "Room L/Room R" matrices should be set around -20dB, while the "LS L/LS R" matrices should be set at 0 (they'll already be at those positions, this is just for reference)

    a) Matrices are output mixes that take combinations of busses as inputs. You won't be working with them during the service, they just send different outputs to different places

20) Press the "Clear Solo" button above the main LR fader icon if it's flashing.

21) Press the "Solo" button above one of the LS L/LS R matrices (matrices 5 and 6). This is the mix being sent to the livestream. You'll be monitoring this over your headphones during the service. Check the mix periodically throughout the service; the main priority is that you can hear anyone speaking clearly

22) Press the "DCA Group 1-8" button in the middle layer select bar.

23) The DCAs will automatically mute whatever channels they are controlling. With the MAIN LR fader still muted, unmute the "Vox" and "Instruments" DCAs for sound check

    a) DCAs are **D**igitally **C**ontrolled **A**mplifiers; they are basically master volume faders that change the level of whatever channel is assigned to them. You can check what they're controlling by selecting the DCA, just like you would select any other channel on the X32. They can be found by pressing the "Group DCA 1-8" button in the layer select bar

24) Continue to the "Soundcheck" Section

Soundcheck

Soundcheck is useful for a few things. The engineer can check that each input is going where it's supposed to, can change settings like EQ and compression to suit each sound source, and create a beginning mix.

The first priority of soundcheck is to set a usable gain level for each sound source. Each channel's meters are labeled with negative dB values and have color-coded LEDs. There are various ways to set gains depending on your background and goals, but for this use case, the peaks should be sitting around -18dB (all green with a touch of orange at the top). You can set the gain by:

1) Selecting the channel, and

2) Adjusting the "Gain" control (top-left of X32, in the "Config / Preamp" section)

Don't worry about the other buttons - one controls power to the mic ("48V"), another inverts the polarity ("Ø"), and the other is a filter ("LOW CUT"). Each is pre-set.

The second priority (after making sure every mic and input is working) is to set the monitor mixes for the musicians. This is where the "Sends on Fader" button in between the fader banks comes into play; when pressed and flashing, the faders show the levels in reference to whatever channel is selected. For example, if the "Sends on Fader" button is active and you have Bus 12 selected (on the right half), then every fader on the left half will show the level of its respective channel that is going to Bus 12.

There are two separate monitor mixes: one to the monitors by the pulpit, and one to the monitors by the drums and stage-right piano. They're being fed by busses 3 and 4 and are labeled. The mixes are already pre-set and usable. However, you may use the "Sends on Fader" button to fine-tune them if necessary - ***if you feel confident in what you're doing***.

After the monitors are set, you may begin getting a FOH ("front-of-house") mix:

1) Bring the MAIN LR fader down all the way (to "-infinity" or "-∞") and unmute it

2) Gradually raise the MAIN LR fader up to unity

3) If the volume is too loud before you reach unity, lower the faders for the Vox and Instruments DCAs. They'll lower the main FOH and livestream volume for the

channels they're controlling, which are the vocal mics and the keyboards, respectively.

4) Balance the mix as you see fit

    a) Typically, I prioritize hearing Maria over anything else happening

    b) If you happen to have a calibrated SPL meter, I like to keep the worship around 90 dBA as measured from the booth

Once you're happy with the FOH mix, and the musicians are comfortable with their monitor mixes, move onto the livestream mix:

1) Double-check that the livestream matrices (matrices 5 and 6) are unmuted and soloed

2) The majority of the channels are being sent to the Out L/Out R busses post-fader, meaning any changes you make in the worship hall will also change in the livestream. The livestream will mostly mix itself. ***If you feel confident in what you're doing*** (notice how much I'm saying that), you can adjust the output mix by selecting the Out L/Out R busses and pressing the "Sends on Fader" button.

The DCA mutes also control which channels are muted at the source. This means that <u>if the DCAs are muted, then the musicians won't be able to hear themselves in the monitors</u>.

Once you're set and ready to go, check with Ami, the broadcast and graphics/projection director, that she's getting audio into the ATEM Mini Pro. There are meters in the bottom-right corner of the Multiview – the one labeled "PGM" shows what is going out to the livestream.

Mixing

- The beauty of using DCAs is that you can control groups of faders all at once, making it easy to balance vocalists with instruments. I typically just mix with the DCAs after soundcheck and will only occasionally make adjustments to individual channels.

- The FX DCA controls a short vocal delay effect. Feel free to keep it muted. Mute group button 6 globally controls all effects – in-house, in the monitors, and in the livestream. Feel free to mute it for the entire duration of the services.

    ○ If you'd like to use effects, follow these steps:

        1. Unmute mute group 6 (the bottom right corner of the console)

        2. Press the "Bus 1-8" button in the middle layer select bar

3. Select the Out L/Out R livestream busses (busses 1 and 2; press one of the "Select" buttons at the top of the channels)
4. Press the "Sends on Fader" button in the middle layer select bar
5. Go to the "EFFECTS RETURNS" layer (the left layer select bar) and adjust the FX return levels to taste by using the corresponding faders on the left
6. Deselect the "Sends on Fader" button (flashing red in the middle layer select bar)

- Make sure to periodically check the livestream mix with the headphones, especially during the start of the sermon. The headset and the pulpit mic are both found in the "Speaker" DCA.
- The second service often has a choir. You can use the hanging choir mics for the livestream by using the "Choir" DCA. These mics aren't routed to the in-house speakers.

In between services

The worship team rehearses in between services.

1) If there was a violin, remove the mic stand from the stage
2) Double-check with Maria on the positioning of the mics; they most likely will remain in the same spots as the first service
3) Press the "DCA Group 1-8" button in the middle layer select bar
4) Leave the "Vox" and "Instruments" DCAs unmuted and turn them down to around -30dB. This is so Ami can follow along with the music and adjust lyric slides while still leaving the room decently quiet
5) Activate mute group 6 if you used any effects

That's about it, you're doing great. The rechargeables will last through both services, so no need to throw them back on the charger just yet.

Teardown

1) Activate mute group 5 (this mutes all inputs)
2) Take the two wired handheld mics that were used, and put them back in the pulpit

3) Coil those two mic cables (over-under; see the YouTube link in the "**Documentation**" section) and place them back where you found them on the floor

4) Gather the wireless mics and place their batteries back on the charger they came off of (leave sets together). Place the mics back in the pull-out desk

5) Switch off the two subs and the S16 digital snake

 a) The subs have an orange switch on the back, flip it so it's not backlit

 b) The S16 has a switch on the back of the unit, on the right

6) Remove and coil up the bodypack mic (see the YouTube link on coiling cables in the "**Documentation**" section) and hide it on the pull-out desk under the console. Replace it with the tan over-ear mic. Place its batteries back on the charger

7) Pull the MAIN LR fader down to -infinity

8) Change the X32 scene to "WKPC"; this is for the other church body that rents out the facility each Sunday

 a) Press the "View" button in the "Scenes" section of the console

 b) Use the left-most encoder (below the LCD display) to scroll to the WKPC scene. Push it down to select it

 c) When the "Load Scene?" pop-up appears, push the right-most encoder to confirm the selection

9) Mute the MAIN LR fader

10) Remove the headphones from the console

11) Make sure the camera closest to you (on top of the wooden equipment rack) is still on

Turning Off the X32

If you ever need to turn off the X32:

1) Turn off the light switch in the booth labeled "TURN ON LAST"

2) Press the "SETUP" button found next to the LCD display on the X32

3) Using the "Page Select" arrows under the LCD display, tab left until you get to the "Global" tab

4) Use the 1st encoder on the left (directly under the screen) to scroll until the option "SHUTDOWN" is highlighted, then press the encoder down

5) The screen will turn black and read "You may now safely shut down the console"

6) Hold down the green-lit button on the UPS underneath the desk until it shuts down

7) If needed, turn on the X32 following steps 1-4 in the "**Prep**" section

Documentation

X32 Compact Manual:

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

X32 YouTube tutorial:

https://youtu.be/rubjhVM586E

Coiling Cables:

https://www.youtube.com/watch?v=cpuutP6Df84