

FCC Audio/Visual Reference (Sep 2019)

This document is written for anyone wanting to understand the details of the First Congregational Church Audio/Visual team and the sound system that is used to amplify preachers and readers and singers at church services and other events. Some of the information in this reference is duplicated at the web site: <http://coschwotzer.com/FCCAV/>

Here are the goals of the A/V team at FCC:

- Set up and monitor the audio equipment for each Sunday service, seek to provide adequate amplification and minimal disruption to the service
- Provide A/V services for other special events at the church
- Record each service at the church
- Upload an MP3 of each Sunday's sermon to the church's ftp site
- Provide a CD recording of the Sunday service when requested
- Be available for consulting on special audio/video needs of the church
- Keep the audio/video equipment in good working order and improve the reliability or usability of the equipment when necessary
- Provide instructions for non-A/V committee persons to use the sound system when necessary
- Train new A/V equipment operators so that all services can be staffed
- Maintain an audio archive of recordings made at the church

Current A/V committee:

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| • Tom Francis | tandj94@yahoo.com | 719-510-9108 (helping out) |

The Sound System

The sound system consists of various inputs, a mixer with some routing options and a few outputs of which the primary one is the set of Iconyx powered speakers mounted on either side of the sanctuary.

Inputs

Most of the inputs are various types of microphones.

The lectern microphone (stage left) and the pulpit microphone (stage right) are condenser microphones that plug into jacks Mic6 and Mic5 which are mounted into black metal pockets in the chancel floor. These condenser mics require 48V phantom power which is enabled by a switch on the Mackie mixer. Being close to the main Iconyx speakers it is important to carefully adjust the gain on these mics to fully amplify the vocalist but also avoid feedback.

Two Sennheiser wireless units are used to amplify the lead and associate minister. These units are labeled LAV1 and LAV2, the receivers are mounted in the Front-Of-House (FOH) equipment rack and feed channels 13 and 14 of the Mackie mixer. The headset mics slide on from the back of the wearer's head and the flesh colored mic wand should follow the jaw line slightly off the face. The bodypack transmitter requires 2 AA batteries and is left "On" for the duration of the service. The Mute button on the transmitter is inactive/unmuted, and the Mute status for these devices is controlled by the A/V attendant on the Mackie mixer. The Mute status and the battery level of the bodypack can be viewed by the A/V attendant on the receiver.

Similarly two Shure wireless units are used for handheld mics HH1 and HH2. These mics use a single 9V battery and the level can be monitored when the mic is turned On by the user. These two mics feed channels 11 and 12 of the Mackie mixer. When these HH mics are turned Off there is no RF signal being transmitted which leaves the receiver prone to picking up stray signals in the neighborhood. For this reason it is best to Mute the HH channels when they are not being used during a service.

NOTE: These wireless devices transmit to two antenna mounted on the rear beam of the sanctuary. The receiver for these antenna then routes the wireless signal to the individual mic receivers situated on the A/V desktop.

Two boundary mics are used to pick up ambient sound in the area of the chancel. The mics are located on the sanctuary floor near the stairs leading to the chancel, and plug into jacks Mic3 and Mic4. These mics require 48V phantom power and are normally bussed only to the Zoom recording device so that the recording of the service can hear these ambient sounds.

If these mics are bussed to the main speakers there is great potential for feedback.

DO NOT route the boundary microphones to the Main speaker output.

NOTE: Normally input Mic1 would be used, however inputs Mic1 and Mic2 seem to be picking up stray radio signals. As a workaround we are using Mic3 & Mic4 for the boundary mics.

Some situations may benefit from a corded mic on a mic stand. Two Shure SM58 corded mics are kept in the black drawer in the sacristy. XLR mic cables can be used to connect these mics to an unused jack (e.g. Mic2 or Mic4 which appear on the Mackie mixer at channels 2 and 4). This is a good solution for mic'ing a piano-playing vocalist while being careful to avoid feedback from the nearby speaker.

Guitars with a pickup can connect to the system using a direct inject (DI) box which converts a 1/4" high-impedance cable to a low-impedance XLR cable for connecting to a floor XLR jack. Two IMP brand DI boxes are located in the sacristy storage drawer for this purpose, and the DI boxes require 48V phantom power from the mixer. Guitars without a pickup need to be amplified using a corded or wireless microphone on a stand.

XLR input jacks Mic 7/8/9 are located in pockets in the steps leading up to the organ. These can be used for various purposes and feed channels 7/8/9 of the Mackie mixer.

A floor pocket in the center of the chancel contains an XLR input that is routed to mixer channel 10. This can be used for memorial services where the lectern is center-chancel.

Channels 15 & 16 of the Mackie mixer are connected to the output of the Kramer video switch. When VGA mode is selected on the Kramer switch, the 3.5mm audio plug can be used for audio from a phone or iPad or iPod with the 3.5mm jack. For newer iPhones without a 3.5mm jack, an adapter from Lightning to 3.5mm jack is located in the battery drawer.

Another input which uses a special mixer input instead of a normal channel is the Tascam CD player. The CD Player input is marked on the mixer board.

Mixing

Except for the CD player, all of these inputs are mixed using channels 1 thru 16 of the Mackie mixer. The Gain knob and the fader control the amount of signal sent to the Main and Sub-Mixes.

Here is a summary of the Mackie inputs along with target volume settings:

- 1) Mic 1 input – not regularly used
- 2) Mic 2 input – not regularly used
- 3) Boundary mic 1 (Gain = 11:00 Fader = -2.0)
- 4) Boundary mic 2 (Gain = 11:00 Fader = -2.0)
- 5) Pulpit condenser mic (floor jack Mic 5) (Gain = 9:00 Fader = +10.0)
- 6) Lectern condenser mic (floor jack Mic 6) (Gain = 10:00 Fader = +10.0)
- 7) Mic 7 input – not regularly used
- 8) Mic 8 input – not regularly used
- 9) Mic 9 input – not regularly used
- 10) Mic 10 input - floor jack in center of chancel
- 11) Wireless handheld HH1 (Gain = 11:00 Fader = +10.0)
- 12) Wireless handheld HH2 (Gain = 11:00 Fader = +10.0)
- 13) Wireless lavalier LAV1 (Gain = 3:00 Fader = +10.0)
- 14) Wireless lavalier LAV2 (Gain = 3:00 Fader = +10.0)
- 15) Kramer video switch input 1
- 16) Kramer video switch input 2

Outputs

Sub-mixer channels 1 & 2 feed the Tascam CD-RW900 machine. Assign desired channels to these sub outputs to record a CD. Note: We rarely use this feature.

Sub-mixer channels 3 & 4 feed the Zoom recorder which is used to record each service and event. All active channels should be assigned to sub-channels 3 & 4 for this purpose.

The Aux4 output bus feeds the Telex Assisted Listening System which transmits to the portable battery-powered receivers. Make sure all active channels are sending some signal to the Aux4 buss and that the Aux4 Send knob is in the 3:00 position.

The Main output fader feeds the two Iconyx speakers and should be kept in the "U" position.

The Founder's Room speakers are controlled by a dedicated amp at the bottom of the (wall-mounted) black cabinet in the sacristy. Use its power switch to turn on/off the speakers. A small screwdriver is required to adjust the volume on this amp - there is one attached to the amp.

- This amp is controlled by the main system power relay. (on when the whole system is on)
- There is not a volume adjustment on the main mixer board
- To adjust volume, use the screw driver to access the trim-pot in each of two small holes (clock-wise increases volume, counter clock-wise decreases volume)

Recording a Service or Event

The Zoom digital recorder can be used to record a service as follows:

- Turn on the Zoom device via its power switch.
- If an SD card is present, but the display indicates otherwise: power off-on again or power off the device, reseal the SD card and power-on again.
- The Zoom device is fed by sub-faders 3 & 4 from the Mackie board. Route desired channels to the Zoom by pressing the "3-4" sub-fader Send button.
- Press the red recording button to put the device into record-ready modes. You should see activity on the meters and the record light should blink.
- Press the red button again to start recording, the record light should be solid on.
- At the end of the service, press the Stop button and let the Zoom complete the recording.

Processing Recorded Audio

To process the Zoom audio recordings:

- Carry the data home on the SD card - usually both the 9AM and 11AM services
- Load the wav data into Pro Tools on my Mac
- Adjust levels and create a 128K MP3 file of the 11AM sermon
- Name the file as 20191030_Sermon_HH.mp3
(YYYYMMDD_Sermon_<Preacher_Initials>.mp3
- Send the file to Emily Bond (emily@fcucc.org).
- If someone requests a CD of the entire service I create a .wav file (with adjusted levels) and burn it to a CD. Then deliver the CD to the church office.