Calvary Church of the Brethren
ATEM Mini Pro Instructions
Dan Trout – February 2022

About the ATEM Mini Pro

The Mini Pro is a video switcher, recording device, and livestream encoder. Its main purpose in the Church is to act as a standalone livestreaming device that's easy to use; this keeps the computer from using up too many resources and allows the livestream to continue running in case the Mac Mini fails.

The switcher is split into two components: the physical button layout on the desk (a.k.a. the "front panel"), and the accompanying ATEM Software Control interface (download in the **Documentation** section).

How to Use – Front Panel

This is an abbreviated overview of how the front panel works. To prep for a service, skip to the **Prep** section below. The full manual can be found in the **Documentation** section.

Specs

The ATEM Mini Pro has 4 HDMI inputs and two 3.5mm audio inputs. The HDMI out is configurable to show various video feeds. The USB-C port is used to control the switcher with the **ATEM Software Control** interface, provide a webcam out that a computer can see, or

record to an external disk. The Ethernet port is used to control the switcher with the **ATEM Software Control** interface; it's also the livestream feed.

Analog Audio

The controls for the two analog 3.5mm audio inputs are on the top-left of the front panel; they're labeled "Mic 1" and "Mic 2" (each controls the corresponding inputs). The "On" button sends that audio source to the main **Program** output.

*The **Program** output is the video and audio feed being sent to the livestream.*

When being sent to the **Program** output, the "On" button will be lit red. The up and down arrows control the volume of each audio source.

HDMI Inputs

The section directly below the audio input section is for controlling the 4 HDMI inputs. Each larger numbered button determines which video input is displayed in the **Program** output and lights up according to its status; **red** means it's live, **green** means the next transition will make it live. The smaller buttons above each number are the controls for the embedded audio within each HDMI source:

- "AFV" stands for "**A**udio **F**ollows **V**ideo". The audio from that source will only be heard when that video source is live.
- "On" and "Off" control whether the audio is in the mix or not and work the same as the analog Mic inputs.
- The up and down arrows control the volume and work the same as the analog Mic inputs.
- "Reset" sets the volume to its default position.

Other Visual Sources

The "Still" button next to the HDMI input controls displays a graphic loaded in using the **ATEM Software Control** interface. The "Black" button displays a black screen.

Switching Transitions

The "Cut", "Auto", and "FTB" buttons are transitions. When pressed, these buttons switch the live HDMI input to the one lit up as **green**.

- Cut: Immediate switch
- Auto: Uses specified transition
- FTB: **F**ade **T**o **B**lack. Fades out video to black screen

The "Duration" and "Effect" sections work together. "Effect" determines the transition type displayed when the "Auto" button is pressed, while "Duration" sets the length of time in seconds that the transition takes.

Picture in Picture/Key

The "Picture in Picture" section has controls for a DVE (**D**igital **V**ideo **E**ffect) overlay. It places a second HDMI input or graphic over another camera feed. The "Key" section enables and disables the Upstream Key, which is configured in the **ATEM Software Control** interface.

> *A **key** is essentially an overlay onto another video source. Check out the "Types of Keys" and "Terminology" articles in the **Documentation** section for more information.*

You can only use either the Picture in Picture (DVE) or the Key controls at one time, not both. This is because the DVE is a specific type of upstream key itself.

Video Out

This section controls what is sent out of the "HDMI Out" port on the back of the ATEM Mini Pro:

- M/V: **M**ulti**v**iew. This displays every input, along with a preview, program out, livestream and recording stats, and audio meters.
- PGM: **Program**. This shows what's being sent out to the livestream and recording.
- 1-4: These correspond to the HDMI inputs, and will show each one individually.

Changing these views **does not** affect the livestream or recording.

Record

The ATEM Mini Pro can record the **Program** out. The "Rec" button starts recording, while the "Stop" button ends the recording. This requires an external SSD or hard drive to be plugged into the USB-C port on the back of the Mini Pro (see the **Documentation** section for the approved list of external SSDs). The "Disk" indicator LED has a few states:

- Solid green: Ready to record
- Solid red: Recording
- Flashing red (slow): Low disk space
- Flashing red (fast): Poor disk performance/skipped frames

The Multiview has a window for the recording stats; it shows the remaining space on the external drive and how long the recording has been running for.

The external drive must be formatted as either HFS+*, a.k.a.* Mac OS Extended (Journaled)*, or* exFAT*. Blackmagic Design recommends* HFS+*, but if you're using Windows, it's best to use* exFAT*. To learn how to format an external drive, navigate to page 57 in the ATEM Mini Pro manual found in the* **Documentation** *section. If you're asked about a partition map or partition table, choose* "GUID Partition Map." **Formatting the drive will erase all data currently on it, and must only be done before the first time you use it.**

Stream

This is where the livestreaming controls are located. "On Air" begins the livestream, while "Off" ends the stream.

The Multiview has a window to display livestream stats and updates:

- On Air indicator
    - o "OFF" – Not streaming
    - o "ON AIR" flashing – Attempting to connect/stream interrupted
    - o "ON AIR" solid red – Streaming
- Data rate: The bitrate of the livestream in MB/s
- Cache status: The cache is used as a "buffer" to hold video frames in an unstable Internet connection
    - o "OK" – No issues

o Any percentage – The cache is beginning to fill up, which will begin compromising the stream quality. If this happens, consider restarting the livestream at a lower quality (see the **Troubleshooting** section, along with the **How to Use – ATEM Software Control** section and the YouTube video tutorials in the **Documentation** section).

How to Use – ATEM Software Control

The ATEM Software Control panel runs on a computer and provides a more in-depth way to use the ATEM Mini Pro. This is where livestream and recording configurations are made, media stills and graphics are added, and volume levels are calibrated. Check out the YouTube videos and the ATEM Mini Pro manual in the **Documentation** section to learn more about the software.

The IP Settings under the Network Settings section found in the ATEM Setup Program should be set to DHCP. The Panel Settings should be set as follows:

- *Switching Mode: Program Preview*
- *Picture in Picture Keyer: Drop with transition*
- *Chroma Keyer: Drop with transition*

Prep

1) Ensure the Mac Mini is plugged into HDMI Input 1, and the camera is plugged into HDMI Input 2. Also make sure the display monitor is plugged into the HDMI Out.

2) Turn on the monitor.

3) The Mini Pro should be plugged in and on when you arrive. If not, check to make sure the 12v DC adapter is plugged in and screwed on the whole way. There is no power switch on the device.

4) Plug the ethernet cable into the ethernet port on the Mini Pro, and make sure the port lights up after it's plugged in.

5) Ensure the external drive is plugged into the USB-C port and that the Disk LED indicator is green.

   a. If the Disk LED indicator is slowly flashing red, use a Mac to delete some old recordings off the drive and plug it in again.

6) Open the ATEM Software Control on the ProPresenter Mac Mini.

      i.   Navigate to the "Output" tab on the Switcher page (far right).

      ii.   Expand the "Live Stream" section.

          i.   Check that the platform is set to "Sermon.net", the server is set to "Default," and the "Key" box has the streaming key.

             1.   Streaming key:

████████████████████████████████████
██████████

          ii.   Set the quality to "Streaming Medium."

      iii.   Expand the "Record Stream" section.

          i.   Set the filename to "MM-DD-YYYY Service #" (e.g. 02-14-2022 Service 1)

          ii.   Ensure "Drive1" is set to the external drive that's plugged in. See the **Record** section on proper external drive formatting.

          iii.   Ensure the "Display Status" box is checked.

7) Test switcher transitions. Use the "Auto" button on the ATEM Mini Pro to switch between ProPresenter and the camera. The ProPresenter picture-in-picture overlay should only be live when the camera is also live and should transition with the camera. If it doesn't transition properly:

    a.   Switch to the camera and select both "Key 1" (should be yellow) and "ON AIR" (should be red) in the "Next Transitions" section of the "Switcher" page in the **ATEM Software Control** panel.

8) Test audio. Mic 1 should be set to "On", and all other audio sources should be off. Plug the headphones into the DAC (**D**igital to **A**nalog **C**onverter) behind the monitor and listen for the feed from the X32.

    a.   If the video is playing later than the audio, let the sound engineer know. The audio can be delayed from the X32.

9) Switch to the ProPresenter video feed ("1") and pull up the church logo within ProPresenter whenever you're ready.

The Service

1) Press the button labeled "2" to turn it **green**.

2) Press the "REC" button on the ATEM Mini Pro to begin recording to disk about 8 minutes before the service starts.

3) Press the "ON AIR" button next to the "REC" button to begin livestreaming about 5 minutes before the service starts.

4) Press the "AUTO" button when the service begins and someone is walking to the pulpit to deliver announcements; this will make the camera live.

5) The ATEM is set for the remainder of the service.

6) After the service is over, pull up the church logo in ProPresenter and then press the "AUTO" button on the ATEM to switch to the ProPresenter feed.

7) Wait 5 minutes, then press the "OFF" button to end the livestream.

8) Press the "STOP" button to end the recording.

Teardown

1) Unplug the ethernet cable from the ATEM. Use the tab release on the ethernet connector.

2) Turn off the display monitor.

Troubleshooting

If the cache begins filling up (the "OK" in the Multiview switches to a percentage):

1) Once it hits 60%, press the "OFF" button to temporarily end the stream. **DO NOT END THE RECORDING.**

2) In the "Live Stream" section of the "Output" tab on the "Switcher" page of the **[ATEM Control Software](#)** panel, lower the quality to "Streaming Low."

    a. Don't worry; it will be grayed out for a second until the livestream actually stops.

3) Press the "ON AIR" button to begin streaming again.

The livestream will be split into two separate files on Sermon.net and Facebook. Once you end the recording after the service, give the external drive to the office so they can re-upload the video.

Documentation

ATEM Mini Pro:

- ATEM Mini Pro Manual:

  https://documents.blackmagicdesign.com/UserManuals/ATEM_Mini_Manual.pdf?_v=1613980810000

- Approved External SSDs: https://www.blackmagicdesign.com/support/faq/59032

ATEM Software Control:

- Software download: https://www.blackmagicdesign.com/support/family/atem-live-production-switchers (Under "Latest Downloads" > ATEM Switchers 8.x.x Update)

- YouTube resources:

  o How to download and connect the software: https://youtu.be/C4ERujxrXk4

  o The basics: https://youtu.be/7KqP7C5qJ64

Other resources:

- Types of Keys: https://www.renewedvision.com/downloads/tfwm_keying_article.pdf

- Terminology: https://www.bhphotovideo.com/explora/amp/video/tips-and-solutions/glossary-live-production-buzzwords