![frontrow]

LessonCam™ User Guide

Contents

LessonCam Software

Download and install FrontRow LessonCam software on the teacher's computer.

LessonCam software is free and can be found at:

PC: https://www.gofrontrow.com/products/frontrow-software/lessoncam-software-win

Mac: https://www.gofrontrow.com/products/frontrow-software/lessoncam-software-mac

Introduction

FrontRow's new LessonCam is ready to help make remote-only or hybrid classroom learning as effective as possible.

The LessonCam is a PTZ (Pan, Tilt, Zoom) camera that integrates with our all-in-one classroom sound system, the Juno. This powerful combination creates a comprehensive learning solution for students inside and outside the classroom by seamlessly integrating audio and video with popular video conferencing solutions like Zoom®, Google Meet®, Teams®, Skype® and more.

Students are more engaged because teachers can be more dynamic. The LessonCam shoots in HD and has a 12x optical zoom, so teachers are free to stand in front of a flat panel display or whiteboard, pan to another part of the room, or zoom in for a closeup of a hands-on demonstration. Teachers are no longer tethered to their computer webcam and lessons can easily be recorded and shared for asynchronous learning.

LessonCam is controlled completely by the teacher and has both a power light and designated off position to clearly indicate when the camera is or is not in use. Our plug-and-play solution connects to the teacher's computer with a single USB cable and does not require an additional network drop, license or subscription to operate. This "closed loop" system gives Teachers complete control over when to use the camera and when to share video.

Classroom   **Remote Students**
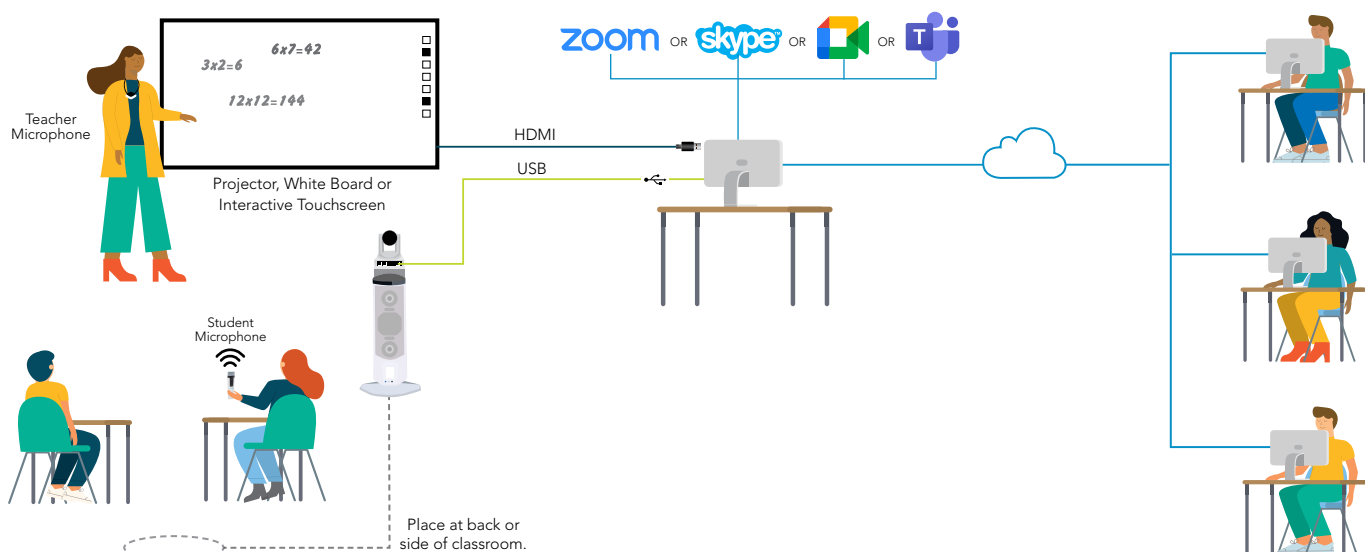
How it works

The LessonCam mounts to the Juno and connects to the USB port on the teacher's computer and the teacher wears the pendant microphone. When the teacher speaks or plays a video from the computer, their voice and audio are amplified in the classroom and heard by the remote students.

All students can see the teacher or other media equally
Using "Screen Share", teachers can share content from their interactive panel, live video from the FrontRow LessonCam, document camera or computer video.

All students can participate equally
When remote students are unmuted by the teacher, their voices are distributed in the classroom. When classroom students use the student microphone, their voices are amplified in the classroom and streamed online to remote students.

All students can stay caught up
Using remote conferencing recording functions or FrontRow's Teacher Edition, lessons can be recorded, shared and archived so students can access lessons for review at their convenience.

Getting Started

This guide assumes the Juno system and the LessonCam have been installed and configured correctly:

• The Juno tower should be setup towards the back of the room and the teacher/student microphone should be able to transmit the teacher's/student's voice over the Juno speakers.

• The LessonCam Juno bracket and camera should be installed on the Juno tower, the bracket cables connected to the tower and a single USB cable is connected from the teacher's computer to the USB-B input on the Juno bracket cable.

• Teacher Edition Capture and Teacher Edition Control software has been installed on the teacher's computer.

• FrontRow's LessonCam Control software has been installed on the teacher's computer.

If you have any questions regarding the Juno installation, please see Juno Quick Start Guide and Juno Installation Guide. If you have any questions regarding the LessonCam installation, please see the Juno LessonCam Installation Guide.

Computer Requirements

Most modern computers with a current operating system (OS) and capable of running video conferencing solutions (e.g., Zoom®, Google Meet®, WebEx®) will be more than adequate to run the LessonCam control software. The computer must also have a USB-A port that is USB 2.0 or above to connect to the USB cable from the Juno bracket cable. Newer computers may require a USB-A to USB-C adaptor or a powered USB hub to accommodate the cable.

PTZ Software Interface Overview

Main Window

Full Window **Small Window**
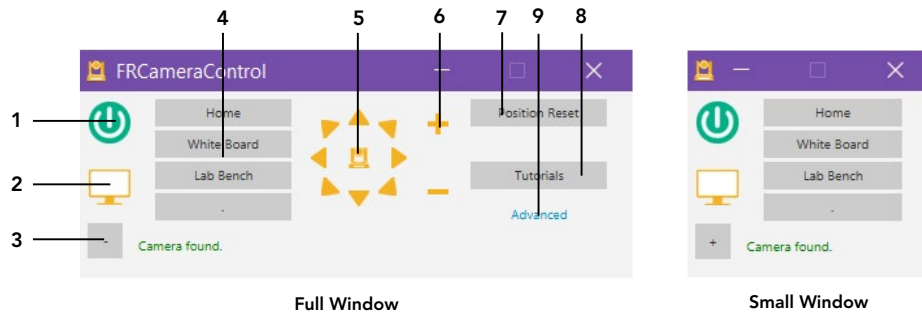
|		
1	**Camera on/off**	Click to control whether the camera is in streaming mode or standby mode.
2	**Open viewer**	Click to open a viewing window so you can see what the camera sees. The viewing window can be resized from a thumbnail to full screen.
3	**Shrink window**	Click to expand/contract the control window.
4	**Position presets**	Click to move the camera view to a fixed position and zoom level. Click and hold to program the button.
5	**Pan/tilt**	Click the buttons to control the camera position.
6	**Zoom**	Click the buttons to control the camera zoom.
7	**Position Reset**	Click to set the camera back to the factory default start position.
8	**Tutorials**	Click to visit a FrontRow website for hints and tips on operating the camera.
9	**Advanced**	Click to see advanced settings. Advanced settings should be set during installation and are typically not necessary on a day-to-day basis.

Advanced Page
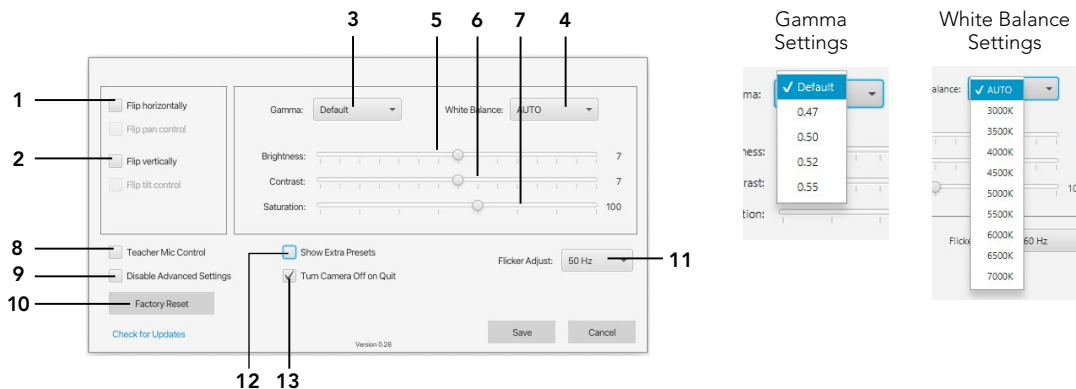
|		
1	**Flip horizontally**	Some video conferencing software will "mirror" the camera. These settings allow you to reverse the mirror effect. The "Flip pan control" reverses the left/right camera direction to make it more intuitive to use with the viewer.
2	**Flip vertically**	Check this if the camera is installed in the ceiling "upside down". The "Flip tilt control" reverses the up/down camera direction to make it more intuitive to use with the viewer.
3	**Gamma**	Corrects the camera circuitry to balance the brightness seen by the camera to that of the monitor. In effect, it darkens or lightens the image. Higher values darken the image.
4	**White Balance**	Alters the color temperature of the light to produce the most accurate colors in the image. Select the color temperature that matches the color temperature of the lighting in the room.
5	**Brightness**	Adjusts how light or dark the image appears.
6	**Contrast**	Increases or decreases the difference between the brightest white and the darkest black in an image.
7	**Saturation**	Alters the vividness of the colors which are displayed in the image. The higher the saturation is, the brighter and more vivid the colors will appear to be.
8	**Teacher Mic Control**	Functionality not enabled at this time.
9	**Disable Advanced Settings**	Locks all settings except the "Flip pan control" and "Flip tilt control".
10	**Factory Reset**	Resets advanced settings and most custom camera settings. Use extreme caution!
11	**Flicker Adjust**	Changes the refresh rate in order to avoid flicker when viewed on a monitor.
12	**Show Extra Presets**	Enables 4 additional presets on the main window, for a total of 8.
13	**Turn Camera Off on Quit**	Automatically shuts the camera off when the app is quit.

Camera Setup
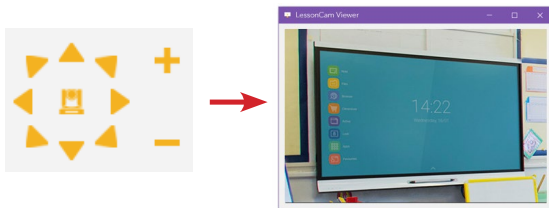
1. Double click the icon on the desktop
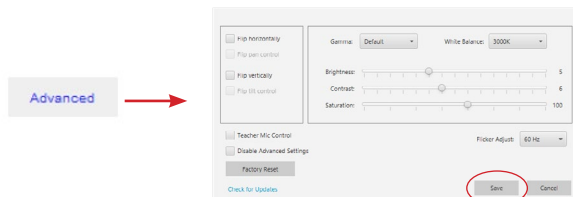

2. Turn camera on
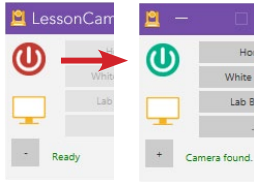
3. Open Viewer
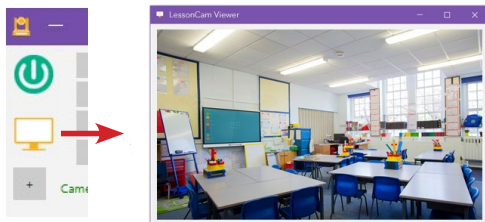
4. Aim camera using arrows and zoom

5. Click the advanced button and adjust the camera settings to obtain the optimal image quality.

6. Click "Save" to save the settings

Using Presets

1. Click and hold the "Home" button

2. Check "Save Camera Position" to save the position

3. Edit the name, if desired.
   (**NOTE:** *the "Home" position is where the camera will go every time it starts up*)

4. Repeat the process for each preset

5. If you do not need all four presets you may deactivate a preset button. The name field will still require a character, such as a "-" or "."
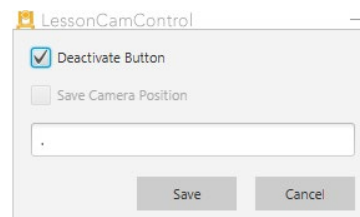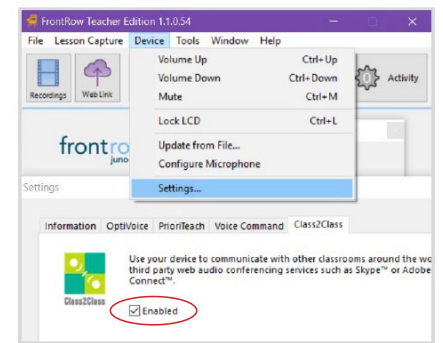
Using Camera with Video Conference Solutions

Hints and Tips for Success

Activate Class2Class

Before using Juno and LessonCam for video conferencing, open Teacher Edition and enable Class2Class. This will reduce echo for remote users.

1. Open Teacher Edition and navigate to Device/Settings/Class2Class
2. Check the "Enabled Box"

There are many audio settings between all the various devices. Juno audio settings can be accessed through Teacher Edition or directly on the tower itself. To start, set the audio to the following:

Device	Volume Setting
Computer Audio	80%
Juno Tower	
Speaker	15
Teacher/Student Mic	5
Audio Device	15
Audio Out (dial)	6

Juno LCD Screen


Juno Audio Out

Device Volume   Mic Volume

Adjusting Audio

Generally, the only audio you will need to adjust will be the Juno tower volume, which controls the overall speaker volume. However, it is OK to experiment with the Teacher/Student Mic settings and the Audio Device settings to fine tune the balance of voice and video or other audio.
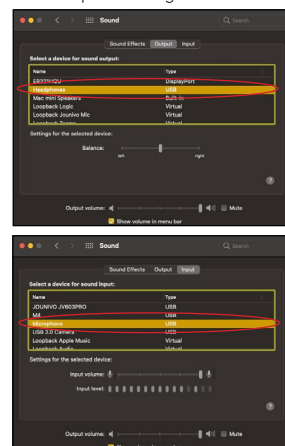
Computer Settings

- Open your computer sound settings to ensure the correct device is selected. The Juno will most likely show up as a "USB Audio Device" on Windows, or a USB device on Mac. The input will be "Microphone" and the output will be "Speakers" or "Headphones". Do audio tests to ensure teacher's voice and media can be heard in the classroom through the Juno tower and remote students can hear the teacher's voice and media over the video conferencing platform.
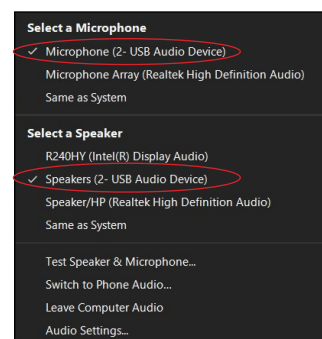
PC Computer Setting
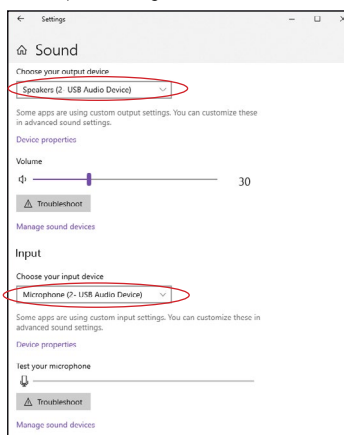
Mac Computer Setting

Tip: If you have your video conference apps set to use the system "default" device, you only need to change it here in your Mac or Windows Settings.
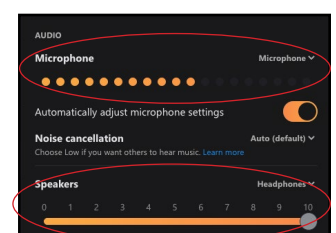
Zoom Settings

- When a meeting is started, select the USB Microphone and Speakers/Headphones.
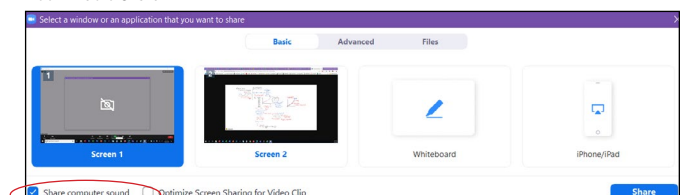- To share a video, share your screen or the video window and select "Share Computer Sound".

Zoom Audio Setting (Windows)

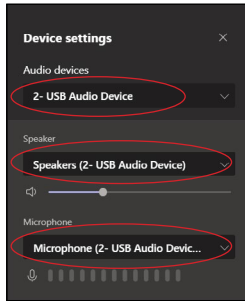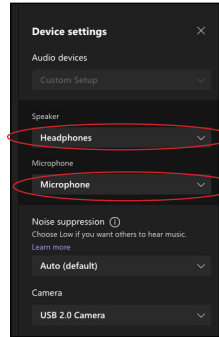Zoom Audio Setting (Mac)

Zoom Audio Share

Microsoft Teams

- When a meeting is started, select the USB Microphone and Speakers/Headphones.
- To share a video, share the screen and select "Include Computer Sound".
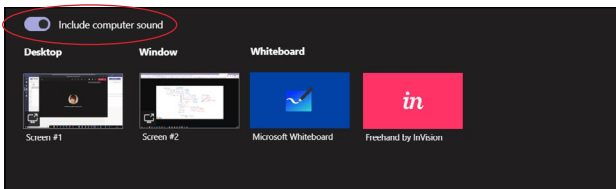
Teams Audio (Windows)

Teams Audio (Mac)

Teams share

Google Meet

- Click the "Options" icon, under "Audio". Select the USB Microphone and Speakers/Headphones.
- To share a video, select the tab, screen or window and click "Share audio".

Google Meet audio setting
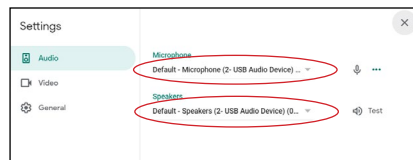
Google Meet share
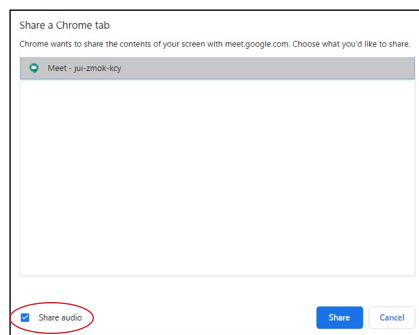
Skype

- **Windows:** Click the "Options" icon, select "Audio Device" and select "USB Audio Device".

  Mac: Go to the Skype Settings, and select Audio & Video. Select the appropriate input and output.
- Video sharing is not currently supported on Skype.

Skype audio setting (Windows)

Skype audio setting (Mac)

Sharing Video

There are several different ways you can share LessonCam video using popular video conferencing solutions. Small details may differ from solution to solution, 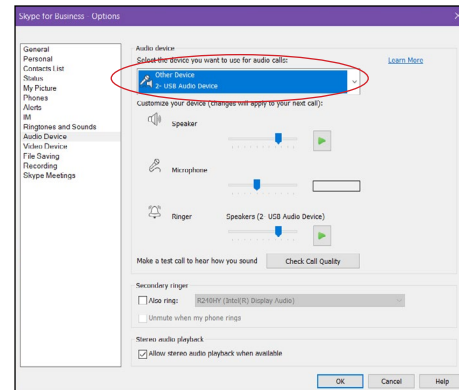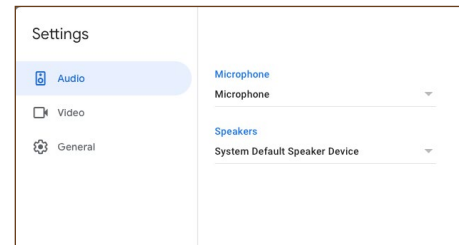but the following details are applicable to the most widely used video conferencing solutions. Screenshots are for reference only.

Option 1

Make LessonCam the main video conferencing camera.

1. First, open the LessonCam Control software and turn the camera on.
2. In the video conferencing software, go to "Settings" or "Options" and select the LessonCam as the camera of choice. It will show up as "UVC Camera".
3. Use the LessonCam Control software to control the camera.
   NOTE: The LessonCam Viewer window will not work in this option.
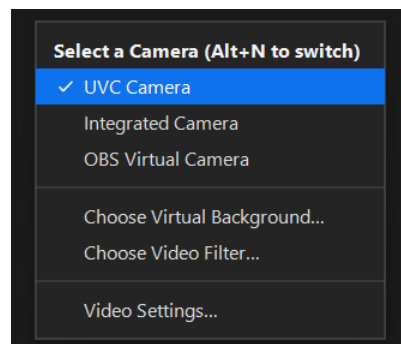
Option 2 (Recommended for best quality)

Share the LessonCam Viewer window.

1. First, open the LessonCam Control software and turn the camera on.
2. Click on the LessonCam Viewer button to open the viewer window.
3. In the video conferencing software, click the "Share" button and select the "LessonCam Viewer" window or "Screen" / "Desktop" to show the entire computer screen.
4. To ensure the highest resolution experience for remote viewers, expand the size of the LessonCam Viewer window as much as possible.
5. Use the LessonCam Control software to control the camera.

   NOTE:
   - To switch from Option 1 to Option 2 you must first de-select LessonCam (UVC Camera) as the main video conferencing camera. Otherwise, the LessonCam Viewer will not work
   - To switch from Option 2 to Option 1 you must first close the LessonCam Viewer window before selecting LessonCam (UVC Camera) as the main video conferencing camera.
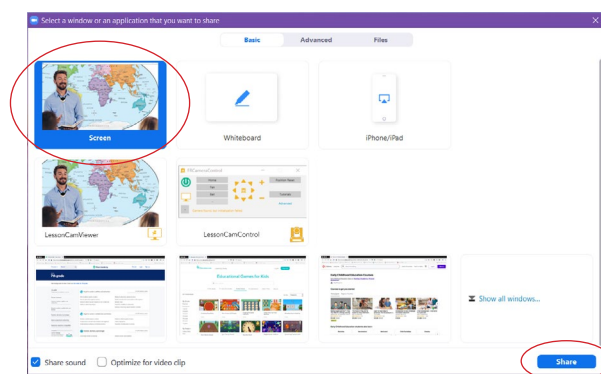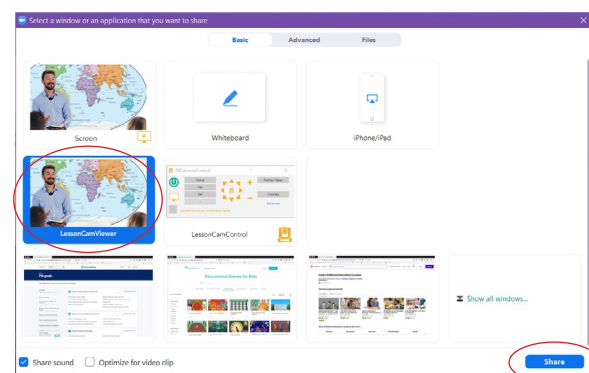
Recording a lesson

Teacher Edition makes it easier than ever to make use of the time saving, results-boosting power of lesson capture. Teacher Edition's lesson capture feature makes a video of teacher and student voices, media audio and computer screen, automatically titles it with the right subject based on your schedule, and helps you post it for students to review at night—all in the device-agnostic MP4 format viewable on Windows® or Mac®, smart phones and more.

When video conferencing is being used, Teacher Edition does not capture audio from remote participants. It is for this reason we recommend using the recording function native to the video conferencing software you are using.

For more details on Teacher Edition, see the User Guide at:
https://www.gofrontrow.com/resources/manuals-guides/teacher-edition-user-guide-windows/

Uninstalling LessonCam Control and LessonCam Viewer

Windows:
Go to Settings > Apps, and search for LessonCam, then select Uninstall.

Mac:
- Go to your Applications folder, select LessonCam Control and drag it to the Trash, or right click and select Move to Trash.

- Go to Macintosh HD/Library/Application Support/Frontrow and delete the LessonCam folder (or the entire Frontrow folder if there are no other apps installed) by dragging to the Trash, or right click and select Move to Trash. This will delete the LessonCam Viewer.
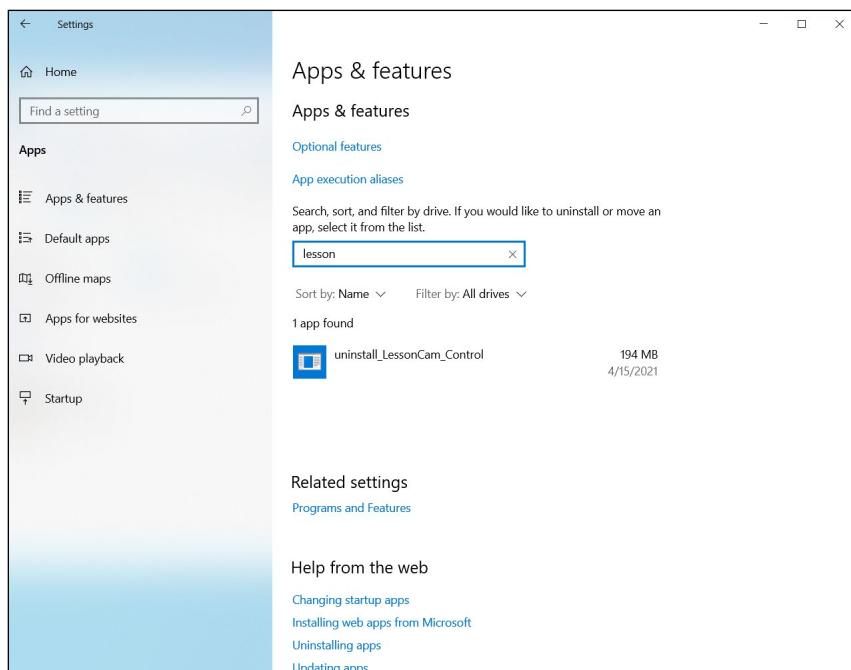
LessonCam Troubleshooting

Q: Can anyone control the LessonCAM camera?

A: No, only the teacher can control the camera via the LessonCAM software and USB cable attached to their computer. As long as the teacher's computer is secure, the camera is secure.

Q: The camera isn't found when I launch LessonCAM Control, or doesn't respond to commands.

A: In many cases hitting the Position Reset button or restarting the app will solve the problem. Check to make sure the RS-232 cable is securely connected in the back in the RS-232 IN port. If there are other third party webcams connected disconnect them and remove their software to see if it solves the problem.

Q: The app says "No serial ports available" or "No COM ports available"

A: Double check to make sure the Juno and camera are plugged in and connected to the computer via the USB cable, then restart the LessonCam Control app. On Windows, it could mean that the drivers were not automatically installed by the system, for example if there was no internet connection to download the latest drivers. In this case you will need to manually install the drivers. Launch the driver installer, found in the same folder as the LessonCAM Control app.

Q: How do I save a preset position?

A: Click and hold down on one of the preset buttons and the current camera position and zoom will be saved, and you can name the preset.

Q: I selected the Camera in my video conferencing app but nothing is showing up.

A: Remember that the camera can only be used by one application at a time. If you are using the Video Preview in LessonCAM Control, you will not be able to use the camera in another app, and vice-versa. Check to make sure you are using the camera in only one application.

Error Codes

General Error	
"COM Error"	Check the serial-to-USB cable is connected to the camera IN port and firmly seated in the Juno bracket then relaunch the app.
Error Codes at Startup	
"Camera found, but initialization failed."	A LessonCam was found but custom settings could not be restored. Check the serial-to-USB cable is connected to the camera IN port and firmly seated in the Juno bracket then relaunch the app.
"Camera found, but provisioning failed."	A LessonCam was found but could not be reset to default startup conditions. Check the serial-to-USB cable is connected to the camera IN port and firmly seated in the Juno bracket then relaunch the app.
"No Cameras found."	No LessonCam was found (any serial devices checked did not respond or did not return expected ID info). Check the serial-to-USB cable is connected to the camera IN port and firmly seated in the Juno bracket then relaunch the app.
"No serial ports available."	No serial ports were recognized. Check the serial-to-USB cable is connected to the camera IN port and firmly seated in the Juno bracket.
	Check the computer's Device Manager under "Ports (COM & LPT)". If you do not see a port titled "USB Serial Port (COM[number])", click the "Tutorials" button on the LessonCam control software and navigate to the "USB-Serial Drivers Download" section and install the drivers.
Error Codes when running	
"The camera is not responsive. Please check cables and relaunch the app."	Multiple commands have failed (e.g., user clicked a button multiple times without success). Relaunch the app, then check the serial-to-USB cables connected to the camera and the Juno bracket.
Error Codes on Advanced Page	
"Advanced settings enabling incomplete (some settings failed)"	An attempt was made to re-enable the advanced settings on the Advanced page and it failed. Sometimes it is enough to retry the action. Otherwise, restart the software.
"Advance 'Cancel' recovery incomplete"	Some of the "Cancel" commands on the Advanced page failed. Relaunch the app.