

# VariZoom

## Cinema Pro Advanced Controller

**Front Panel buttons:** – The top row of buttons default to act like a normal record - playback system; record, rewind, stop and play. The top left button, 'Shift', is used as similarly to a keyboard "Shift" key, and will temporarily reassign the function of other buttons.

The bottom row includes:

The "Menu" button = '\*'

The "Enter" button = '↵'

The "Back" button = 'x'



The main page may always be enabled by pressing the "Cancel" button one to three times, depending on which sub-menu you start out from.



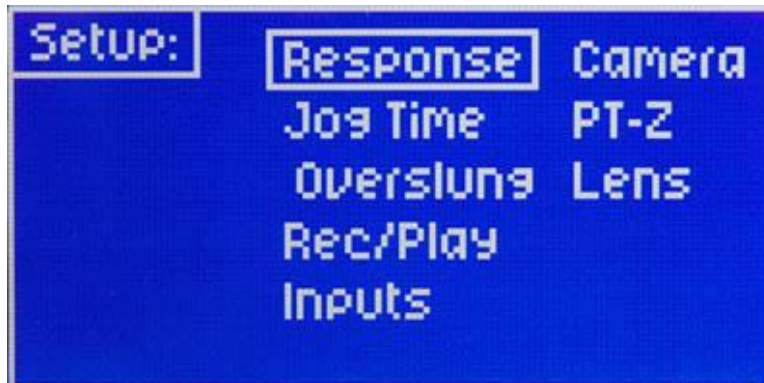
The upper right portion of the LCD screen shows motor status and current positions for pan, tilt, zoom and focus. A check in the box to the left of the axis name indicates that that motor is enabled to run. If soft limits are enabled for the axis, the box is filled and appears white with a blue check mark. The numbers to the right of the axis names are the motor positions; pan and tilt are shown in degrees, and zoom and focus are shown as an unscaled number from 0 to 1000.

# 1. Navigating the menu screens

Use the knob above the joystick to navigate through the menu screen. This knob (called the setup knob) will also be used to change the value of selected parameters.

Use the “enter” button to select an item.

The “menu” button is used to enter setup menu.



When pressed while already in the setup menu, the “menu” button will enter a second setup menu.



The “cancel” button is used to cancel the last item changed, or to back out of a sub menu.

Pressing “cancel” twice will always return to the main screen.

The “Shift” button is basically a shift key, and is used to change the function of other buttons.

The “Record” “rev” “stop” and “play” are used for the motion control features. This will be addressed later on.

The main menu screen will show pan, tilt, zoom, and focus positions. It will also display which take is enabled, which go to mark is enabled, as well as a few basic functionality adjustments.

When changing the value of a parameter, the setup knob will increase or decrease the value in increments of 1. Hold the “Shift” button while moving the setup knob, and the values will move

in increments of 10. Hold the “menu” button while moving the setup knob, and values will move in increments of 100. Hold both the “Shift” and “menu” buttons while moving the setup knob, and the values will change in increments of 1,000.

**Display Contrast** can be adjusted from the second setup menu.

While in the main screen, press the “menu” button twice.

Select the “contrast” option.

Contrast can be adjusted from 0-100

**Set inputs-** You will now need to set the Cinema Pro head to respond to the correct controller inputs.

Press the “menu” button to bring up the setup menu.

Select the “inputs” option. This will bring up a controller inputs grid.



Here is where you can assign how Pan, Tilt, Zoom, and Focus will be controlled.

Move the cursor box to where you’d like to control each axis.

**Note:** Make sure you have the correct controller selected. I.E. if you are using wheels, make sure “wheels” is selected rather than “panbar”. This will greatly effect the performance of the Head.

**Overslung/Underslung-** Make sure this selected for the proper configuration. If this needs to be changed, simply move the cursor box over the selection, and press “enter”. This will change the Pan response.

**Lens Setup (optional, depends on kit you purchased)** - This only needs to be changed if you purchased a kit with lens control capability and a lens control cable.

Press the “menu” button to enter the main setup menu.

Select the “Lens” option.

Current Lens: <b>Default</b>	Current Lens: <b>Preston</b>
Zoom: 2.50 5.00 7.50	Zoom: 2.50 xxx 7.50
Focus: 2.50 xxx 7.50	Focus: 2.50 xxx 7.50

When the “Current Lens” box is selected, pressing “enter” will change the selection.

### Preston

If you are using a Preston MDR2, press the “enter” button until the box reads “Preston.”

### Canon or Fujinon Analog Servos

If you are using a Canon or Fujinon lens with an analog zoom motor, press the “enter” button until “default” appears.

#### Connect the Lens Control Cable

To set up the lens control, you need to first connect the lens cable to the servo jack(s) on the lens itself (NEVER connect to the jack on the camera body where the lens plugs in, or damage may occur). You will plug into the same jack(s) where you would plug in any external lens control, so consult your owner’s manual if necessary.

#### Adjust the Voltages

You must then adjust the voltages in the lens menu so the lens servo responds properly – you may notice the lens zooming on its own when you first connect the cable, but this is normal. Start by adjusting the middle number until the lens servo stops zooming. If the lens is all the way at one end of the range, you may have manually zoom the lens in or out to reset the position in order to see if the servo is still moving. (Some people also flip the lens servo switch to manual and just listen to hear the servomotor stop running)

Once you’ve set the middle number to the proper rest voltage, you need to make sure the voltages on the left and right are equally far from the middle “rest” voltage. In other words, if your rest voltage is 4.00, the left voltage could be 1.50 and the right 6.50.

If the difference is unequal, you’ll notice the lens zooms faster in one direction than the other. The greater the difference, the faster the lens will zoom in that direction. The left number should always be lower than the middle number and the right number should always be higher than the middle number.

### Canon or Fujinon Digital Servos

If you are using a Canon or Fujinon lens with **digital** servos, press “enter” until the lens manufacturer’s name appears. Digital servos should automatically work with no setup.

**Head Setup** – You only need to enter this menu to switch the head between wired and wireless mode. Press the “menu” button twice to enter the secondary setup menu. Select the “Head setup” option.

- Using the Head in Wired Mode: “Select head type” setting should be on “Wired”
- Using the Head in Wireless Mode: “Select head type” setting should be on “Wireless”

**Warning:** In the “Head setup” menu, there is also a set of head speed options: “S- Standard,” “HS - High Speed” and “HSX – Ultra Speed” – **DO NOT CHANGE THIS SETTING FROM “S – Standard” – THE CP JR SHOULD ALWAYS BE SET TO “S - Standard.”**

## 2. Motion response

From the main screen press the “menu” button, Select the “response” menu.



Here you can adjust parameters for Pan, Tilt, zoom, and focus. Select the axis that you’d like to adjust.

**Smoothing**, or “ramping” will add a curve to how quickly an axis will speed up and slow down during a move. Smoothing can be adjusted from 1-100. 1 being no speed curve at all, and 100 being the maximum speed curve.

**Speed** will adjust the advanced speed setting. The numbers in the box are the same numbers that appear in the advanced speed setting accessible from the main screen.

**Deadband** only affects the joystick. It will adjust the amount the joystick must be moved before the axis responds. Deadband can be adjusted from 1-100. 1 being minimum amount of movement before response, and 100 being maximum amount of movement before response.



**Direction- In** will change the direction in which the signal is sent to the head. It is what you will need to change to reverse axis response. I.E. if tilt is set + turning the encoded wheel clockwise will tilt the camera up, and pressing the joystick forward will tilt the camera down. If it is changed to – turning the encoded wheel clockwise will tilt the camera down, and pressing the joystick forward will tilt the camera up.

**Direction- Out** will change the direction in which the head sends the signal back to the controller. This will change the axis positions on the main screen display as they relate to zero. I.E. a pan maneuver from left to right will have decrease the angle if the output direction is marked as+. Switching the output direction to – will result in the angle number increasing when a pan maneuver is made from left to right.

### 3. Motor Enable/Disable

To enable or disable control of pan, tilt, zoom, or focus, or to place pan or tilt in neutral, while in the main screen select the “ENL” option.



The cursor box then appears in the top right corner, and lets you select one of the four axes. Move the cursor over which axis you wish to control.

Pressing “enter” will disable, or enable that axis from the controller. When disabled, power will remain to this axis, so it will hold its position. It will just be disabled from control.

While holding “Menu”, press the “enter” button. This will place the selected axis (this only works for pan or tilt) in neutral. That axis not only will be disabled from the controller, and will no longer be powered allowing you to move the axis by hand.

From this menu, you can also set each axis for live playback, or manual control (this only applies when playing back a move which will be addressed in a later chapter)

**Note:** A check mark next to the axis indicates that the axis is enabled.

An “x” next to the axis indicates the axis is disabled.

An “o” next to the axis indicates an axis that is in neutral.

A blue check mark with a white background indicates an axis with a soft limit set

If the name of the axis appears blue with a white background, this indicates an axis that is set for live control during playback of a move (this will be addressed in a later chapter)

## 4. Setting Zero

You can custom set the axis position indicator to read zero wherever is necessary.

Move each axis to your desired zero point\*\*.

From the main screen select the “set” option. Then a sup menu will appear to the right. Select the “zero” option.

All axes will then reference their current position as zero.

\*\*If using the TOC system, Preston MDR2, or any Canon or Fujinon lens with digital servo control. Setting zero will only affect pan and tilt. Zoom, and focus will be referenced to the actual motor position.

You can always return all axes to zero at any time.

From the main screen, select “Go To”

From the sub menu, select “Zero”

All axis will then return to the zero position

## 5. Soft Limits

Soft limits will allow you to limit the range of the pan, tilt, zoom, or focus axes. This is very useful if you have any hard wired cables that will restrict pan or tilt movement, or any lenses that limit clearance. You can set two limits per axis.

From the main screen select the “set” option. A sub menu then will appear to the right. Select the “soft limits” option.



Select the axis that you'd like to set soft limits.

When setting a limit, leave the soft limit as "disabled"

Move the selected axis to the desired limit.

Then select "set limit"

Now move the axis in the other direction to where you need the other limit set.

Select "set limit"

Now move the cursor box to "Disabled", and press "enter" The box now shows "enabled", and your soft limits are set that that particular axis.

**Note:** If the system is setup to be in "one-way" mode, you can quickly enable or disable pan and tilt soft limits from the main screen.

While in the main screen Hold "Shift" and press "record". This will enable or disable pan and tilt soft limits.

**Reset Zero** will set the current position of the selected axis to be zero.

**Set Default** will automatically set the selected axis to small, safe range of motion relative to its current position. This is just for a quick limit set – we recommend you create your own limits.

**Reference** is the point from where the soft limits are set. You can change this to "sensor" or "zero". If reference is set to "zero" then the limits will be set based on how far the axis is from the zero position. In this case, the soft limits will change position if zero is reset. If "sensor" is selected, the limits will be set regardless of where their zero position is. In this case, if you reset zero the soft limits will not change their position. **Note:** If any axis is moved by hand while the Head is not powered, the sensor position will have changed once it is powered up again. You must then re-calibrate "home sense" (as addressed in the previous chapter) in order to restore the soft limits to their correct positions.

## 6. Mark points

The controller can store 2,000 preset positions for any axis.

### Setting Marks

To set a mark point, select "Mark" on the main screen.



Take	1	✓	pan	-1.4
Mark	1	✓	tilt	2.1
		✓	zoom	265.7
		✓	focus	289.7
Go to				
Set	Enl		Mark P:	-1.4
Spd:	100		num T:	2.1
Sync:	◆ ◆		1 Z:	265.7
			F:	289.7

The number in the box will indicate where your mark will be stored. As you scroll through the numbers, the lower right will display the current positions recorded for each mark. Once you choose where you want to store the mark, press “enter” Move the axes to the position that you wish them to set for this mark position. Select the “set” option. From the sub menu select “Mark” This will then record all current axes positions to the mark displayed in the upper left.

### Recalling Marks

To recall a mark position, select the “Mark” number you wish to recall from the main screen. (The axis positions will be displayed in the lower right) Select the “Go To” option

Take	1	✓	pan	-1.4
Mark	1	✓	tilt	2.1
		✓	zoom	265.7
		✓	focus	289.7
Go to				
Set	Enl		Go to:	
Spd:	100		Mark Zero Home	
Sync:	◆ ◆		Start End	

From the sub menu, select “Mark” All axes will go to the position that is recorded for this mark.

**Note:** A quick way to scroll through marks. While holding the “Shift” key, press “Play” and the mark numbers will increase. Press “Stop” and the mark numbers will decrease. This is much faster than scrolling with the setup knob.

**Jog Time** is the speed and time that the Head will take to move to and from a mark, or to and from zero. This can be adjusted for linear ramping, and will be addressed in more detail in a later chapter.

## 7. Recording moves

The Cinema Pro can record up 4,650 seconds of moves, and store them as up to 2,000 different takes. They will be played back in real time, or over an intervalometer (The intervalometer will be addressed in a later chapter)

**Recording a move-** Select the take where you want to store the move. From the main screen, move the cursor box to the number next to the “take” option.



The screenshot shows a blue monochrome display with white text. The top section shows 'Take 1' and 'Mark 1' with checkmarks next to 'pan', 'tilt', 'zoom', and 'focus'. The bottom section shows 'Set Enl', 'Spd: 100', and 'Sync: ♦ ♦'. The right side shows 'Take: 1', '9.3 seconds', and 'seconds left: 4341'.

Take	1	✓	pan	-1.4
Mark	1	✓	tilt	2.1
		✓	zoom	265.7
		✓	focus	289.7
Go to				
Set	Enl		Take:	1
Spd:	100	♦		9.3 seconds
Sync:	♦ ♦			seconds left: 4341

From here, you can select the take where you want to store your move.

The bottom left will display how long the existing take is (if it is empty it will display “0”), and how many seconds are available for recording in the system’s memory.

Press the “record” button. If a move is already stored it will read “overwrite take?”

Press enter to overwrite. It will then read “hit record to start”

Once you hit record, it will instantly begin recording the moves for all applicable axes (pan, tilt, zoom, focus, and iris)

When you are done, press the “stop” button

**Note:** You can record a “go to mark” maneuver.

Before you begin recording, make sure that the desired mark is already displayed in the upper left.

Begin recording.

Any time during the recording hold the “Shift” button and press “play”. The Head will then automatically move from the current position to the mark point displayed in the upper left.

This can be done as many times as necessary during the recording.

**Playing back a move-** Select the take that you wish to play back

Press the “play” button. All recorded axes will then move to the starting point of the selected take.

After the all axes have returned to the start point, press “play” again, and the Head will play back the recorded move.

**Note:** During playback of a move, the joystick, panbars, or handwheels, will be disabled until the axes are done playing back the move.

**Manual control on axes during playback-** It is possible to isolate a specific axis or axes to be disabled from playing back while the other axes play back the move.

From the main screen select the “en1” option.

Then select which axis you’d like to disable from playback

On the lower left, next to “playback” it will display either “active” or “live”

When “active” is displayed, the axis will be played back during a move.

When “Live” is selected, the axis will be disabled from playback, but you will be able to control that axis with the controller while the other axes playback the move.

**Note:** When selecting a take for playback, or recording, hold the “stop” button while turning the setup knob. This will skip to the next take that has a move recorded. I.E. if you have a move recorded on take 2, and a move recorded on take 12, and moves 3-11 are blank, this will scroll the numbers directly from take 2 to take 12.

**Delete a take-** Select the take that you want to erase.

While holding “stop” press “record” This will then erase the move that is stored on the selected take.

## 8. The Intervalometer

The intervalometer allows recorded moves to be played back over a specified time and, when camera sync is enables, will control the number of frames that will be taken during that time.

To activate the intervalometer, select the “record/play” option from the setup screen.

Select “playback time”.



The intervalometer has three modes. “Playback Time Mode”, “Playback Ratio Mode”, and “Stop Motion Mode”.

## **-Playback Time Mode**

This mode allows you to select a specific time that the head will take to play out a recorded move.

Adjust the time you wish for the move to be played back. (the playback time selected must be **greater** than the move time)

Move the cursor box over “disabled”, and select it. It will then change to “enabled”, and all moves will be played back according to these settings.

If you have “camera sync” enabled, you can select the number of frames that will be taken during the selected time. The “Start Frame” setting will allow you to start in the middle of a take, if you ever need to replay a move, but don’t need to replay if from the beginning. Setting the “Start Frame” to anything other than one will start the move from the position that corresponds to the selected frame.

**Note:** all of these settings will be applied to all recorded moves. If a move has a greater recorded time than what the intervalometer is set to, the move will not play until the intervalometer is either disabled, changed to a different mode, or the playback time is adjusted to be greater than that of the selected take.

## **-PB Ratio Mode**

This mode allows you to change the playback of a move according to the frame rate. The “Rec FPS” will adjust the intervalometer to record the move at this specified frame rate. The “Play FPS” will adjust how the move is played back. For example; if a move is recorded at 30Fps, and the Playback is set to 15Fps, the move will play back at half speed.

This mode will also allow you to play a move faster than it was recorded. If the Play Fps is set higher than the Rec Fps, the move will be faster than it was recorded.

## **-Stop Motion Mode**

This mode allows you to play back a move by triggering it frame by frame. This works much like a “frame mode” on a camera. When this mode is selected, the move will be scaled down according to the “playback frames”. After you set the number of playback frames, return to the main menu, and select your desired move, and press the “play” button. The head will then move to the start position. From now on, each time you press the “play” button, the head will move to the position that corresponds to the next frame until the total number of frames is reached.

If “camera sync” is enabled, the head will trigger the shutter each time the “play” button is pressed.

\*\*\*You can also adjust the delay between when the shutter is triggered and when the head moves to the next frame. If you change the intervalometer back to “Playback Time Mode”, the time specified here will be the shutter delay time when operated in “Stop Motion Mode”. After

you select the desired shutter delay time, change the intervalometer back to “Stop Motion Mode”. The shutter delay will now be set. (set it to “0” if no shutter delay is desired)

## 9. Bloop Delay/Camera Sync

**Bloop delay** will allow you to choose the number of seconds before it will take for the head to begin playing back a move after the “play” button is pressed. This can be used in conjunction with a bloop light or trigger.

**Sync** allows you to synchronize move playback with your camera shutter pulse. If have a shutter (or “frame”) signal connected to the head, the camera shutter pulse is recorded with the move, and all axes played back will be synchronized to the shutter pulse during the move’s playback. When sync is turned on, the head will synchronize the move to any shutter or frame pulse. When sync is activated the main screen will show a small diamond next to the move time. To record a move in sync, select the take that you want to record, then press the “record” button. Once the menu reads “press record to start” hold “shift” then press “record”. The move will then be recorded with camera sync.

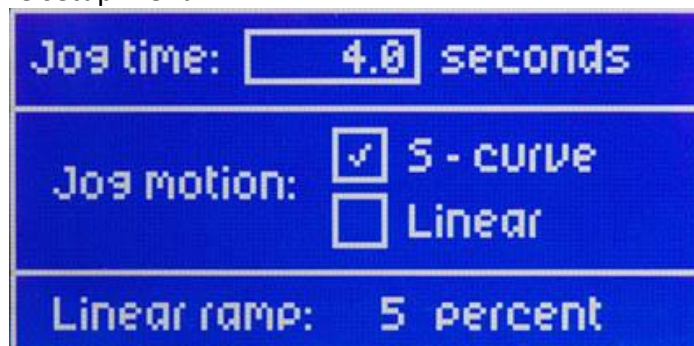
**Cam Phase** is used when the playback needs a time shift. This setting will shift the playback time.

**Virtual sync** is used to generate a virtual “frame pulse” when a real camera pulse isn’t available. When virtual sync is enabled during recording, a move will be recorded with shutter pulses that are generated by the internal timebase. When this option is enabled during playback, you can use the virtual playback frame rate to play the move at any speed relative to the recorded frame rate. This is the only option that lets you play back a move more quickly than the recorded time.

## 10. Jog Time

Jog time is the time the Head will take to or from a mark or zero.

Select “Jog Time” from the setup menu



Under the “jog time” option, you can set the number of seconds the Head will take to go from mark to mark, from zero to mark, or from mark to zero.

Under “jog motion” you can choose either “s-curve” or “linear”. This is how the speed will vary throughout the motion.

“s-curve” will start slow, speed up, then slow down before all axes reach their destination.

“Linear” will start slow, and then increase speed. Maximum speed will be reached at no more than 50% of the move.

“linear ramp” will adjust the percentage of the move the Head will take to reach full speed in while “linear” is selected.

## 11. Servo Tuning

Servo tuning is visible from the “tuning” option in the second setup menu.

***These settings are factory preset, and should never be changed. If they have been changed, they must be changed back to the following, or the Pan and Tilt motors can be damaged.***

## 12. System resets

The “reset all” option is found in the second setup menu screen.

When selected this will reset all parameters only. All stored marks, and takes will not be effected.

**To reset all motor parameters only**, turn the console power off

Hold the “cancel” and “stop” button simultaneously. While holding both buttons turn console power on.

The screen will then read “Accept = reset all motors”

Press the “enter” button, and all motor parameters will be reset.

**To erase all takes** turn console power off.

Hold the “cancel” and “record” buttons simultaneously. While holding both buttons turn console power on.

The screen will then read “Accept = erase all takes”

Press the “enter” button, and all takes will be erased.

**To erase all marks** turn console power off.

Hold the “cancel” and “play” buttons simultaneously. While holding both buttons turn console power on.

The screen will then read “Accept = erase all marks”



Press the “enter” button, and all marks will be erased

**Note:** resetting all motor parameters is recommended after updating system software. It is also recommended if the systems memory ends up corrupted.

## 13. Troubleshooting

### No Response from head

- 1) Check the “inputs” settings to make sure that the controller (joystick, handwheels, or panbars) you’re using is selected.
- 2) Make sure that the motor power switch is turned on, and the light above it is green.
- 3) If using a wireless module, check the “head setup” menu and set “head type” to “wireless.”
- 4) If using handwheels, or Panbars, first make sure that they’re selected in the “inputs menu”, then make sure that they are plugged into the “PB-W” connector on the back of the console.
- 5) Make sure all motors are enabled. Go to the main screen, and make sure that there is a white checkmark next to Pan, Tilt, Zoom, and Focus.
- 6) Check to make sure that there aren’t any soft limits set too close together. Disable all soft limits, and then try again.
- 7) Power down the system, unplug the XLR connector, wait for a few seconds, re-plug everything back in, power it back up, then try again.
- 8) Perform all of the system resets.

### Pan and Tilt moves too slowly or PanBar range is limited

- 1) If using handwheels or panbars, check the “inputs” menu, and make sure that the proper controller is selected \*note. When “reset all” is selected, this setting defaults to “wheels”
- 2) Check the “PT-Z” setting. This will slow down all pan and tilt moves if the controller thinks that the lens is zoomed in.
- 3) Check both speed settings. The “global” speed setting located on the main screen as well as the individual speed settings located in the “response” menu.

### Head is “jerky” or too responsive

- 1) If using handwheels or panbars, check the “inputs” menu, and make sure that the proper controller is selected \*note. When “reset all” is selected, this setting defaults to “wheels”
- 2) If using a wireless module, make sure that the head is set for “wireless”. Also make sure that the two wireless transceivers are at least 15 feet away from each other, and that the antennae are not pointing directly at each other.
- 3) In the “response” menu, increase the “smoothing” setting for each axis.
- 4) Turn down motor speed.
- 5) Check to make sure that the servo tuning in the “tuning” menu is set to the factory setting. Selecting “reset all” will return this to the factory preset.
- 6) Perform all system resets

### Soft limits aren’t accurate

- 1) Re-calibrate “home” sense. If the head has been moved while powered down, the home sense will be lost, and if the soft limits are set to “reference sensor”, they will be lost as well.

- 2) If the soft limits are set to “reference zero”, and your zero position has been changed, the soft limits will also change with the new zero.
- 3) Perform all system resets, then re-set the soft limits in the “set limits” menu.

**Head moves on its own**

Cycle power and do not touch the joystick when powering up the system. The joystick has to calibrate on power-up, so if it's off-center then it will calibrate incorrectly.