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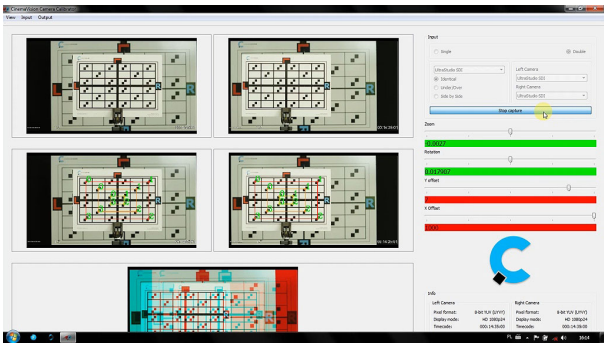
CV.CC.UG EN
Camera Calibrator User Guide

Content

1. Introduction

CinemaVision presents Camera Calibrator – an application supporting synchronization of 3D film sets.
The program is an effective solution providing fast and simple synchronization of stereoscopic movie sets.

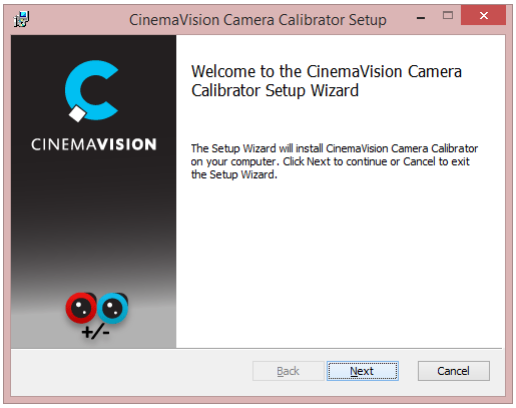


2. Technical requirements

- • Windows 7/8/10
- • Dual Port SDI card from Blackmagic Design (eg. 2 x UltraStudio SDI or 1 x DeckLink 4K Extreme).

3. Installation

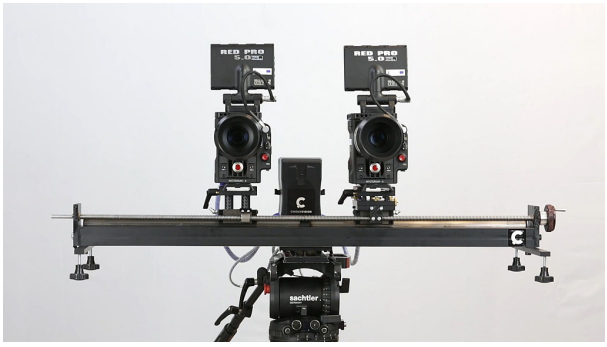
Install software with a file with the extension .msi (Windows Installer Package).



Installed application is available in the Start menu as **CinemaVision Camera Calibrator**.

4. Equipment setup

The way application works we present with the CinemaVision Parallel Rig.



Before starting the work with an application we have to properly compose the CinemaVision 3D set.

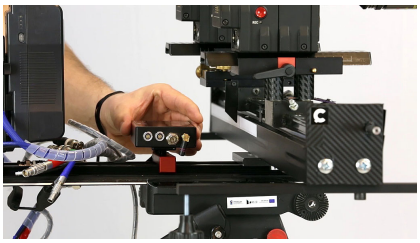
The 3D film set should be equipped with two the same cameras and two identical certified lenses.

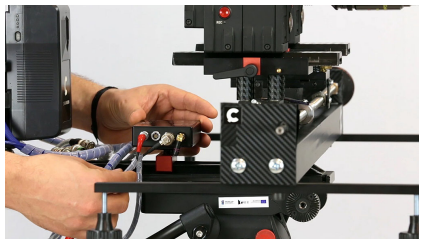
Please note, that during the work all parameters of the cameras must be exactly the same. Also Back Focus on both cameras have to be properly tuned. Its dysregulation, or incorrect setting significantly impedes the further proper work.

Equally important is proper selection of lenses. We should choose the same, twin lenses, certified for shooting in 3D. During further work we should also ensure, that their settings are always identical.

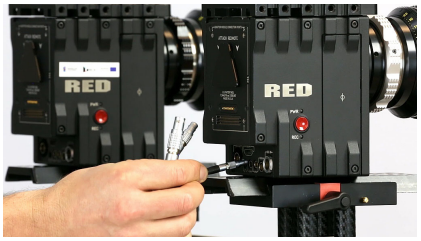
Cameras should be placed on the Ring always in the same places - left on left trolley, and right on the right one. It is worth remembering that the lenses should be always assigned to a particular camera (left to left and right to right) and to install them always in the same way. This will facilitate the subsequent set synchronization and ensure its repeatability.

The next step is connecting proper power supply and mounting Ambient Lockit device responsible for Timecode and Genlock signal transmission.

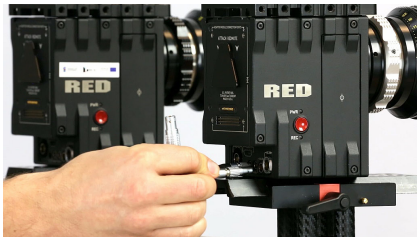




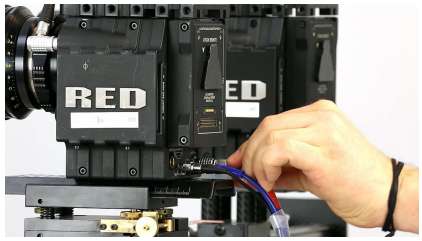
Now appropriate cables can be connected to the cameras: sync cable from Lockit device, GIG-E Master/Slave communication cable, power. We do the same for the both cameras.



Sync cable



GIG-E Master/Slave cable

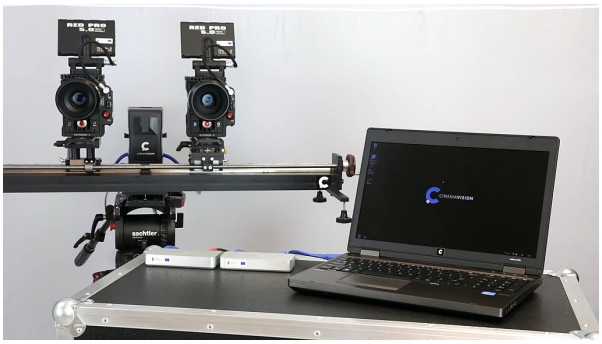


Power

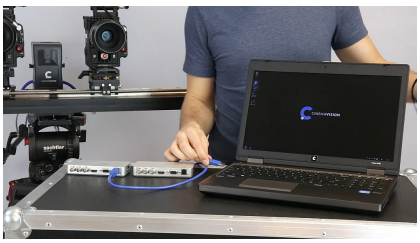
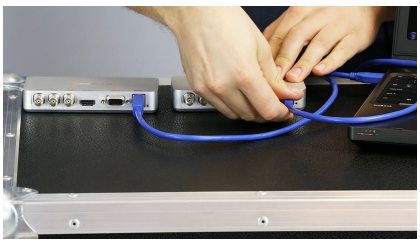
Now the CinemaVision 3D set is ready to work with Camera Calibrator.

5. Camera – computer connection

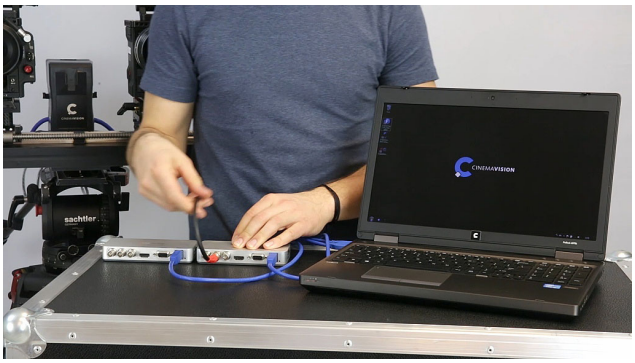
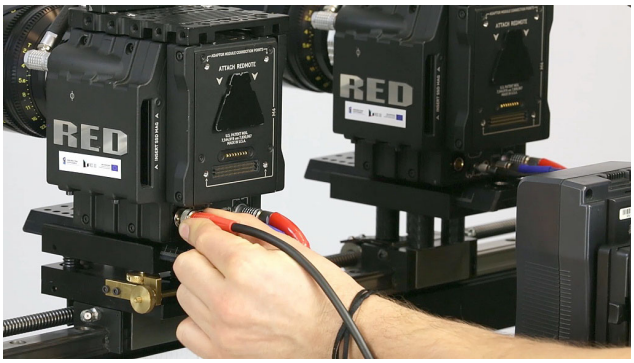
In the next step we will need a computer with Camera Calibrator application installed.

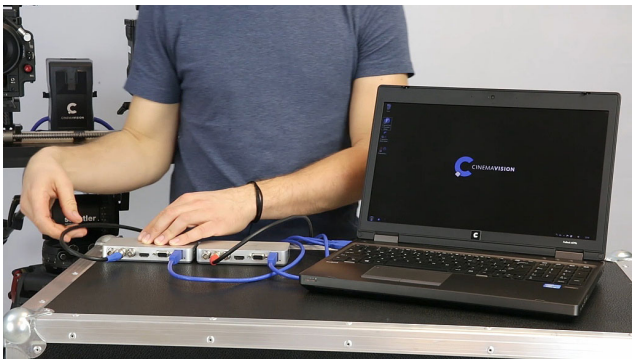


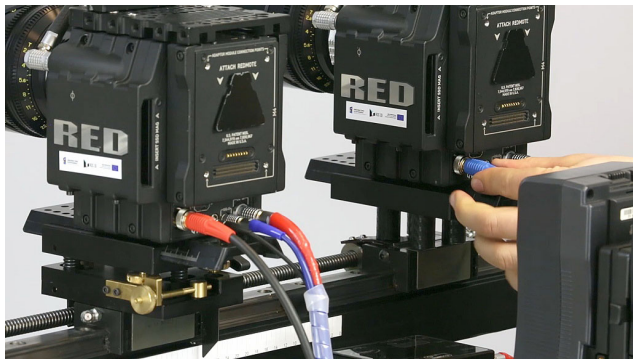
We will also use two UltraStudio SDI's Black Magic Design modules that will allow us to transfer the image from the cameras to the computer in a convenient way via USB 3.0.

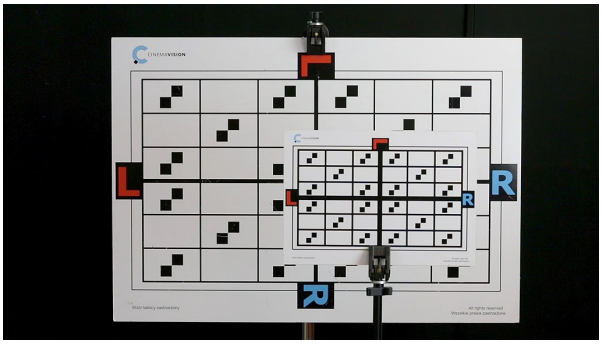
Using SDI cables connect UltraStudio modules with appropriate cameras.

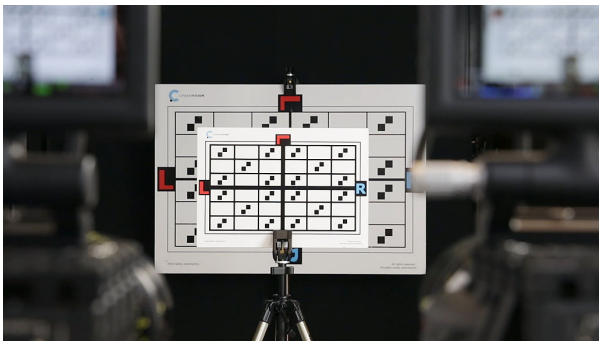




To synchronize 3D set with the Camera Calibrator we will need also two CinemaVision calibration tables – a large and a small one.

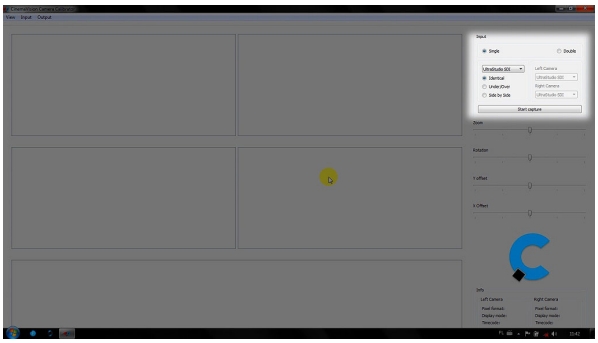


Tables should be leveled; They shall be placed perpendicular to the axis of the lenses. Larger table should be placed further, and smaller closer from the 3D set, so for both tables an image on the cameras is as filled as possible.

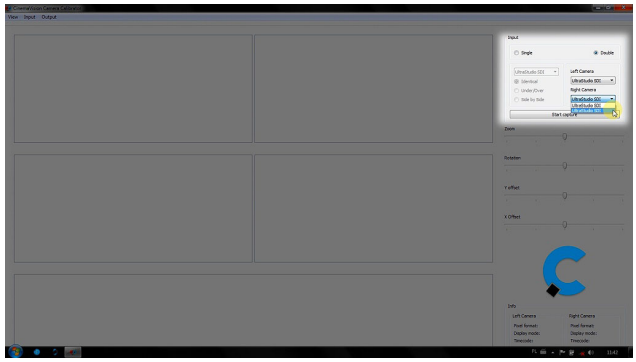


6. *Camera Calibrator* application

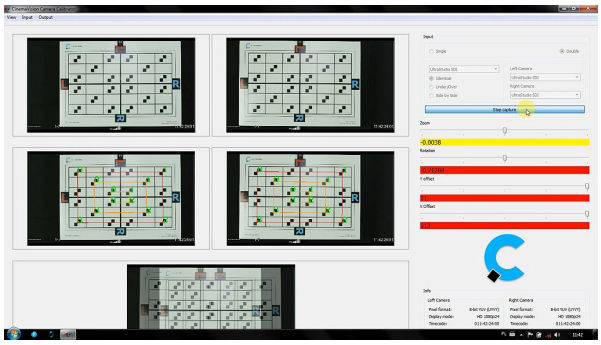
First, in the right panel we must define the source of the signal analyzed by the application.



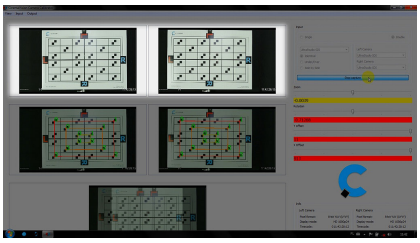
Select DOUBLE. Below automatically activate boxes with a source choice. For the left camera choose the first UltraStudio module, and for the right chose the second one.

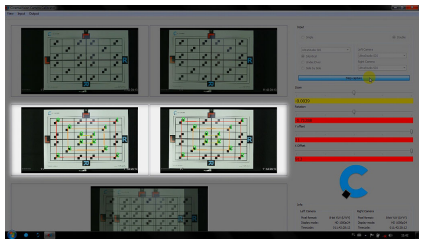


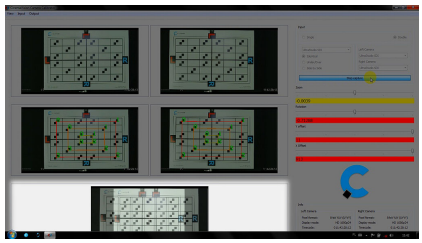
After pressing the START CAPTURE five windows with images from cameras activates on the screen:



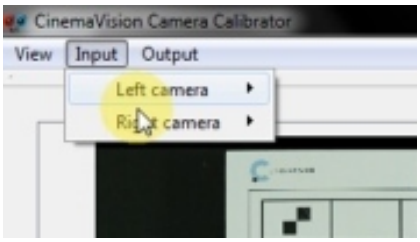
- • image sent directly from cameras mounted on the Ring,
- • image with automatically marked calibration points set by the application,
- • sum of the images from both cameras.
-



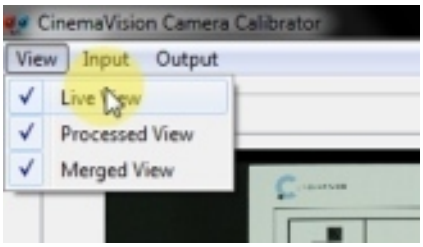




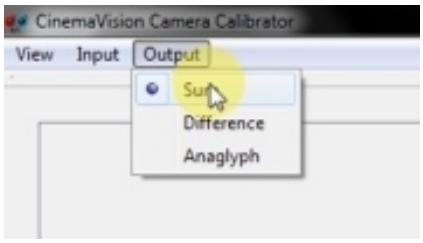
INPUT tab allows to reverse, or rotate an image from the camera. These functions are very useful when shooting on the CinemaVision Mirror Rig.

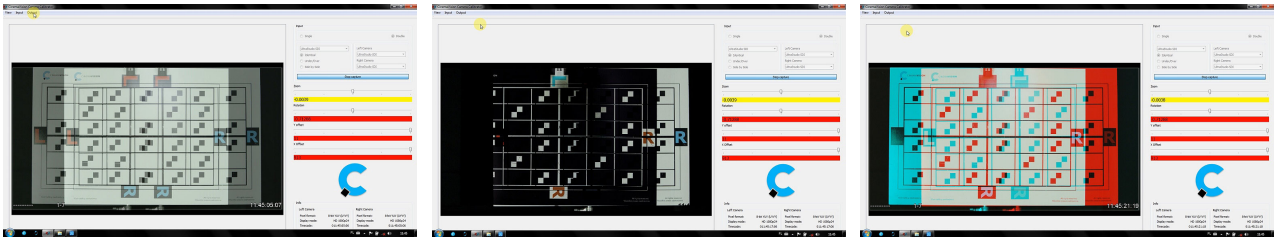


In VIEW tab we can enable or disable each type of windows. During calibration, it is convenient to use only the MERGED VIEW, so that the image presented on the screen is as large as possible.

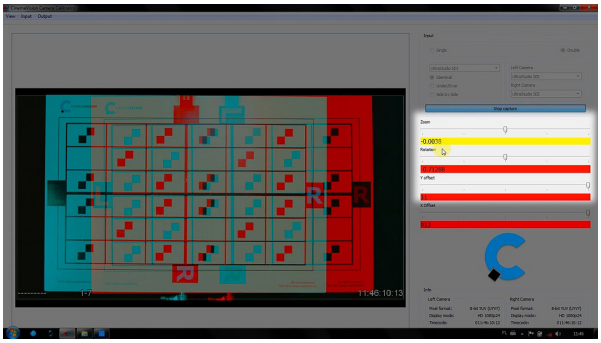


In OUTPUT we chose type of combined image from two cameras: their sum, their difference, or anaglyph.

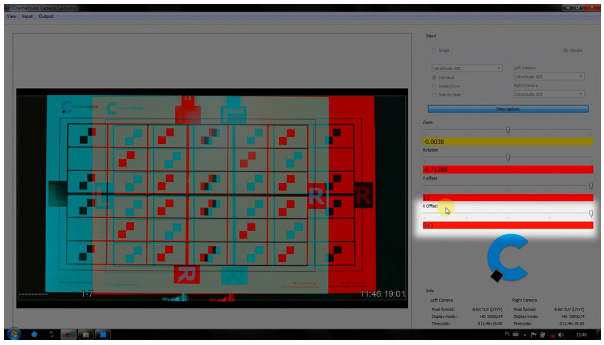




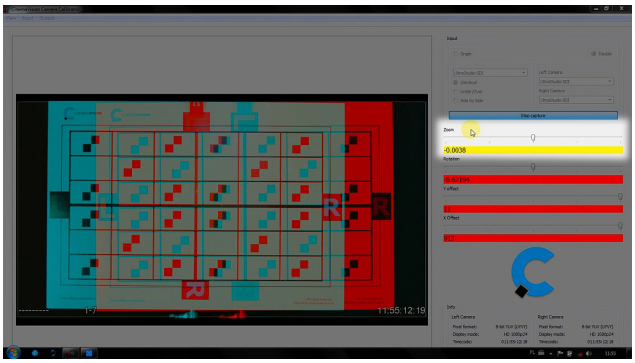
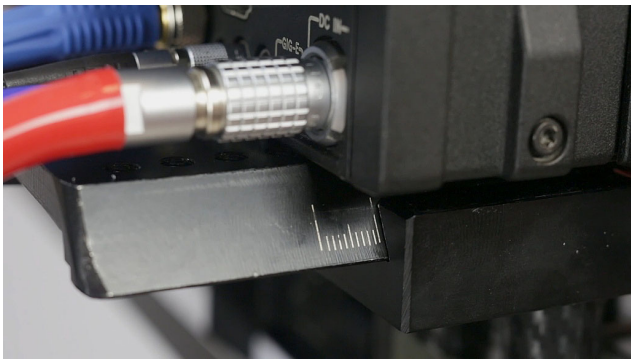
On the right panel are activated fields that show what shifts occur on the Rig. When synchronizing Parallel Rig we use fields ZOOM, ROTATION and Y OFFSET.

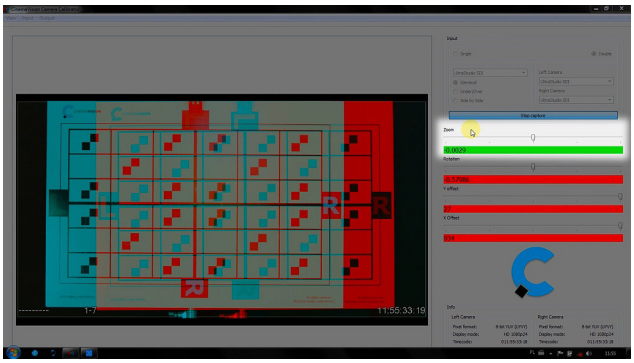


If you use the Mirror Rig, you can also tune the set in the X axis. There is no possibility to set interaxial at 0 (zero millimeters) on the Parallel Rig, so at this time this field will not be used.

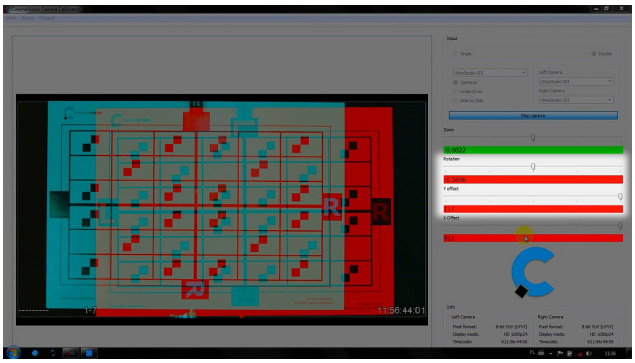
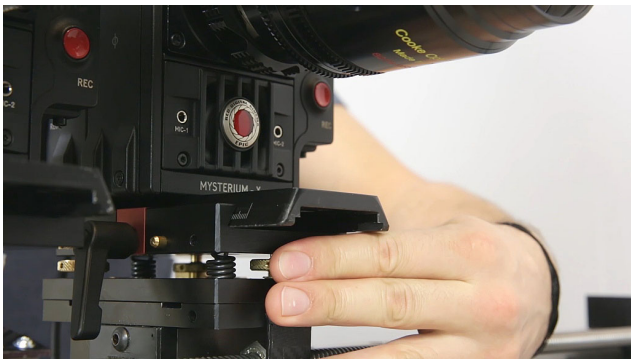


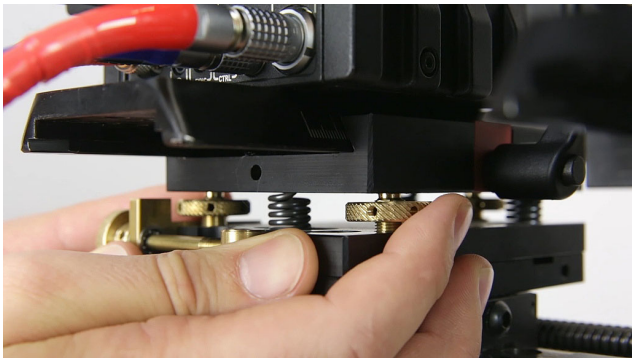
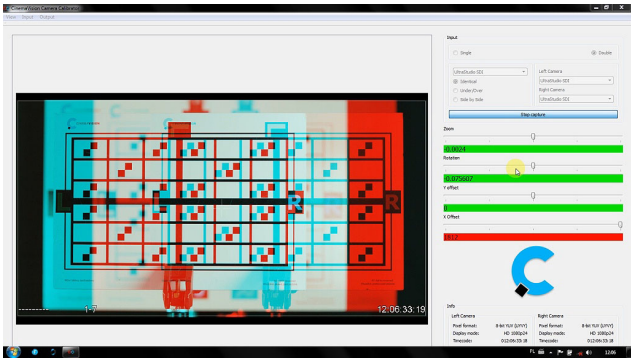
If there is a ZOOM shift, we must ensure that cameras are exactly at the same position and not displaced forward or backward. We adjust them until the field is mark green.

ROTATION and Y OFFSET (offset in the Y-axis) should be adjusted by moving the front and two rear bolts to obtain a minimum shift value, by that means to the moment until proper fields are highlighted green.

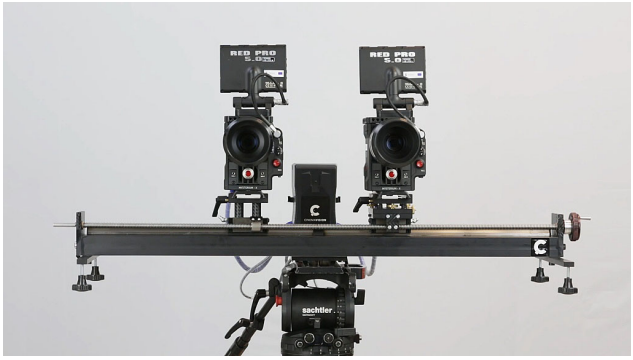



During synchronization it is helpful to work with the anaglyph view of the images - it makes it much easier to distinguish what further moves are necessary to align the images with each other.

We synchronize set sequentially for large and small table. If all fields we use are highlighted green we go back to the large table and correct tuning if it is needed.

3D set synchronized this way is ready to properly record 3D image.



We invite you to watch the movie: ***CinemaVision Camera Calibrator Tutorial (CV.CC.VT1 EN)***.

END