convergent design

Setup Guide Odyssey7Q + C500

Updated 18 AUG 2014 | Firmware Release v2.11.110

4K RAW
QHD RAW
2K 12-BIT DPX
HD 12-BIT DPX
2K 10-BIT DPX
HD 10-BIT DPX
HD 422 DPX
Apple ProRes 422 (HQ)

Odyssey7Q + C500 Recording Capabilities

RECORDING TIMES

REC MODE	RECORD TIME 23.98fps	25fps	29.97fps	50fps	60fps	100fps	120fps
4K RAW	62	60	50	30**	25**		
4K Half RAW				60	50	30**	35**
QHD RAW	67	64	53	32**	26**		
2K 12-BIT DPX	70*	67*	56*				
HD 12-BIT DPX	74*	71*	59*				
2K 10-BIT DPX	78	75	67				
HD 10-BIT DPX	83	80	72				
HD 422 DPX				43	36*		
HD Apple ProRes	775	744	620	159	132		

Note: The Odyssey7Q does not currently support Scan and Reverse mode on the C500, or Slow and Fast, except for the maximum rates in RAW and HRAW (100/120)

FORMAT DETAILS

4K RAW	4096x2160, 10-bit linear data, recorded as Uncompressed .RMF
4K Half RAW	4096x2160, 10-bit linear data, where every other line is sampled by the camera sensor, for faster frame rate support, recorded as Uncompressed .RMF
QHD	3840x2160, 10-bit linear data, recorded as Uncompressed .RMF
2K 12-BIT DPX*	2048x1080, 12-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
HD 12-BIT DPX*	1920x1080, 12-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
2K 10-BIT DPX*	2048x1080, 10-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
HD 10-BIT DPX*	1920x1080, 10-bit log 4:4:4 RGB video, recorded as Uncompressed .DPX
HD 422 DPX	1920x1080, 10-bit log 4:2:2 video, recorded as Uncompressed .DPX
HD Apple ProRes	1920x1080, 10-bit log video, recorded as Apple ProRes 422 (HQ) compressed HD video

** HD DPX files at 60p are "packed" on SSDs due to high data rate. Use free CD Data Unpacker utility software to unpack files after transfer.*
*** Two SSDs are required to capture*

TYPICAL DOWNLOAD TIME IN MINUTES

Media	USB3.0	Thunderbolt
256G SSD	20	10
512G SSD	40	20

Actual transfer rates are dependent on computer system and capture media.

USB 3.0 or Thunderbolt connections are recommended by Convergent Design for efficient data rates.

QUESTIONS or FEEDBACK? We're always available to help! CDSupport@Convergent-Design.com

FORMAT DETAILS

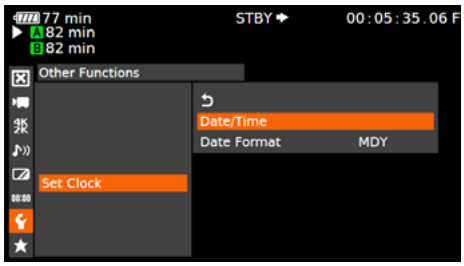
	Canon C500 Mode	Resolution	Bit-Depth	Frame Rates	Supported in Current Firmware	Two SSD's Required
4K RAW (OPTIONAL)	**4K RAW**	4096 x 2160	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (RAW .RMF)	50p / 59.94p
	4K (QHD) RAW	3840 x 2160	10-bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (RAW .RMF)	50p / 59.94p
	4K Half RAW	4096 x 2160	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 100p, 120p	Yes (RAW .RMF)	100p / 120p
	4K RAW x 1080	4096 x 1080	10-Bit	62p up to 119.88p (by 2 frame steps)	No	---
2K/HD DPX	**2K RGB 4:4:4**	2048 x 1080	10-Bit 12-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (Uncompressed .DPX)	50p / 59.94p
	HD RGB 4:4:4	1920 x 1080	10-Bit 12-Bit	23.98p, 24p, 25p, 29.97p, 50p, 59.94p	Yes (Uncompressed .DPX)	50p / 59.94p
	HD YCC 4:2:2	1920 x 1080	10-Bit	62p up to 119.88p (by 2 frame steps)	No	---
HD .MOV	**HD MXF 4:2:2**	1920 x 1080	10-Bit	23.98p, 24p, 25p, 29.97p, 50p, 60p	Yes (Apple ProRes .MOV)	No
	HD YCbCr 4:2:2	1920 x 1080	10-Bit	50p, 59.94p, and 62p up to 119.88p	No	No

For the latest firmware, product manuals and other information visit Convergent-Design.com

Convergent Design, Inc.
4525 Northpark Dr. | Colorado Springs, CO 80918 | USA
TEL: ++ (720) 221-3861 | FAX: ++ (720) 227-9296 | Office Hours: 8:00 A.M. to 5:30 P.M., Monday – Friday [Mountain Time (GMT – 6)]
EMAIL: CDSupport@Convergent-Design.com | WEBSITE: www.Convergent-Design.com

1 Set Time & Date

MENU » Other Functions » Set Clock » Date/Time

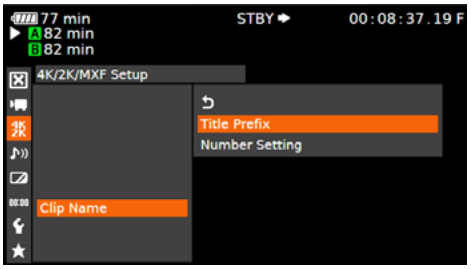


Set Time & Date so both the C500 and Odyssey7Q match.

This is REQUIRED for using internal media as proxy.

2 Name the Clip

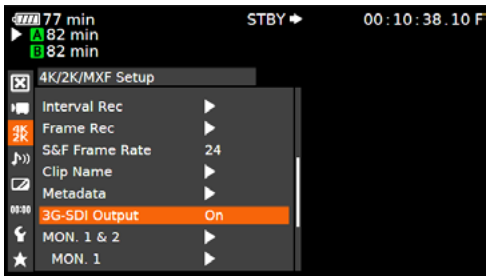
MENU » 4K/2K/MXF » Clip Name » Title Prefix *(or NUMBER SETTING)*

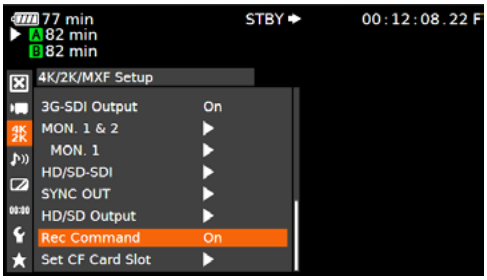


Name the clip so that C500 and Odyssey7Q match.

3 Enable 3G-SDI Output & Rec Command

MENU » 4K/2K/MXF » 3G-SDI Output » ON
(BACK) » REC Command » ON





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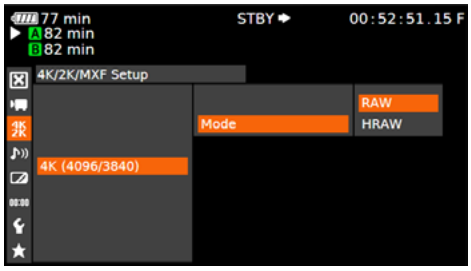
QUESTIONS or FEEDBACK? We're always available to help! CDSupport@Convergent-Design.com

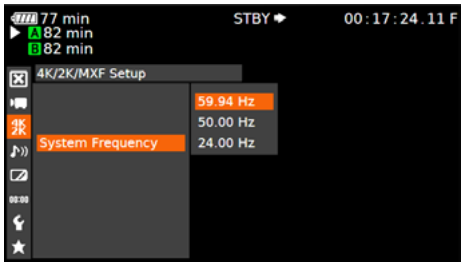
4 Set 4K RAW Mode

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Mode » RAW



5 Set System Frequency (Hz)

MENU » 4K/2K/MXF Setup » System Frequency » *(Selection)*



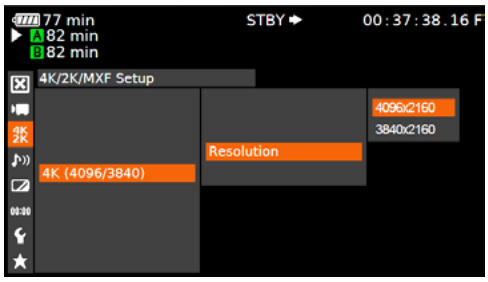
59.94p selected you will have the options 59.94,29.97,23.98

50p selected you will have the options 50p and 25p

24p this is the only option under frame rate

6 Set Resolution

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Resolution » 4096x2160



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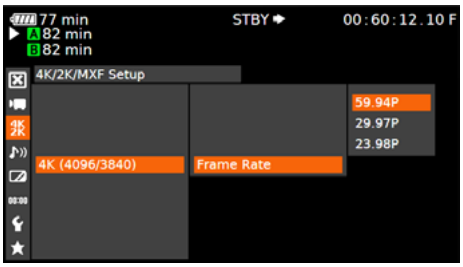
7 Set Frame Rate

MENU » 4K/2K/MXF Setup » 4K (4096/3840) » Frame Rate » *(Selection)*



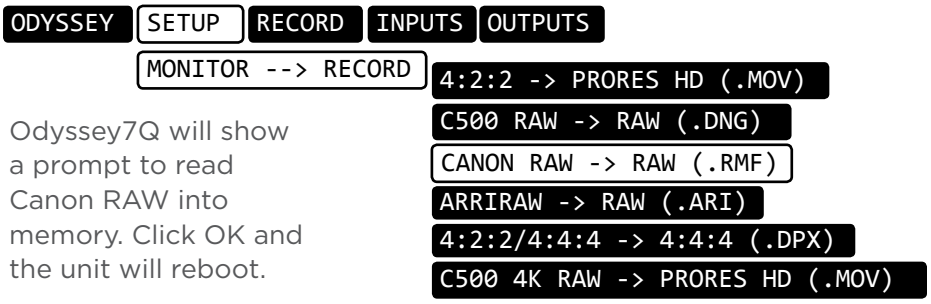
You will have the options 59.94p,29.97p,23.98p

(Next Step: Configure Recorder)

Notes

1 Set Odyssey7Q to Canon RAW Mode

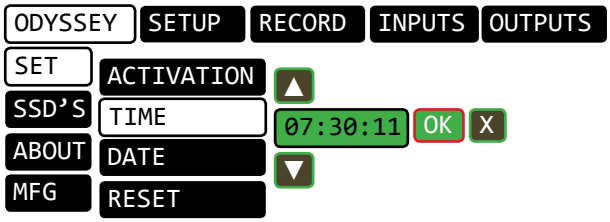
MENU » SETUP » MONITOR --> RECORD » CANON RAW



Odyssey7Q will show a prompt to read Canon RAW into memory. Click OK and the unit will reboot.

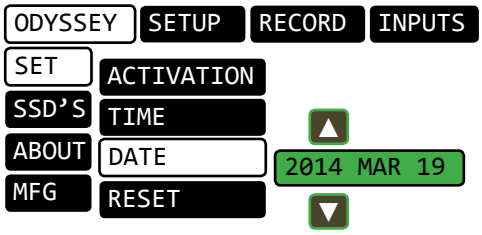
2 Set Date & Time to match C500

MENU » ODYSSEY » SET » TIME



Click on the month, year, etc. to highlight the field, then use the + and - buttons on screen to change the values of the field. Click OK when you are done.

MENU » ODYSSEY » SET » DATE



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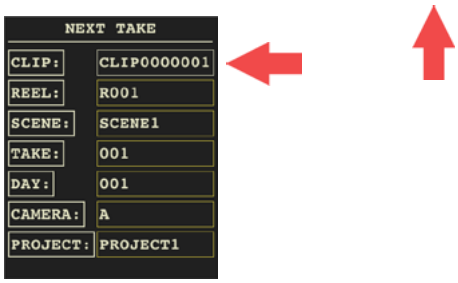
3 Set Clip Name and MetaData

TAP ON CLIP NAME IN TOOLBAR » TAP ON FIELD » *(ENTER DATA)*



4 Make C500 the Record Trigger

MENU » RECORD » TRIGGER » CAMERA

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS
- TRIGGER
  - REC BUTTON
- CLIP
- PROJECT
  - CAMERA
  - REC BUTTON

5 Connect Odyssey7Q to C500

Connect C500 3G-SDI output to Odyssey7Q SDIA input

For 4K p100/120 Half RAW, and 4K p50/59 RAW & QuadHD RAW, two 3G-SDI cables are required.

6 Set Timecode Source

MENU » INPUTS » TIMECODE » SOURCE » SDI

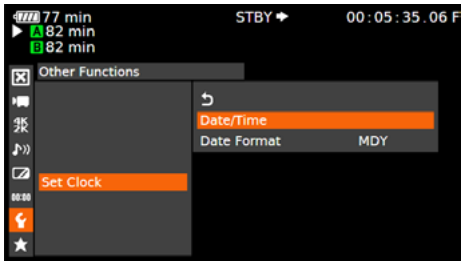
ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS
- AUDIO
- TIMECODE
  - SOURCE
    - SDI
    - LTC
    - SEED/REC RUN

(Next Step: SSD RAID Configuration)

QUESTIONS or FEEDBACK? We're always available to help! CDSupport@Convergent-Design.com

1 Set Time & Date

MENU » Other Functions » Set Clock » Date/Time

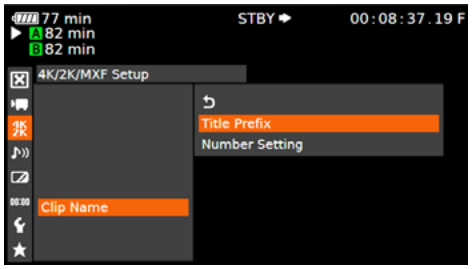


Set Time & Date so both the C500 and Odyssey7Q match.

This is REQUIRED for using internal media as proxy.

2 Name the Clip

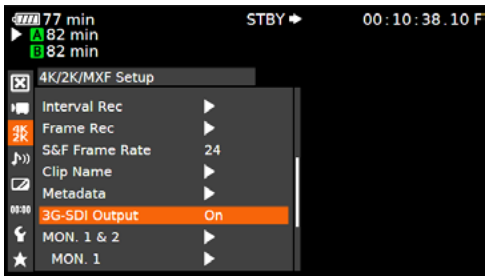
MENU » 4K/2K/MXF Setup » Clip Name » Title Prefix *(or Number Setting)*

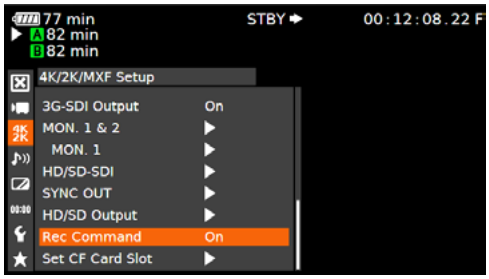


Name the clip so that C500 and Odyssey7Q match.

3 Enable 3G-SDI Output & Rec Command

MENU » 4K/2K/MXF Setup » 3G-SDI Output » On
(BACK) » REC Command » On





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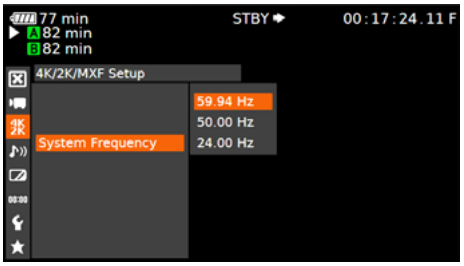
4 Set System Priority

MENU » 4K/2K/MXF Setup » System Priority » 2K

5 Set System Frequency (Hz)

MENU » 4K/2K/MXF Setup » System Frequency » *(Selection)*



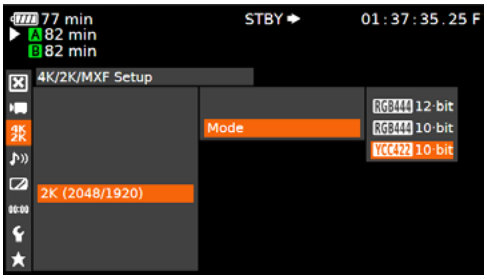
59.94p selected you will have the options 59.94,29.97,23.98

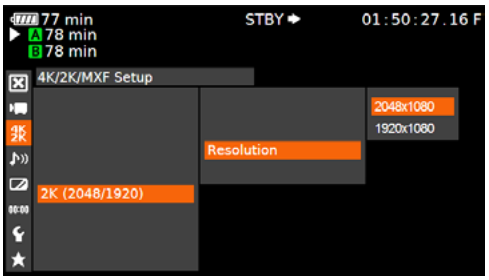
50p selected you will have the options 50p and 25p

24p this is the only option under frame rate

6 Set Mode and Resolution

MENU » 4K/2K/MXF Setup » 2K (2048/1920) » Mode » YCC42210·bit
(BACK) » Resolution » 2048x1080 *(2K)*
-OR-
» Resolution » 1920x1080 *(HD)*





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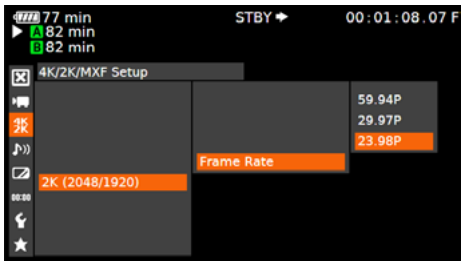
7 Set Frame Rate

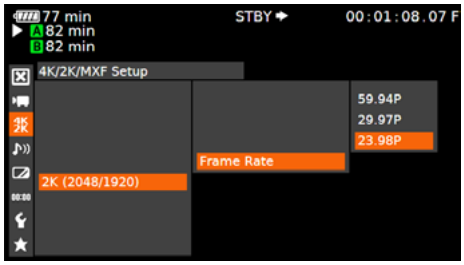
MENU » 4K/2K/MXF Setup» 2K (2048/1920) » Frame Rate » *(Selection)*



You will have the options 59.94p,29.97p,23.98p

8 Set User Bit

MENU » TCB/UB Setup » Type » Setting



Note: Time currently not supported

(Next Step: Configure Recorder)

Convergent Design, Inc.
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TEL: ++ (720) 221-3861 | FAX: ++ (720) 227-9296 | Office Hours: 8:00 A.M. to 5:30 P.M., Monday – Friday [Mountain Time (GMT – 6)]
EMAIL: CDSupport@Convergent-Design.com | WEBSITE: www.Convergent-Design.com

Configure Odyssey7Q Recording Uncompressed DPX

1 Set Odyssey7Q to Uncompressed DPX Mode

MENU » SETUP » MONITOR --> RECORD » 4:2:2/4:4:4 -> 4:4:4 (.DPX)

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS

MONITOR --> RECORD

- 4:2:2 -> PRORES HD (.MOV)
- FS700 RAW -> RAW (.DNG)
- CANON RAW -> RAW (.RMF)
- ARRIRAW -> RAW (.ARI)
- 4:2:2/4:4:4 -> 4:4:4 (.DPX)
- FS700 4K RAW -> PRORES HD (.MOV)

Click OK
The unit will restart.

2 Set up Odyssey7Q for your C500

MENU » SETUP » 4:2:2/4:4:4 SOURCE » CANON

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS

MONITOR --> RECORD

4:2:2/4:4:4 SOURCE

- ARRI
- ARRI (LOG-C)
- CANON
- CANON (C-LOG)

3 Make C500 the Record Trigger

MENU » RECORD » TRIGGER » CAMERA

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS

TRIGGER

- REC BUTTON
- CAMERA
- REMOTE

CLIP

PROJECT

4 Set Timecode Source

MENU » INPUTS » TIMECODE » SOURCE » SDI

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS

AUDIO

TIMECODE

SOURCE

- SDI
- LTC

(Continued on Next Page »)

QUESTIONS or FEEDBACK? We're always available to help! CDSupport@Convergent-Design.com

5 Format SSDs

MENU » ODYSSEY » SSD'S » FORMAT BOTH *(or FORMAT SSD1 if you do not have a second SSD drive installed.)*

6 Connect to Camera and Verify Status Input

Connect C500 3G-SDI output to Odyssey7Q SDIA input

Note: Use only 3G-SDI rated cables from C500 to Odyssey 7Q. Using a 1.5G SDI cable in not recommended and may cause issues.

The status on your Odyssey7Q will display your camera's output.

Example:

```
1080p29.97 422
CANON
```

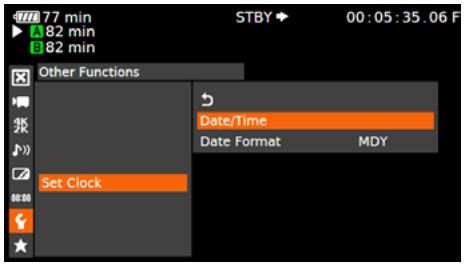
```
PRORES
HQ
```

Note: The recorded file will be 1920x1080 @ 23.98/25/29.97 fps.

Notes

1 Set Time & Date

MENU » Other Functions » Set Clock » Date/Time

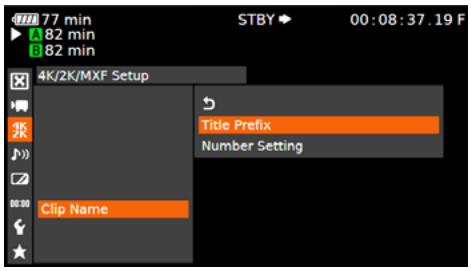


Set Time & Date so both the C500 and Odyssey7Q match.

This is REQUIRED for using internal media as proxy.

2 Name the Clip

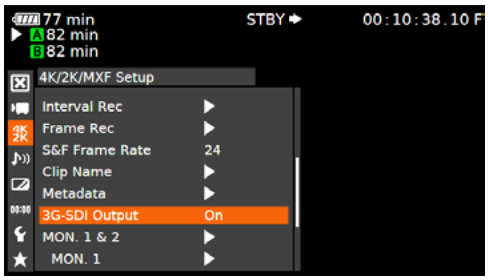
MENU » 4K/2K/MXF Setup » Clip Name » Title Prefix *(or Number Setting)*

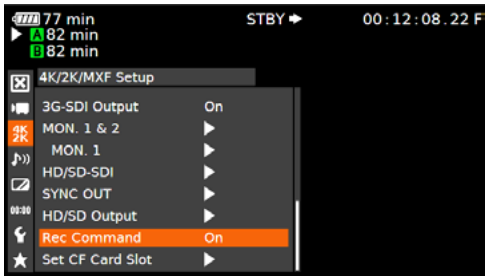


Name the clip so that C500 and Odyssey7Q match.

3 Enable 3G-SDI Output & Rec Command

MENU » 4K/2K/MXF Setup » 3G-SDI Output » On*
(BACK) » REC Command » On





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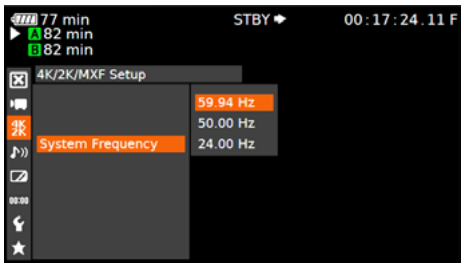
**NOTE: Depending on the frame rate you wish to record it may be best to use the HD-SDI output on the C500.*

5 Set System Priority

MENU » 4K/2K/MXF Setup » System Priority » MXF

4 Set System Frequency (Hz)

MENU » 4K/2K/MXF Setup » System Frequency » *(Selection)*



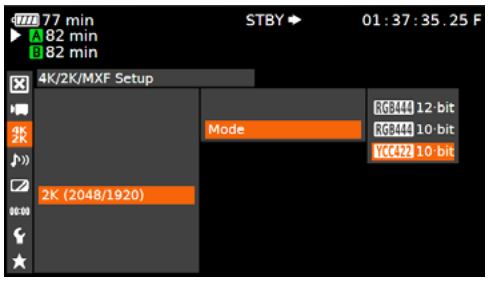
59.94p selected you will have the options 59.94,29.97,23.98

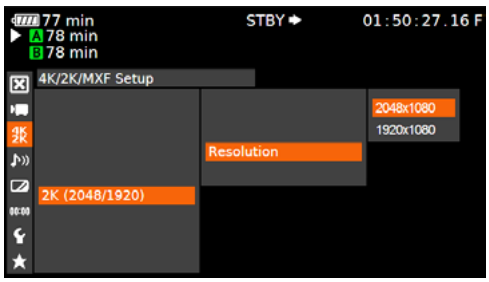
50p selected you will have the options 50p and 25p

24p this is the only option under frame rate

6 Set Mode and Resolution

MENU » 4K/2K/MXF Setup » 2K (2048/1920) » Mode » YCC42210·bit
(BACK) » Resolution » 2048x1080 *(2K)*
-OR-
» Resolution » 1920x1080 *(HD)*





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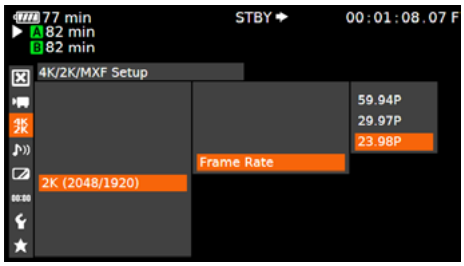
7 Set Frame Rate

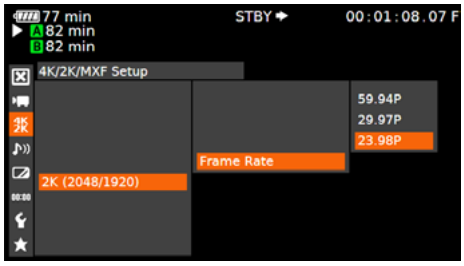
MENU » 4K/2K/MXF Setup» 2K (2048/1920) » Frame Rate » *(Selection)*



You will have the options 59.94p,29.97p,23.98p

8 Set User Bit

MENU » TCB/UB Setup » Type » Setting



Note: Time currently not supported.

(Next Step: Configure Recorder)

Notes

QUESTIONS or FEEDBACK? We're always available to help! CDSupport@Convergent-Design.com

Configure Odyssey7Q C500 to Record Apple ProRes 422

1 Set Odyssey7Q to C500 to Apple ProRes 422 Mode

MENU » SETUP » MONITOR --> RECORD » 4:2:2->PRORES HD (.MOV)

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS
MONITOR --> RECORD
4:2:2/4:4:4 SOURCE
4:2:2 -> PRORES HD (.MOV)

Note: When recording Apple ProRes 422 (HQ) it is typically best to use the 4:2:2 output of the C500

2 Set up Odyssey7Q for your C500

MENU » SETUP » 4:2:2/4:4:4 SOURCE » CANON

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS
MONITOR --> RECORD
4:2:2/4:4:4 SOURCE
ARRI
ARRI (LOG-C)
CANON
CANON (C-LOG)

NOTE: If recording Canon LOG use CANON (C-LOG)

3 Make C500 the Record Trigger

MENU » RECORD » TRIGGER » CAMERA

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS
TRIGGER
CLIP
PROJECT
REC BUTTON
CAMERA
REMOTE

4 Set Timecode Source

MENU » INPUTS » TIMECODE » SOURCE » SDI

ODYSSEY | SETUP | RECORD | INPUTS | OUTPUTS
AUDIO
TIMECODE
SOURCE
SDI
LTC

5 Format SSDs

MENU » ODYSSEY » SSD'S » FORMAT BOTH *(or FORMAT SSD1 if you do not have a second SSD drive installed.)*

(Continued on Next Page »)

5 Connect to Camera and Verify Status Input

Connect C500 3G-SDI output to Odyssey7Q SDIA input

Note: Use only 3G-SDI rated cables from C500 to Odyssey 7Q. Using a 1.5G SDI cable in not recommended and may cause issues.

The status on your Odyssey7Q will display your camera's output.

Example:

```
4K 29.97p
S-LOG2
```

```
4K->HD
PRORES
```

Note: The recorded file will be 1920x1080 @ 23.98/25/29.97 fps.

Recording Across Two SSDs

SSD1	SSD2
1, 3, 5, 7...	0, 2, 4, 6...

4K 50/59p and 100/120p = RAID (two drives)

Note: You can use any Convergent Design media; they need not be matching (ie, one 256GB card and one 512GB card). Data recorded will be equal to the lower capacity SSD.

(Next Step: Off-loading Data)

Notes

1 Connect SSD Drive to Adapter

Connect the Convergent Design 2.5" Premium SSD Media to any off-the-shelf 2.5" SATA adaptor (example: Seagate GoFlex Thunderbolt Adaptor or USB 3.0 Adaptor)

2 Connect Adapter to Computer

The SSD will mount within 10-20 Seconds. (You will see this mount on the desktop or within finder on MAC, or within My Computer on Windows machines).

3 Copy Files for Playback/Editing

All Clips or Takes are located within the "Clips" directory, navigate to this and copy all of your files to a local or external drive or RAID for playback and/or editing.

i Free Software Utilities

CD Clip Merger *(Free Download from Website)*
Use the Clip Merger for any Raided Record (ie if your recorded clip required more than one SSD). *See the At A Glance Chart, "No. of SSD's Req" column, on page 2.*

CD Apple ProRes 422 File Transfer Tool *(Free Download from Website)*
Use to combine each clip into a single file

CD Data Unpacker *(Free Download from Website)*
Use CD Data Unpacker to convert "packed" files to "unpacked" data.

DOWNLOAD HERE: http://convergent-design.com/support/firmware-downloads.html

! ATTENTION MAC OSX USERS

Before installing Convergent Design Software on Mac OSX You must first change the following settings.

1) Navigate to **Applications** » **Utilities** » **System Preferences**
2) Select **Security and privacy**
3) Under **General** » ***Allow applications downloaded from:*** Select **Anywhere**.
4) Now you will be able to run the installer for installing any Convergent Design Applications.

? QUESTIONS or FEEDBACK? We're always available to help! CDSupport@Convergent-Design.com

UNCOMPRESSED SUPPORT (DPX SEQUENCE)

All Uncompressed recording on the Odyssey 7Q is recorded as 10 bit RGB 4:4:4 DPX. This is for all sources regardless if the source is 8 bit, 10 bit, 4:2:2, 4:4:4. With 12 bit cameras, files are recorded as a 16 bit DPX for more universal compatibility. Also note that with DPX files timecode, and Clip Metadata is stored in every frame, as well as in the XML file within each clip. All audio is recorded 48Hz 16 bit Uncompressed Wav audio.

Also Note 1080p59.94/60p, 1080p119/120 and 12 bit files are recorded as Packed, so our CD Unpacker Utility will need to be used before the files can be used in any editor.

Native 10-bit / 16-bit DPX Support

Adobe CS6 / Adobe CSCC	Black Magic DaVinci Resolve	Grass Valley Eduis (Does not support 16-Bit)
Apple Color	Cineform Studio	The Foundry Nuke
AutoDesk Smoke	ColorFront OnSet Dailies	Xnview(Does not support 16-Bit)
Assimilate Scratch Lab	DJViewer	
Avid DS	Eyeon Fusion	

Plugins for DPX Support

Glue Tools	Apple FCP Pro
	Apple FCP Pro X
Meta Fuse	Avid Media Composer

2K / 1080P 12 BIT RECORDINGS IN DAVINCI RESOLVE 11*

Generating a LUT and applying it as an input lut should help fix the issue. Here is how it can be done:

1. Add a single DPX sequence to a new project and create a timeline
2. In the color page, go to the RGB Mixer and swap the red and blue channels
3. Right click on the VSR of the Clip and generate a LUT. Save the LUT in the default location or in a sub folder then open the project with the DPX files that exhibit the issue. Apply the saved LUT as an input LUT.

* If using Resolve 10 or older, or other NLE's such as Adobe, Scratch Lab, or Autodesk Smoke, then you can simply import the DPX files after running through the data unpacker.

Apple ProRes 422 (HQ)

The Odyssey7Q records in Apple ProRes 422 (HQ) which is a 10 bit 4:2:2 220Mb compressed codec. This will allow for high quality recording while avoiding high data rates of working with uncompressed video. (DPX)

Native Apple ProRes 422 Support

Adobe CC 2014*	Final Cut Pro 7	Autodesk Smoke
Apple FCP X, Aperture	Black Magic DaVinci Resolve	Sony Vegas
Cineform Studio	The Foundry Nuke	

To playback Apple ProRes 422 (HQ) files in QuickTime Player X, the files must be first run through our Apple ProRes 422 (HQ) Utility to be optimized for the recently released Apple ProRes 422 (HQ) Codec update. If files are not optimized, then they will play the first second of audio only. This is not an issue when playing in FCPX.

FCP X IMPORT SETTINGS

Once you have created a new project be sure to check the following Settings:

1. Under **Final Cut Pro** select **Preferences**
2. Be sure the **Still Images** editing duration is set to **0.0.1 Seconds**
3. Select navigate to **File** and select **Import Media**
4. Navigate to the **Clips directory,** and select the **Clip Folder** contain your **RAW files.**
5. At this point you can start correcting the files to a 2.2 Gamma. using the **Color Board.**

** Note if you are recording the the internal media you can import the matching Slog2 file, and select* **Match Color** *for a close approximation of Slog2, but will most likely need additional tweaking.*

CANON C500 4K RAW SUPPORT

All Canon C500 4K recording on the Odyssey 7Q is recorded as 10 bit Cinema RAW file.
Also note that with RMF files timecode, and Clip Metadata is stored in every frame, as well as in the XML file within each clip. All audio is recorded 48Hz 32 bit Uncompressed Wav audio.

It is important to correctly set the white balance of the camera, as this is baked into the RAW file.

Native Cinema RAW Support

Assimilate Scratch Lab	Black Magic DaVinci Resolve	Canon Cinema RAW Development
Adobe CC 2014		

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