CODEX®

Codex Recorder for Canon Cinema EOS C700

CDX-36150

Guide for the EOS C700 / EOS C700 PL / EOS C700 GS PL

Safety Warnings

Please observe any warnings and follow all instructions.

- Do not use this equipment near water and clean only with a dry cloth.
- Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.
- Do not expose to excessive vibration, or drop this product.
- Do not defeat the safety purpose of the polarised or grounding-type plug. A polarised plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade, or the third prong, is provided for your safety.
- If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched, particularly at plug ends, convenience receptacles, and the point where they exit from the equipment.
- Only use accessories specified by the manufacturer.
- Unplug this equipment during lightning storms or when not in operation for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, has been exposed to rain or moisture, does not operate normally, or has been dropped.
- To reduce the risk of fire or electric shock, do not expose equipment to rain or moisture.
- To avoid electrical shock, do not attempt to open this equipment. Refer servicing to qualified personnel only.

Caution! The surfaces of Capture Drive media can get hot during standard use.

Disclaimer

Codex products are continually developed to remain at the forefront of the industry, and as such the information in this guide is subject to change without notice. Whilst Codex endeavour to ensure that all documentation provided is correct at the time of writing, this document is not guaranteed to be error-free.

Codex does not assume responsibility for issues or losses due to misinterpretation of the information in this document, errors in this document, or incorrect configuration or installation of the equipment described herein.

Please report any errors found in this document to **support@codex.online**

Support and Servicing

For assistance with your CDX-36150 Recorder please contact **support@codex.online**

User Guides are available from **https://www.codex.online/support/user-guides**

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Trademark Acknowledgements
- Names and products mentioned in the manual may be trademarks or registered trademarks of their respective companies.

Codex Recorder CDX-36150 - Getting Started

1 Introduction

The Codex Recorder CDX-36150 integrates with the Canon Cinema EOS C700 for uncompressed RAW capture from 2K up to 4K, at up to 120fps (a firmware update in early 2017 will allow 4.5K recording up to 100fps). The CDX-36150 will also allow ProRes recording at 4K to 60fps, or 2K to 240fps. The recorder attaches directly to the camera, eliminating any need for cables and simplifying the use of the system.

After recording, the industry standard workflow and support is provided via Codex Production Suite, Capture Drive Dock, or S-Series and XL-Series hardware.

1.1 Further documentation

The Codex Production Suite User Guide contains full details on the software features and use for common workflows. Available from **https://codex.online/support/production-suite-user-guides**

The C700 Operation Manual is available from **http://cinemaeos.usa.canon.com/**

2 Attaching and detaching the Recorder

The CDX-36150 mounts to the rear of the C700 as shown below:

Follow these steps to mount the CDX-36150 to the C700:

- Ensure the C700 is switched off and power is disconnected prior to installing the CDX-36150.
- Remove the battery adapter that comes attached to the camera.
- Slide the **release catch** on the top of the CDX-36150.
- Lower the CDX-36150 onto the rear of the C700 to mate the connector interface.
- Close the locking lever to fully mate the interface connector.

RELEASE CATCH   LED STATUS RING

Follow these steps to remove the CDX-36150 from the C700:

- Ensure the C700 and CDX-36150 are switched off and power is disconnected.
- Remove the battery if fitted to the CDX-36150.
- Slide the release catch on the top of the CDX-36150.
- Lift the CDX-36150 from the rear of the C700 to unmate the connector interface.
- Remove the CDX-36150 from the C700.

3 Power requirement

The CDX-36150 has both a DC input and a mounting plate to attach batteries directly.

The CDX-36150 requires an input voltage of 11-34V. Power supplied to the CDX-36150 is fed through to the C700. The CDX-36150 and C700 has a total power requirement of 120W.

The CDX-36150 takes the DC input as the primary power source, and switches over to the battery when there is no DC input power source. When a battery is directly attached this allows for switching of the DC input power source, which may be from a larger block battery, without powering off the camera system.

The CDX-36150 can be purchased with either an Anton Bauer Gold Mount or IDX V-Lock battery plate.

3.1 Powering on

Connect a battery or DC power source to the CDX-36150. Activate the power on the C700 to start the system. The LED status ring on the top of the CDX-36150 is red when the input voltage is below the minimum requirement.

Press the centre of the LED status ring to change the brightness between high, medium, low, and off.

4 Loading and unloading a Capture Drive from the CDX-36150

MEDIA ACCESS DOOR OPEN WITH INSERTED CAPTURE DRIVE 1TB

RELEASE CATCH

The media access door of the CDX-36150 is located on the top. Slide the release catch next to the door to open.

Insert the Capture Drive into the CDX-36150. The base of the Capture Drive should be oriented towards the front of the CDX-36150. **Push the Capture Drive from the top** to fully mate the connectors. Close the door and the Capture Drive will be loaded automatically.

5 Formatting a Capture Drive

To format the Codex Capture Drive, navigate in the camera menu:

{MENU}/{EVF} [Recording/Media Setup] > [Initialize Media] > [!|C02 Capture Drive]

Press both [FORMAT] buttons simultaneously. Select [OK] and then press SET.

WARNING: ONLY DELETE MEDIA THAT HAS BEEN SECURELY BACKED UP. THERE IS NO UNDO FUNCTION AVAILABLE AFTER FORMATTING.

6 Camera settings

Use of the C700 is fully covered by the camera Operation Manual from Canon (http://cinemaeos.usa.canon.com/). Refer to this manual for full details. Here we cover an overview of essential information about recording formats.

The C700 with CDX-36150 can record in the following formats:

Resolution	Bit Depth	Frame Rates
4096 x 2160 (4K)	12-bit	1-60fps
4096 x 2160 (4K)	10-bit	1-120fps

To set the recording format:

MENU->Recording/Media Setup->Main Rec Format->RAW (Capture Drive)

To set the frame rate, from the Home Screen press the 'FPS' button (top left above the screen). If the desired frame rate is not available, this may require a change to the System Frequency.

To select a non-SMPTE framerate (e.g. 33fps), enable Slow & Fast Motion Recording.

6.1 Recording

With the Capture Drive formatted, press either of the red REC buttons to begin a recording. The lit ring on top of the CDX-36150 will be red during recording. Press the red REC button again to end the recording.

6.2 Playback

Press the PLAY button to open a list of clips for playback. The lit ring on the top of the CDX-36150 will be green during playback.

Clips can be played back from either the Capture Drive, CFast 2.0, or SD card media. Select the media to play back from in the PLAY screen.

6.3 Troubleshooting with Camera/Recorder

The table below lists a range of possible issues that may occur, and steps that can be taken to identify and resolve the cause of the problem. The steps are listed under 'Course of action' in the order they should be performed.

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Description	Course of action	Resolution
Warning message on display with a !|C2 icon above, during recording.	• Remove the Capture Drive and check the status of the recordings in a Capture Drive Dock or S/XL-Series. Do not continue to use in camera until after status has been verified OK. • Turn off Camera/Recorder, remove Recorder, check/clean connection interface, and refit Recorder before attempting to record again.	If Capture Drive status is 'Ready' then continued use is safe. If any other status is reported, contact Codex Support.
Warning message on display with a !|C2 icon above, during playback.	• Restart camera.	
Capture Drive cannot be formatted.	• Check that Capture Drive is selected in 'Main Rec Format'. • Check if another Capture Drive can be formatted. • Check if Capture Drive can be formatted in a Dock.	If only one Capture Drive has issues, contact Codex Support. If multiple Capture Drives have issues, this is likely a Camera/Recorder or settings problem.
Capture Drive will not load.	• Check if another Capture Drive can be loaded. • Check if Capture Drive can be loaded in a Dock.	If only one Capture Drive has issues, contact Codex Support. If multiple Capture Drives have issues, this is likely a Camera/Recorder problem.
Capture Drive LED flashing red.	• 'Load Failure' has occured. Remove Capture Drive and check connectors for dirt/debris. Then reinsert Capture Drive, pushing down to fully mate the connectors.	If Capture Drive loads successfully then continued use is safe. If problem occurs again, contact Codex Support.
Recording not possible.	• Check that Capture Drive is formatted. • Check if another Capture Drive can be recorded to. • Check that 'Main Rec Format' is set to use Capture Drive.	If only one Capture Drive has issues, contact Codex Support. If multiple Capture Drives have issues, this is likely a Camera/Recorder or settings problem.
Camera/Recorder is not powering up, using main power input.	• Check with alternate main power source (either 24V battery, or AC/DC adaptor). • Check with alternate main power cables. • Check with IDX/Anton Bauer 14.4V battery on rear of Recorder.	If alternate main power source/cables do not resolve issue, contact Codex Support for servicing guidance. Continue to use 14.4V battery power.
Camera/Recorder is not powering up, using battery on rear of Recorder.	• Check with alternate IDX/Anton Bauer 14.4V battery on rear of Recorder. • Check with main power source (either 24V battery, or AC/DC adaptor).	If alternate battery does not resolve issue, contact Codex Support for servicing guidance. Continue to use main power source.

Contact Codex Support at support@codex.online

7 Record times to Capture Drive

The table below details the RAW record time available to Capture Drive with 1TB capacity:

Resolution	Bit Depth	Frame Rate	Record Time (mins)
4096 x 2160	10-bit	23.98/24	49
4096 x 2160	10-bit	25	47
4096 x 2160	10-bit	29.97/30	39
4096 x 2160	10-bit	50	23.5
4096 x 2160	10-bit	60	19.5
4096 x 2160	10-bit	96	12
4096 x 2160	10-bit	120	9.5
4096 x 2160	12-bit	23.98/24	40.5
4096 x 2160	12-bit	25	39
4096 x 2160	12-bit	29.97/30	32
4096 x 2160	12-bit	50	19.5
4096 x 2160	12-bit	60	16

8 Using Codex Production Suite software

Codex Production Suite software running on a Mac with Capture Drive 2.0 Dock (see next page), or a Codex S-Series or XL-Series hardware is required to read the RAW recordings made to Capture Drive 2.0 media.

Go to **https://codex.online/software** to register and download the latest software for these products. There are installation instructions available from this web page. An overview is provided for using Codex Production Suite with Capture Drive Dock on Mac as part of the workflow with the C700 and CDX-36150.

Codex Production Suite software can be used for a wide range of functions with recorded Canon RAW material. For example:

• Metadata editing.
• Playback to attached display or HD-SDI monitor, including application of LUTs and CDL adjustment.
• Transcoding to other file types such as ProRes, DNxHD MXF, and H264.
• Archive to disk or LTFS tape.

Supporting documentation: **https://codex.online/support/production-suite-user-guides**
Video tutorials: **https://codex.online/support/production-suite-tutorials**

9 Connecting a Codex Capture Drive 2.0 Dock

THUNDERBOLT PORTS   DC POWER SUPPLY
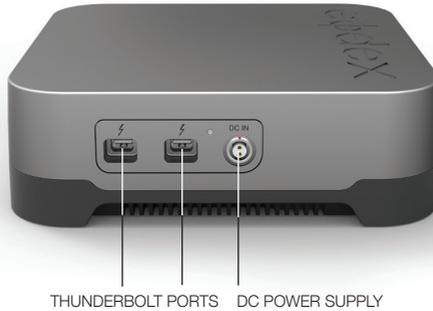
Connect the included DC power supply to the DC IN connector of the Capture Drive 2.0 Dock. There are two Thunderbolt Ports available - connect one to a Mac computer that has the required Codex software installed.

The other Thunderbolt port can be used to connect to other Thunderbolt devices, such as a monitor or storage.

9.1 Loading and unloading a Capture Drive from the Dock

Insert a Codex Capture Drive into the Dock and it will begin loading automatically. During this time the LED will flash blue. When it is loaded the LED will flash green, and this typically takes 5-10 seconds.

CODEX CAPTURE DRIVE 2.0 DOCK WITH MOUNTED CAPTURE DRIVE 2.0

The LED on a Capture Drive flashes green quickly when it is reading/writing data. Do not unload a Capture Drive when it is reading/writing as this can compromise data integrity.

To unload, press the eject button on the end of the Capture Drive or go to the Storage screen of Codex Production Suite (/Applications/Codex/Vault Platform->Storage), click to select the media, and click the Wrench->Eject button. The LED will flash blue while it unloads. When the LED is solid blue it is safe to remove the Capture Drive.

Always eject the Capture Drive correctly before removing it from the Dock.

9.2 Finder Preferences

For ease of use it is recommended to set up the Finder Preferences so that External disks are shown on the Desktop:

9.3 Copying files from the Capture Drive

When the Codex software is installed the Codex VFS drive will be shown on the Desktop:

The Codex VFS drive is always shown, but will be empty until a Capture Drive containing Canon RAW recordings is loaded. After loading the Capture Drive, the files are available to be copied from the Codex VFS drive.

A licence is required to use the Codex VFS. To request a licence please visit:
https://codex.online/licence-request

Canon RAW clips are named in the format:

<Roll><ClipNumber>_<Date><2_Random_Chars>_<CustomString>

For example:

A001C003_160105JO_CANON

The 2 Random Characters (JO in the above example), ensure there is no possibility of clashing clip names. The CustomString defaults to CANON, but this can be edited in the camera settings.
The files are presented in a structure containing images, audio, metadata. RAW image files have a .rmf extension. Audio (broadcast WAV) have a .wav extension. Metadata files have a .xml extension.

The structure is:

<Roll>/<ClipName>/<ClipName>_<FrameNumber>.rmf
<Roll>/<ClipName>/<ClipName>_<ChannelNumber>.wav
<Roll>/xml/<ClipName>/<ClipName>.xml

For example:

A001/
        A001C003_160105JO_CANON/
                A001C003_160105JO_CANON_00000001.rmf
                A001C003_160105JO_CANON_00000002.rmf
                A001C003_160105JO_CANON_00000003.rmf
                A001C003_160105JO_CANON_00000004.rmf
                A001C003_160105JO_CANON_00000005.rmf
                A001C003_160105JO_CANON_00000006.rmf

                ...
                A001C003_160105JO_CANON_1.wav
                A001C003_160105JO_CANON_2.wav
                A001C003_160105JO_CANON_3.wav
                A001C003_160105JO_CANON_4.wav
        xml/
                A001C003_160105JO_CANON/
                  A001C003_160105JO_CANON.xml

Copy the top level Roll folder to another storage device to back-up all the files in the Roll.
Any copy tool can be used to back-up files from the Codex VFS drive to another storage device.

Troubleshooting with Capture Drive Dock

Capture Drives have an LED that shows the status and can help with troubleshooting.

The table below describes the meaning of the LED modes:

LED colour	LED state	Description	Course of action
Blue	Flashing	Capture Drive is loading or unloading	Wait for loading/unloading to complete
Blue	Constant	Capture Drive is not loaded, and is safe to remove	Remove or reload Capture Drive
Green	Flashing Slow	Capture Drive is loaded and idle	No action required
Green	Flashing Fast	Capture Drive is reading/writing	Do not eject until reading/writing is finished
Red	Flashing	Capture Drive has failed to load	Remove Capture Drive, restart computer and try again

If the Capture Drive is not loading check the Thunderbolt connection and power to the device. After this check that the latest software from the Codex website is installed.

If you experience further loading issues it could be a hardware issue with the media or Dock. In this case, contact Codex Support (support@codex.online) and provide an issue report (.dbg file) created from System Preferences->Codex-> 'Generate issue report…'.

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Codex   60 Poland Street London England W1F 7NT United Kingdom

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Codex reserves the right to alter specification at any time and without prior notice.