codex®

V-RAW RECORDER

CDX-36050

GETTING STARTED GUIDE

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 2.0 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@codexdigital.com**

Support and Servicing

For assistance with your V-RAW Recorder please contact **support@codexdigital.com**

User Guides are available from **https://www.codexdigital.com/support/user-guides**

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Introduction

The Codex V-RAW Recorder integrates with the Panasonic VariCam 35 for uncompressed RAW capture of full-frame 4K material at up to 120fps. The recorder attaches directly to the 4K camera module, eliminating any need for cables and simplifying the use of the system.

After recording, the industry standard workflow and support is provided via Codex Vault Platform and Docks.

Further Documentation

The Vault Platform User Guide contains full details on the features in the Vault Platform and use of the software for common workflows. It is available from www.codexdigital.com/user-guides

The Panasonic VariCam 35 Operation Manual is available from http://pro-av.panasonic.net/en/varicam/35/dl.html

Installation

The V-RAW Recorder mounts on the rear of the 4K camera module as shown below:

Follow these steps to mount the V-RAW Recorder to the 4K camera module:

- Ensure the 4K camera module is switched off and power is disconnected prior to installing the V-RAW Recorder.
- Lift the catch on the left side of the V-RAW Recorder and raise the lever, which will move the Anton Bauer battery mount pins downward.
- Slide the V-RAW Recorder into the Anton Bauer battery mount on the rear of the 4K camera module, from left to right as viewed from the rear.
- Lower the lever on the side of the V-RAW Recorder to mate the connector to the 4K camera module.

Power Requirement

The V-RAW Recorder has both a DC input and mounting pins to attach batteries directly. The 3 connectors (3 pin Fischer 102) above the DC input provide a 24V output for accessories.

The V-RAW Recorder requires an input voltage of 11-34V. Power supplied to the V-RAW Recorder is fed through to the 4K camera module. The V-RAW Recorder has a power requirement of around 40W, and the 4K camera module requires up to 100W.

Batteries such as Anton Bauer Hytron 140, Dionic HC, Dionic HCX, and Dionic HD can be attached directly to the rear of the V-RAW Recorder. IDX batteries such as Endura HL9 can be attached using the V-mount type battery plate that is available as a camera accessory.

The V-RAW Recorder 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.

Powering On

Connect a battery or DC power source to the V-RAW Recorder. The light on the top of the V-RAW Recorder is green when the input voltage is in the correct range. Activate the power switch on the 4K camera module to start the system.

The light on the recorder will flash blue when it is booting and turn solid blue when a Capture Drive 2.0 is loaded.

Software

A Codex S-Series Vault, Codex XL-Series Vault, or Capture Drive 2.0 Dock is required to read the V-RAW recordings made to Capture Drive 2.0 media.

Go to codexdigital.com/software to register and download the latest software for these products. There are installation instructions available from this webpage. The latest firmware for the VariCam 35 can be downloaded from http://pro-av.panasonic.net/en/varicam/35/dl.html

Loading and Unloading a Capture Drive® 2.0 in the V-RAW Recorder

The door of the V-RAW Recorder is located on the top. Pull the lever on the door towards the rear of the V-RAW Recorder to release the door and lift it to the fully open position.

Insert the Capture Drive 2.0 into the V-RAW Recorder. The base of the Capture Drive 2.0 should be oriented towards the front of the V-RAW Recorder. Push the Capture Drive 2.0 from the top to fully mate the connectors. Close the door and the Capture Drive 2.0 will be loaded automatically.

The light on top of the V-RAW Recorder flashes blue when the Capture Drive 2.0 is not loaded. When the Capture Drive 2.0 is loaded the light will be solid blue.

Formatting a Codex Capture Drive 2.0 in the V-RAW Recorder

To format the Codex Capture Drive 2.0, navigate in the camera menu:

MENU->SYSTEM SETTINGS->CARDS/MEDIA->FORMAT MEDIA->V-RAW->YES

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

VariCam 35 Settings

Use of the Panasonic VariCam 35 is well covered by the Operation Manual available from http://pro-av.panasonic.net/en/varicam/35/dl.html

The following features are available in the camera menu and applicable to V-RAW recording:

MENU->SYSTEM SETTINGS->SYSTEM MODE->V-RAW - this option is used to set the V-RAW recording resolution and bit rate, such as 4K/10bit, 4K/12bit, UHD/10bit, UHD/12bit.

MENU->SYSTEM SETTINGS->SYSTEM MODE->MAIN PIXEL - this must match the resolution setting described above for successful recording.

MENU->SYSTEM SETTINGS->SYSTEM MODE->HIGH SPEED - this allows toggling between normal speed 1-60fps and highspeed 60-120fps. 10-bit V-RAW recording is possible in either mode. 12-bit V-RAW recording is possible only up to 30fps.

Recording

With the Capture Drive 2.0 formatted, press either of the red REC buttons to begin a recording. The light on top of the V-RAW Recorder will be red during recording. Press the red REC button again to end the recording.

Playback

Press the PLAY button to open a list of clips for playback. Use the wheel to select the clip and press the wheel to start playback. The light on the top of the V-RAW Recorder will be green during playback.

Errors and Warnings

In the event of an issue the camera will display 'system error' and a warning sound will be emitted. The camera should then be switched off.

If the issue occurs during recording it is recommended to remove the Capture Drive 2.0 and check the status of the recordings in a Capture Drive 2.0 Dock or Vault (rather than continuing to use it immediately). If the issue does not occur during recording then restart the camera.

Record Times To Capture Drive 2.0

The table below details t he record time available to Capture Drive 2.0 for the available formats:

Resolution	Bit Depth	Frame Rate	Record Time (minutes)
3840 x 2160	10-bit	23.98/24	119
3840 x 2160	10-bit	25	114
3840 x 2160	10-bit	29.97/30	95
3840 x 2160	10-bit	48	59
3840 x 2160	10-bit	50	57
3840 x 2160	10-bit	59.94/60	47
3840 x 2160	10-bit	96	29
3840 x 2160	10-bit	120	23
3840 x 2160	12-bit	23.98/24	106
3840 x 2160	12-bit	25	101
3840 x 2160	12-bit	29.97/30	84
4096 x 2160	10-bit	23.98/24	112
4096 x 2160	10-bit	25	107
4096 x 2160	10-bit	29.97/30	89
4096 x 2160	10-bit	48	56
4096 x 2160	10-bit	50	53
4096 x 2160	10-bit	59.94/60	44
4096 x 2160	10-bit	96	28
4096 x 2160	10-bit	120	22
4096 x 2160	12-bit	23.98/24	100
4096 x 2160	12-bit	25	96
4096 x 2160	12-bit	29.97/30	80

Accessing files from Capture Drive 2.0

The V-RAW Recorder workflow is supported by Vault Platform software utilising hardware products such as the Capture Drive 2.0 Dock, S-Series, and XL-Series.

Full documentation for the Vault Platform software is available from www.codexdigital.com/user-guides

Here an overview is provided for using Vault Platform with Capture Drive 2.0 Dock on Mac as part of the workflow with the V-RAW Recorder.

Connecting a Codex Capture Drive 2.0 Dock

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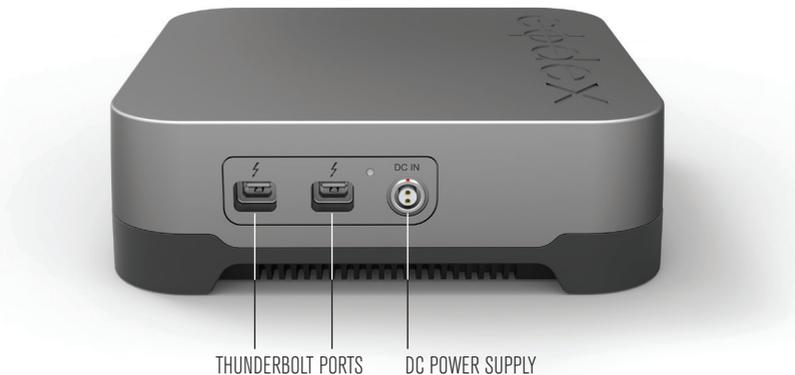
Connect the included DC power supply to the DC IN connector of the Capture Drive 2.0 Dock. There are two Thunderbolt Ports available - connect the port on the right side to a Mac computer that has the required Codex software installed.

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

Loading and Unloading a Codex Capture Drive 2.0 in the Dock

Insert a Codex Capture Drive 2.0 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.

The LED on a Capture Drive 2.0 flashes green quickly when it is reading/writing data. Do not unload a Capture Drive 2.0 when it is reading/writing as this can compromise data integrity.

To unload, press the eject button on the end of the Capture Drive 2.0 or go to the Storage screen of Vault Platform and click the Eject button. The LED will flash blue while it unloads.

When the LED is solid blue it is safe to remove the Capture Drive 2.0. Always eject the Capture Drive 2.0 correctly before removing it from the Dock.

Finder Preferences

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

Copying V-RAW (VRW) files from the Codex Capture Drive 2.0 Dock

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 2.0 containing V-RAW recordings is loaded. After loading the Capture Drive 2.0, the files are available to be copied from the Codex VFS drive.

V-RAW files are presented as a package containing images, audio, metadata, and LUT information. The image files are named using the following default structure in the Codex VFS drive:

<SourceId><ReelCount>_C<ClipId>_yymmdd_ssss.nnnnnnn.vrw

The ssss component is based on the camera serial number and helps to avoid name clashes with material recorded on other cameras.

File types are presented in separate directories under the top level Reel directory. For example:

```
A001G4A3/
        VRAW/
                A001_C001_140612_G4A3
                A001_C001_140612_G4A3.0018123.vrw
                A001_C001_140612_G4A3.0018124.vrw
                A001_C001_140612_G4A3.0018125.vrw
                ...
                A001_C002_140612_G4A3
                A001_C002_140612_G4A3.0019739.vrw
                …
        BWF/
                A001_C001_140612_G4A3_A12.wav
                A001_C001_140612_G4A3_A34.wav
                A001_C002_140612_G4A3_A12.wav
                A001_C002_140612_G4A3_A34.wav
                ...
        META/
                A001_C001_140612_G4A3.XML
                A001_C001_140612_G4A3.VLT
                A001_C001_140612_G4A3.CDL
                A001_C002_140612_G4A3.XML
                A001_C002_140612_G4A3.VLT
                A001_C002_140612_G4A3.CDL
                ...
```

Note: example assumes clips have four channels of audio, and stereo BWF delivery option has been selected.

Copy the top level Reel folder (A001G4A3 in the above example) to another storage device to back-up the entire package of image, audio, metadata, and LUT files.

Any copy tool can be used to back-up files from the Codex VFS drive to another storage device.

Using the Vault Platform software

The Vault Platform software can be used for a wide range of functions with recorded V-RAW material. For example:

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

Full details of these features are beyond the scope of this document, and are covered in the Vault Platform User Guide.

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