



Black Magic Design Pocket Cinema Camera Quick Start Guide



CDA Kit Includes:

- Camera
 - 14-140 mm lens with hood and UV filter
 - Five batteries with two chargers
 - 3 SD cards suitable for Pro Res HQ or RAW Cinema DNG recording
 - Camera Strap
-
- Upgrade this summer:
 - Variable ND filter
 - Camera Body Cage , Optical Viewfinder, Pistol Grip

Lens: Panasonic G Vario 14-140 mm F.3.5-5.6 Micro Four Thirds standard

- 28-280 35mm full frame
- O.I.S stabilization
- Auto-focus and exposure can be set before recording
- Telephoto: f 5.6
- Wide: f 3.5



Camera Specifications

Sensor Size

12.48mm x 7.02mm

Shooting Resolutions

Lossless CinemaDNG RAW, Apple ProRes 422 HQ, ProRes 422, ProRes 422 LT, and ProRes 422 Proxy at 1920 x 1080.

Frame Rates

HD 1080p 23.98, 24, 25, 29.97, 30.

Dynamic Range

13 stops

Focus

Focus button turns on peaking, plus auto focus on active lenses.

Iris Control

Iris button automatically adjusts the lens iris settings on compatible lenses so no pixel is clipped in film mode. Scene average auto exposure in video mode.

Lens Mount

Active MFT

Screen Dimensions

3.5" and 800 x 480 resolution.

Screen Type

Integrated LCD.

Metadata Support

Automatic camera data and user data such as shot number, filenames and keywords.

Controls

4 way directional controller for navigating menus and entering metadata. Push buttons for recording and transport control.

Microphone

Integrated stereo microphone.

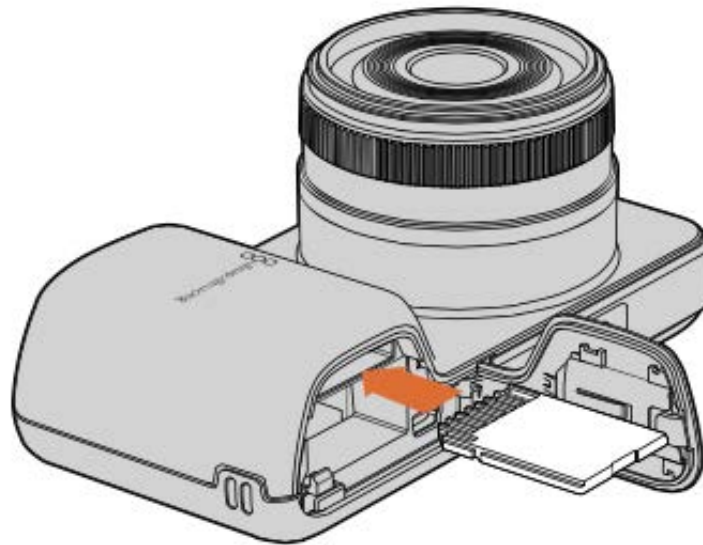
Speaker

Integrated mono speaker.

Mounting Options

1 x 1/4"-20 UNC thread mounting point on top of camera. 1 x 1/4"-20 UNC thread tripod mount.

SD cards and Battery go into the same compartment.



Inserting an SD card into the Blackmagic Pocket Cinema Camera.

Important Considerations: **Power**

- Batteries:
- The Pocket camera has five batteries each with a 30 minute maximum charge! This duration will decrease in cold weather.
- Each battery takes about two hours to charge.
- Charge all the batteries once you receive the camera

- Take steps to minimize power usage:
- Turn off the camera when you are not actually recording
- Don't use the camera to review video

Important Considerations: Recording Time

- SD Card Recording: Format the SD card before you start recording (Main Menu- Format Card)
- The Pocket Camera uses extremely fast (and expensive) SD cards. It has three San Disk Extreme Pro cards rated at 95 MB/sec.
- The camera kit has one 64 GB card and two 32 GB cards.
- If you are recording Pro Res HQ at 1080p the file sizes are about 1.5 GB per minute. This is about 42 minutes of recording time on a 64 GB card and about 21 minutes on the 32 GB cards.
- You can display the remaining recording time on the camera LCD

Selecting **Meters** in the Menu displays the remaining record time, histogram and audio meters on the LCD.





Remaining Recording Time on Card
In Hours: Minutes

Recording Formats

Storage Type

Removable SDXC, SDHC cards.

Storage Format

Mac OS Extended or exFAT format. SD cards can be formatted in camera, or on any Mac or Windows computer. Formatting in camera recommended.

Storage Rates

1920 x 1080

Apple ProRes 422 HQ - 27.5 MB/s

Apple ProRes 422 - 18.4 MB/s

Apple ProRes 422 LT - 12.75 MB/s

Apple ProRes Proxy - 5.6 MB/s

Storage rates based on 30 frames per second.

Compressed Recording Formats

Apple ProRes 422 HQ, ProRes 422, ProRes 422 LT and ProRes 422 Proxy in QuickTime MOV. Lossless CinemaDNG RAW. Recording in 1920 x 1080 with choice of Film or Video Dynamic Range.

Exposure

- Exposure can be set automatically simply by pressing the IRIS button on the back of the camera
- The iris (aperture/f-stop) can be adjusted manually with the arrow buttons
- To set ISO, White Balance and Shutter Angle (like Shutter Speed) you must go into the camera menu

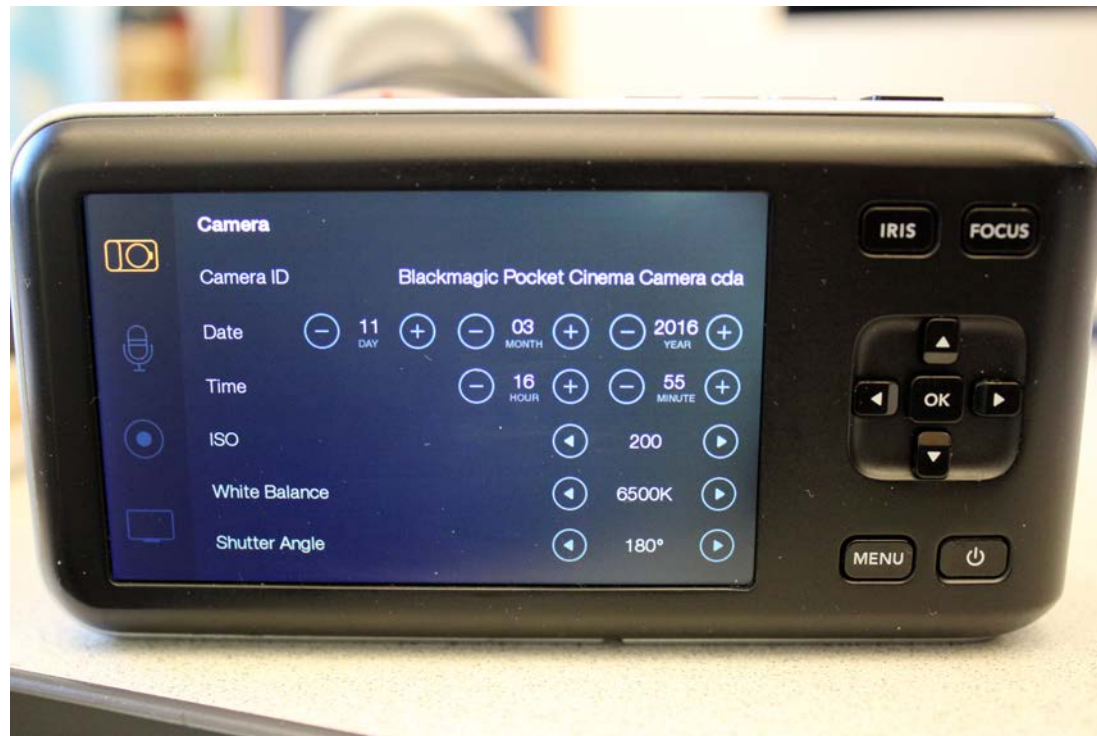
Exposure settings: IRIS button for auto exposure
Use arrow buttons to change F Stop manually



Select **Settings** in the Main Menu to Access the Camera Menus



Exposure Settings in the Camera Menu:
Set **White Balance** by Color Temp. increments
Set **ISO** (warning: there is noise above 800 ISO)

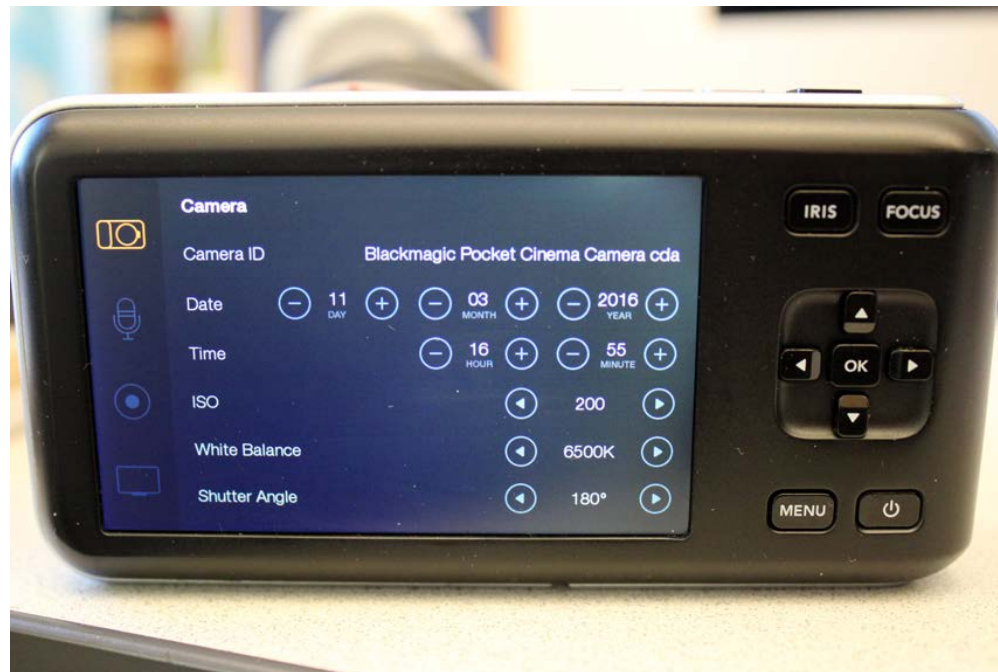


Exposure Settings in the Camera Menu:

Shutter Angle: 180 is the default (roughly the same as a shutter speed of twice the frame rate- this is the video standard)

Increasing Shutter Angle increases motion blur and exposure

Decreasing Shutter Angle decreases motion blur and exposure



Important Considerations: Exposure

- The CDA Pocket camera kit is not yet complete.
- I am expecting the following badly needed items: a variable ND filter, a camera cage, and a viewfinder.
- The lowest ISO of the camera is 200. At 200 ISO and f22 you may still find that you are overexposing outdoors at midday. Hence the variable ND filter is required.
- In bright light you can't see a thing on the LCD screen. Until the viewfinder arrives you can successfully shoot "blind" using autofocus to get a focal point and using the zebra stripes to check overexposure.
- If you set the zebra stripes to 95 percent, you will see when they activate. I successfully overexposed by one stop when shooting in "Film" Dynamic Range. More on that later.

Display Menu:
Zebra Stripes can be set by percentage.
The percentage refers to the luminance scale:
0 is black, 100 is white.



Recording Menu:

Set Rec. Format/Dynamic Range/Frame Rate



Important Considerations: Dynamic Range

Film or Video

- Black Magic Design uses the term Video dynamic range to mean “linear” luminance sampling, and Film dynamic range to mean logarithmic sampling or “log”
- Use Film dynamic range to expose a greater range of luminance (from shadows to highlights)
- Use Video dynamic range when the shot contains just shadows and mid-tones, no highlights.
- If you choose video dynamic range you are automatically recording in Pro Res.
- If you choose Film dynamic range you have a choice of Pro Res or RAW format. I suggest Pro Res HQ for both dynamic ranges.
- Note: the whole point of the camera is to shoot with Film Dynamic Range

Important Considerations: Recording Format Pro Res or Raw?

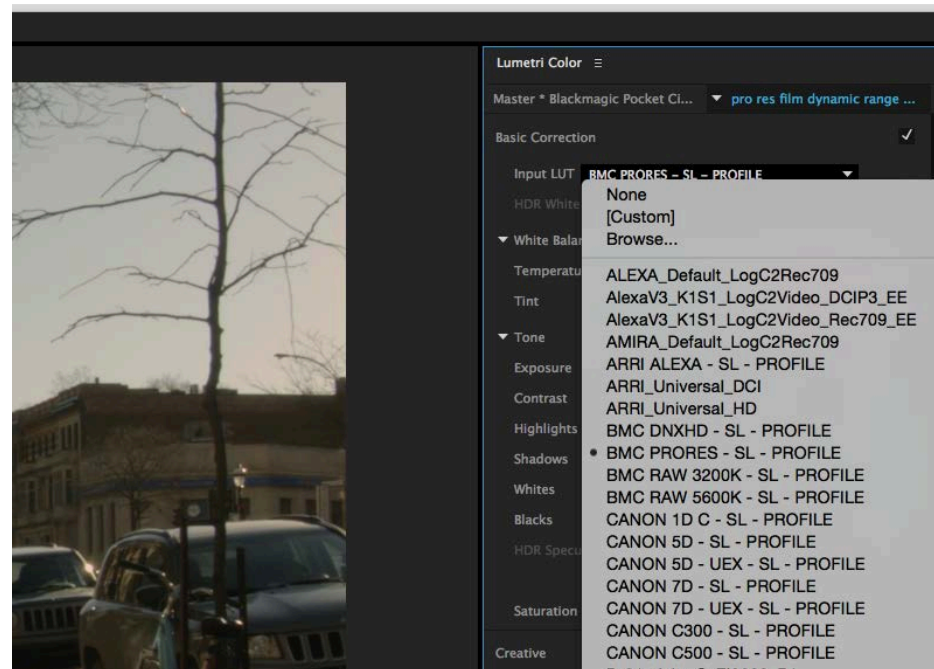
- I recommend shooting in Pro Res HQ not Cinema DNG RAW.
- File Size: 42 minutes of Pro Res HQ on a 64 GB hard drive as opposed to 20 minutes of Cinema DNG RAW
- File size: 21 minutes of Pro Res HQ on a 32 GB card, as opposed to 10 minutes of RAW
- Pro Res HQ files can be played directly from a USB 3 hard drive.
- Cinema DNG RAW files require a SSD drive (thunderbolt) or RAID array
- Pro Res HQ is 10 bit 4.2.2 color as opposed to Cinema DNG 12 bit 4.4.4 color (not a lot of difference).
- There is less margin for error in exposure with Pro Res but you can still overexpose by one stop in “Film” dynamic range.

Film Dynamic Range: Normalizing

- Video shot with Film Dynamic Range will look washed out and low contrast when it comes directly from the camera
- The video must be "normalized" or treated with a LUT (look-up table) or color correction to make it appear like a normal contrast and saturated image on your computer monitor's color space
- This process can be done quite easily in Adobe Premiere, and also in DaVinci Resolve

Normalizing in Adobe Premiere

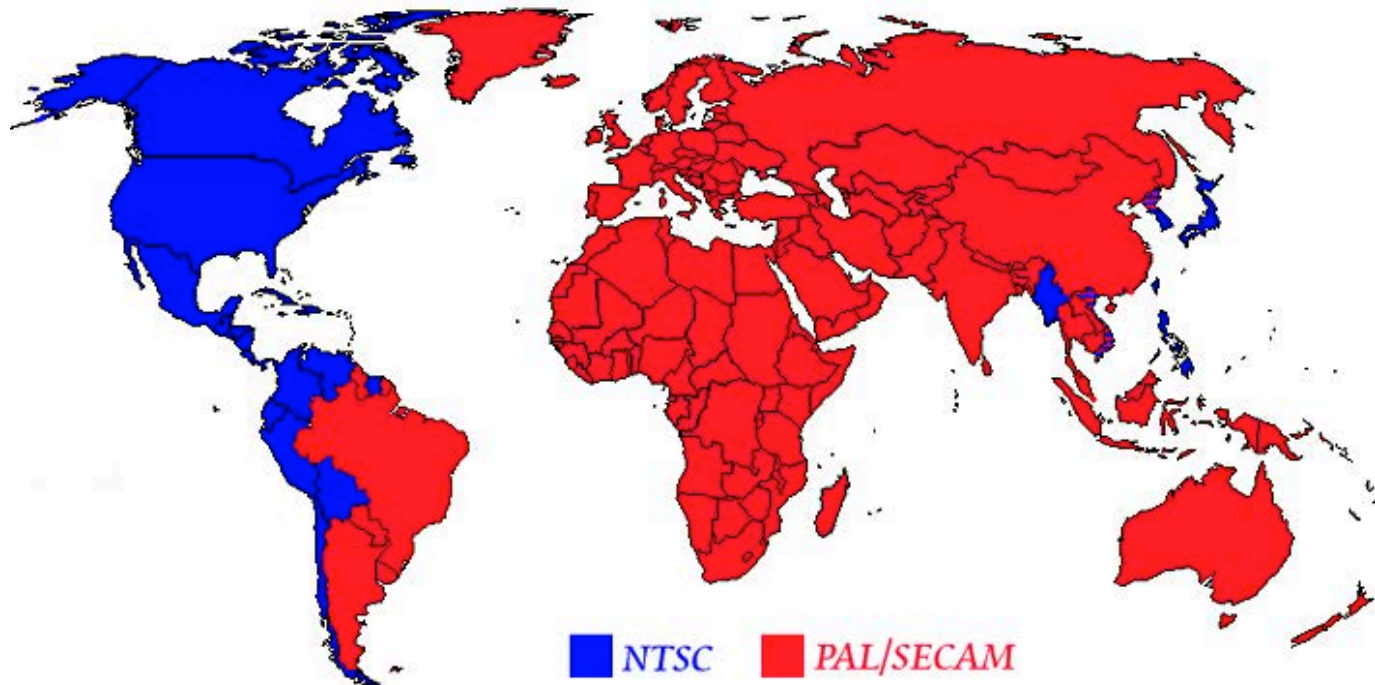
- In Adobe Premiere CC 2015, in the Color workspace, use this LUT that is provided in the Lumetri color effect: BMC PRORES-SL-PROFILE



Important Considerations: Frame Rate

- 23.98 or 24 fps?
- 29.97 or 30 fps?
- Use the NTSC frame rates of 23.98 or 29.97 fps if you are using a NTSC display device (LCD TV) or playing back your video with a media player (WDTV or Technovision)
- Use the Digital Cinema frame rates of 24 or 30 if you are shooting for digital cinema projection and plan on making a DCP of your final edit
- Use 25 fps if you are only showing your work in the PAL world

The Video World



NTSC: N.America, C.America, Venezuela, Columbia, Ecuador, Peru, Bolivia, Chile, Suriname, Burma, Vietnam?, Philippines, Japan, South Korea, North Korea?, some Pacific Islands

Display Menu: **Dynamic Range**

You can best judge exposure by setting the **Display Dynamic Range** to match the **Recording Format Dynamic Range** (Film or Video)

However, it can be difficult to judge white balance when viewing in Film Dynamic Range in the LCD: the image is washed out.

Also, because the white balance is set in color temperature increments you cannot rely on an “auto” white balance.

So when shooting in **Film Dynamic Range**, set the Display Dynamic Range to **Video** to accurately judge white balance and to **Film** to accurately judge exposure.



Important Considerations: Tripod

- Until the cage for the camera body arrives, the camera will not mount on tripods using a longer shoe
- Use tripods with a small more square shaped shoe (the small Manfrotto tripods in the CDA depot are one example)
- The issue is that there is not enough clearance and the lens rubs against the longer shoes

Stabilization is ON when the camera is handheld, and OFF when the camera is on a tripod.



Proposed Completed Pocket Camera Kit with Cage, Pistol Grip and Viewfinder
(Variable ND filter not shown)



The idea is to keep the camera portable, unobtrusive and lightweight.



Important Considerations: Focus

- There is no auto-focus while recording.
- The **Focus** button is simply for auto-focusing before you start recording.
- Focus must be changed manually while recording.
- This is going to be extremely difficult until the viewfinder arrives.
- I suggest shooting with a large depth of field (small aperture number: f22 or f16) if a change of focus is required.
- Focus peaking is also a display option.

Important Considerations: Audio

- There is an internal microphone that is awful. It is useless except as a guide track.
- There is a 1/8th inch audio input for an external microphone. The microphone preamps in the camera are poor.
- Rather than record a signal internally with a tethered recorder, record audio “externally” with a separate recorder. Use a Zoom recorder or the CDA sound recording kit. Make sure to slate the takes with a slate or a hand clap. Say the name of the shot before you slate or clap your hands.
- The CDA sound kit is being upgraded this year to a Sound Devices recorder and it will include a slate.

Audio Menu (if you care)

