Production Technology Support

CAMERA PRODUCTION GUIDE | **Blackmagic URSA Mini PRO 12K OLPF**

Settings and best-practices for capture with the URSA Mini Pro 12K OLPF (on Camera 8.1 or later) on Netflix 4k Originals.

Current Ops Manual: HERE Data Rate Calculator: HERE Recommended CFast 2.0 Media: HERE

CAPTURE SETTINGS | **RAW** (Blackmagic RAW)

Preferred SELECTION setting shown in **YELLOW & BOLD** and alternatives in normal text.

SETTING	MENU NAVIGATION	SELECTION
SHOOTING MODE	Menu (button) → RECORD (4" LCD) → Page 1 →	Resolution: **12K**, **8K**, 6K, 4K Aspect ratio: 17:9 DCI, 16:9, 2.4:1 or 6:5 Anamorphic All formats use full height or full width of the image sensor without cropping down except for the 6K Super 16 or 4K Super 16 modes.
GAMMA / COLOR SPACE	Menu (button) → RECORD (4" LCD) → Page 2 (4" LCD) →	Dynamic range: **Film*** (Blackmagic Design Film)
RAW FORMAT	Menu (button) → RECORD (4" LCD → Page 1 (4" LCD) →	Codec & quality: Constant Bitrate **5:1**, **8:1**, 12:1, 18:1 Constant Quality **Q0**, **Q1**, **Q3**, Q5

* Equivalent to LOG capture gamma and color space.

HIGH SPEED | **RAW** (Blackmagic RAW)

INTERNAL MEDIA	MAX FPS	MAX RESOLUTION
CFast 2.0	60 fps	12K 17:9 DCI, 16:9 or 6:5 Anamorphic
CFast 2.0	75 fps	12K 2.4:1
CFast 2.0	120 fps	8K17:9, 16:9 or 6:5 Anamorphic
CFast 2.0	160 fps	8K 2.4:1
CFast 2.0	120 fps	6K Super 16
CFast 2.0	240 fps	4K Super 16

OPTIMIZING PERFORMANCE | **MAINTENANCE PROCEDURES**

Black shading calibration: This calibration procedure is not required on URSA Mini Pro 12K OLPF.

Lens coverage: Image sensor area for 12K full sensor in 17:9 DCI is 27.03mm x 14.25mm has 30.56mm diagonal.

Sensor readout times:
12K - 17:9 - 15.55ms
12K - 2.4:1 - 12.27ms
8K/4K - 17:9 - 7.78ms
8K/4K - 2.4:1 - 6.13ms
6K - Super16 - 7.78ms
4K - Super16 - 3.89ms

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Recording media options on URSA Mini Pro 12K include CFast 2.0, SD cards and USB-C disks. While it is possible to record to SD cards or USB-C disks and SSD we recommend using CFast 2.0 as it is the most robust recording option for production use.

This type of media is rated for multiple insertions and thermal management suited for sustained motion picture recording. For high data rate recording above 400MB/s we recommend using the 'record RAW on 2 cards' option which records a braw clip to each card (extension of .braw and .braw2) with alternating frames on each. As long as these cards are copied to the same folder for use in post they will be seen as a single clip when ingested into DaVinci Resolve, or any other program that supports the Blackmagic RAW SDK.

Dual card clips such as these can then be re-wrapped back together as a single clip by the SDK by using media management for your project. To check expected data rates for your desired format our data rate calculator can be found HERE and our supported card lists for CFast media are listed HERE.

Blackmagic RAW files from URSA Mini Pro 12K OLPF can be viewed in the free Blackmagic RAW Player 3.0 or above which is available as part of the Blackmagic Camera update, as part of Blackmagic RAW or in DaVinci Resolve. All of which are available free of charge HERE.

Supported Blackmagic RAW apps (alphabetically by vendor after Blackmagic applications and plugins):

Davinci Resolve by Blackmagic Design
Blackmagic RAW Player by Blackmagic Design
Adobe Premiere Pro plugin by Blackmagic Design
Avid Media Composer plugin by Blackmagic Design

Alteon.io by Alteon
SynthEyes by Andersson Technologies LLC
Scratch by Assimilate
Flare by Autodesk
Flame by Autodesk
Flame Assist by Autodesk
Lustre by Autodesk
BRAW Studio by Autokroma

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On-Set Dailies by Colorfront
Lightworks by Editshare
Baselight by FilmLight
Nuke Studio/Hiero by The Foundry
Edius by Grass Valley
Gyroflow by Gyroflow
EditReady by Hedge
ShotPut Pro by Imagine Products
ProVu by Imagine Products
PrimeTranscoder by Imagine Products
BRAW Toolbox by LateNite Films
Kyno by Lesspain Software
NeoFinder 8 by Norbert M. Doerner
Silverstack by Pomfort
Mistika by SGO
Vegas Pro 19+ by Sony
YoYotta Transcode by YoYotta
Screen by Video Village

Embedded 3D LUTs - On URSA Mini Pro 12K OLPF the setting chosen for your 3D LUT monitoring is stored in metadata within the Blackmagic RAW files. If you have your LUT switched 'on' for any of your monitoring outputs, or if you have the 'Apply LUT in File' option enabled on 'record' page three, the 3D LUT will be automatically embedded in the file header. This is helpful for ensuring that a reference is always passed through post production with the original intent. If 'Apply LUT in File' is switched 'on', the LUT will also be applied automatically when viewed in post production. 'Apply LUT' can be switched off easily in the RAW decode tab of the application.

Constant Quality options - Blackmagic RAW works in 2 different ways. You have a choice to use either the constant bitrate codec, or the constant quality codec. The constant bitrate codec works in a similar way to most codecs but constant quality is quite different. Constant Quality options have a variable bitrate. Q0 gives you minimal quantisation which means that the image quality will always remain at the highest level. Q0 will represent a compression ratio that generally ranges somewhere between 2:1 - 5:1 but may get as low as 1.5:1 or lower in highly complex scenes. Q5 has a greater level of quantisation but offers greatly improved data rates, it will range somewhere between 7:1 - 20:1 for normal scenes. Actual data rates are entirely dependent on image subject matter.