

SONY

CineAlta Workflow Guide

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INTRODUCTION

Since 2000, Sony has been working on developing Digital Motion Picture Camera systems for the industry under the “CineAlta” line for more than 20 years. Starting with the first CineAlta camera HDW-F900, many models have been introduced to the market until now.

During the period, Sony developed a lot of key technologies such as 24p, RGB444 system, Super35mm image sensor, 4K and 8K high resolution. These have been contributing to the high-end content creation market such as feature film, TV drama and commercials.

In 2017, we launched the latest cinema camera VENICE equipped with 36x24 Full-Frame CMOS image sensor specifically designed for high-end cinematography. We evolved and launched the successor VENICE 2 in 2022, reflecting various requests received from the market. Then, BURANO has been launched in 2024 as a new addition to CineAlta family – that is ideal for single-camera operators and small crews.

This document provides an overview of the CineAlta workflow that has already been utilized by many users – explaining how to work with the latest models VENICE 2 and BURANO. The content is planned to be continuously updated as necessary.



SHOOTING

- 36x24mm Full-Frame Sensor for Cinema
- Dual Base ISO
- S-Log3 / S-Gamut3
- Look
- Recording Format (X-OCN)
- Recording Media (AXS / CFexpress Memory Card)
- Flexible Lens Mount (PL / E)
- Built-in ND Filter
- Image Stabilization
- Auto Focus
- VENICE Extension System 2
- Remote Control
- In-Camera VFX

36x24mm Full-Frame Sensor for Cinema

VENICE 2 (8K/6K) features one of two 36x24mm full-frame image sensors, designed specifically for the demands and performance of high-end cinematography. Each offers remarkable sensitivity, latitude and color rendition, and because the sensor blocks are interchangeable, users can easily switch between sensors—without any extra firmware—and can even use the sensor from their original VENICE.

The new **8K sensor** can capture images up to a maximum pixels of 8640 x 5760, while the established **6K sensor** offers up to 6048 x 4032. Both offer powerful oversampling for incredible 4K images.



- **Full-Frame full width 36mm 8K and 6K**
In full-frame, you can use the full width of the sensors (8640 or 6048 pixels) for widescreen spherical 2.39:1 or Large Format Scope. Full-Frame can be used creatively in several ways – for example, to allow for extra shallow depth of field or super-wide shooting.
- **Super35 full height 2.0x squeeze anamorphic**
For anamorphic shooting and production, Super35 full height 2x squeeze anamorphic is supported.
- **Super35 17:9 and 16:9**
These popular imager modes have native support in VENICE 2, and the 8K sensor makes it possible to capture 5.8K footage in these modes. Current Super35mm PL mount lenses can be used as well.

VENICE 2 (8K)

Full Frame



8.6K 3:2
Resolution: 8640 x 5760
WxH(mm): 35.9 x 24.0
fps: 1-30
License: Full Frame / Anamorphic



8.6K 17:9
Resolution: 8640 x 4556
WxH(mm): 35.9 x 19.0
fps: 1-48
License: Full Frame / Anamorphic



8.2K 2.39:1
Resolution: 8192 x 3432
WxH(mm): 34.1 x 14.3
fps: 1-60, 66, 72
License: Full Frame



8.2K 17:9
Resolution: 8192 x 4320
WxH(mm): 34.1 x 18.0
fps: 1-60
License: Full Frame / Anamorphic



8.1K 16:9
Resolution: 8100 x 4556
WxH(mm): 33.8 x 19.0
fps: 1-48
License: Full Frame / Anamorphic



7.6K 16:9
Resolution: 7680 x 4320
WxH(mm): 32.0 x 18.0
fps: 1-60
License: Full Frame / Anamorphic

Super 35



5.8K 4:3
Resolution: 5792 x 4276
WxH(mm): 24.1 x 17.8
fps: 1-60
License: Anamorphic



5.8K 6:5
Resolution: 5792 x 4854
WxH(mm): 24.1 x 20.2
fps: 1-48
License: Anamorphic



5.8K 17:9
Resolution: 5792 x 3056
WxH(mm): 24.1 x 12.7
fps: 1-60, 66, 72, 75, 88, 90
License: N/A



5.5K 2.39:1
Resolution: 5480 x 2296
WxH(mm): 22.8 x 9.55
fps: 1-60, 66, 72, 75, 88, 90, 96, 100, 110, 120
License: N/A



5.4K 16:9
Resolution: 5434 x 3056
WxH(mm): 22.6 x 12.7
fps: 1-60, 66, 72, 75, 88, 90
License: N/A



Camera Extension System 2



VENICE 2



Menu Simulator



CBK-3620XS (Rialto 2)

*Not all fps are available in all recording formats.



VENICE 2 (6K)

Full Frame



6K 3:2
Resolution: 6048 x 4032
WxH(mm): 35.9 x 24.0
fps: 1-60
License: Full Frame / Anamorphic



6K 1.85:1
Resolution: 6054 x 3272
WxH(mm): 36.0 x 19.4
fps: 1-60, 66, 72
License: Full Frame / Anamorphic



6K 17:9
Resolution: 6054 x 3192
WxH(mm): 36.0 x 19.0
fps: 1-60, 66, 72
License: Full Frame / Anamorphic



6K 2.39:1
Resolution: 6048 x 2534
WxH(mm): 35.9 x 15.0
fps: 1-60, 66, 72, 75, 88, 90
License: Full Frame / Anamorphic

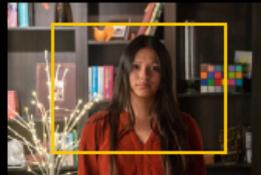


5.7K 16:9
Resolution: 5674 x 3192
WxH(mm): 33.7 x 19.0
fps: 1-60, 66, 72
License: Full Frame / Anamorphic

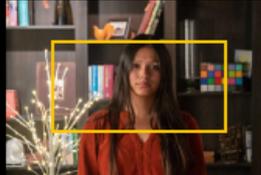
Super 35



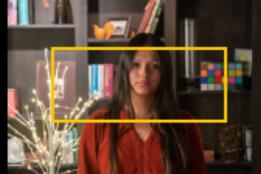
4K 6:5
Resolution: 4096 x 3432
WxH(mm): 24.3 x 20.4
fps: 1-60, 66, 72
License: Anamorphic



4K 4:3
Resolution: 4096 x 3432
WxH(mm): 24.3 x 18.0
fps: 1-60, 66, 72, 75
License: Anamorphic



4K 17:9
Resolution: 4096 x 2160
WxH(mm): 24.3 x 12.8
fps: 1-60, 66, 72, 75, 88, 90, 96, 100, 110
License: N/A



4K 2.39:1
Resolution: 4096 x 1716
WxH(mm): 24.3 x 10.3
fps: 1-60, 66, 72, 75, 88, 90, 96, 100, 110, 120
License: N/A



3.8K 16:9
Resolution: 3840 x 2160
WxH(mm): 22.8 x 12.8
fps: 1-60, 66, 72, 75, 88, 90, 96, 100, 110
License: N/A



Camera Extension System 2



VENICE 2



Menu Simulator



CBK-3620XS (Rialto 2)

*Not all fps are available in all recording formats.



BURANO also has a large 36x24mm full-frame image sensor that delivers high-quality images and superb rendition with wide latitude and a rich color gamut. It achieves the beautiful bokeh and wide-angle shooting that only a full-frame sensor can provide.

8K image quality with a maximum pixels of 8632 x 4856 and, through oversampling, it can output high-quality 4K content.

Resolution	Dimensions	Image Circle	Codecs
8.6K 16:9 Full Frame	35.9 x 20.2 mm 1.413 x 0.795 inch	41.19 mm 1.62 in	X-OCN 30 fps 8632 x 4856 XAVC 30 fps 7680 x 4320
6K 16:9 Full Frame	33.6 x 18.9 mm 1.322 x 0.744 inch	38.55 mm 1.52 in	X-OCN 60 fps 6052 x 3404 XAVC 60 fps 3840 x 2160 1920 x 1080
8.6K 17:9 Full Frame	35.9 x 18.9 mm 1.413 x 0.748 inch	40.57 mm 1.60 in	X-OCN 30 fps 8632 x 4552 XAVC 30 fps 8192 x 4320
6K 17:9 Full Frame	33.6 x 17.7 mm 1.322 x 0.696 inch	37.98 mm 1.50 in	X-OCN 60 fps 6052 x 3192 XAVC 60 fps 4096 x 2160

Resolution	Dimensions	Image Circle	Codecs
5.8K 16:9 Super 35	24.0 x 13.5 mm 0.944 x 0.531 inch	27.54 mm 1.08 in	X-OCN 60 fps 5760 x 3240 XAVC 60 fps 3840 x 2160 1920 x 1080
5.8K 17:9 Super 35	24.0 x 12.6 mm 0.944 x 0.5 inch	27.11 mm 1.07 in	X-OCN 60 fps 5760 x 3036 XAVC 60 fps 4096 x 2160
4K 17:9 Super 35	17.0 x 9.0 mm 0.669 x 0.354 inch	19.24 mm 0.76 in	X-OCN 120 fps 4096 x 2160 XAVC 120 fps 4096 x 2160



6K 17:9/16:9 Full-Frame crop mode on BURANO

This is one of the most popular imager scan modes on BURANO. Because it can bring the following benefits at the same time :

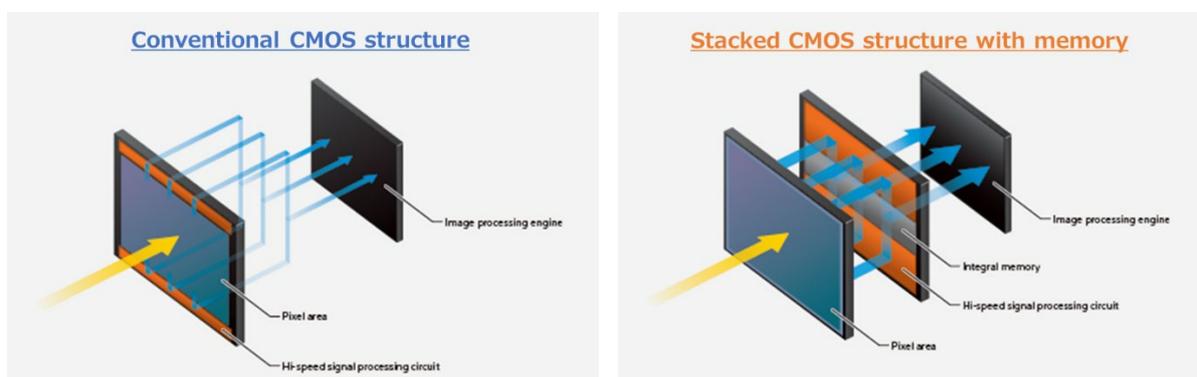
- Superior image quality with near FF 8.6K scan down-sampled to 6K for recording (only about 1.07x crop)
- Smaller file size (compared to FF 8.6K scan)
- Higher frame rate (up to 60 fps)

Fast readout with stacked CMOS structure

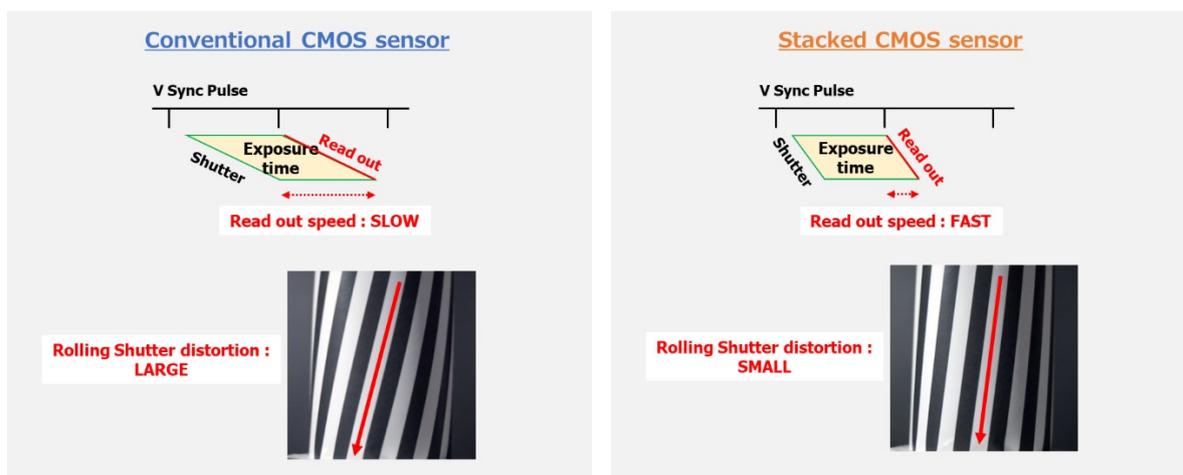
VENICE 2 and BURANO have equipped a newly developed memory-integrated Full-Frame CMOS sensor dedicated for cinema camera.

By adopting a “stacked structure” that allows the high-speed signal processing circuit to be placed in a separate layer from the pixel area, the processing circuit section has been greatly expanded, and the speed of signal processing has improved dramatically.

Furthermore, an integral memory is mounted on the back of the sensor. The sensor outputs a large amount of signals, which are temporarily stored in the integral memory to prevent congestion. This innovative sensor structure has achieved a data readout speed much faster than the conventional back-illuminated CMOS sensor.



The stacked CMOS sensors dramatically reduce the motion distortion (rolling shutter effect) that often occurs when capturing fast-moving subjects. By scanning the entire pixel area from top to bottom at high speed, the timing difference in readout between the top and bottom of the image is minimized.



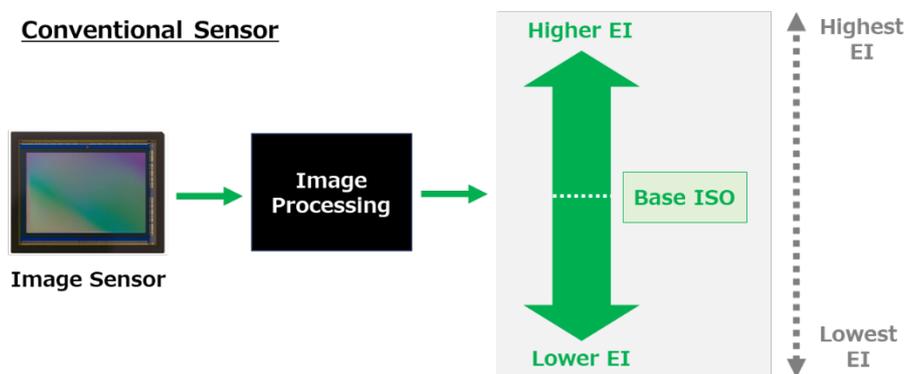
In fact, the readout speed of CMOS sensor varies depending on image scan mode.

For shooting situation on **BURANO** where the rolling shutter performance is critical, we would recommend using **4K 17:9 Super35 crop** and **3.8K 16:9 Full Frame crop*** image scan modes that offer relatively **fast readout speed** on this model.

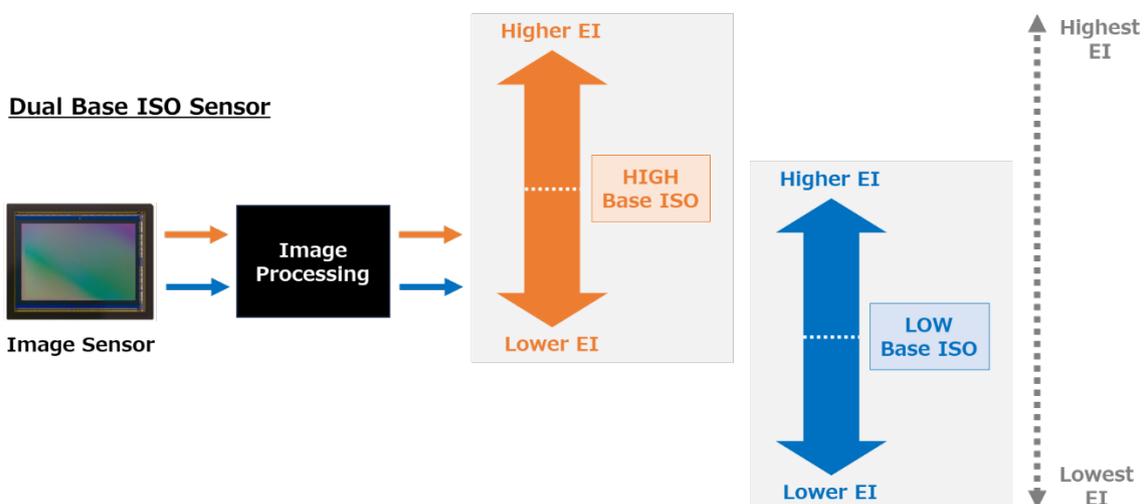
*Planned to support on Ver 2.0 (March 2025 or later)

Dual Base ISO

Digital imaging sensors perform best when EI (Exposure Index) is set to their native, Base ISO. It's at this Base ISO value you will realize a very clean image with the best balance of good signal to noise ratio and wide dynamic range. This is because at the Base ISO setting, there is no amplification, or gain (voltage), being added to the signal coming from the sensor.



Therefore, both VENICE 2 and BURANO camera's full-frame sensor has what is termed Dual Base ISO. It means that the camera's imaging sensor has two distinct sensitivities to light – one LOW at ISO 800* for higher light levels, and one HIGH at ISO 3200* for lower light levels.

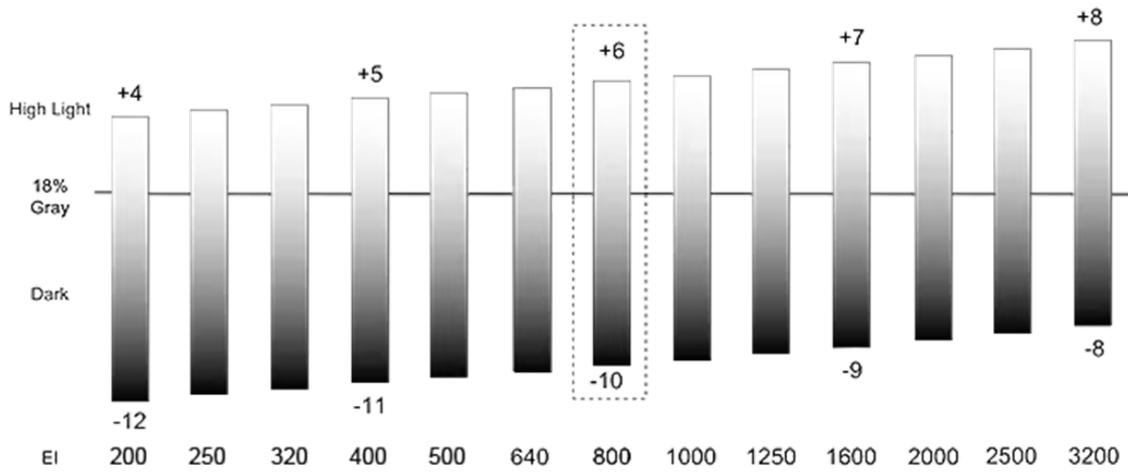


At each Base ISO level, since there is no such amplification being added to the signal as explained above, the sensor captures the same, clean image. And as illustrated in the graph below, at each Base ISO, the sensor also captures same wide dynamic range with an equivalent ratio of stops of latitude above and below 18% grey – a total of 16 stops*.

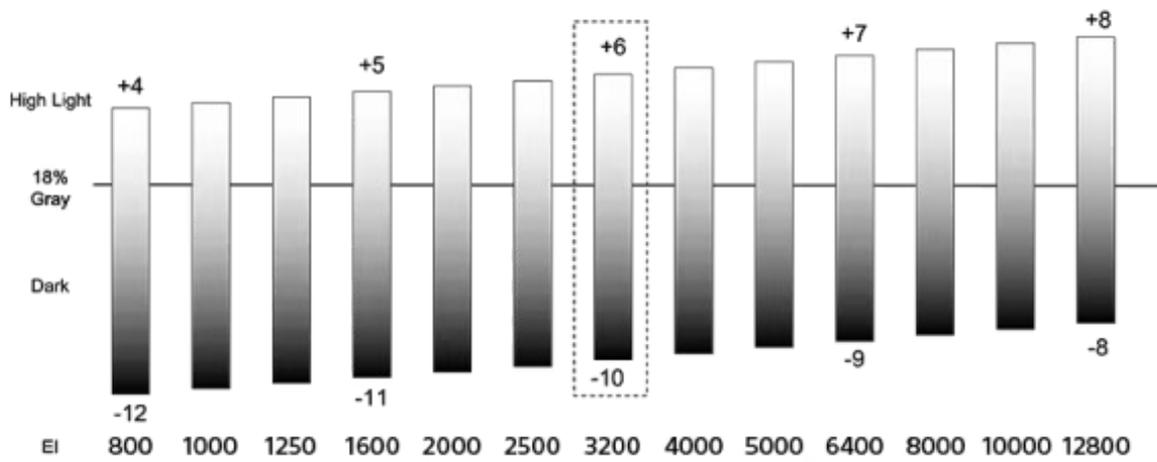
*In case of VENICE 2 (8K) and BURANO

Dual Base ISO, and high Base ISO specifically, also pay dividends when it comes to High Frame Rate (HFR) shooting. Indeed, for HFR, sensitivity is a critical factor since each frame is exposed to light for an even shorter duration. As such, having a high Base ISO option of 3200 EI ensures high image quality even when shooting under more modest lighting packages.

VENICE 2 (8K)

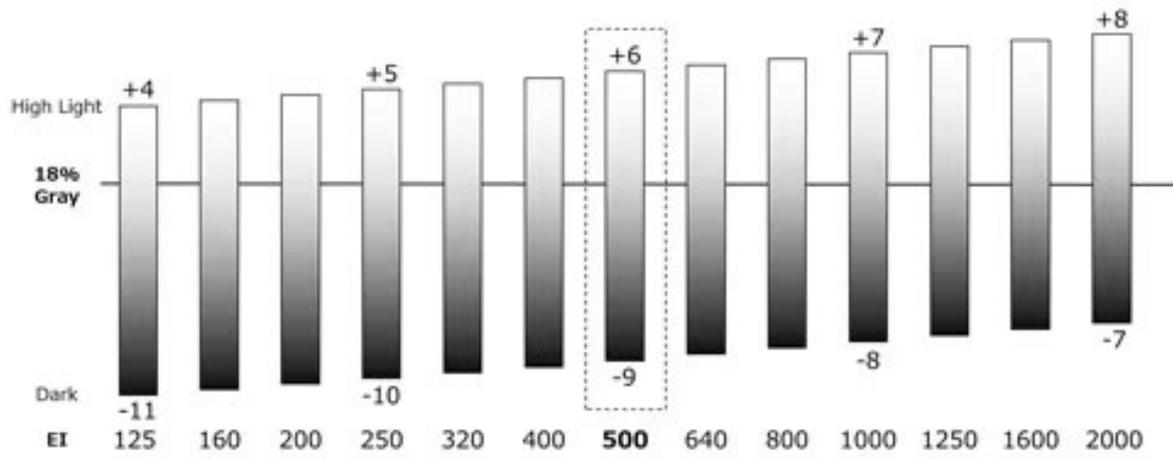


ISO 800

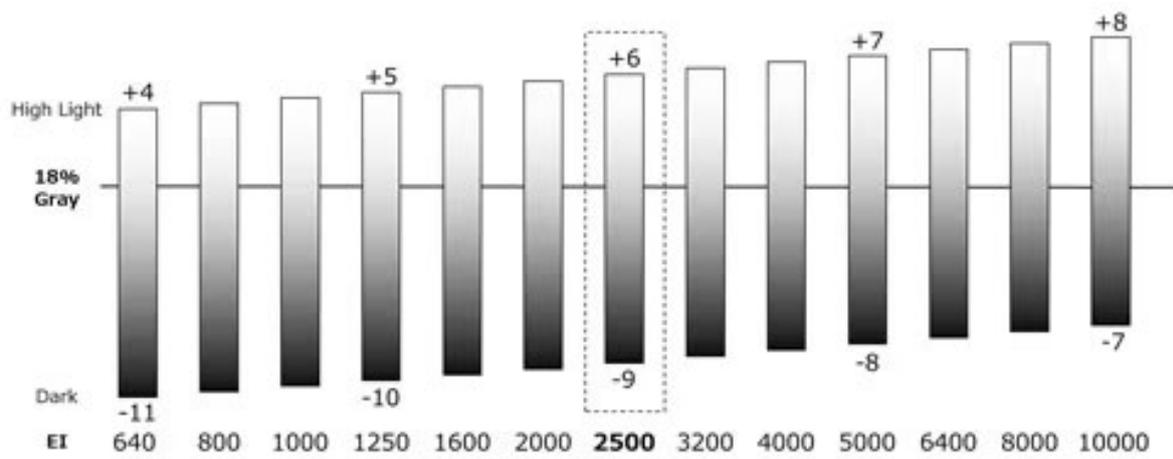


ISO 3200

VENICE 2 (6K)

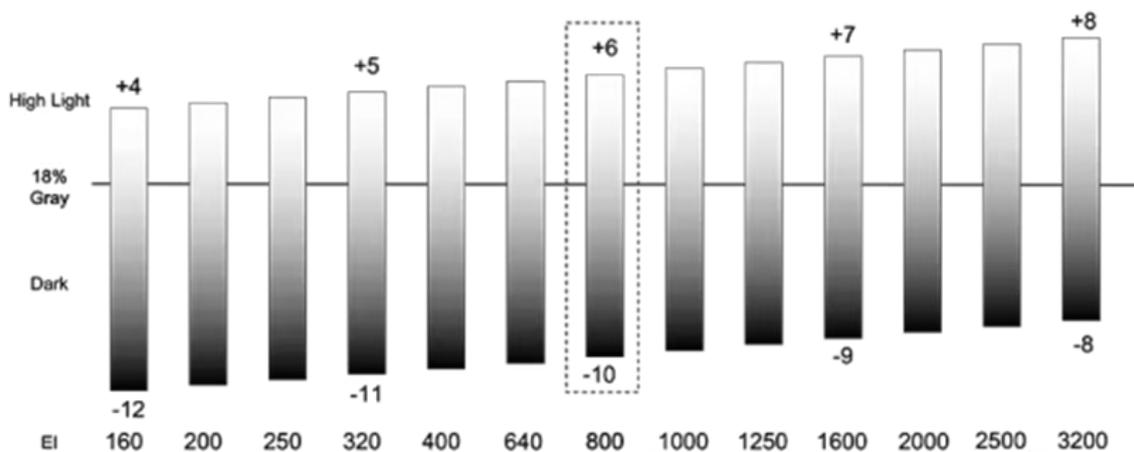


ISO 500

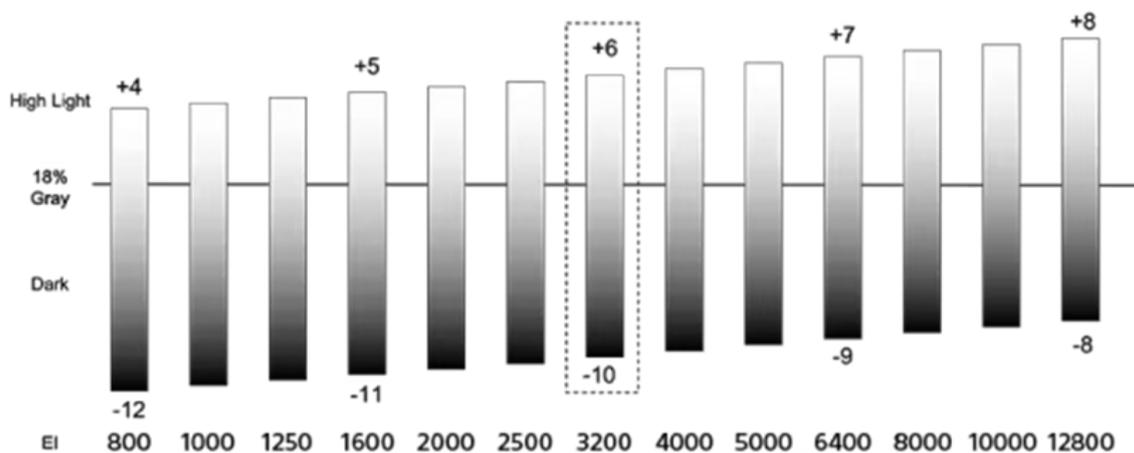


ISO 2500

BURANO



ISO 800



ISO 3200

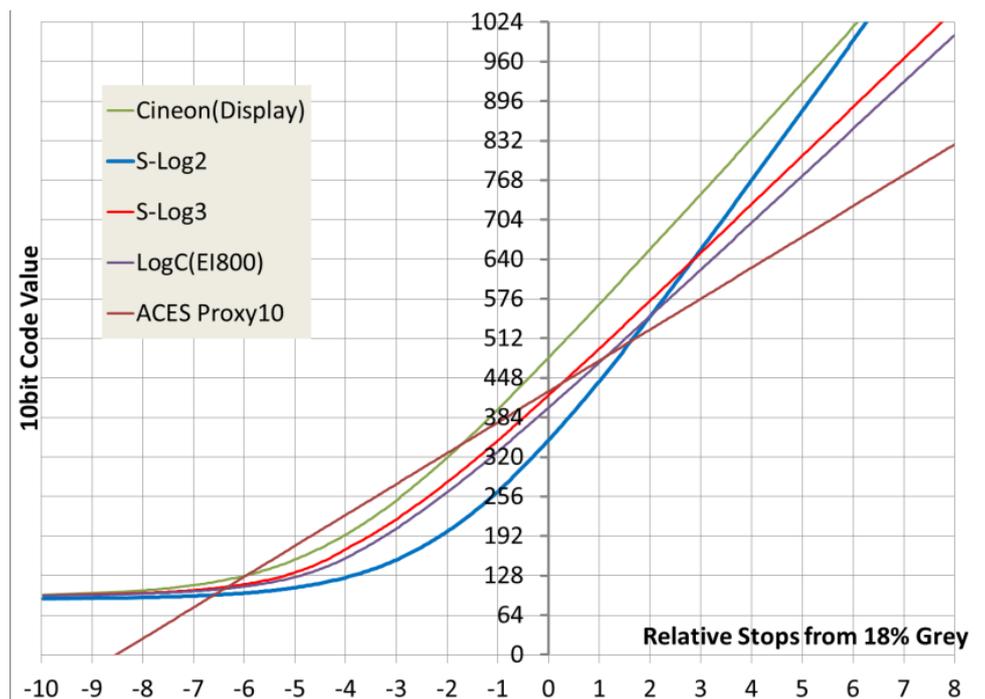
This feature, this flexibility, greatly expands the creative options and practical applications available to cinematographers. So whether you are shooting slower anamorphic lenses in low light, or faster spherical lenses with low levels of practical lighting, or during the day on location under brighter conditions and using Internal ND of VENICE 2 or BURANO, Dual Base ISO makes it easier to achieve clean images with a very wide dynamic range in wide range of lighting conditions.

S-Log3 / S-Gamut3

The evolution of camera technology means that the sensors in modern cameras are now capable of matching, or even surpassing, the quality of 35mm film. The problem is that existing video formats don't support the vast amount of information captured by a modern camera sensor. The result : reduced dynamic range and color information.

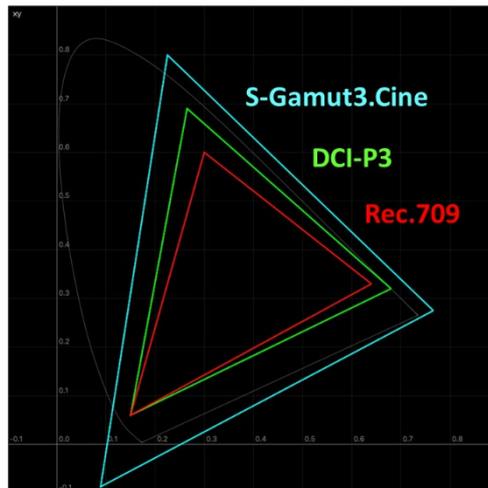
S-Log3 is a tonal curve designed to record and transmit as much of the information recorded by your camera's sensor as possible. S-Log3 breathes life into your images by preserving dynamic range recorded by the sensor. Then in post-production, you create the image you want as part of the grading process, with greater artistic control over the finished product.

S-Log3 is best balanced tonal curve for Sony's image sensors to achieve low noise, shadow reproduction, rich mid-tones and high dynamic range.



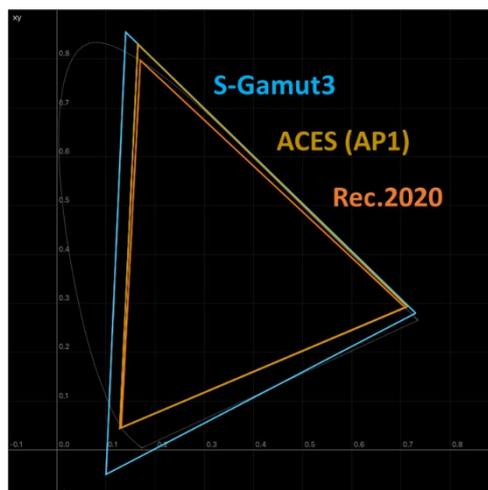
Both VENICE 2 and BURANO support two color grading spaces – “S-Log3 / S-Gamut3.Cine” and “S-Log3 / S-Gamut3”.

S-Gamut3.Cine is similar to native film scan which was used for TV production, film out digital cinema. Color reproduction is designed slightly wider than DCI-P3 to provide ample room for grading. The combination of S-Log3 and S-Gamut3.Cine have good compatibility with Cineon workflow.



S-Gamut3 is a wider color space than S-Gamut3.Cine. It is best for ACES, ITU-R BT.2020 (Rec.2020) and camera data archiving use, as 8/10/12 bit code value.

This color space is designed to support wide gamut displays while maintaining bit precision at the same time. It entirely covers ACES Primary 1 (AP1) and Rec.2020 wide color gamut.

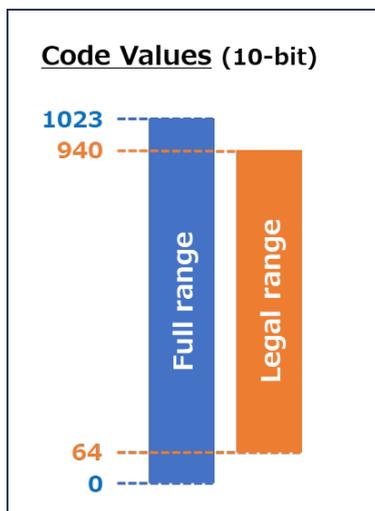


S-Log3 encoding in ProRes files (VENICE 2) and XAVC files (BURANO) is defined as **Full range**. This is based on Sony’s design concept that S-Log3 should be handled in Full range so that it can offer best performance of image quality – which is common not only to CineAlta but to all the other cameras.

However, in response to customer feedback that some external devices (such as LUT boxes) need to receive the SDI output signal from the camera as **Legal range**, **VENICE 2 (Ver 3.0 or later)** provides an option to output a compressed signal as Legal range – by setting [LUT Select] menu to **[Log(Legal)]**.

When **[Log]** is selected in the menu, S-Log3 signal is output as Full range. This setting is available for applying to SDI 1/2, SDI 3/4, or Monitor output independently.

As for **BURANO**, S-Log3 signal is always output as Full range, meaning there is no option to output a compressed signal as Legal range.



		VENICE 2	BURANO
SDI output	Full range	4 - 1019	4 - 1019
	Legal range*	64 - 940 (0 IRE - 100 IRE)	-
Recording	Full range	0 - 1023 (7 IRE - 109 IRE)	0 - 1023 (7 IRE - 109 IRE)
	Legal range*	-	-

*Not an S-Log3 signal but a compressed signal

Look

s709 Overview

S-Log3 / S-Gamut3.Cine or S-Gamut3 provide huge dynamic range and color space capabilities within the camera that can be used to capture material, that provides post-production with the widest creative freedom and control.

However for those working on-set, in dailies and in post-production, some solution is required in order to review materials shot in S-Log3 / S-Gamut3.Cine or S-Gamut3 on a standard monitor – designed to operate in conventional Rec.709 dynamic range and color space.

Sony has introduced a series of looks as LUTs (Look Up Tables) for on-set monitoring while shooting, and for clip review afterwards.

The conventional monitor look 709(800%) integrated into F65 and PMW-F55 cameras has a high contrast tone curve and renders high saturated, vivid colors. With the introduction of VENICE, 709(800%) has been renamed as “**R709**”.

Sony has also developed an original monitor look called “**s709**”. This renders imagery in subtle colors, with smooth color gradation and a softer low contrast tone curve – suitable for cinema and drama productions.

s709 is close to the film color characteristics and allows directors, DOPs and cinematographers, to have the final film look on location and while shooting.

s709



R709



LC709



LC709TypeA



Cine+709



s709 Characteristics

s709 :

s709 positions in the “low contrast” and “cinematic color” region in the right contrast-color chart. This look provides subtle and well-rendered facial tints, with a tone curve close to film characteristics, and low contrast.

R709(800%) :

This look provides high contrast with broadcast colors. With the introduction of VENICE this look has been renamed from “709(800)”.

LC-709*, LC-709 Type A* :

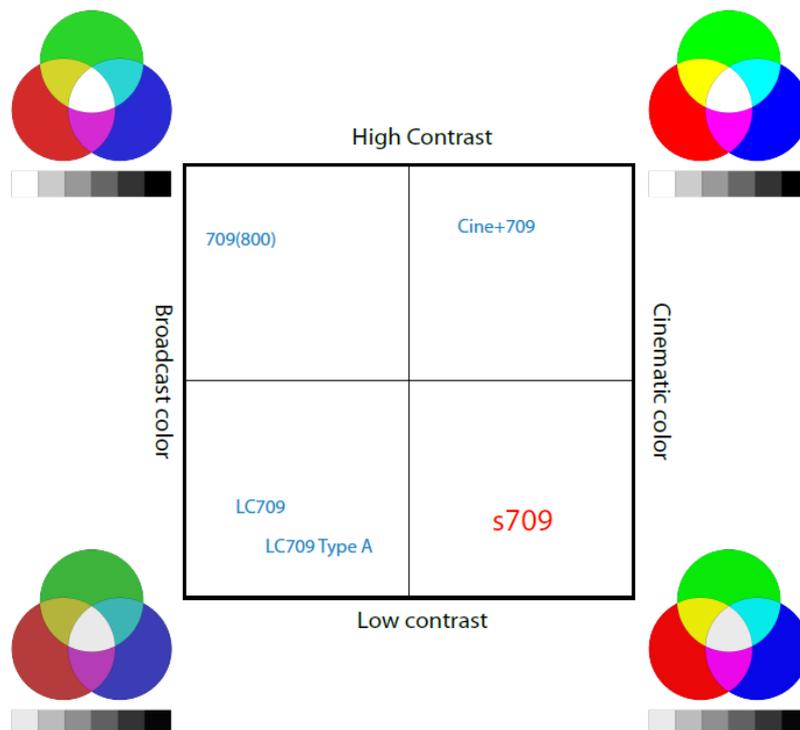
These look profiles provide low contrast with broadcast color.

Cine+709* :

Subtle colors, with high contrast and a tone curve close to film characteristics.

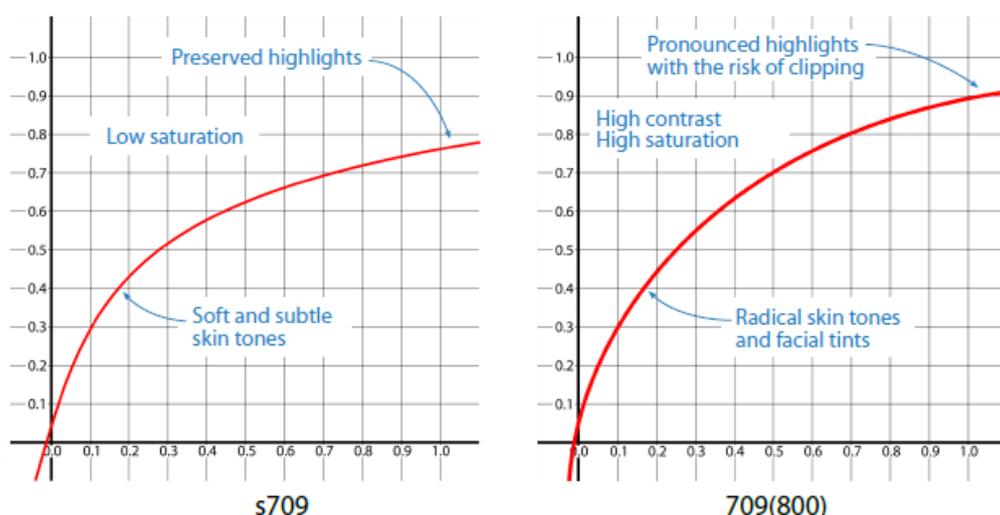
*No preset on VENICE 2 / BURANO. Those can be applied on RAW Viewer.

It is recommended that s709 is used for cinema and television drama production, while R709 is used for monitoring images that are closer to the actual look with high contrast compared to those of s709.



s709 has a low contrast tone curve to deliver soft tonal look in the image. The shadows and midtones have relatively natural responses, while the highlights are compressed to preserve wide latitude in the camera, and specular highlights in the scene.

The diagrams below compare s709 and R709(800%) tone curves. s709 has a lower contrast curve than R709(800%), and preserves highlights.



s709 has a softer low saturated image, and renders colors closer to those of film characters. It delivers soft and subtle skin tones with smooth gradation.

The s709 cube is optimized for a Rec.709 monitor. If you use the look with a P3 monitoring device (e.g. projector) at a post-production house, please use one of the following P3 cubes that is appropriate for the white point of your projector.

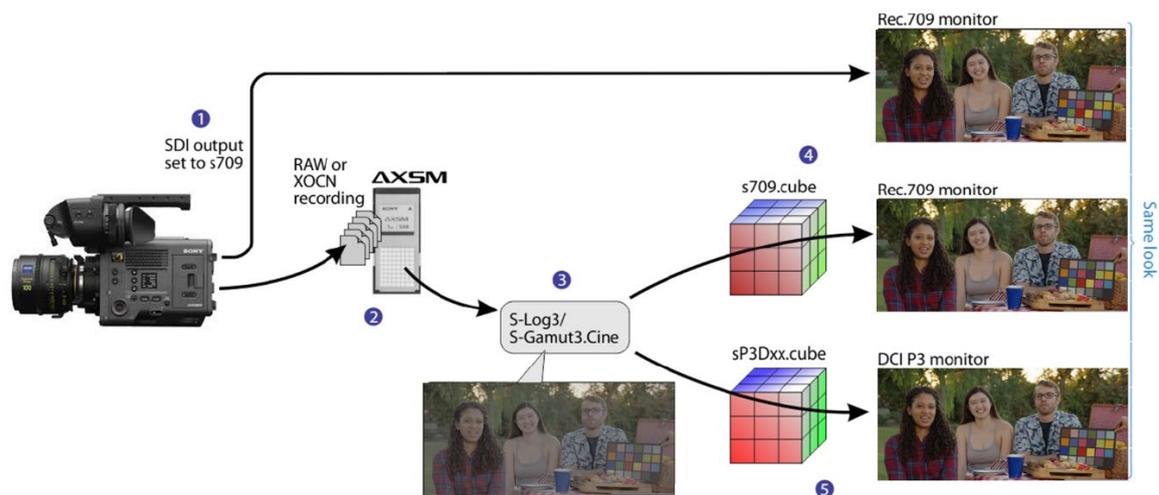
These can be used for S-Log3 / S-Gamut3.Cine, and are available to download from [LUT Downloads Page](#).

	File Name (.cube)	Input	Output
s709.cube	S-Log3-S-Gamut3.cine_To_s709.cube	S-Log3 / S-Gamut3.Cine	Gamma2.4 / Rec.709
sP3Dxx.cube	S-Log3-S-Gamut3.cine_To_sP3DCI.cube	S-Log3 / S-Gamut3.Cine	Gamma2.6 / P3DCI
	S-Log3-S-Gamut3.cine_To_sP3D65.cube	S-Log3 / S-Gamut3.Cine	Gamma2.6 / P3D65

s709 Workflow

This diagram below shows the basic principles and capabilities behind creating production workflows using the camera's integrated s709 functionality available from SDI output, and 3D LUTs like the s709.cube and sP3Dxx.cube files. Many different combinations of this basic example can be used for different shooting and production scenarios.

- 1 The s709 SDI output from the camera can be used for direct on-set monitoring using a standard Rec.709 monitor.
- 2 X-OCN recording is made on AXSM media in VENICE 2 camera.
- 3 X-OCN recording can be run through post-production with S-Log3 dynamic range and S-Gamut3.Cine color space, maintaining high quality material through grading and editing.
- 4 The S-Log3/S-Gamut3.Cine material can be converted through an s709 LUT for reviewing on a standard Rec.709 monitor.
- 5 The material can also be sent through an sP3Dxx LUT for reviewing on a DCI P3 monitor.



The diagram below shows an example of a workflow through the dailies/editorial phase and the grading phase of a typical production.

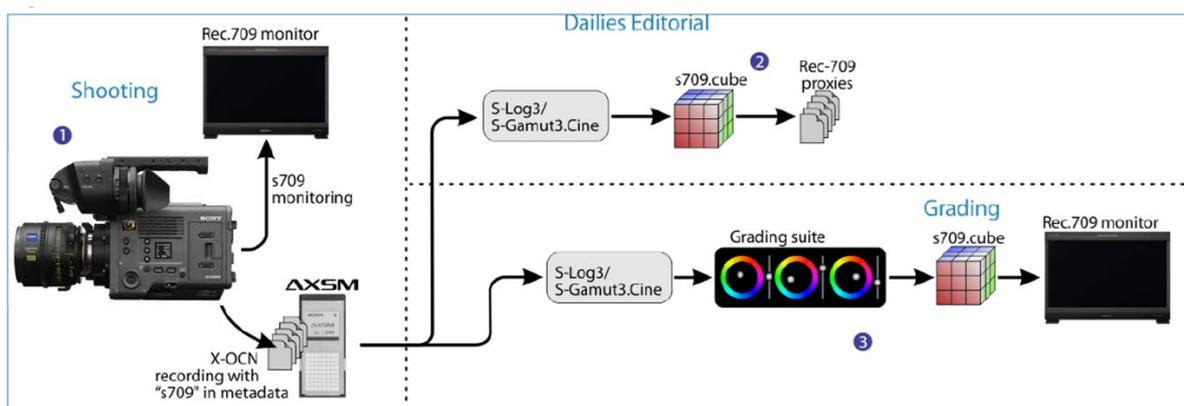
It shows how s709 can be used for direct viewing on-set by using the direct output from VENICE, as described before.

S-Log3 provides excellent dynamic range for post-production as is used as a standard within the post-production tools. S-Gamut3.Cine provides a wide color space post-production. Working with S-Gamut3.Cine/S-Log3 material offers huge creative possibilities in post-production.

Dailies/Editorial can use s709 to create Rec.709 proxy clips for fast review and editing.

Later in the production workflow, in grading, s709 can also be used to provide a view of the S-Gamut3.Cine/S-Log3 material on a standard Rec.709 monitor.

- 1 **Shoot scenes and record in X-OCN, monitoring in s709 on site**
Select s709 for the SDI output, and record in X-OCN.
- 2 **Create s709 dailies for editorial / offline edit**
Create proxies from the original materials using the s709.cube. If the materials are recorded in X-OCN, render them into S-Log3/S-Gamut3.Cine, and apply the s709.cube and export as proxies.
- 3 **Grade materials using s709 as the starting point for grading**
Grade materials based on the s709 look. If the materials are recorded in X-OCN, render them into S-Log3/S-Gamut3.Cine, and apply the s709.cube as an input LUT or an output LUT of the grading pipeline to make it the starting point of your grading work.

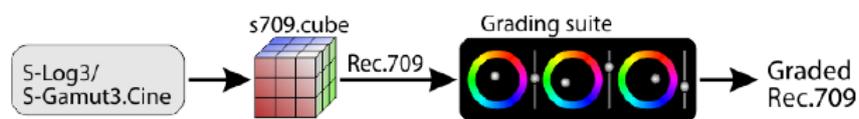


Selecting whether the s709.cube is used as an input LUT or output LUT will depend on the grading style. If the grade is in log space, then the s709.cube should be applied as an output LUT. If the grade is in Rec.709 space, then the s709.cube should be applied as an input LUT.

Applying s709.cube as an output LUT (Log grading)



Applying s709.cube as an input LUT (Rec.709 grading)

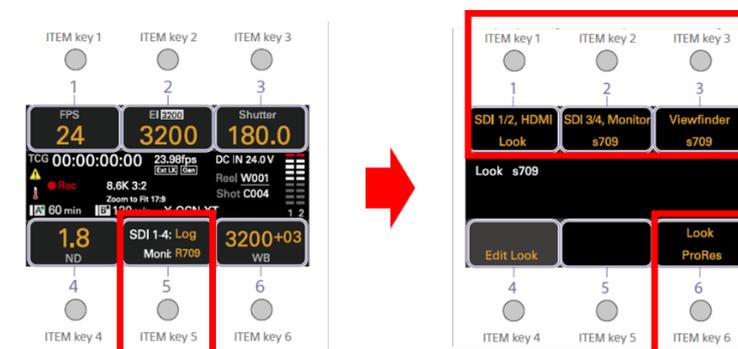


If your grading target is P3, apply one of the .cube file for P3DCI or P3D65 depending on the target white, instead of the s709.cube.

Viewing s709 on camera

s709 output is available via SDI output on VENICE 2 / BURANO, which can be used as a standard on-set monitoring look for shooting.

As an example on VENICE 2, look control on **SDI 1/2, SDI 3/4, Monitor, HDMI outputs** and **Viewfinder** is available by pressing ITEM key 5, in the HOME screen on Sub Display.

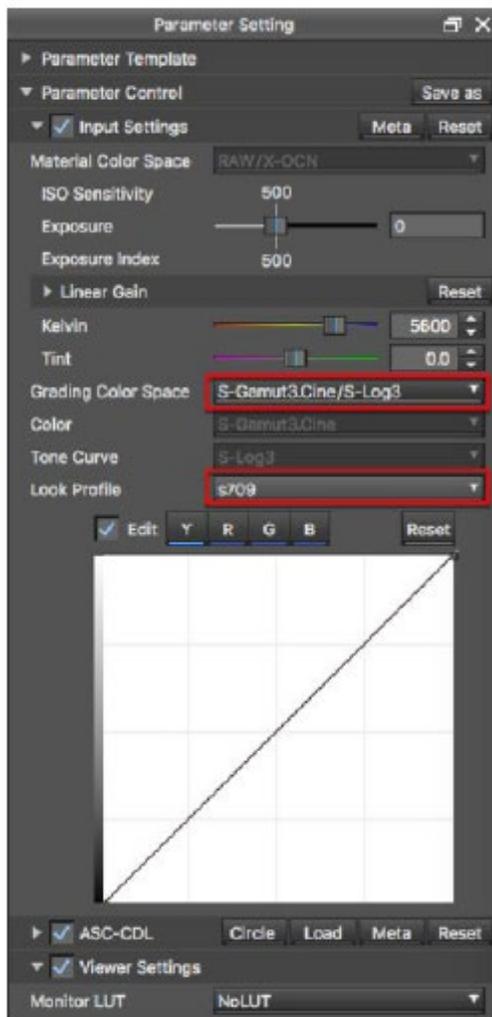


Using s709 on Sony RAW Viewer

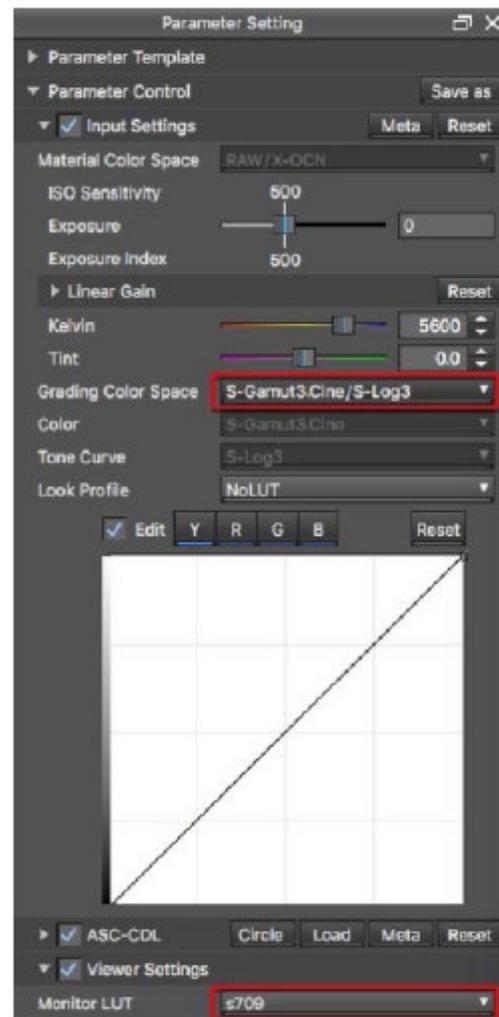
Sony RAW Viewer is a viewer application software for Windows / Mac OS platform, which can handle X-OCN, XAVC and other files recorded by VENICE 2 / BURANO.

Open the footage and in the Parameter Setting window :

- Select [S-Gamut3.Cine/S-Log3] in [Grading Color Space] setting
- To apply s709 as **input LUT**, select [s709] in [Look Profile] setting
- To apply s709 as **output LUT**, select [s709] in [Monitor LUT] setting



Applying s709 as an input LUT



Applying s709 as an output LUT

LUT Downloads Page

[Here](#) is the web page where you can download a wide variety of LUTs free of charge – suitable for Sony CineAlta cameras.

VENICE 2 / BURANO can import 17-grid, 33-grid or 65-grid* 3D LUT files in CUBE format (.cube) by using an SD card – created using Sony RAW Viewer, Blackmagic Design DaVinci Resolve or other tools.

LUT files with other lattice sizes can be used after conversion in Sony Catalyst Browse/Prepare application software.

*Only VENICE 2 can import 65-grid User 3D LUT files, but when it's loaded the SDI signal is output with 33-grid LUT data applied

ART (Advanced Rendering Transform)

They are pretty well understood by most people and are generally used by sharing the LUT amongst the DIT and other camera staff to load into the camera.

However, 3D LUTs have some limitation in terms of accuracy depending on the number of grids. Even in a full post-production suite, they all work by using interpolation between the known points, so the results are imperfect, the more grids the more accurate.

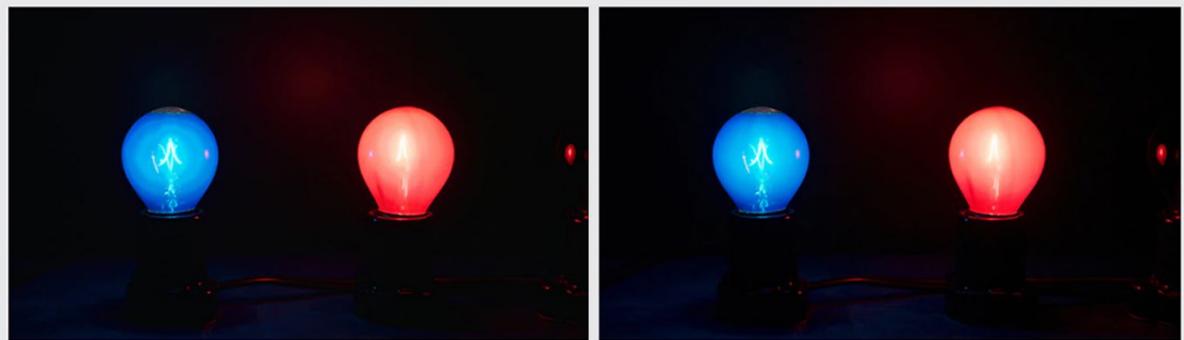
This requires vast hardware resources (think of the size of a modern GPU graphic card), so it is neither practical nor possible to process the larger patterns within a battery powered camera. As a result, banding and highlight sparkle might be seen on the camera output in some cases (see Picture 1).

On set, many DIT's and DP's wonder why they can see some banding and highlight sparkle effects and are concerned that this may affect the recording as well. In practice the recording is perfect.

In order to overcome these limitations, you can either increase the number of calculations of stored matrix points, with the associated massive increase in hardware requirements, or choose to use the data in another way by converting it to a format that allows us to use the information as part of the video processing.

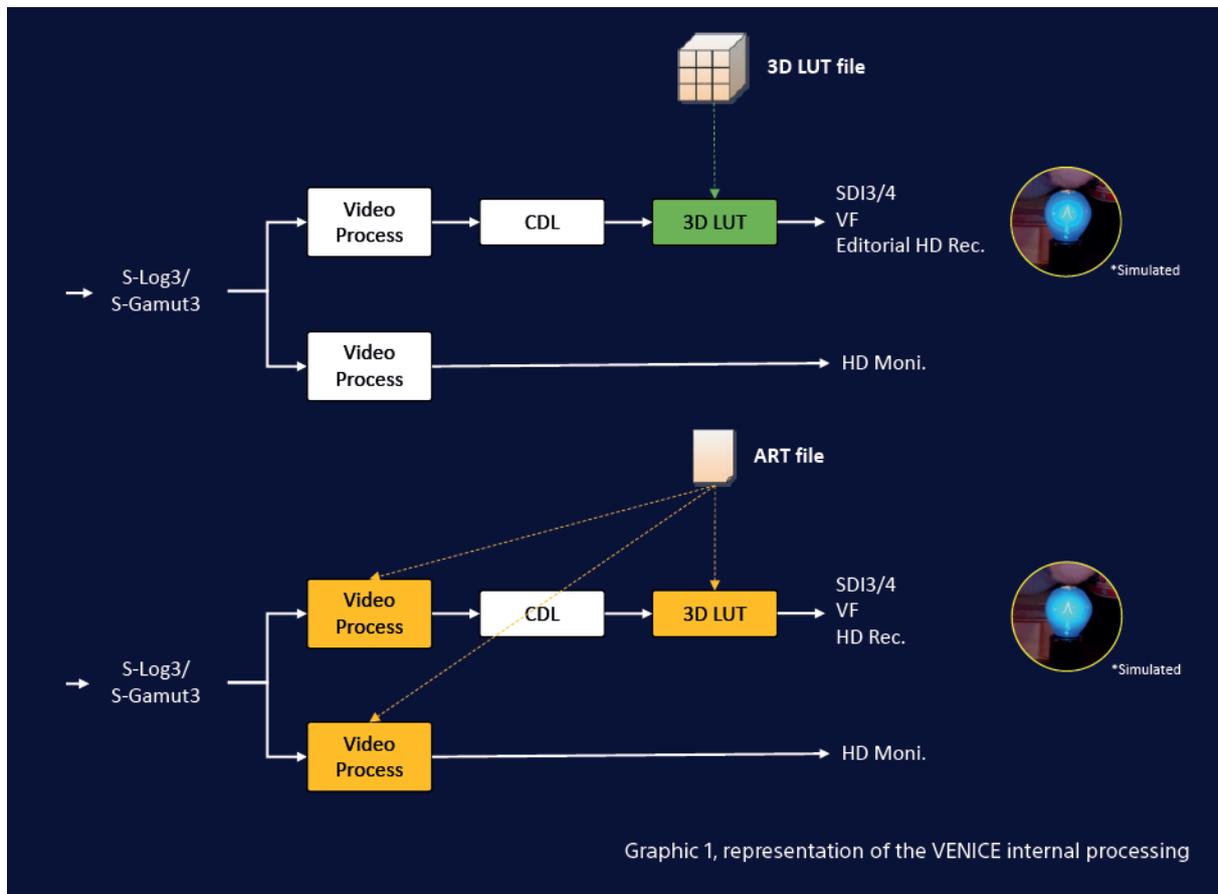
ART (Advanced Rendering Transform) fully controls internal hardware modules at bit level precision and makes the most out of the hardware capabilities. The result of using the .ART file are shown below in Picture 2.

You can easily notice a massive improvement in the image, remembering this is about as tricky a source that you can find.



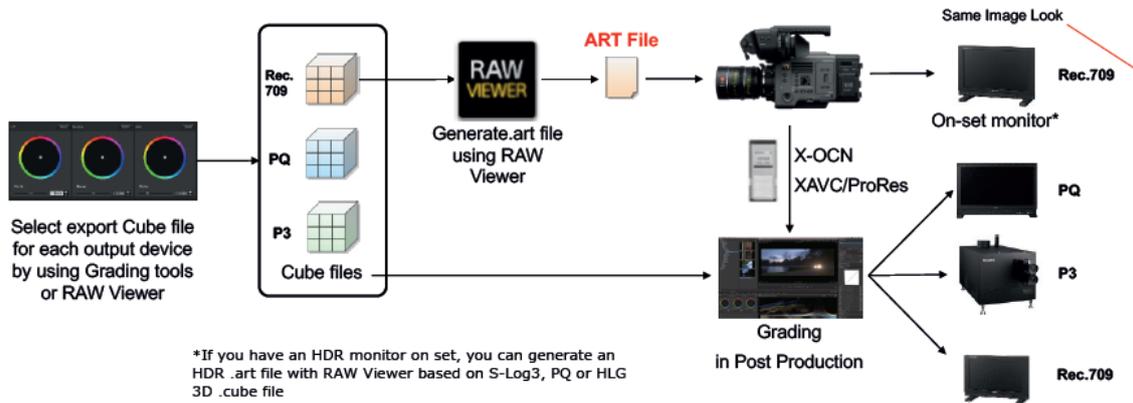
Picture 1 : Actual image with 3D LUT

Picture 2 : Actual image with ART



ART file workflow :

1. Prepare 3D .cube file with grading tools or RAW Viewer
2. Import 3D .cube file into RAW Viewer, and export .art file
3. Import .art file to VENICE 2 by using an SD card



Recording Format (X-OCN)

In 2016, Sony has released new recording format **X-OCN (eXtended tonal range Original Camera Negative)** – that is Sony’s original compressed RAW format. This format further enhances the compression efficiency of Sony RAW, which delivers visually loss-less image quality.

X-OCN offers uncompromising image capture performance with the power of 16 bits, at low data rates. It processes camera original image data by utilizing a unique algorithm from Sony.

16 bit	RAW	X-OCN
10 bit	XAVC	HDCAM SR
8 bit	AVCHD	MPEG HD422

By combining superlative 16-bit precision with surprisingly moderate bit rates, X-OCN opens up powerful new production possibilities. X-OCN produces file sizes much smaller than typical camera RAW, but unlike conventional codecs, X-OCN offers 16-bit scene linear encoding. So, you get the ultimate in tonal expression, longer recording times, faster file transfers and more economical post-production.

VENICE 2 and BURANO build upon X-OCN’s proven success by offering internal 16-bit X-OCN recording without need for an external recorder, dramatically shrinking the form factor while still offering the full dynamic range and color reproduction of the sensor.

Far exceeding 10 and 12-bit formats, 16-bit X-OCN records 65,536 tonal gradations per color component, or over 280 trillion individual shades of color. This is the ultimate in grayscale expression, creating an enormous palette for extreme subtleties in grading and far greater flexibility for colorists and editors alike.

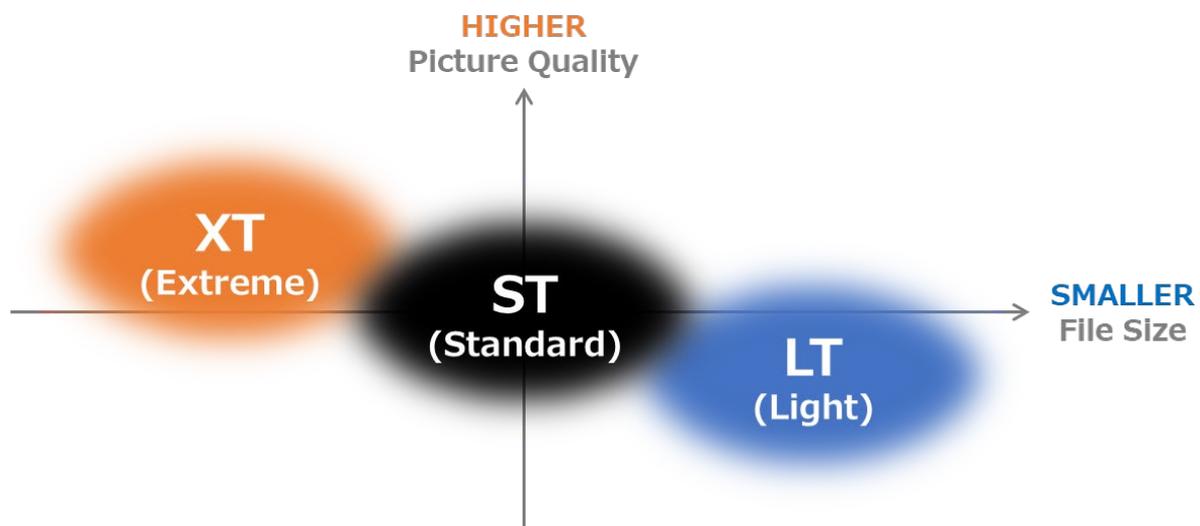
In most cases such as Feature Film, TV Drama or Commercial, Sony would recommend **X-OCN ST** which provides best balance between picture quality and file transfer time / storage size.

For special cases such as visual effects work or contents creation for giant screen, **X-OCN XT** is ideal as it captures the highest quality imagery.

For Mid-Low budget cinema (including TV Drama), Documentary or productions requiring long recording time, **X-OCN LT** is a good option as it provides even smaller file size than X-OCN ST – while preserving the benefit of 16-bit scene linear.

Mode	Major Applications*	Description
X-OCN XT (Extreme)	<ul style="list-style-type: none"> • Giant Screen • Visual Effects • Feature Film 	<ul style="list-style-type: none"> • Even higher picture quality than X-OCN ST, exceeding Sony RAW quality
X-OCN ST (Standard)	<ul style="list-style-type: none"> • Feature Film • Episodic Television • Commercials • Documentary 	<ul style="list-style-type: none"> • Best balance between picture quality and file transfer time / storage size, providing best efficiency in post-production • Equivalent quality to Sony RAW, even with 30% smaller file size
X-OCN LT (Light)	<ul style="list-style-type: none"> • Indy Feature • Episodic Television • Commercials • Documentary • Live Events 	<ul style="list-style-type: none"> • Even smaller file size than X-OCN ST (with 60% smaller than Sony RAW), while preserving processing flexibility provided by 16-bit scene linear

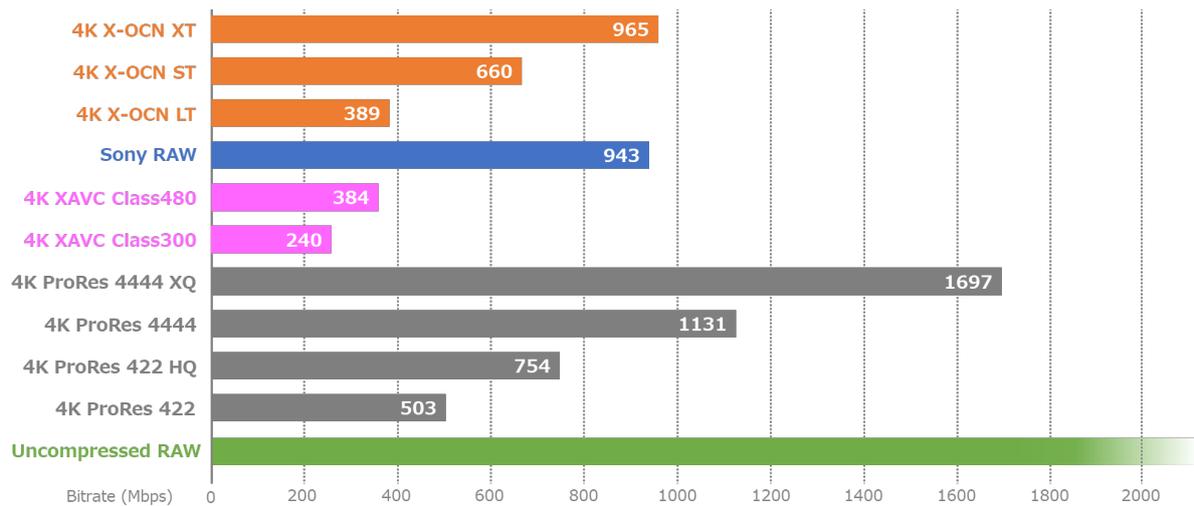
*Actual examples, not meaning each mode is appropriate only for these applications



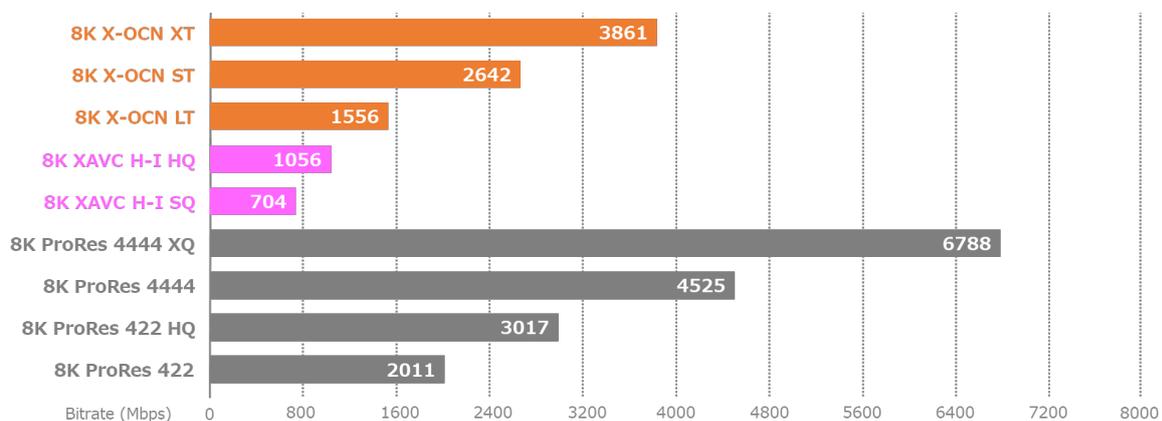
The following bar charts show how the bitrate of X-OCN (Sony’s original compressed RAW) is compared to other formats at 4K/24p and 8K/24p.

When it comes to 4K X-OCN LT (389Mbps), it can offer stunning RAW quality with 16-bit scene linear at almost equivalent bitrate to 4K XAVC Class480 (384Mbps) and even at lower bitrate than 4K ProRes 422 (503Mbps).

Bitrate Comparison at 4096 x 2160 / 24p



Bitrate Comparison at 8192 x 4320 / 24p



X-OCN (Sony’s original compressed RAW format) gives you all the benefits of a RAW workflow but without huge file sizes normally associated with uncompressed RAW. It takes everything that the sensor captures and uses a clever encoding process to store that information in a user friendly, compact, 16-bit MXF file.

Recording Media (AXS / CFexpress Memory Card)

AXS Memory Card (for VENICE 2)

In 2014, Sony has released AXS Memory Card (A Series) which is ideal for X-OCN recording with CineAlta cameras. Perfectly suited to the highest quality cinematography, AXS Memory has a unique combination of capacity, sustained data throughput, security and portability. It opens up completely new ways for end-users to work.

Together with the launch of VENICE 2, the new **AXS-1TS66 memory card** was added to the line-up – which has a capacity of 1 TB and guaranteed write speed of 6.6 Gbps. It can record up to 8.6K using 16-bit X-OCN format, as well as supporting a range of frame rates at lower resolutions. It can also handle 4K ProRes and High Frame Rate (HFR) 4K recording up to 120fps*.

*HFR up to 120fps in 4K resolution is only supported by VENICE 2 with 6K sensor



AXS Memory Card – A Series have 3 types. The maximum of shooting frame rate on VENICE 2 varies depending on the speed performance of AXS Memory Card.

Note

Please keep the memory card in the supplied card case when storing or carrying it, and make sure that the case is locked securely – in order to prevent any damage which may result in the loss of recorded data.



The **AXS-AR3 card reader** offers an incredible maximum data read speed of up to 9.6 Gbps (1200 MB/s) from AXS Memory Card via Thunderbolt 3 interface.

This makes it easier than ever to import 8K/6K X-OCN files recorded onto AXS Memory Cards by VENICE 2.



CFexpress Type B Memory Card (for BURANO)

BURANO is equipped with two CFexpress Type B memory card slots supporting VPG400* which can sustain high bitrate writing of video data, including X-OCN LT 8K. The dual media slots allow relay and simultaneous recording**, while versatile CFexpress Type B media are convenient for backing up and transferring data in the field.

*Non-VPG CFexpress Type B memory cards are not guaranteed for normal operation

**XAVC only

In 2024, Sony has released new compatible high-capacity models with VPG400, **CEB-G1920T** and **CEB-G960T**. These memory cards have the capacity to reliably record vast amounts of data such as X-OCN LT 8K, and are also equipped with a high level of durability that allows them to be used in harsh environment.

CFexpress (Type B) Memory Card



CEB-G1920T
(1920GB / VPG400)



CEB-G960T
(960GB / VPG400)



Optimized for Sony CFexpress Type B memory cards, the optional **card reader MRW-G1** allows you to transfer data via a USB SuperSpeed 10 Gbps (USB 3.1 Gen 2) interface and take full advantage of high speed backups and more efficient workflows.

It's compact, easy to carry and works with both Sony CFexpress Type B and XQD G series memory cards.



MRW-G1
(for CFexpress Type B)

Flexible Lens Mount (PL / E)

PL Lens Mount

VENICE 2 and BURANO come with the industry-standard PL lens mount and are compatible with Super 35mm and Full-Frame PL lenses (spherical and anamorphic).

The lens mount includes contacts that support **Cooke /i Technology** (including new generation Cooke /i3*), and lens information is recorded as metadata, frame by frame. We have also added support for **ZEISS eXtended Data***.

*Supported by VENICE 2 only (not by BURANO)

There are two connectors on the side of the lens adaptor. You can use either connector depending on the shooting configuration – so that the scale of the lens can be visible by an assistant camera when the camera is installed in a rotated position of 90 degrees, for example.

Before attaching a lens, set the interface position of the PL Mount lens in the menu [PL-Mt Interface Position] – [Top], [Side] or [Off]*.

*Select [Off] when using a lens which does not have a Cooke type connector



Two connectors
for PL Mount lens



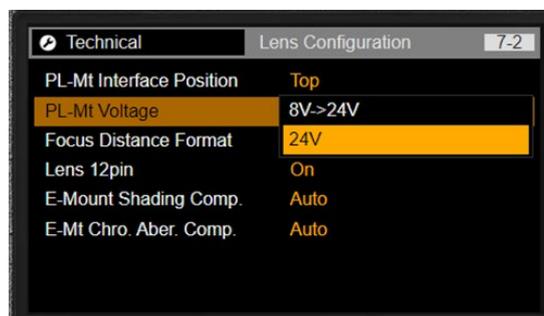
PL Mount

VENICE 2 has a safety mechanism in order to minimize the risk of any troubles caused by electric short – when attaching a PL Mount lens to the camera.

When no lens is attached, the camera supplies 8V power via the connector. When a PL Mount lens is attached, the 8V power keeps being supplied during initial communication between the camera and the lens. Once it's completed, the supplied power goes up to 24V to start normal communication. This is the behavior when the menu **[PL-Mt Voltage]** is set to **[8V->24V]** (default value).

However, there may be some cases where the initial communication is not established correctly due to undervoltage – resulting in no value on the focal length of the lens displayed on the viewfinder / monitor screen.

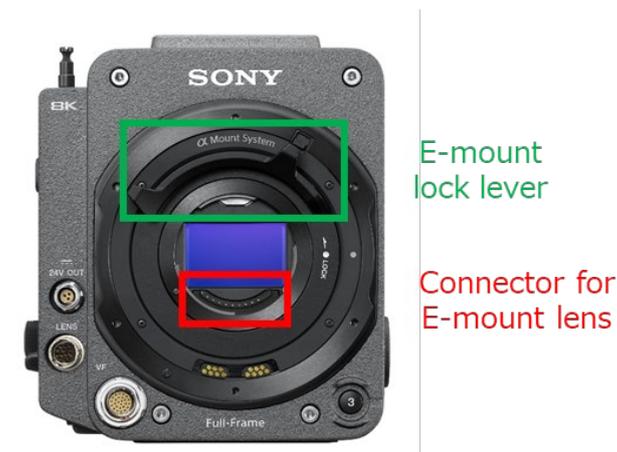
In this case, please change the menu setting of [PL-Mt Voltage] to **[24V]**.



Lever Lock Type E-mount

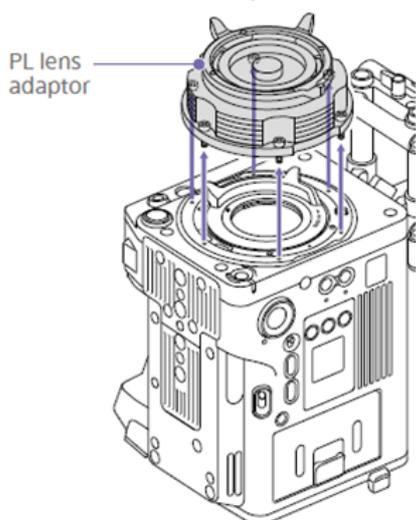
E-mount lenses can be fitted when the PL mount adaptor is removed – simply by loosening six hex screws.

The lever lock type E-mount gives users the ability to change lenses by rotating the locking collar rather than the lens itself, which means that in most cases lens support rigs don't need to be removed, saving time during a production.

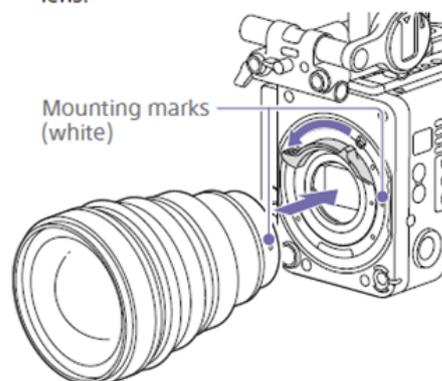


E-mount
(lever lock type)

Remove the PL lens adaptor when you want to mount an E-mount lens to the unit. Attachment/removal is performed with the rear side of the unit facing down. Loosen the six hex screws (2.5 mm) and remove the PL lens adaptor.



Secure the lens by turning the mount lever counterclockwise while holding the lens.



Sony's ever-increasing range of E-mount lenses, from ultra-wide to ultra-telephoto, are supported by the BURANO's advanced image stabilization and AF capabilities – ideal for mobile and single-operator projects.

Functional compatibility with E-mount lenses :

Function		VENICE 2	BURANO
Manual	Focus	RCP control Wired LAN / Wi-Fi control	RM-30BP Monitor & Control app
	Zoom (for servo zoom lens only)	RCP control Wired LAN / Wi-Fi control	RM-30BP / GP-VR100 Monitor & Control app
	Iris	Assignable button (Open/Close) RCP control Wired LAN / Wi-Fi control	Assignable dial RM-30BP / GP-VR100 Monitor & Control app
Auto	Focus	-	MF/AF switch RM-30BP Monitor & Control app
	Iris	-	Menu / Assignable button (On/Off) RM-30BP
Image Stabilization		-	Menu (Active/Standard/Off)
Shading Compensation		Menu (Auto/Off)	Menu (Auto/Off)
Chroma Aberration Compensation		Menu (Auto/Off)	Menu (Auto/Off)
Distortion Compensation		-	Menu (Auto/Off)
Breathing Compensation		-	Menu (Auto/Off)

Built-in ND Filter

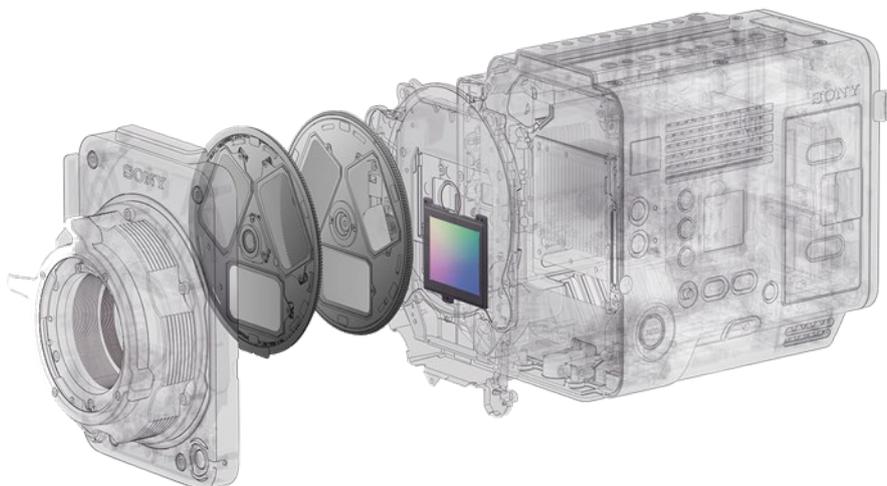
8-step Mechanical ND Filters (for VENICE 2)

VENICE 2 follows the world's first of VENICE, with a servo-controlled 8-step Mechanical ND filter mechanism built into the camera chassis.

It consists of two turrets with three glass filters each – that offers a massive ND of 0.3 (1/2 = 1 stop) to 2.4 (1/256 = 8 stops) range that reduces time lost on set changing external filters.

The ND filters also greatly increase VENICE's flexibility, such as :

- Ability to be controlled remotely on drones, cranes, or in an underwater housing
- Dust proof by a sealed structure together with grease-less gear mechanism
- Minimized color shifting through individual adjustments made in the factory



		Turret 1		
		Clear	0.3 (1/2)	0.6 (1/4)
Turret 2	Clear	Clear	0.3 (1/2)	0.6 (1/4)
	0.9 (1/8)	0.9 (1/8)	1.2 (1/16)	1.5 (1/32)
	1.8 (1/64)	1.8 (1/64)	2.1 (1/128)	2.4 (1/256)



Electronic Variable ND Filter (for BURANO)

Sony's unique electronic Variable ND Filter has been redesigned to be both smaller and compatible with the built-in image stabilization mechanism.

It can smoothly and continuously change its density from 0.6 (1/4) to 2.1 (1/128). The seamless ND adjustment is available when a PL Mount lens is attached, as well as an E-mount lens.



With physical ND filters no longer needed, operators can adjust the electronic filter density by simply rotating the ND dial. Operators can maintain a constant depth of field by adjusting the electronic ND filter and the iris control together.

Continuous or stepped changes can be selected with the ND STEP/VARIABLE switch, depending on the application. The [Auto ND] function automatically adjusts the filter density to give a correct exposure, effectively allowing the use of the ND filter as an alternative Auto IRIS.

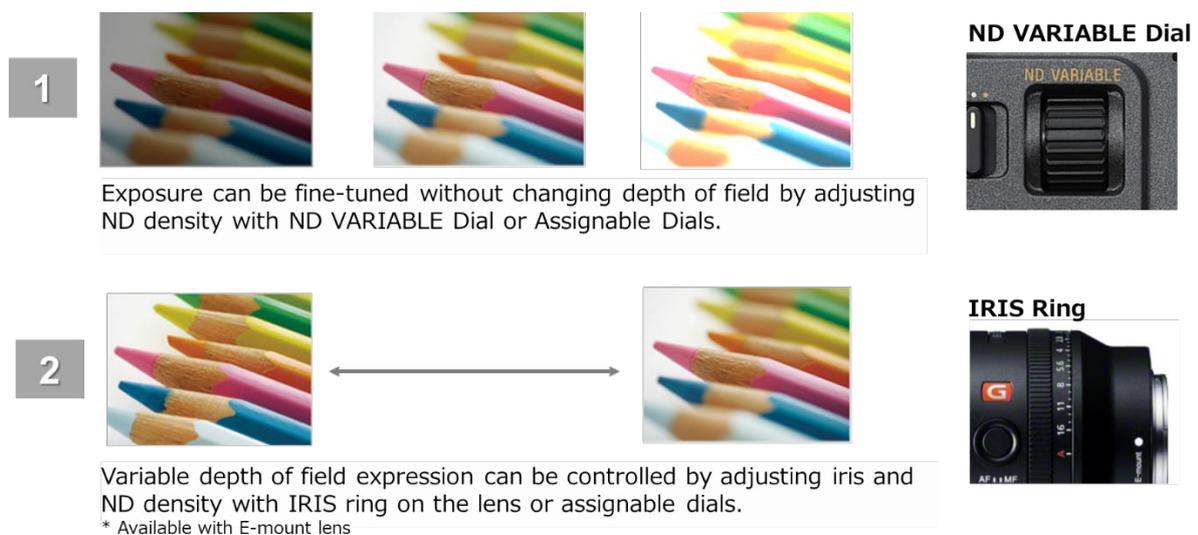


Image Stabilization

In-Body Stabilization with PL mount / E-mount lenses (for BURANO)

BURANO is the world's first cinema camera that supports in-body optical image stabilization (IBIS) for almost any attached lenses, including for the first time PL. The new, compact image stabilization system was originally developed for the Alpha series of mirrorless cameras.

Featuring a gyroscopic sensor and control algorithm, it compensates for camera shake even for hand-held shooting while walking. The stabilization is so effective that it removes the need for any extra equipment for many applications.

Stabilization is even greater with E-mount lenses, allowing more difficult shots to be captured without blurring. Camera shake data can be passed to post-production for precise alignment with CGI and in volume stages.

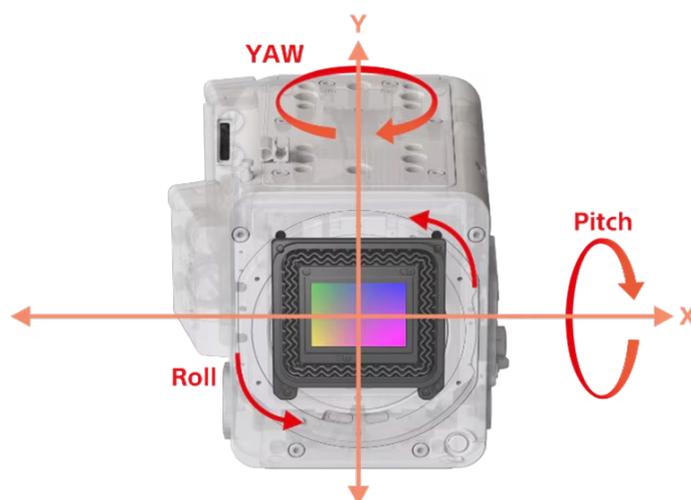


Diagram showing 5-axis image stabilization for an E-mount lens compensating for Pitch, Yaw and Roll.

Function	Performs a more enhanced Image Stabilization	Performs Image Stabilization when shooting under relatively stable conditions	Disable Image Stabilization
PL Stabilization (PL mount lens)	[High]*	[Low]	[Off]
SteadyShot (E-mount lens)	[Active]*	[Standard]	[Off]

*[High] and [Active] can be set only in FFC 6K (17:9/16:9)**, S35 5.8K (17:9/16:9) and S35 1.9K (16:9)** modes. [High] and [Active] cannot be set in X-OCN recording / S&Q shooting mode.

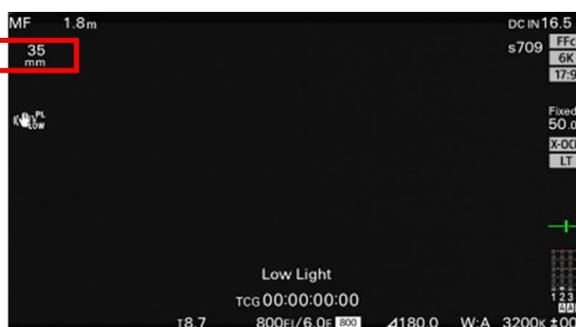
**Planned to support on BURANO v2.0 (March 2025 or later)

Basically, we would recommend that the menu **[Stabilization Adjustment]** is set to **[Auto]** (default value), so that the image stabilization is performed automatically based on information obtained from the lens. In the top left of the LCD monitor, the focal length of the lens is displayed when a lens supporting this information is attached.

When a lens not supporting this information is attached, no value of the focal length is displayed. In this case, please select **[Manual]** in the **[Stabilization Adjustment]** menu setting and set the focal length of the lens (8mm to 1000mm) in the **[Focal Length]** menu manually to get the optimum level of stabilization.

Displays the focal Length of the lens automatically

(when a lens supporting this information is attached)



Displays the focal Length setting manually for Image Stabilization

(when a lens NOT supporting this information is attached)



Note

In case of using a Sony E-mount lens equipped with OSS (Optical Steady Shot) feature, set the slide switch on the lens to [ON] when using Image Stabilization on the camera. When the switch is set to [OFF], the lens takes priority and the camera cannot switch the setting.

Image Stabilization feature is designed for hand-held shooting, being optimized for correction parameters such as the target frequency.

- It is strongly recommended to turn off Image Stabilization when the camera is used except for hand-held usage – such as drone, in-vehicle, on a tripod and so on
- Also recommended to turn off Image Stabilization when the footage is used for VFX, as there may be cases where motion tracking cannot be done accurately referencing camera metadata

(Also ensure that OSS switch on the lens is set to [OFF] in above cases when an E-mount lens is used)

For using with a drone system, please ensure precise adjustments suitable for the weight of camera – on drone, gimbal and damper. Because camera shake tend to make much bigger impact on drone footage than being equipped with Image Stabilization mechanism inside the camera.



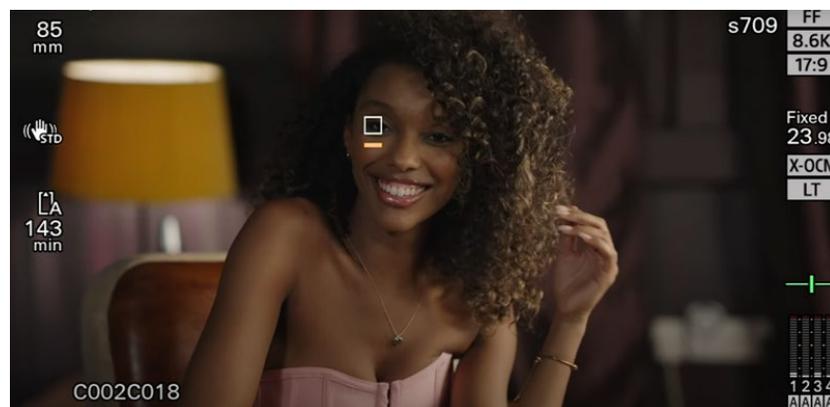
(These are images on VENICE 2)

Auto Focus

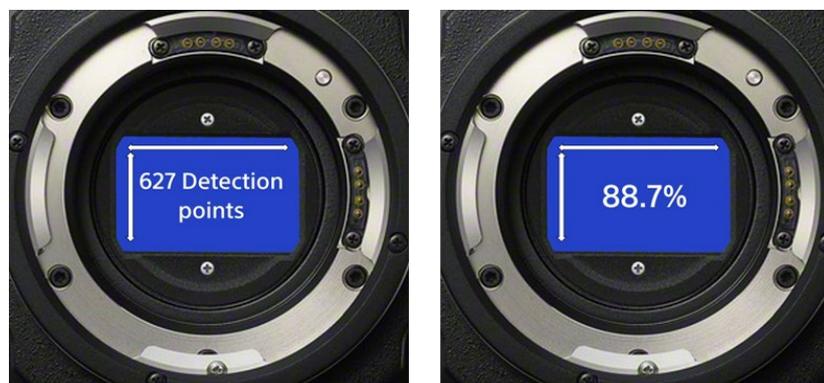
Fast Hybrid AF (for BURANO)

Effortlessly track fast moving subjects with pin-sharp focus, even when using wide lens aperture settings to maintain a shallow depth of field with BURANO's Full-Frame sensor.

Originally developed by Sony's Alpha camera engineers, enhanced Fast Hybrid AF combines phase detection AF for fast, accurate subject tracking with contrast AF for exceptional focus accuracy.



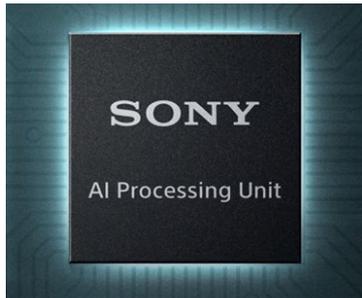
The dedicated 627-points phase detection AF sensor covers approximately 88.7% of the whole image area, allowing consistently accurate, responsive AF tracking, even with shallow depth of field.



AI Subject Recognition AF with touch* (for BURANO)

Our onboard AI processing unit recognizes not only eye position but also accurately senses human torso and head positions.

Subject Recognition AF automatically draws a frame around people's faces when they are detected. Human pose estimation technology recognizes body and head position, so you can even track a subject facing away from the camera or wearing a mask.



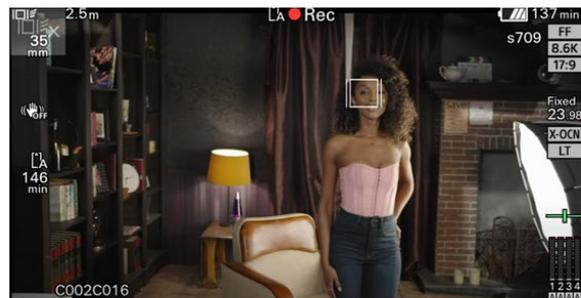
Human Pose Estimation
(AI based, using deep learning)

Touch a person to focus on, and the camera will track and that person precisely. Even in challenging situations like a bowed head or when hair covering a face, the camera accurately captures the eyes so that operators can focus accurately even in the most difficult circumstances.

*Over 70 E-mount lenses can use BURANO's Hybrid AF and AI Subject Recognition AF features



Touch Focus



Touch Tracking

VENICE Extension System 2

The VENICE Extension System 2 (CBK-3620XS) allows for new levels of shooting flexibility with no compromise to image quality.

Incorporating customer feedback and developed alongside VENICE 2, it offers wider bandwidth to support VENICE 2's 8K sensor – over twice as much cable distance (up to 12m) without a repeater box, additional control buttons and a built-in gyro sensor.



The Extension System consists of a front panel cover, image sensor block case with a choice of 3m and 12m extension cables. The new Extension System is fully compatible with VENICE 2 using the 8K or 6K sensors – as well as the original VENICE using latest firmware.



The imager block also comes with Monitor output and 24V output for powering accessories such as lens servo motors and monitoring. The relayed monitor signal and supplied 24V power need to be input to the camera body respectively.

Multiple screw holes on all surfaces make it easy to accessorize and fit on to a wide variety of rigs, while the main weight of the camera can be supported elsewhere.



Ideal for shooting in tight spaces and with gimbals

The Extension System camera head measures 158 x 147 x 126 mm (H x W x D)*, weighing around 2.2 kg* with a PL mount adaptor and 1.7kg* with E-mount when used with the VENICE 2 8K sensor block.

The separated sensor block with lens is so small and light it allows for an easy hand-held mode, enabling you to locate it in tiny spaces, keeps stabilization systems lightweight, allows use of larger lenses while maintaining a smaller profile, facilitates faster operation for motion-control rigs, use of body mounts, and other situations that you wouldn't expect possible for a Full-Frame cinema camera.

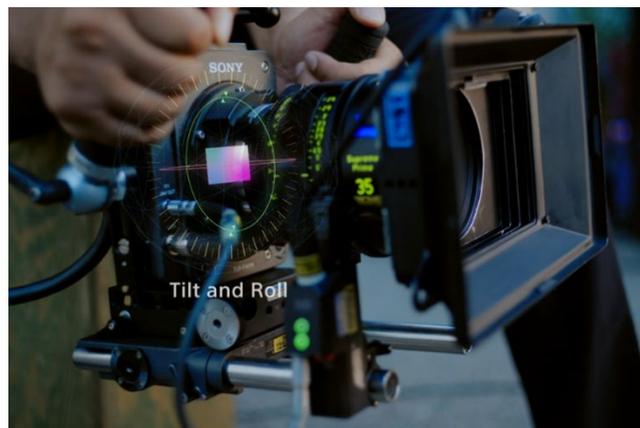
*Excluding cable section

Weight*	VENICE 2 (8K)	VENICE 2 (6K)
PL mount	2.1 kg	2.1 kg
E-mount	1.7 kg	1.6 kg

Gyroscopic support with recording to metadata

While shooting with the original Extension System (CBK-3610XS) did not accommodate use of a spirit level indicator (gyroscope sensor), the CBK-3620XS is equipped with a sensor on the camera head side that detects horizontal and vertical tilt.

Camera head tilt information can be checked when shooting at different head and tilt angles – ideal for VFX applications. Naturally, the horizontal and vertical tilt are also recorded in the metadata and output through the camera's SDI.



4 assignable buttons on camera head for easy operation

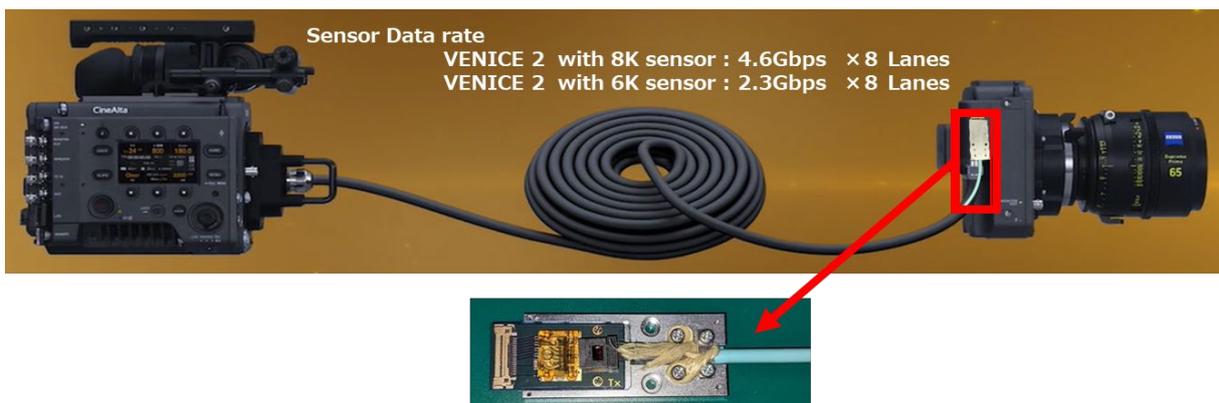
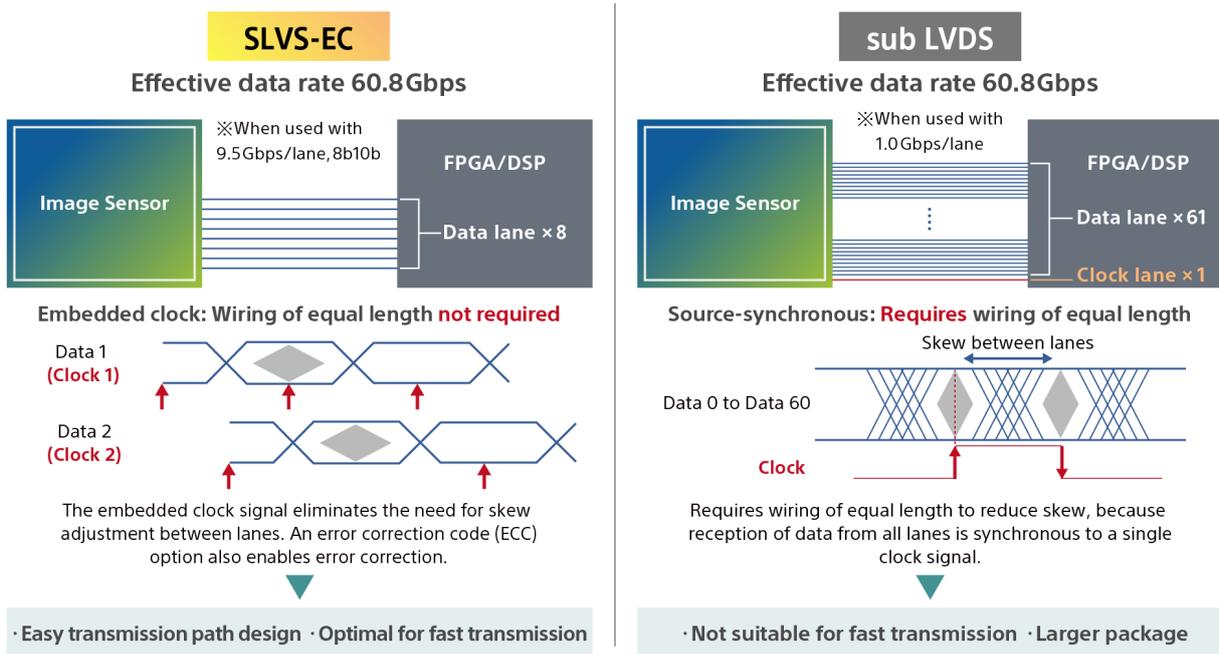
The camera head has four ASSIGN buttons that can be set to functions such as change ND filter settings, REC Start/Stop and more for easier operation with VENICE 2. Choose a custom set-up that suits your preference for any scene.



SLVS-EC

High-speed interface, **SLVS-EC™ (Scalable Low-Voltage Signaling with Embedded Clock)** was developed by Sony Semiconductor Solutions Corporation (SSS) for fast, high-resolution image sensors.

The interface's simple protocol makes it easy to build camera systems. Featuring an embedded clock signal, it is ideal for applications that require high speed, fewer lanes, or transmission over longer distances.



Remote Control

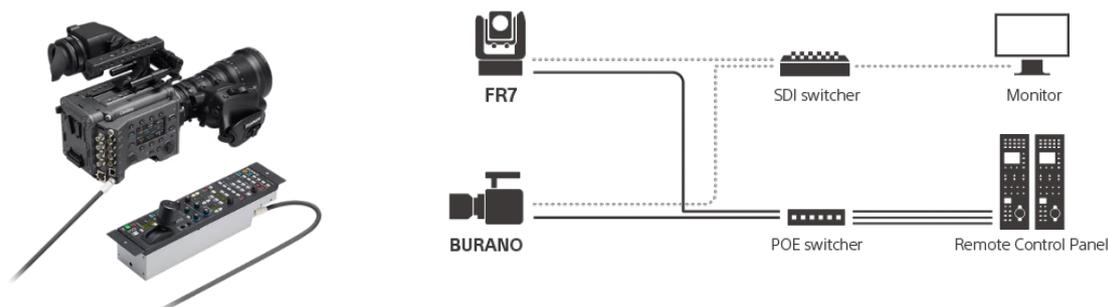
Both VENICE 2 and BURANO are capable of remote control, but the available methods of control vary depending on the model as follows.

Control method		VENICE 2	BURANO
RCP/RM panel	8-pin cable	✓	-
RCP panel	Wired LAN	-	✓
GP-VR100	Grip Remote Control cable	-	✓
RM-30BP	LANC cable	-	✓
Web browser	Wired/Wireless LAN	✓	-
Monitor & Control app	Wired/Wireless LAN	-	✓
Camera Remote SDK	Wired LAN	-	✓

Paint Control from RCP/RM* panel

VENICE 2 and BURANO support control from an RCP / RM* panel that can be used with broadcast camcorders and system cameras. When connected, ITU-R Rec.2020 color space and HLG are selectable and adjustment of various paint parameters is supported.

*Supported by VENICE 2 only (not by BURANO)



Compatible RCP/RM models	VENICE 2	BURANO
RCP-1500/1501/1530/3100/3500/3501	✓	✓
RM-B750/B170	✓	-

Compatible RCP functions :

Item		Sub-item	VENICE 2	BURANO
Shooting	FPS	Fixed/Variable Select	✓	
		FPS Select	✓	
	Shutter Select	Shutter ON/OFF	✓	
		ECS ON/OFF	✓	
		Shutter Speed	✓	
		ECS Frequency	✓	
	ND	ND Position	✓	✓
	Gain	Gain (Step)	✓	✓
	White Balance	Color Temp	✓	✓
		Color Temp Balance	✓	✓
		R Gain	✓	✓
		B Gain	✓	✓
		Auto White Balance	✓	✓
	Auto Tracing White		✓	
Project	Screen File		✓	
	Standard File		✓	
Paint	Switch Status	Gamma	✓	
		Black Gamma	✓	
		Matrix	✓	
		Knee	✓	
		White Clip	✓	
		Detail	✓	
		Flare	✓	
		Test Saw	✓	
	Black	Master Black	✓	✓
		R Black	✓	✓
		B Black	✓	✓
	Flare	Setting	✓	
		Master Flare	✓	
		R Flare	✓	
		G Flare	✓	
		B Flare	✓	
	Gamma	Setting	✓	
		Gamma Category	✓	
		Gamma Select	✓	
	Black Gamma	Setting	✓	
		Range	✓	
		Master Black Gamma	✓	
	Saturation	Setting	✓	
		Level	✓	
	Knee	Setting	✓	
		Point	✓	
		Slope	✓	
	White Clip	Setting	✓	
		Level	✓	

Item		Sub-item	VENICE 2	BURANO
Paint	Detail	Setting	✓	✓
		Level	✓	✓
		H/V Ratio	✓	✓
		Crispensing	✓	✓
		Level Depend	✓	
		Level Depend Level	✓	
		Frequency	✓	
		Knee Aperture	✓	
		Knee Aperture level	✓	
		Limit	✓	✓
		White Limit	✓	
		Black Limit	✓	
		Skin Detail	Setting	✓
	Skin Gate		✓	
	Natural Skin Detail		✓	
	Zoom Link		✓	
	Channel Switch		✓	
	CH1 Detail Setting		✓	
	CH2 Detail Setting		✓	
	CH3 Detail Setting		✓	
	Matrix	Setting	✓	
		User Matrix	✓	
		User Matrix R-G	✓	
		User Matrix R-B	✓	
		User Matrix G-R	✓	
		User Matrix G-B	✓	
		User Matrix B-R	✓	
		User Matrix B-G	✓	
	Multi Matrix	Setting	✓	✓
		Area Indication	✓	✓
		Reset	✓	✓
		Axis	✓	✓
		Hue	✓	✓
Saturation		✓	✓	
Technical	Test Signals	Color Bars ON/OFF	✓	
		Test Saw	✓	
		Rec	✓	
		Play	✓	
		Stop	✓	
		F.Rev	✓	
		F.Fwd	✓	
		Rec Review	✓	
		Next	✓	
		Prev.	✓	
White Mode	Preset On/Off		✓	
Iris	Iris Level		✓	✓
	Close		✓	
	Auto Iris On/Off			✓

Item	Sub-item	VENICE 2	BURANO
Zoom	Remote	✓	
	Speed	✓	
	Tele-Wide	✓	
	Zoom Value [%]	✓	
	Focal Length [mm]	✓	
Focus	Remote	✓	
	Focus Position	✓	
	Focus Value [%]	✓	
	Focus Length [m]	✓	
Call		✓	
Tally	R-Tally		✓
	G-Tally		✓

The above chart shows when RCP-1500/1501/3500/3501 is connected. The available functions and limitations vary depending on the model of RCP/RM panel.

For more details, please refer to the following documents downloadable from Sony official website :

- [VENICE 2 Operating Instructions \(v3.0\)](#)
- [BURANO Remote Control Guide](#)

Remote Camera Control over Ethernet / Wi-Fi (for VENICE 2)

You can fully control a VENICE 2 camera over Ethernet or Wi-Fi* from a tablet or laptop using a web browser. This allows the first AC or DIT to check and control every aspect of the camera's recording and other functions from a safe distance including changing ISO, frame rates, 8-step ND Filters.

*Requires Wireless LAN adaptor (CBK-WA02) inserted into the camera via USB



Camera screen



Lens screen



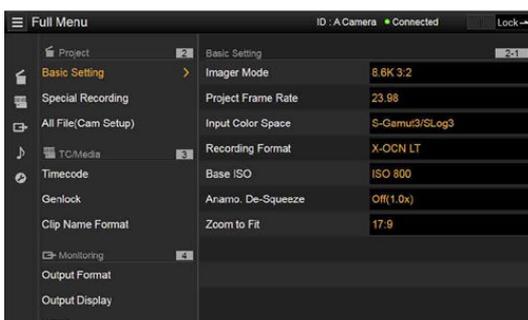
Info screen



Playback screen



Full Menu screen

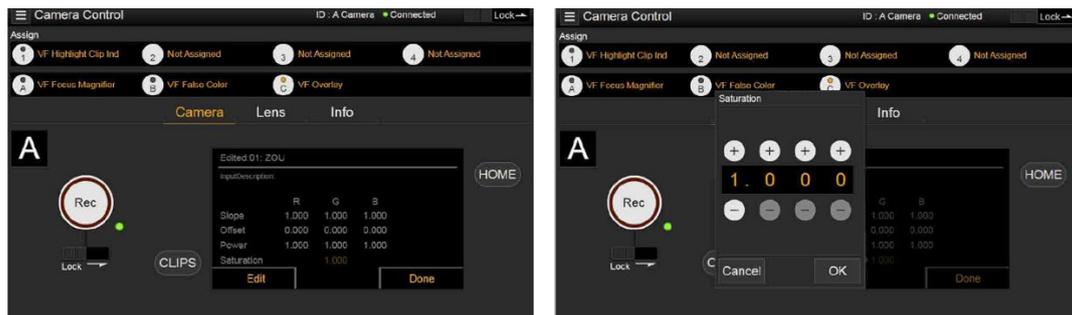


Using Ethernet or Wi-Fi connection, 3D LUT files, ART files and ASC CDL files can all be imported directly onto cameras, so there's no need to physically load them using SD cards.



ASC CDLs can then be controlled and adjusted* via a web interface and embedded in clip metadata. This eliminates the need for a DIT to manage ASC CDL files separately to be associated to the clips in post-production.

*Color wheel control is not supported

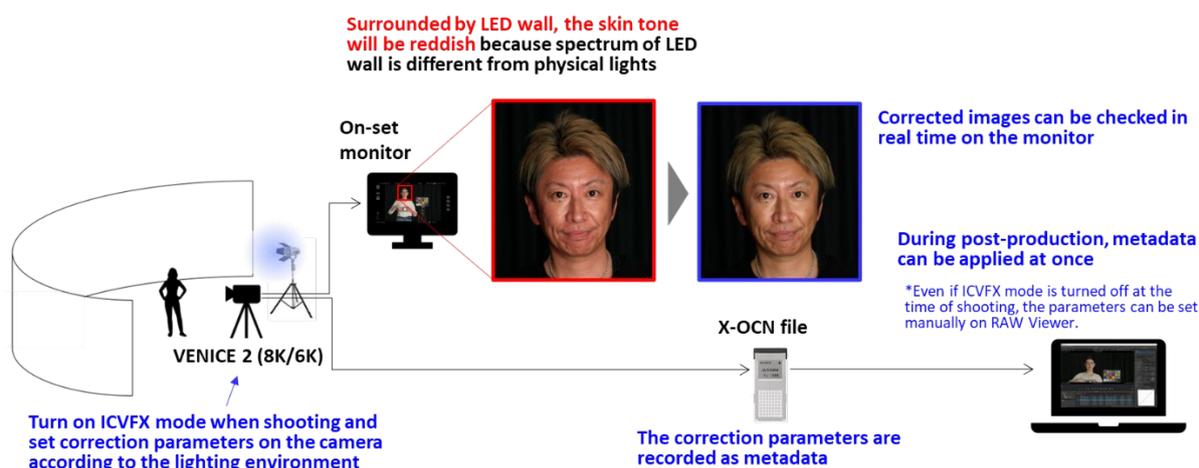
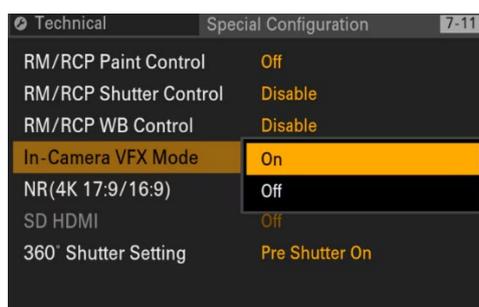


In-Camera VFX

Virtual Production makes it possible to replace traditional greenscreen and bluescreen compositing and physical sets by using seamless LED walls as a backdrop, with the added benefit of capturing final pixel in camera.

Color fidelity of In-Camera VFX

In Virtual Production stage, we can face a potential challenge on color discrepancies between physical lights and spectrum of LED wall. In order to compensate color fidelity especially skin tone, VENICE 2 Version 3.0 update introduces the "In-Camera VFX (ICVFX) Mode".



This setting includes parameters such as “LED Wall Color Temperature” and “Light Blending” ratio to enhance color fidelity when mixing practical lighting and LED volumes as lighting in In-Camera VFX. These setting parameters are recorded as metadata on X-OCN and baked into ProRes.

1. WB setting

- Set WB to color temperature of physical lights and intent of image creation, same as normal shooting

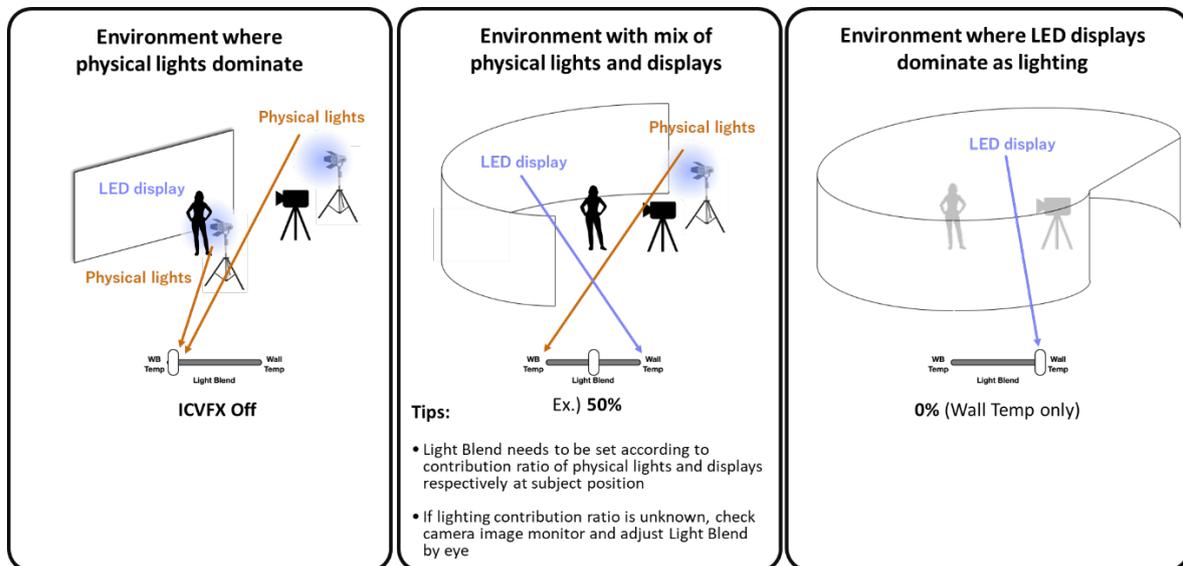
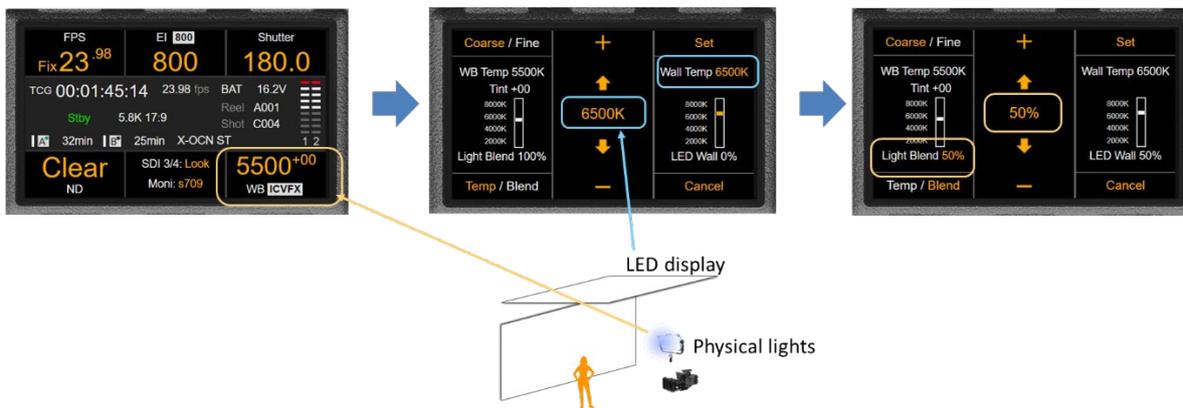
2. Wall Temp setting

- Set Wall Temp to match color temperature set for ceiling LEDs etc. acting as lighting

Commonly 6500K (D65)

3. Light Blend setting

- Set Blend to ratio that physical lights contributes as illumination
- If contribution ratio is unknown, check camera image on monitor and adjust so that color appears natural



Sony's **Virtual Production Tool Set** integrates Crystal LED walls with cinema cameras for an end-to-end solution. Cinematographers and directors can blend real sets and props with virtual backdrops to create new worlds and explore their vision.

Camera and Display Plugin

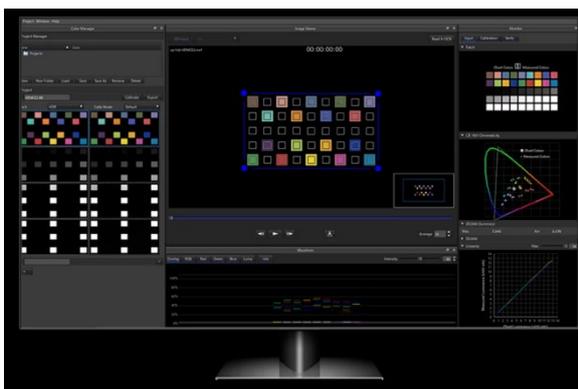


Visualizing the on-set image in advance is hard and expensive. Reproducing that image during the shoot is even harder. Our plugin lets you design the picture you need for your VENICE-powered virtual production, then save these settings in our Virtual VENICE for Unreal Engine.

Let your Virtual Art Department create pre-visualizations that reflect the reality of your upcoming shooting with VENICE and LED volume. Share them with your on-set team for a smoother shoot and less issues while being in the on-set stage.

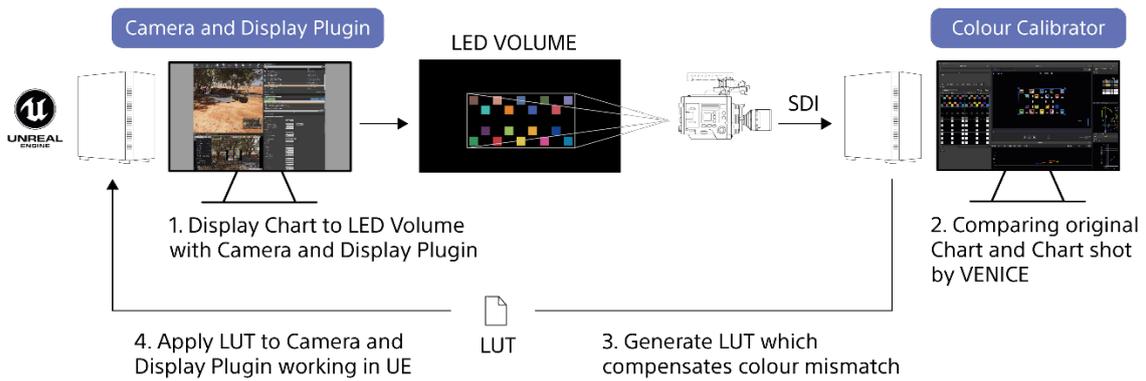
Transfer the defined parameters to your physical VENICE camera, preserving your creative vision. Monitor and control your VENICE settings via a simple GUI on Unreal Engine. Benefit from real-time moiré alerts for the shoot.

Color Calibrator



Calibrate the colors for your virtual production before you start to shoot, for more efficient shooting and less work in post-production. Solve LED color shifts in advance so you don't need to deal with it on shoot days.

Precise color reproduction can be challenging for virtual productions, creating unnecessary adjustments on-set and corrections at post-production. Color Calibrator is a Windows 10 application which is specially tuned to our VENICE cinema camera, so you can ensure that the colors you visualize before the shoot day match the colors that will appear in your dailies.



Display the color calibration chart on your LED volume, using the Sony Onset Camera Component (found in our Camera and Display Plugin for Unreal Engine).

Color Calibrator analyses and compares the calibration charts from within Unreal Engine and the image that the VENICE camera captures from the panels. It then automatically shows the difference with a graph and vector scope.

Easily Create and output a LUT correction, which is applied to Unreal Engine to adjust colors.

DAILIES

- 4K HDR On-set Monitoring
- Offload & Backup
- Safe Memory Card Eraser
- Data Recovery

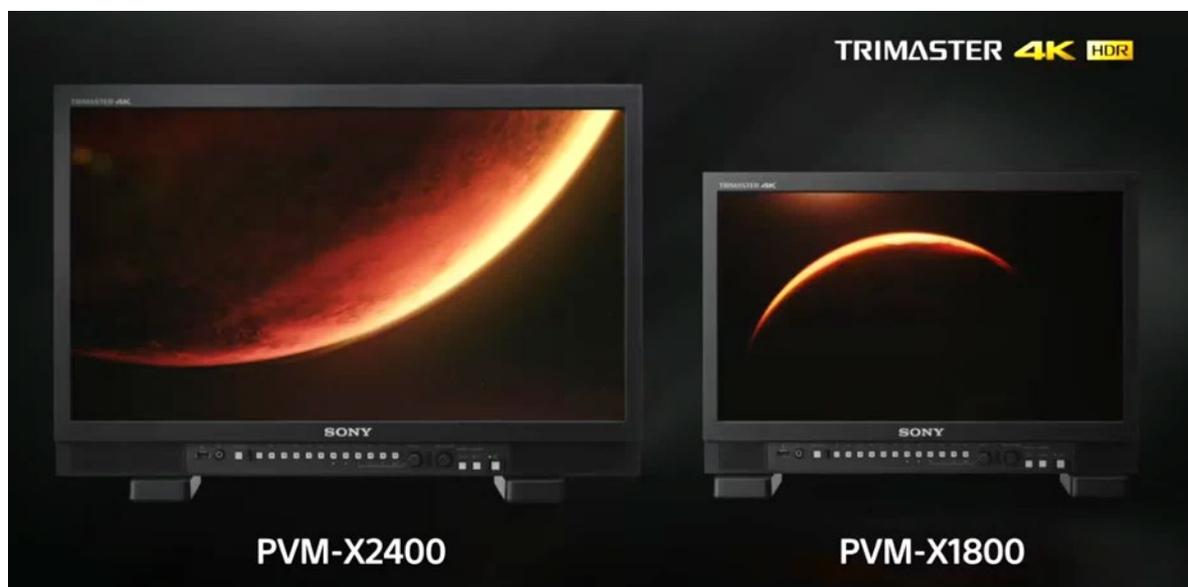
4K HDR On-set Monitoring

With directors, first ACs, cinematographers and DITs needing to work remotely from the camera and each other, best-in-class, virtually precise and consistent monitoring is all the more important to identify hot spots or how much detail is being recorded in the shadows, as well as extraneous items in shot.

Launched in 2020, the affordable **PVM-X2400** (24") and **PVM-X1800** (18.4") **TRIMASTER 4K HDR monitors** are designed for on-set use. The PVM-X range perfectly matches the wide color gamut of the Sony BVM-HX3110, BVM-HX310 and BVM-X300 monitors – as widely used throughout high-end post – and shares the same, familiar menus and functions. These monitors also bring all-white luminance of 1000 cd/m²* to production monitoring across a wide range of applications.

*Panel specification. This is a typical luminance value at D65 but not guaranteed.

The PVM-X range monitors are compact, light, extremely portable and can run off batteries making them easier to deploy within stand-alone workstations. They can also be used for super-accurate on-set dailies and by WIP editorial wanting an affordable but highly accurate 4K HDR image to work from.



Offload & Backup

Once a shooting is finished, the camera data need to be transferred from memory cards to a storage (e.g. HDD). Rather than using simple file copy methods (e.g. macOS Finder or Windows Explorer), a data management tool is used in order to ensure the secure transfer.

Sony X-OCN files are supported by leading data management tools for secure handling and verification of original camera data – such as **Pomfort Silverstack**, **Yoyotta**, **Hedge OffShoot**, and **ShotPut Pro from Imagine Products**.

For reference, the following example shows a typical folder structure of original camera data in X-OCN / XAVC* format, recorded on a memory card by VENICE 2 or BURANO. There are slight differences between the two models.

*Supported by BURANO only (not by VENICE 2)

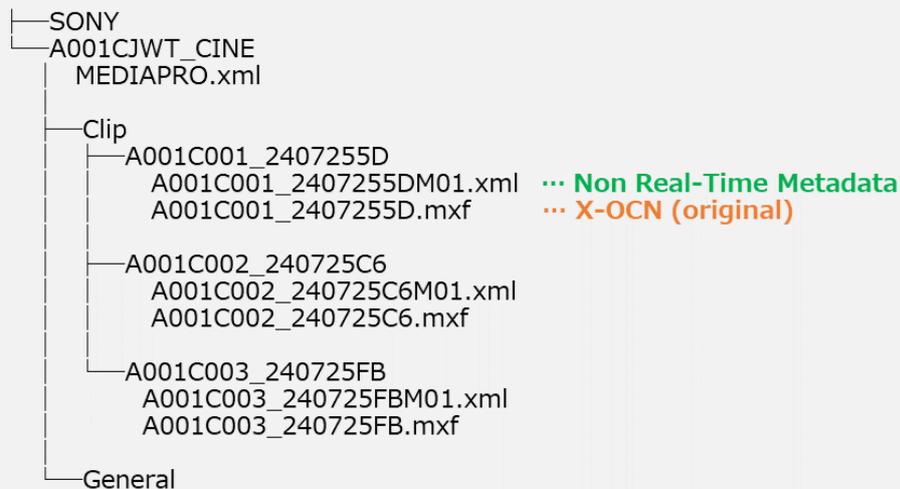
X-OCN Folder Structure (VENICE 2)

- The root folder is called "CINEROOT", but once the first recording is made the folder is renamed as a unique name (e.g. "A001CRWE" in below chart)
- An **X-OCN file (.mxf)** is recorded under "Clip" folder, in an individual folder for each clip
- A **Non Real-Time Metadata file (.xml)** is recorded in the individual folder for each clip as a side-car file of the X-OCN file
 - "M01" is added at the end of clip name
- A **3D LUT file (.cube)** is recorded in the individual folder for each clip as a side-car file of the X-OCN file, if 3D LUT is applied to the monitoring image
 - Look->CDL* : "L01" is added at the end of clip name
 - CDL->Look* : "L02" is added at the end of clip name
 - *depends on [ASC CDL Process] menu setting
- An **ASC CDL file (.cdl)** is recorded in the individual folder for each clip as a side-car file of the X-OCN file, if ASC CDL is applied to the monitoring image
 - "D01" is added at the end of clip name



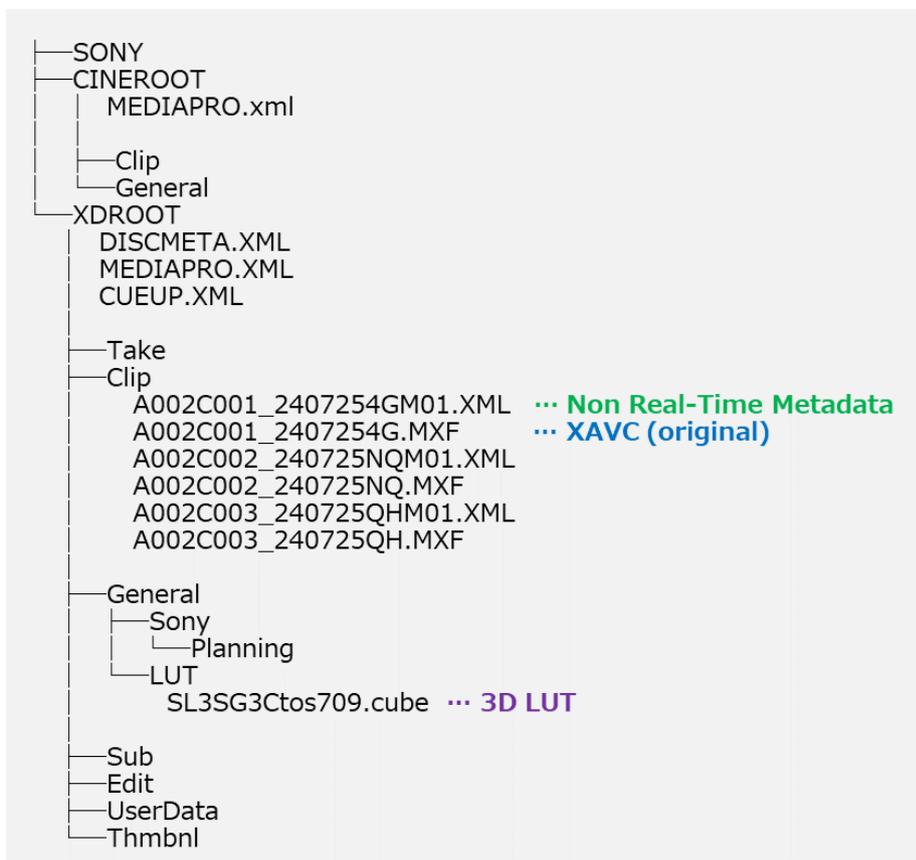
X-OCN Folder Structure (BURANO)

- The root folder is called "CINEROOT", but once the first recording is made the folder is renamed as a unique name
- An **X-OCN file (.mxf)** is recorded under "Clip" folder, in an individual folder for each clip
- A **Non Real-Time Metadata file (.xml)** is recorded in the individual folder for each clip as a side-car file of the X-OCN file
 - "M01" is added at the end of clip name
- **3D LUT files (.cube)** are not recorded in X-OCN recording*
- **ASC CDL** is not supported on BURANO



XAVC Folder Structure (BURANO)

- The root folder name and the volume label name of the recording media can be selected on the [XAVC Root Folder Name] menu setting :
 - [XDROOT] (default name)
 - [Cam ID + Reel#] : Camera ID (1-digit) + Reel No. (3-digit)
- An **XAVC file (.mxf)** is recorded under “Clip” folder, in an individual folder for each clip
- A **Non Real-Time Metadata file (.xml)** is recorded in the individual folder for each clip as a side-car file of the X-OCN file
 - “**M01**” is added at the end of clip name
- **3D LUT files (.cube)** are recorded under “General/LUT” folder if 3D LUT is applied to the monitoring image*
- **ASC CDL** is not supported on BURANO



*The 3D LUT information can also be recorded as metadata in the XAVC clip, when the [Embed LUT File] menu is set to [ON]

Safe Memory Card Eraser

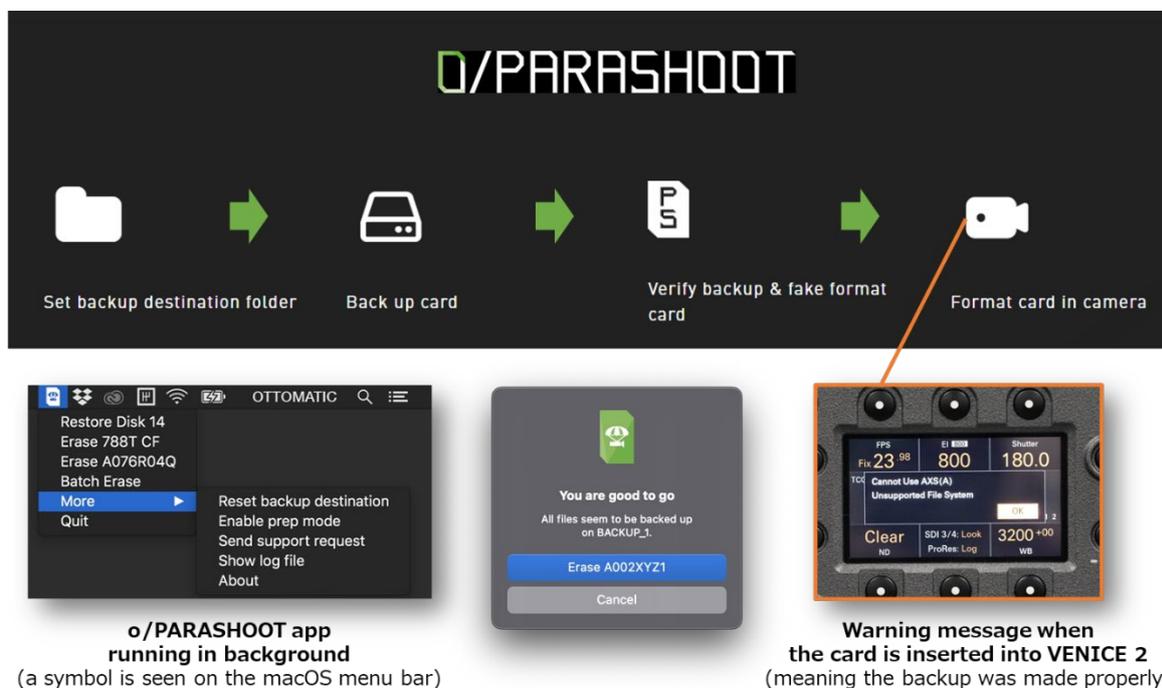
o/PARASHOOT is a safe card eraser application* with backup verification and file restore, offered by OTTOMATIC. The version 2 officially supports Sony AXS Memory Card – which means it works perfectly in VENICE workflow.

*for macOS platform only

This background application watches over your selected backup destination folder. When you format a memory card after a backup, o/PARASHOOT verifies file names and file sizes to be identical to the backup destination. If files in the backup destination folder are missing, o/PARASHOOT won't allow you to format the card and you will be prompted to manually re-check the backup or to back up missing files.

If the backup is identical, o/PARASHOOT fake formats the card to make it unreadable by any camera or file system. This allows the camera assistant to format the card on insertion into the camera without going through the menu, as most cameras prompt you to reformat a mal-formed card. Up until then, the fake-formatting allows to restore the card completely without loss of information.

This workflow makes sure a camera assistant knows that the card was backed up by a DIT and verified by o/PARASHOOT.



The following tools are required to be used together in this workflow :

- o/PARASHOOT v2 or later (application software)
- Sony AXSM Drive Utility v3.3.0 or later (application software)
- Sony AXS-AR3 or AXS-AR1 v1.20 or later (AXS Memory card reader)

Data Recovery

AXS Memory Card (for VENICE 2) :

VENICE 2 recording system adopts AXS Memory Card (A Series) that is an ultra-high speed, high capacity and high reliability flash memory card – perfectly suited to the highest quality cinematography.

In order to avoid any troubles that require some data recovery recorded on AXS Memory Card, we would strongly recommend the followings :

1. When storing or carrying AXS Memory Cards, please ensure keeping the card in the supplied case and make sure the case is locked securely

If AXS Memory Card is subjected to a large external shock such as being dropped from a high place, the internal circuit board may be damaged and recorded data may be affected in the worst-case scenario.



If an AXS Memory Card cannot be mounted on Mac (via AXS Memory Card Reader) due to physical damage or some other reason, please try Windows PC instead in order to offload the clips.

(Because it tends to be more successful for AXS Memory Cards to be mounted on Windows PC compared to Mac in such cases)

2. Please keep firmware & software up-to-date on all the working machines & apps

The latest versions include some improvements in terms of stability.

Latest Version (as of November 2024)

Category	Product	Latest Version
Camera	VENICE (MPC-3610)	v6.30
	VENICE 2 (MPC-3626/3628)	v3.00
App Software	AXSM Drive Utility	v3.3.0
AXS Memory Card Reader	AXS-AR1/AR3	v1.20
	AXS-CR1	(one version only)
AXS Memory Card	AXS-A256S24 / A512S24 / A1TS24	v1.00* / v2.01*
	AXS-A512S48	v2.02* / v3.02*
	AXS-A1TS48	v2.02* / v4.02*
	AXS-A1TS66	v5.01

*depends on Serial No.

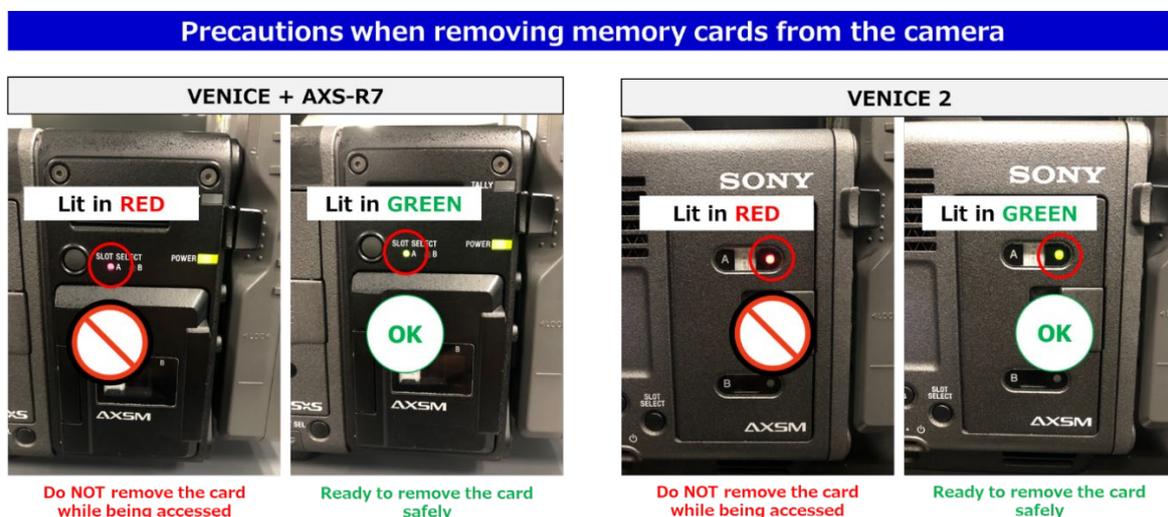
3. Please do NOT remove the memory card from the camera / the memory card reader while being accessed

Camera (VENICE 2 / VENICE + AXS-R7)

When turning off the power or removing the card, please ensure that the ACCESS lamp of the card slot in use is lit in green (or unlit) before proceeding.

Note

- If the power of this device is turned off or the memory card is removed while accessing the memory card, data cannot be guaranteed
- There is a possibility that all data recorded on the card may become corrupted



Memory Card Reader (AXS-AR3 / AR1)

After inserting the card, it will be lit in blue until it is recognized (Please do not remove the memory card during this time).

Once it is recognized properly, the access lamp will light up green for standby (Please do not remove the memory card during this time).

Before removing the card, please perform the safe removal operation for the memory card reader on macOS or Windows. Once the removal operation is complete, the access lamp will turn off indicating that it is safe to remove the memory card.

Note (for AXS-AR3 / AR1 / CR1)

- For instance, in the event that the power is lost during recording, internal processing is occasionally performed automatically after inserting the card into a card reader – which may result in a delay before the Mac/PC recognizes the card. Please wait for a moment without removing the card.
- If the card is not recognized even after the following time has elapsed, please remove the card and insert again.
 - AXS-A1TS48 / AXS-A512S48 : approx. 7 seconds
 - AXS-A1TS66 : approx. 15 seconds
- If the power of this device is turned off or the memory card is removed while accessing the memory card, data cannot be guaranteed
- There is a possibility that all data recorded on the card may become corrupted

Precautions when removing memory cards from the card reader



However if for any reason an error should occur in an AXS Memory Card, the card must be restored* before use. When some troubles happen during recording (e.g. camera powered down), we would suggest the following procedure to try the recovery.

*Not guaranteed that all clips / cards are restored or recovered

#1 “Restore” function on the camera

1) When the power is turned on again, the following message is displayed on the sub display.

(The same message may be displayed when the card is re-inserted, after the card is removed and the camera is turned on again)

2) Select “Run” to execute the restore.

Media Needs to be Restored
Restore AXS(A)* Now ?



Note

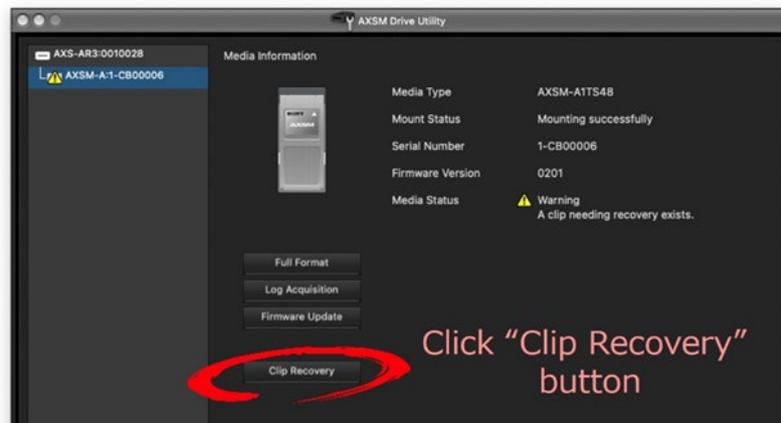
- Be sure to try the Restore function on the camera that was used for recording.
- The card that was recorded with a camera other than the one that was used for recording or with another unit of different version (even if the same model) may not be restored properly.

#2 “Clip Recovery” function on AXSM Drive Utility

If the recovery 1) is not successful, try this function on the application software.

A) Recovering clip files stored on an AXS Memory Card

If a clip file that requires recovery exists on the card selected in the tree display, you can recover that file and save it on a computer.



Note

- This function does not perform recovery of an AXS Memory Card itself.
- This operation will not delete the original files from before the recovery was performed. Recovery clip files will be saved to a folder that you specify on the computer. Be sure to verify whether there is sufficient space on the storage (e.g. HDD) to which the clip files will be saved beforehand.

B) Recovering clip files stored on a computer

If clip files transferred from an AXS Memory Card to a computer require recovery, you can perform recovery based on the transferred files.

Note

- This operation will not delete the original files from before the recovery was performed. The recovered clip files will be saved to the same folder as the clip files that required recovery. Be sure to verify whether there is sufficient space on the storage (e.g. HDD) containing the clip files beforehand.

CFexpress Card Type B (for BURANO) :

BURANO recording system adopts CFexpress Card (Type B) VPG400 that allows for reliable capture at exceptional high data rates, including X-OCN LT recording in full 8K. The versatile media are convenient for backing up and transferring data in the field.

Just like VENICE 2, the Restore function on the camera is also available for BURANO.

“Restore” function on the camera

1) When you load a CFexpress Card that needs to be restored, the following message appears on the LCD monitor to ask whether you want to restore it.

“Media Error – Media (A) Needs to be Restored …”

2) Select “Execute” to execute the restore.

Note

- For restoration of media recorded with this unit, be sure to use this unit.
- Media recorded with a device other than this unit or with another unit of different version (even of the same model) may not be restored using this unit.
- Clips shorter than 2 seconds cannot be restored.
- Restored media may not operate at its original performance. Make a backup of all required clips and then execute a full format before use.

EDITORIAL & CONFORM

- Viewing & Transcoding
- Offline Editing & Re-Link
- Delivery Format (Frame Line)

Viewing & Transcoding



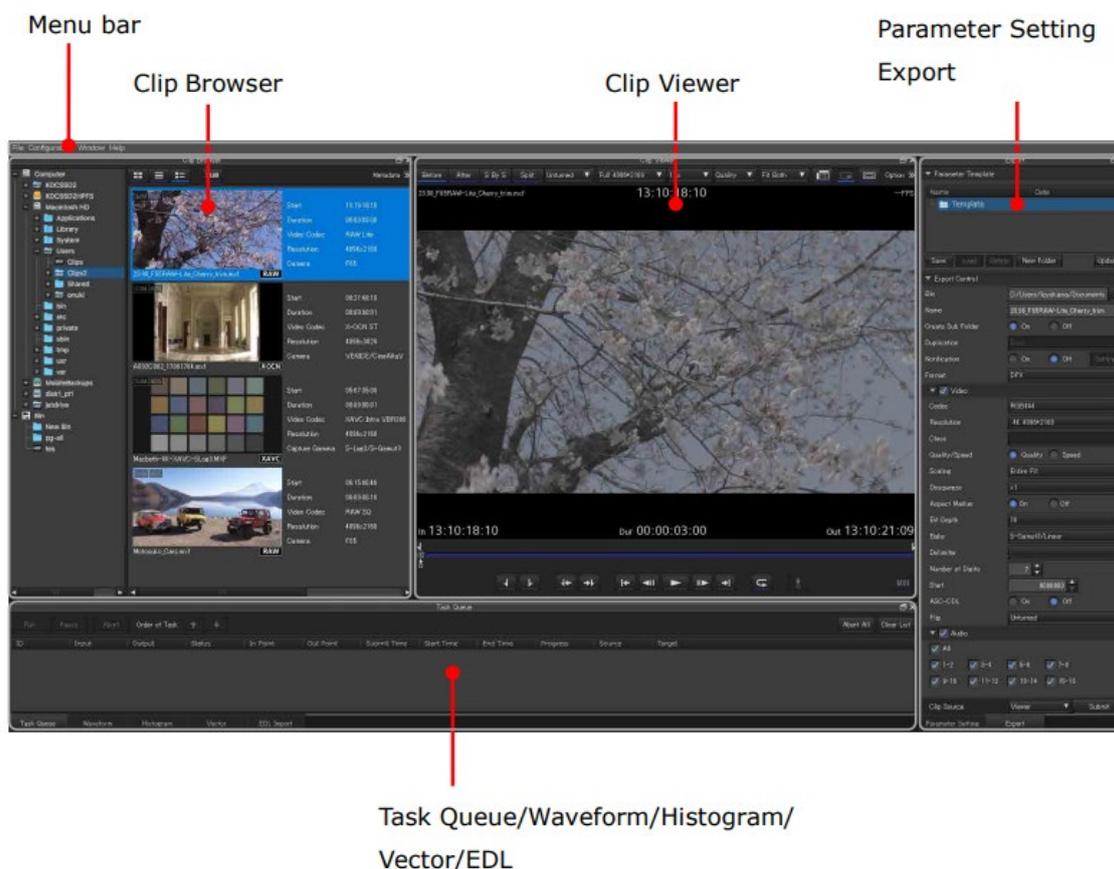
RAW Viewer

RAW Viewer is free application software that allows you to view RAW, X-OCN and XAVC files recorded with Sony VENICE 2, VENICE, BURANO and other cameras as well as AXS-R7 recorder.

With its intuitive user interface, you can view and perform basic color grading on files transferred to your computer, or files stored on a memory card inserted to AXS-AR3 or other card reader.

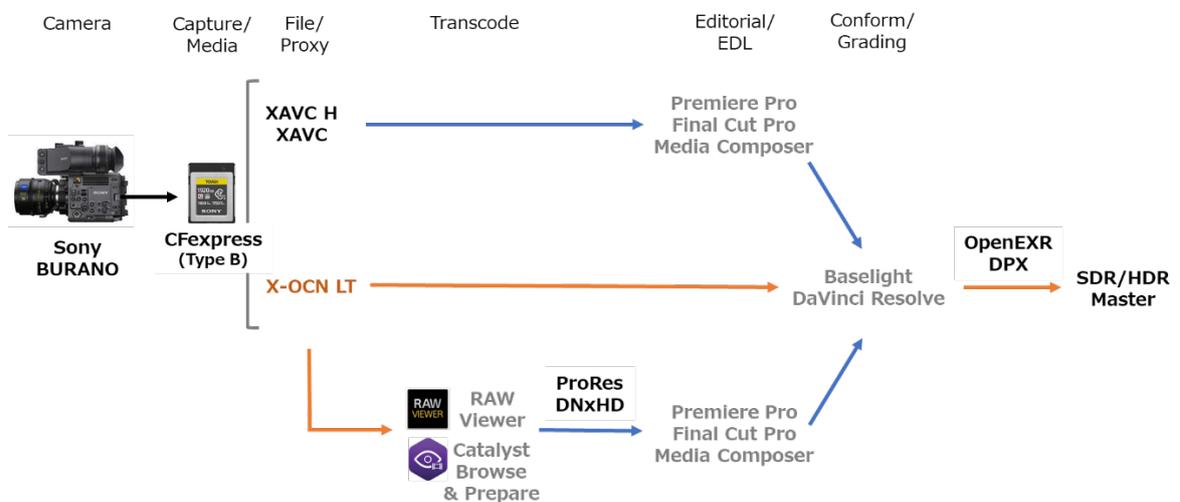
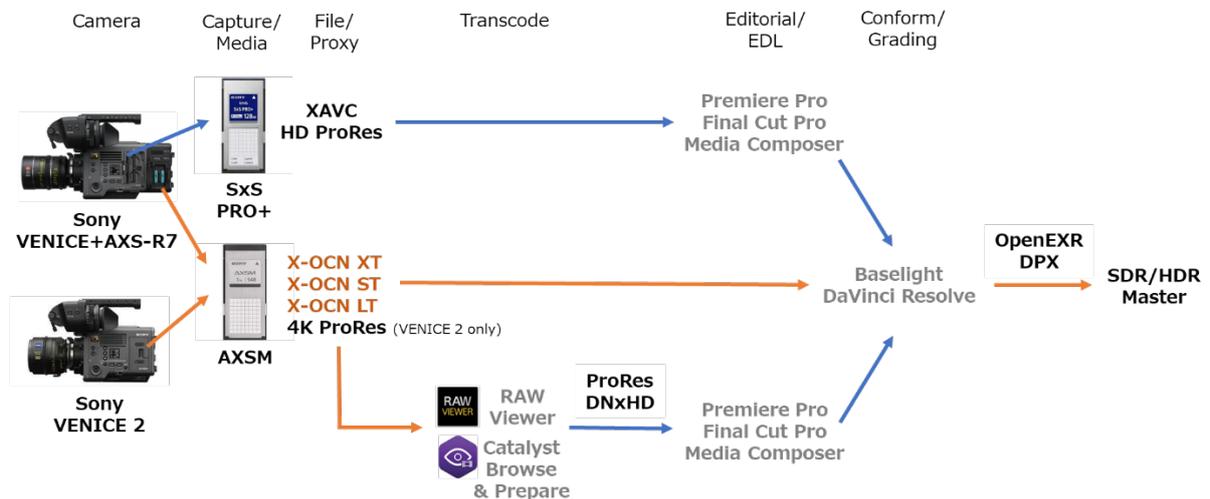
In addition, you can also export RAW, X-OCN, XAVC and ProRes files to DPX, OpenEXR, XAVC or ProRes (for macOS only) format to facilitate file based post-production workflow.

The camera metadata is preserved during file conversion to OpenEXR, which can help post-production operators especially in VFX workflow.



Offline Editing & Re-link

X-OCN Workflow Overview



For offline editing workflow, all X-OCN files are usually transcoded to lower resolution proxy files such as ProRes and DNxHD.

Sony **RAW Viewer** supports this transcoding to ProRes files (for macOS only). If necessary, you can also use another application software called Sony **Catalyst Prepare** which supports transcoding to DNxHD as well.

These tools can be useful in environments where other transcoding software is not available.

X-OCN Clip Name Structure

In the re-link process during conforming, it is extremely important to match the clip name between proxy and original high-res X-OCN files.

The consistent clip naming rule is adopted on VENICE 2 and BURANO as follows.

VENICE 2 offers two options in terms of handling Camera ID – Single digit (Type A) or Double digit sacrificing Camera Position (Type B).

BURANO supports Single digit (Type A) only.



	Name	Characters	Remarks
①	Camera ID	Single digit : A to Z Double digit : AA to ZZ	- 1-digit or 2-digit can be selected on VENICE 2 - Only 1-digit is supported by BURANO
②	Reel Number	001 to 999	- Incremented when a new memory card is inserted
③	Camera Position	C / L / R	- Center / Left / Right - Available only when 1-digit Camera ID is selected
④	Shot Number	001 to 600	- Incremented when a new clip is recorded
⑤	date	YYMMDD	- Date when the clip is recorded
⑥	random string	2-digit alphanumeric	- Added to avoid any troubles confused by multiple clips with exactly the same clip name



Delivery Format (Frame Line)

Before starting to shoot, it is important to define the final target format ensuring between production and post-production teams – in order to avoid any issues during post-production process.

VENICE 2 supports **Frame Line** feature, which help us frame correctly with the camera on set.

User Frame Line display

You can select whether to display arbitrarily configured user frame lines or a fixed aspect ratio. User Frame Line 1 and User Frame Line 2 can be set for user frame lines.

- To set user-configured lines, select “Variable” in the menu and specify the Width, Height, H Position, V Position and Variable Aspect Type
- To set a fixed aspect ratio, select “Preset” in the menu and specify the Preset Aspect Ratio, Scaling and Preset Aspect Ratio Type

Assignable button operations

You can show/hide User Frame Line 1 and User Frame Line 2 configured for Line A by assigning Line A: User Frame Disp. to some of assignable buttons and ITEM keys 1 to 5. (similarly for Line B)

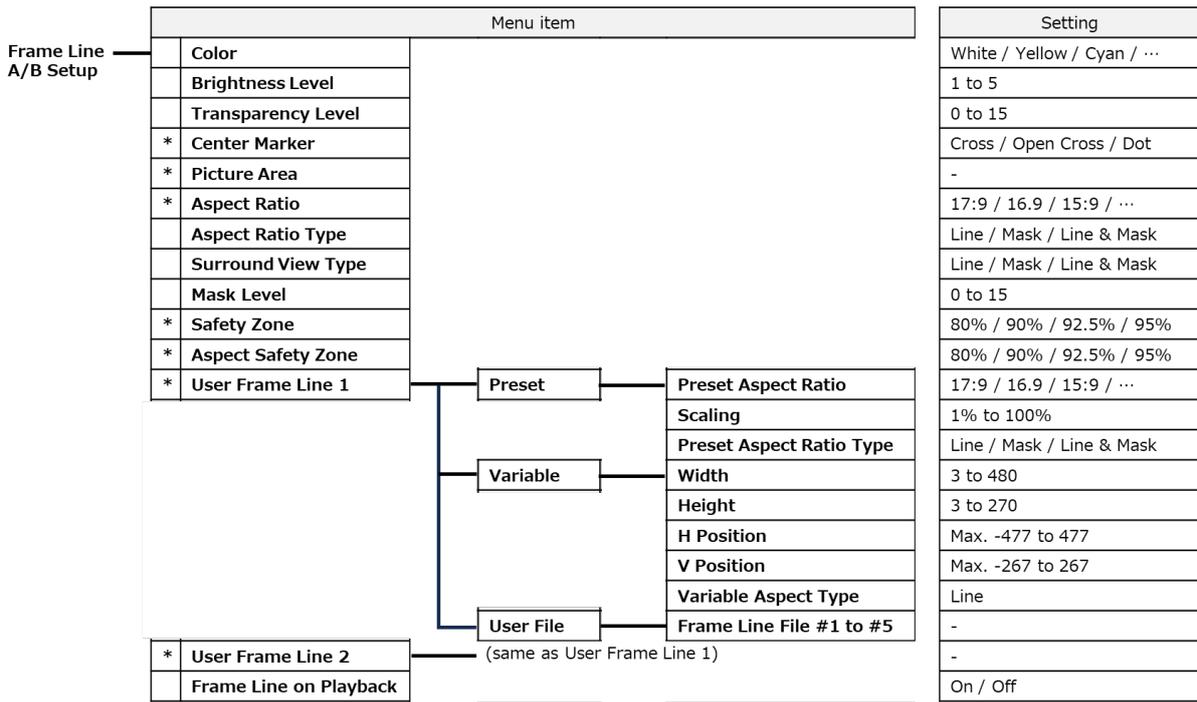
Each time the assignable button is pressed, the display switches between :

User Frame line 1 and 2 display → User Frame Line 1 display
→ User Frame Line 2 Display → User Frame Line 1 and 2 hidden

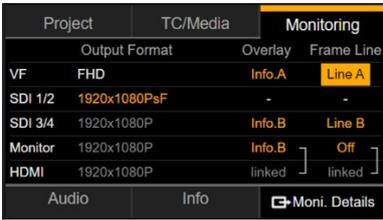
You can also show/hide Aspect Ratio configured for Line A or Line B by assigning Line A: Aspect Ratio Disp. or Line B: Aspect Ratio Disp. to some of assignable buttons and ITEM keys 1 to 5.

Each time the assignable button is pressed, the display switchers between :

Aspect Ratio display → Aspect Ratio hidden



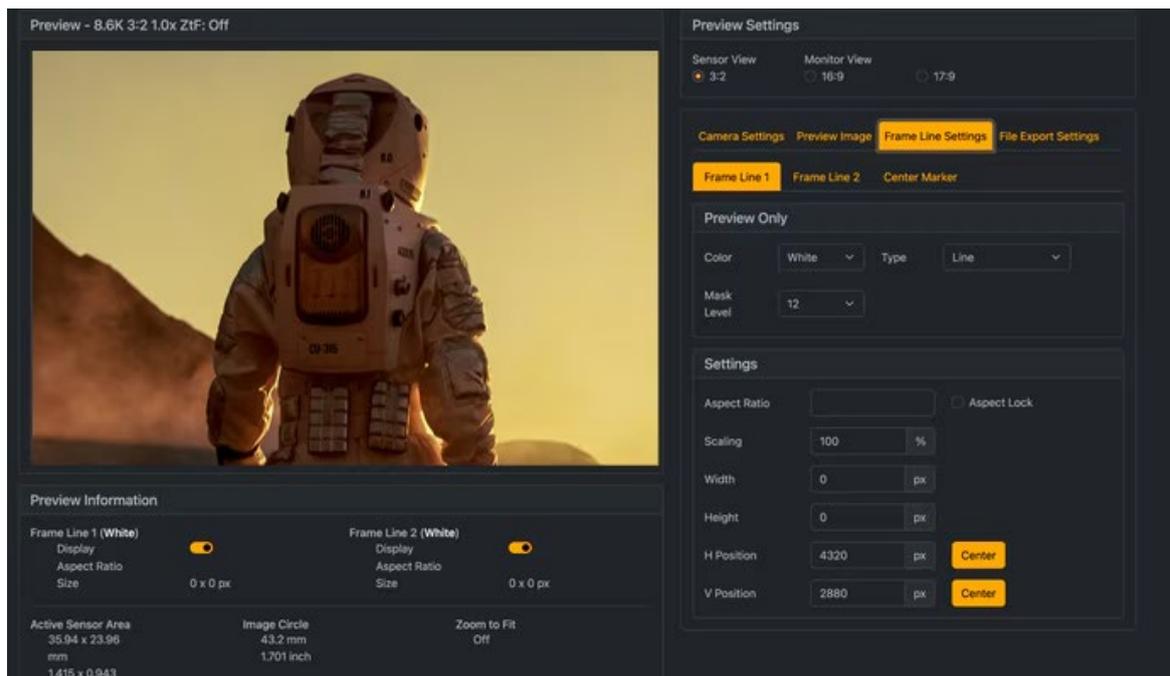
*Frame Line A / B / Off can be selected to activate individually on these items



Displaying Frame Line files created using Sony's Frame Line Tool

Sony's Frame Line Tool is an online interactive tool to create Frame Line configuration files to upload to your camera. To use this tool :

1. Select the camera model for 6K or 8K sensor
2. Select or upload a preview image for reference
3. Setup the desired frame lines and center target
4. Export the XML settings file



Frame Line Tool (<https://pro.sony/frame-line-tool>)

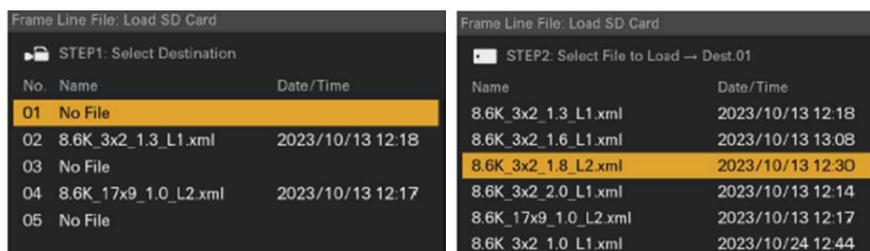
The XML file needs to be saved in the following directory on SD card.

MPC-3628: PRIVATE/SONY/PRO/CAMERA/MPC3628

MPC-3626: PRIVATE/SONY/PRO/CAMERA/MPC3626

By loading the XML file from SD card to VENICE 2 camera, you can save the Frame Line files in internal memory and then apply the data to User Frame Line 1 and 2.

You can also perform the configuration from the web remote control full menu.



COLOR GRADING & VFX

- ACES Workflow
- HDR Workflow
- VFX Workflow

ACES Workflow



The Academy Color Encoding System (ACES) is the industry standard for managing color throughout the life cycle of a motion picture or television production. From image capture through editing, VFX, mastering, public presentation, archiving and future remastering, ACES ensures a consistent color experience that preserves the filmmaker's creative vision.

ACES is a free, open, device-independent color management and image interchange system that can be applied to almost any current or future workflow. It was developed by hundreds of the industry's top scientists, engineers and end users, working together under the auspices of the Academy of Motion Picture Arts and Sciences (AMPAS).

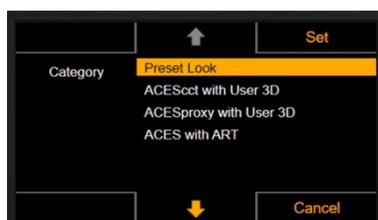
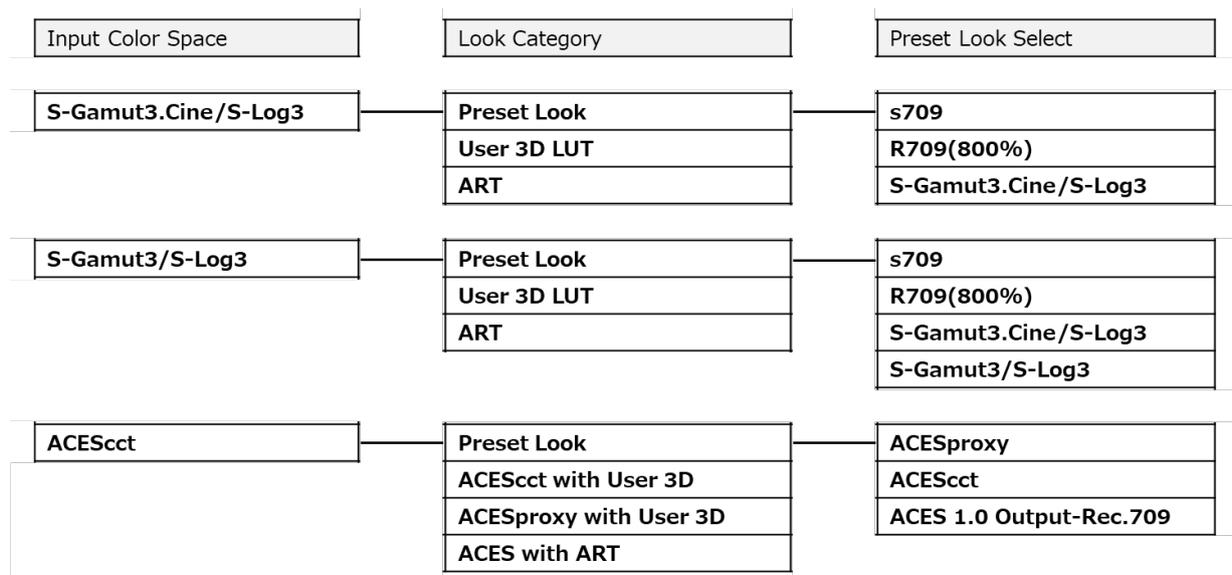
Sony has worked closely with the Academy to develop and test various implementations of ACES leading up to Version 1.0. As a member of the ACES Logo Program, Sony is committed to its cameras, related products and solutions supporting ACES-based workflows in the highest quality possible.

VENICE 2 provides a capability to select **[ACEScct]** in the [Input Color Space] menu setting for ACES workflow (which is not available on original VENICE). It allows to preview the footage on set, even during live color grading – with exactly the same “look” as what is used during color grading in post-production.

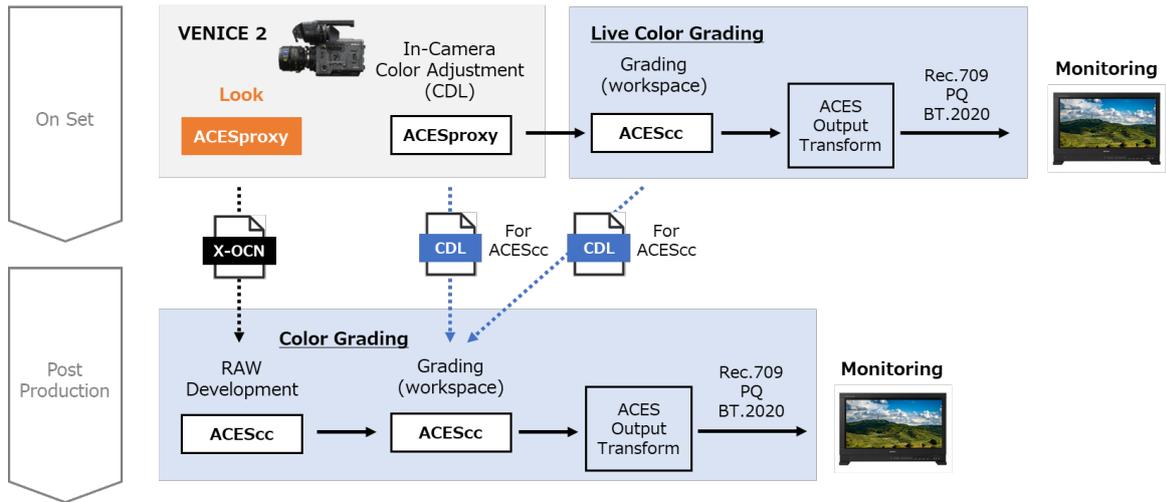
As [Preset Look] setting, you can select [ACESproxy] or [ACEScct] depending on the workspace used on a color grading tool in post-production. [ACES 1.0 Output-Rec.709] can also be set for ACEScct workflow using in-camera color adjustment (CDL) and transform to Rec.709.

Preset Look Select :

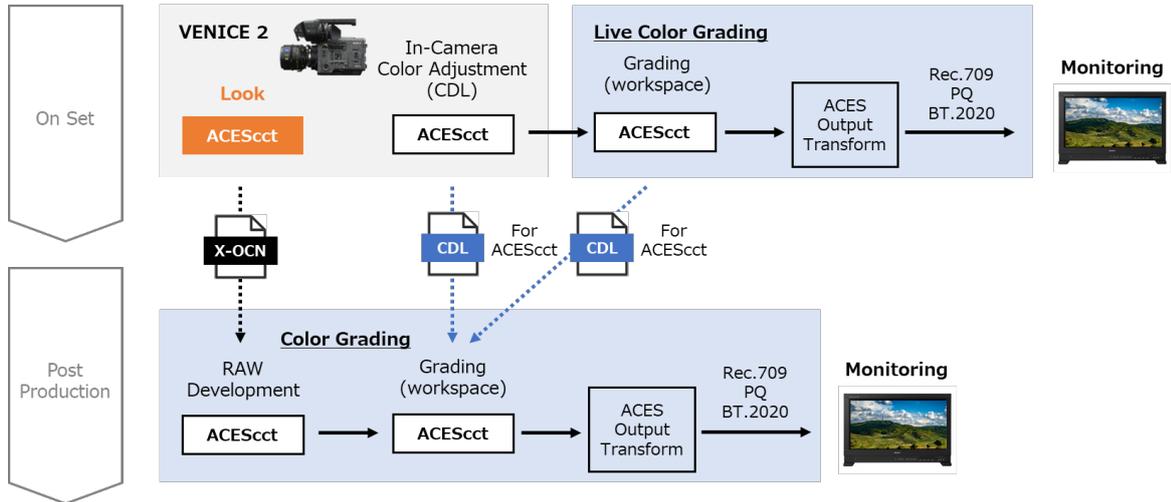
- **[ACESproxy]** : Log curve of wide color space (AP1) defined by the Academy
- **[ACEScct]** : Log curve of wide color space (AP1) based on ACESproxy, with toe characteristic that reduces contrast in the curve near black
- **[ACES 1.0 Output-Rec.709]** : Rec.709 reference Look defined by the Academy



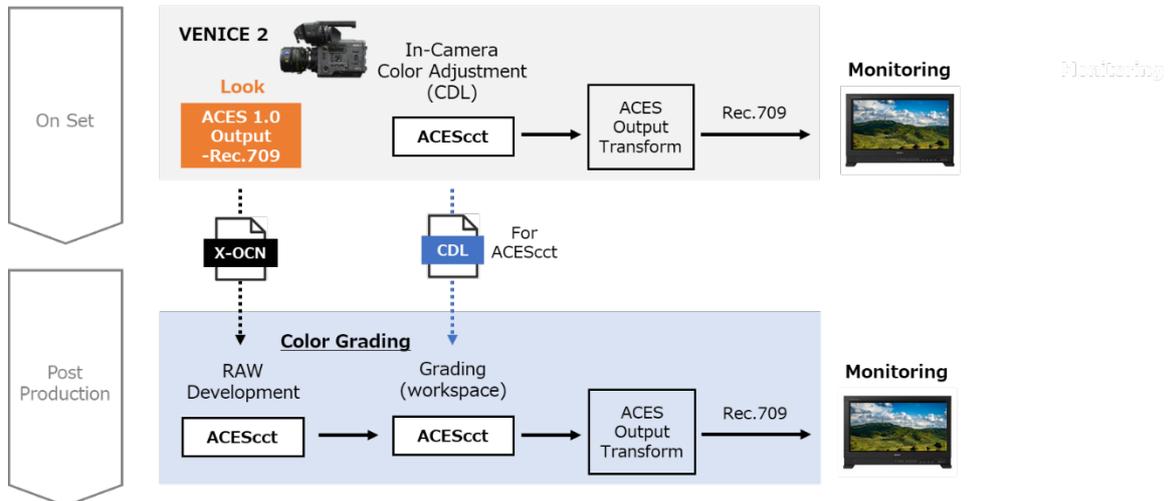
ACEScC Workflow



ACEScct Workflow

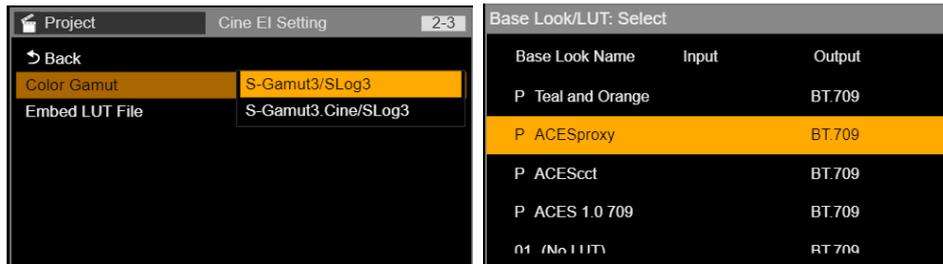


ACEScct Workflow using In-Camera CDL / Transform to Rec.709



BURANO also offers the same ACES workflow as VENICE 2, allowing to select the same base looks – [ACESproxy], [ACEScct] or [ACES 1.0 Output-Rec.709].

The difference from VENICE 2 is that the above base looks can be selected when [Color Gamut] in the Project menu is set to [S-Gamut3/S-Log3] (meaning there is no [ACEScct] option in the Color Gamut).

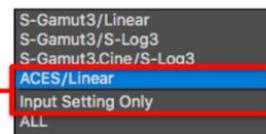
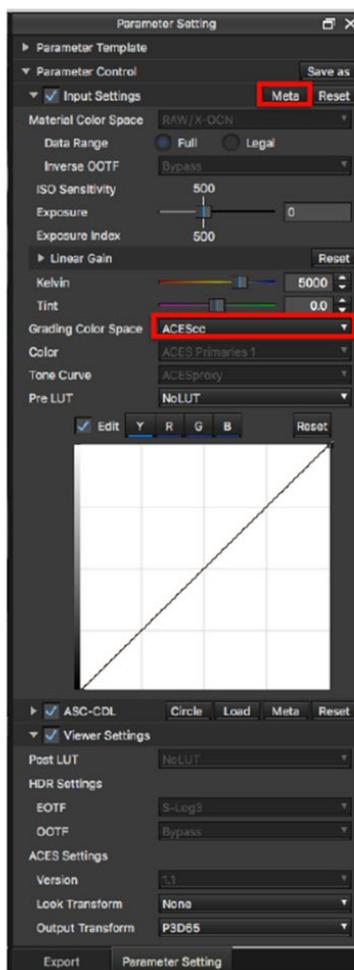
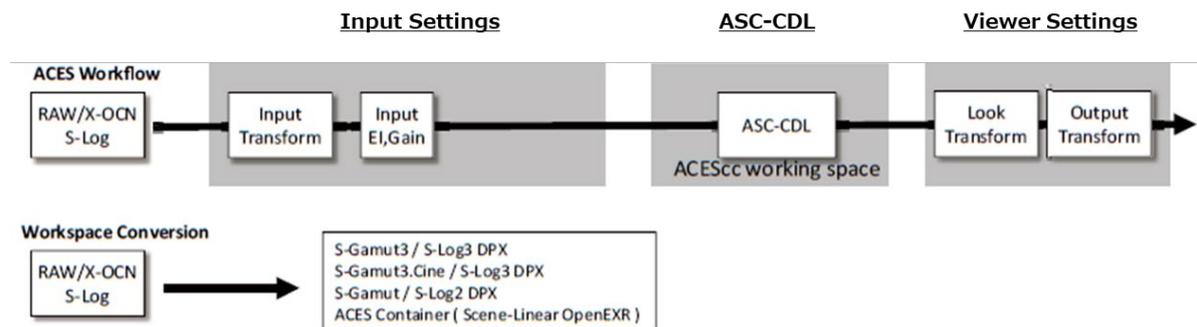


An **Input Device Transform (IDT)** processes original camera data in the form of non-color-rendered RGB image values from a captured scene lit by an assumed illumination source (the scene adopted white) and converts them to ACES RGB relative exposure values in a scene linear color space.

The IDT files on Sony CineAlta cameras are available to download from [this page](#) on ACES Central website (acescentral.com).

In addition, Sony's **RAW Viewer** application software also supports ACES workflow. You can perform the following based on ACES 1.3 :

- Converting camera content to ACES color space and exporting to ACES Container (Scene-Linear OpenEXR)
- Color grading in ACES working space
- Monitoring and file output using ACES viewing pipeline

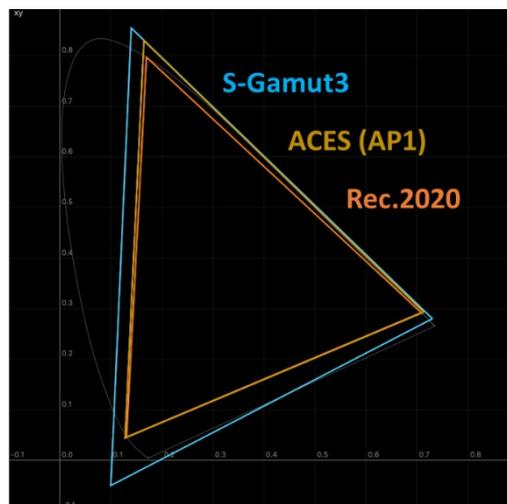


HDR Workflow

With the widespread adoption of HDR-ready displays and the expansion of OTT streaming, the demand for HDR production has clearly increased. In the process of producing HDR footage, it is essential to ensure that the material is captured with a wide dynamic range and color gamut.

Sony would recommend **S-Gamut3/S-Log3** that is supported not only by Sony CineAlta (VENICE 2 / BURANO) cameras, but also by other Cinema Line / Alpha cameras – due to the following reasons. It has widely been used for HDR workflow even as a working space of Color Grading process in post-production.

- To fully and adequately utilize the performance of the image sensor
- To maintain the quality even when handling a wide dynamic range, minimizing the degradation of image quality during the finishing process conversion
- S-Gamut3 is a color space that is highly compatible with ACES (AP1) / Rec.2020 (rather than S-Gamut3.Cine)



Using **ACES** is another option as a standard in the industry (as explained in the previous section).

Even if the footage is captured with S-Gamut3/S-Log3, most of color grading tools can handle this S-Gamut3/S-Log3 converting to ACEScct easily. Based on ACES workflow, various deliverables are created through Output Transform.

VFX Workflow

For visual effects work or contents creation for giant screen, we would recommend **X-OCN XT** mode as recording format*. This is ideal as it captures the highest quality imagery.

*supported by VENICE 2 only (not by BURANO)

S-Gamut3.Cine/S-Log3 or S-Gamut3/S-Log3 can be used for shooting, as most of current workflow can handle those color spaces in their color management system in post-production – converting to ACES color space easily, if necessary.

Sony RAW Viewer is also one of the useful tools in VFX workflow due to the following reasons :

- Capability to convert X-OCN to OpenEXR, while preserving all the camera & lens metadata completely
- All the camera & lens metadata (including Tilt/Roll** gyro data) can be exported as CSV file

**RAW Viewer v5.0 (or later) is required

When shooting with BURANO in VFX workflow, Image Stabilization feature should be set to OFF (disabled). Because if this feature is activated, the optical axis in the recorded image moves continuously. Accordingly, the recorded metadata is also not useful for VFX process in post-production.

APPENDIX

- Metadata (X-OCN)
- Anamorphic De-Squeeze Ratio (VENICE 2)
- Genlock Input
- Camera Menu Simulator
- File Size Calculator (VENICE 2)

Metadata (X-OCN)

X-OCN is a very easy and flexible format to work with Metadata that reflects the setup of the camera is recorded alongside the image information.

In post-production this metadata is automatically applied to the 16-bit linear recordings so that what you see in the edit or grading suite accurately reflects the way the camera was set. However, in post-production you can override the metadata settings for color temperature, Exposure Index and sharpness etc* to alter the way the data is processed.

This gives a tremendous degree of flexibility while retaining the exceptional quality of the 16-bit recording.

*The controls available depends on the software used

The following information is a list of metadata recorded as embedded in X-OCN MXF files, as well as recorded in XML files at the same time on the camera :

Table legend

Opt: Included if information is available on a lens attached to the camera (optional)

Yes: Defined

– : Not defined

*These examples are based on clips shot on VENICE 2

Item	Notation example* in RAW Viewer	X-OCN MXF		X-OCN XML	
		VENICE 2	BURANO	VENICE 2	BURANO
Creation Date	2021-10-29 11:04:05	Yes	Yes	Yes	Yes
Last Update	2021-10-30 11:04:05	–	–	Yes	Yes
UMID	060A2B340101010501010D43130000000 70BF41D2F494EB7A16DD045A68CDF2E	Yes	Yes	Yes	Yes
Start	03:36:29:20	Yes	Yes	Yes	Yes
End	03:36:32:19	Yes	Yes	Yes	Yes
Duration	00:00:03:00	Yes	Yes	Yes	Yes
Poster Frame		–	–	–	–
Recording Mode		–	–	Yes	Yes
Drop Frame	NDF	Yes	Yes	Yes	Yes
Camera	VENICE/CineAltaV	Yes	Yes	Yes	Yes
Video Codec	X-OCN XT	Yes	Yes	Yes	Yes
Resolution	6048x4032	Yes	Yes	Yes	Yes
Aspect Ratio	3:2	Yes	Yes	Yes	Yes
Format FPS	23.98p	Yes	Yes	Yes	Yes
Capture FPS	23.98p	Yes	Yes	Yes	Yes
Pixel Aspect	1:1	–	–	Yes	Yes
Flip	normal	–	–	Yes	Yes
Embedded 3DLUT	SL3SG3Ctos709.cube	Yes	–	–	–
Number of Audio Channels	4	Yes	Yes	Yes	Yes
Audio Codec	LPCM	Yes	Yes	Yes	Yes
Audio Bit Depth	24	Yes	Yes	Yes	Yes
Audio Sampling Rate	48000	Yes	Yes	Yes	Yes
Auto Exposure Mode	ManualExposureMode	Yes	Yes	–	–
Exposure Index	500	Yes	Yes	Yes	Yes
Auto Focus Sensing Area Setting	ManualFocusMode	Yes	Yes	–	–
ND Filter Wheel	1/4	Yes	Yes	Yes	Yes
Image Sensor Dimension Effective Width	35925um	Yes	Yes	–	–
Image Sensor Dimension Effective Height	23950um	Yes	Yes	–	–
Image Sensor Readout Mode	ProgressiveFrame	Yes	Yes	Yes	Yes
Shutter Speed Angle	172.50deg	Yes	Yes	Yes	Yes
Shutter Speed Time	1/50sec	Yes	Yes	–	–
Camera Master Gain Adjustment	0.00dB	Yes	Yes	–	–
ISO Sensitivity	500	Yes	Yes	Yes	Yes
Electrical Extender Magnification	100%	Yes	Yes	–	–
Auto White Balance Mode	PresetWhiteBalanceSetup	Yes	Yes	–	–
White Balance	5500	Yes	Yes	Yes	Yes
Tint Correction	0.00000	Yes	Yes	–	–
Camera Master Black Level	3.0%	–	–	–	–
Capture Gamma Equation	scene-linear	Yes	Yes	Yes	Yes
Gamma for CDL	rec709	Yes	–	Yes	–
Color Primaries (Capture Color Primaries)		–	–	–	–
Camera Attributes	MPC-3628999999Version5.00	Yes	Yes	Yes	Yes
Effective Marker Aspect Ratio	6048:3202	Yes	Yes	Yes	Yes
User Frame Line 1	1920x1080+0+0	Yes	Yes	–	–
User Frame Line 2	1920x1080+0+0	Yes	–	–	–
Active Area Aspect Ratio	6048:4032	Yes	Yes	Yes	Yes
Pixel Aspect Ratio	1:1	Yes	Yes	Yes	Yes
Image Orientation	normal	Yes	Yes	–	–
Raw Black Code	512	Yes	Yes	Yes	Yes
Raw Gray Code	1504	Yes	Yes	Yes	Yes
Raw White Code	5472	Yes	Yes	Yes	Yes
Gamma for Look	s-log3-cine	Yes	Yes	Yes	Yes
Color for Look	s-gamut3-cine	Yes	Yes	Yes	Yes

Item	Notation example* in RAW Viewer	X-OCN MXF		X-OCN XML	
		VENICE 2	BURANO	VENICE 2	BURANO
Pre-CDL Transform	LUT:SL3SG3Ctos709.cube	Yes	Yes	Yes	Yes
Post-CDL Transform	none	Yes	–	Yes	–
Look Process Baked	false	Yes	Yes	Yes	Yes
Monitoring Characteristics	rec709	Yes	Yes	Yes	Yes
Monitoring Base Curve	rec709	Yes	Yes	Yes	Yes
Monitoring Color Primaries	rec709	Yes	Yes	Yes	Yes
Monitoring Coding Equations	rec709	Yes	Yes	Yes	Yes
Monitoring Descriptions	LUT:SL3SG3Ctos709.cube	Yes	Yes	Yes	Yes
Camera Tilt Angle	2.70000	Yes	–	–	–
Camera Roll Angle	1.30000	Yes	–	–	–
Focus Distance	2296mm	Opt	–	–	–
Aperture Value	3.14	Opt	–	–	–
Aperture Ring T Stop Position	2.8 + 3/10	Opt	–	–	–
Current Focal Length	0mm	Opt	–	–	–
Hyperfocal Distance	219224mm	Opt	–	–	–
Near Focus Distance	2273mm	Opt	–	–	–
Far Focus Distance	2319mm	Opt	–	–	–
Horizontal Field of View	27.9deg	Opt	–	–	–
Entrance Pupil Position	+51mm	Opt	–	–	–
Normalised Zoom Value	0.000	Opt	–	–	–
Lens Serial Number	xxxxxxx	Opt	–	–	–
Iris F-Number	2.87	Opt	Opt	–	–
Iris T-Number	3.1	Opt	Opt	–	–
Iris Ring Position		Opt	Opt	–	–
Focus Position from Image Plane	2.296m	Opt	Opt	–	–
Focus Ring Position		Opt	Opt	–	–
Macro Setting	OFF	Opt	Opt	–	–
Lens Zoom 35mm Still Camera Equivalent	85mm	Opt	Opt	–	–
Lens Zoom Actual Focal Length	85mm	Opt	Opt	–	–
Zoom Ring Position		Opt	Opt	–	–
Anamorphic Lens Squeeze Ratio		Opt	Opt	–	–
Optical Extender Magnification	100%	Opt	Opt	–	–
Lens Attributes	xxxxxxx	Opt	Opt	Opt	Opt
Cooke /i technology		Opt	–	–	–
Cooke /i2 technology		Opt	–	–	–
Cooke /i3 technology		Opt	–	–	–
Zeiss eXtended metadata		Opt	–	–	–
Description		–	–	–	–
Circle		–	–	–	–
Project		–	–	–	–
Director Name		–	–	–	–
Director of Photography Name		–	–	–	–
Production		–	–	–	–
Camera Index		–	–	Yes	Yes
Reel		–	–	Yes	Yes
Scene		–	–	–	–
Cut		–	–	–	–
Take		–	–	–	–
Shot		–	–	Yes	Yes
Mark In		–	–	–	–
Mark Out		–	–	–	–

The following chart shows what kind of metadata is embedded on SDI output for each model.

	VENICE 2	BURANO	
	X-OCN / ProRes	X-OCN	XAVC
VPID*	✓	✓	✓
Rec Trigger	✓**	✓	✓
Time Code	✓	-	✓
Clip Name	✓	-	✓
Acquisition Metadata (RDD 18)	✓	-	✓
UMID	✓	-	✓

*Video Payload ID that allows automatic setting for switching 4K HDR / HD SDR on supported monitors (such as Sony BVM-HX3110) when the SDI output is connected

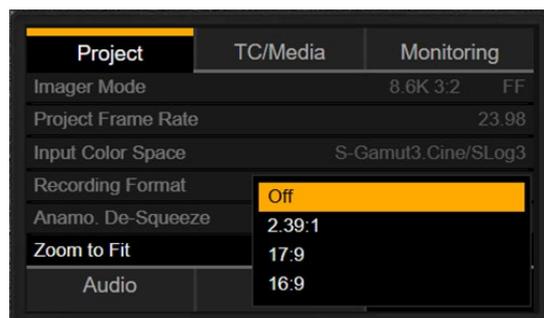
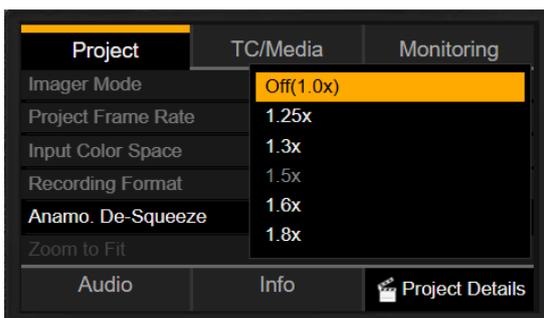
**Not available for Monitor output on VENICE 2

Anamorphic De-Squeeze Ratio (VENICE 2)

When an Anamorphic license is installed on VENICE 2, you can change the **Anamorphic De-Squeeze Ratio** setting for each Imager Mode as indicated in the tables from the next page.

Also when shooting and recording a scene that is wider than the actual desired picture size, you can enlarge the recorded image to the desired picture size on the viewfinder or monitor screen.

In some of imager modes, you can magnify the de-squeezed processed image using **Zoom to Fit** function. For the supported imager mode and de-squeeze combinations, please refer to the tables from the next page.



Legend (for the tables from the next page)

Legend	De-Squeeze	Zoom to Fit
✓	Supported	2.39:1 / 17:9 / 16:9
✓	Supported	2.39:1
✓	Supported	17:9 / 16:9
✓	Supported	Not supported
	Not supported	Not supported

VENICE 2 (8K) – X-OCN Recording

Imager mode	Imager Pixels	W x H (mm)	Project Frame Rate	Select FPS	De-Squeeze / Zoom to Fit						
					Off (1.0x)	1.25x	1.3x	1.5x	1.6x	1.8x	2.0x
8.6K 3:2	8640 x 5760	35.9 x 24.0	23, 24, 25, 29	1-30	✓	✓	✓	✓	✓	✓	✓
8.6K 17:9	8640 x 4556	35.9 x 19.0	23, 24, 25, 29, 47	1-48	✓	✓	✓		✓	✓	✓
8.2K 2.39:1	8192 x 3432	34.1 x 14.3	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	✓						
8.2K 17:9	8192 x 4320	34.1 x 18.0	23, 24, 25, 29, 47, 50, 59	1-60	✓	✓	✓		✓	✓	✓
8.1K 16:9	8100 x 4556	33.7 x 19.0	23, 24, 25, 29	1-48	✓						
7.6K 16:9	7680 x 4320	31.9 x 18.0	23, 24, 25, 29, 50, 59	1-60	✓						
5.8K 6:5	5792 x 4854	24.1 x 20.2	23, 24, 25, 29, 47	1-48	✓						✓ *
5.8K 4:3	5792 x 4276	24.1 x 17.8	23, 24, 25, 29, 47, 50, 59	1-60	✓		✓		✓	✓	✓
5.8K 17:9	5792 x 3056	24.1 x 12.7	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90	✓	✓	✓		✓	✓	✓
5.5K 2.39:1	5480 x 2296	22.8 x 9.6	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90, 96, 100, 110, 120	✓						
5.4K 16:9	5434 x 3056	22.6 x 12.7	23, 24, 25, 29, 50, 59	1-60, 66, 72, 75, 88, 90	✓						

Note

- FPS value of 1-7 cannot be set when Base ISO is set to ISO 3200
- FPS value of 33.33 can be set when Project Frame Rate is set to 24/25/50
- Zoom to Fit 16:9 cannot be selected when Project Frame Rate is set to 47.95

* Zoom to Fit cannot be set to Off unless Imager Mode is set to 5.8K 6:5 and De-Squeeze is set to 2.0x

VENICE 2 (8K) – ProRes Recording

Imager mode	Imager Pixels	W x H (mm)	Project Frame Rate	Select FPS	De-Squeeze / Zoom to Fit						
					Off (1.0x)	1.25x	1.3x	1.5x	1.6x	1.8x	2.0x
8.6K 3:2	8640 x 5760	35.9 x 24.0	23, 24, 25, 29	1-30		✓	✓	✓	✓	✓	✓
8.6K 17:9	8640 x 4556	35.9 x 19.0	23, 24, 25, 29, 47	1-48	✓						
8.2K 2.39:1	8192 x 3432	34.1 x 14.3	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	✓						
8.2K 17:9	8192 x 4320	34.1 x 18.0	23, 24, 25, 29, 47, 50, 59	1-60	✓						
8.1K 16:9	8100 x 4556	33.7 x 19.0	23, 24, 25, 29	1-48	✓						
7.6K 16:9	7680 x 4320	31.9 x 18.0	23, 24, 25, 29, 50, 59	1-60	✓						
5.8K 6:5	5792 x 4854	24.1 x 20.2	23, 24, 25, 29, 47	1-48							✓ *
5.8K 4:3	5792 x 4276	24.1 x 17.8	23, 24, 25, 29, 47, 50, 59	1-60			✓		✓	✓	✓
5.8K 17:9	5792 x 3056	24.1 x 12.7	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75	✓						
5.5K 2.39:1	5480 x 2296	22.8 x 9.6	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75	✓						
5.4K 16:9	5434 x 3056	22.6 x 12.7	23, 24, 25, 29, 50, 59	1-60, 66, 72, 75	✓						

Note

- FPS value of 1-7 cannot be set when Base ISO is set to ISO 3200
- FPS value of 33.33 can be set when Project Frame Rate is set to 24/25/50
- FPS value over 60 is not available in ProRes4444 recording
- Zoom to Fit 16:9 cannot be selected when Project Frame Rate is set to 47.95
- When recording in ProRes :
 - Zoom to Fit 16:9 cannot be configured when recording in 4096x2160
 - Zoom to Fit 17:9/2.39:1 cannot be configured when recording in 3840x2160

* Zoom to Fit cannot be set to Off unless Imager Mode is set to 5.8K 6:5 and De-Squeeze is set to 2.0x

VENICE 2 (6K) – X-OCN Recording

Imager mode	Imager Pixels	W x H (mm)	Project Frame Rate	Select FPS	De-Squeeze / Zoom to Fit						
					Off (1.0x)	1.25x	1.3x	1.5x	1.6x	1.8x	2.0x
6K 3:2	6048 x 4032	35.9 x 24.0	23, 24, 25, 29, 47, 50, 59	1-60	✓	✓	✓	✓	✓	✓	✓
6K 1.85:1	6054 x 3272	36.0 x 19.4	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	✓						
6K 17:9	6054 x 3192	36.0 x 19.0	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	✓	✓	✓		✓	✓	✓
6K 2.39:1	6048 x 2536	35.9 x 15.1	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90	✓						
5.7K 16:9	5674 x 3192	33.7 x 18.9	23, 24, 25, 29, 50, 59	1-60, 66, 72	✓						
4K 6:5	4096 x 3432	24.3 x 20.4	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	✓						✓ *
4K 4:3	4096 x 3024	24.3 x 18.0	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75	✓		✓		✓	✓	✓
4K 4:3 Surround View	4096 x 3024 (4552 x 3360)	24.3 x 18.0 (27.0 x 20.0)	23, 24, 25, 29	1-30	✓		✓		✓	✓	✓
4K 17:9	4096 x 2160	24.3 x 12.8	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90, 96, 100, 110	✓	✓	✓		✓	✓	✓
4K 17:9 Surround View	4096 x 2160 (4552 x 2400)	24.3 x 12.8 (27.0 x 14.3)	23, 24, 25, 29	1-48	✓	✓	✓		✓	✓	✓
4K 2.39:1	4096 x 1716	24.3 x 10.3	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90, 96, 100, 110, 120	✓						
3.8K 16:9	3840 x 2160	22.8 x 12.8	23, 24, 25, 29, 50, 59	1-60, 66, 72, 75, 88, 90, 96, 100, 110	✓						
3.8K 16:9 Surround View	3840 x 2160 (4268 x 2400)	22.8 x 12.8 (25.4 x 14.3)	23, 24, 25, 29	1-48	✓						

Note

- FPS value of 33.33 can be set when Project Frame Rate is set to 24/25/50
- Zoom to Fit 16:9 cannot be selected when Project Frame Rate is set to 47.95

* Zoom to Fit cannot be set to Off unless Imager Mode is set to 5.8K 6:5 and De-Squeeze is set to 2.0x

VENICE 2 (6K) – ProRes Recording

Imager mode	Imager Pixels	W x H (mm)	Project Frame Rate	Select FPS	De-Squeeze / Zoom to Fit						
					Off (1.0x)	1.25x	1.3x	1.5x	1.6x	1.8x	2.0x
6K 3:2	6048 x 4032	35.9 x 24.0	23, 24, 25, 29, 47, 50, 59	1-60		✓	✓	✓	✓	✓	✓
6K 1.85:1	6054 x 3272	36.0 x 19.4	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72							
6K 17:9	6054 x 3192	36.0 x 19.0	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	✓						
6K 2.39:1	6048 x 2536	35.9 x 15.1	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75	✓						
5.7K 16:9	5674 x 3192	33.7 x 18.9	23, 24, 25, 29, 50, 59	1-60, 66, 72	✓						
4K 6:5	4096 x 3432	24.3 x 20.4	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72							✓ *
4K 4:3	4096 x 3024	24.3 x 18.0	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75			✓		✓	✓	✓
4K 4:3 Surround View	4096 x 3024 (4552 x 3360)	24.3 x 18.0 (27.0 x 20.0)	23, 24, 25, 29	1-60, 66, 72, 75							
4K 17:9	4096 x 2160	24.3 x 12.8	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90	✓						
4K 17:9 Surround View	4096 x 2160 (4552 x 2400)	24.3 x 12.8 (27.0 x 14.3)	23, 24, 25, 29	1-48	✓						
4K 2.39:1	4096 x 1716	24.3 x 10.3	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90	✓						
3.8K 16:9	3840 x 2160	22.8 x 12.8	23, 24, 25, 29, 50, 59	1-60, 66, 72, 75, 88, 90	✓						
3.8K 16:9 Surround View	3840 x 2160 (4268 x 2400)	22.8 x 12.8 (25.4 x 14.3)	23, 24, 25, 29	1-48	✓						

Note

- FPS value of 1-7 cannot be set when Base ISO is set to ISO 2500 and recording in ProRes
- FPS value of 33.33 can be set when Project Frame Rate is set to 24/25/50
- FPS value over 60 is not available in ProRes4444 recording
- Zoom to Fit 16:9 cannot be selected when Project Frame Rate is set to 47.95
- When recording in ProRes :
 - Zoom to Fit 16:9 cannot be configured when recording in 4096x2160
 - Zoom to Fit 17:9/2.39:1 cannot be configured when recording in 3840x2160

* Zoom to Fit cannot be set to Off unless Imager Mode is set to 5.8K 6:5 and De-Squeeze is set to 2.0x

Genlock Input

VENICE 2 can accept either a digital or an analog signal for Genlock input, by [Input Source] menu setting under [TC/Media] -> [Genlock]. The following chart shows available input signals.

Project Frame Rate	Digital (HD SDI)	Analog
23.98 / 47.95	1920x1080 47.95i (23.98PsF) 1920x1080 23.98P	1920x1080 47.95i (23.98PsF) 1920x1080 23.98P
24	1920x1080 48i (24PsF) 1920x1080 24P	1920x1080 48i (24PsF) 1920x1080 24P
25 / 50	1920x1080 50i (25PsF) 1920x1080 25P	1920x1080 50i (25PsF) 1920x1080 25P 720x576 50i
29.97 / 59.94	1920x1080 59.94i (29.97PsF) 1920x1080 29.97P	1920x1080 59.94i (29.97PsF) 1920x1080 29.97P 720x486 59.94i

To enable Genlock input on **BURANO**, you need to set the [TC/REF IN/OUT] select switch of the unit to the [IN] position. This model can only accept an analog signal (not supporting a digital signal) shown in the following chart.

System Frequency of Recording Format	Supported Input Signal
23.98P	1920x1080 47.95i (23.98PsF) 1920x1080 23.98P
24P	1920x1080 48i (24PsF) 1920x1080 24P
25P / 50P	1920x1080 50i (25PsF) 720x576 50i
29.97P / 59.94P	1920x1080 59.94i (29.97PsF) 720x486 59.94i

Camera Menu Simulator

Sony's camera simulator is an interactive training tool that represents the CineAlta camera's menu-driven use interface.

[VENICE 2 \(8K\) / VENICE 2 \(6K\)](#)



[BURANO](#)



- Supported browsers : Google Chrome 63 and above, Safari 10 and above.
- The simulators are designed for evaluation purposes only and we cannot guarantee its accuracy in all possible scenarios. Please use at your own risk.
- Optional full-frame, anamorphic and HFR licenses may be installed in the simulators.
- Camera may be depicted with optional hardware.
- The menu simulators were produced for current camera software. Subsequent updates may change the operation of the camera menu systems.

File Size Calculator (VENICE 2)

This is an interactive calculator to determine Sony VENICE 2 file sizes, data rates, recording times and card usage.

VENICE 2

CAMERA	RESOLUTION	FRAME RATE (FPS)	CODEC	TIME	
VENICE 2 8K <input type="checkbox"/>	8.6K 3:2 <input type="checkbox"/>	24 <input type="checkbox"/>	X-OCN ST <input type="checkbox"/>	1 hr <input type="checkbox"/> 0 min <input type="checkbox"/>	
					RESET <input type="button" value="CALCULATE"/>

FILE SIZE	MEMORY CARDS
1.77 TB	
DATA RATE 457.25 MB/s	2 AXS-A1TS66/AXS-A1TS48 <input type="button" value="LEARN MORE"/>