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Art, Technique and Technology in Motion Picture Production Worldwide



Sony VENICE 2
Special Report



LR2M

SONY

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NOT A HANDLE



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This is a work in progress.

As with cameras and computers, you could say it is version 1.00. But let's call iterations of the Sony VENICE 2 Special Report by the date: November 15, 2021.

Additions and corrections will follow. Please check online.

Apologies for typos and scrambled facts. Follow the advice in these pages at your own peril. This report has not been fully vetted or approved yet by Sony.

I hope you enjoy meeting VENICE 2 as much as I did.

– Jon Fauer, November 15, 2021



Sony VENICE 2 8K and 6K Camera Introduction

If it says 8K, then it's a
VENICE 2 8K



Sony VENICE 2 8K fully festooned in studio regalia

November 15, 2021. Four years and nine days after the original VENICE camera first launched five miles from Venice Beach, at Sony Pictures Culver City, VENICE 2 arrives.

There are two models: VENICE 2 8K and VENICE 2 6K.

See the picture above. Sony is rather discreet about identifying cameras. Sony a1, a7 and a9 still cameras are similarly stealthy. You have to look hard to find the model name. It's the opposite of Formula 1 cars and the back of FDTimes, where logos are emblazoned on every square inch.

The name VENICE is nowhere to be found on VENICE cameras, except possibly on the box in which it ships. If it's a VENICE 2 8K, you will see "8K" in understated lettering on the front. Even that is modest, since VENICE 2 8K is actually 8.6K.

If you do not see any indication of "K," then it's the 6K model.

And how do you distinguish whether it is an original VENICE or the latest VENICE 2? VENICE 2 has a completely flat base with big air vents. Original VENICE has a removable shoulder pad on the bottom.

The only adornment is a CineAlta logo on the left side. "CineAlta" is written on the right side. The design is clean and understated.

Not understated is the performance of this camera. Sixteen stops of exposure latitude reveal more highlights and shadow detail. Skin tones are smooth and gentle. Images are elegant, natural, with a quality that seems almost tactile and impossibly three-dimensional.

The following report was possible thanks to the incredible efforts of Sony teams in Japan and California. Team meetings became virtual jetlagged excursions from New York nights to Tokyo early mornings. New York early mornings were even earlier mornings in San Diego. A VENICE 2 8K flew here last week. Meets, Shoots & Leaves too soon.

If you have used the original VENICE, the learning curve is almost instantaneous. This is a familiar friend.

If you haven't used VENICE before, the logical layout and intuitive menus might make the many pages herein superfluous. VENICE 2 certainly passes the 5-minute, no user-guide test.

Above all, it's all about the image. Don't take my word for it. Watch the first VENICE short films from, among others, Claudio Miranda ASC, ACC and Rob McLachlan ASC, CSC, described later in this report.

Why is the image so good—even better than original VENICE? Maybe the metaphor was hatched in Paris, about which Hemingway wrote, in *A Moveable Feast*: "By then I knew that everything good and bad left an emptiness when it stopped. But if it was bad, the emptiness filled up by itself. If it was good you could only fill it by finding something better."

They found something better, those designers and scientists and engineers at Sony. They did not stop. They found a new sensor, improved imagery, a deeper awareness, better handling.

It is very good.

There are two VENICE 2 Camera Models

VENICE 2 6K does not mention any K in front



Sony VENICE 2 6K

There are two VENICE 2 models: 8.6K and 6K

- The 8.6K and 6K image sensor blocks are interchangeable.
- This is an evolution of the original VENICE product design.
- VENICE 2 looks very similar to original VENICE.
- Many VENICE accessories will fit VENICE 2 because most threaded screw sockets and connectors are the same.
- The bottom of VENICE 2 is essentially the only area that is different from the original camera.
- The flat bottom of VENICE 2 sits comfortably on your shoulder. It's nice without any baseplate at all: the balanced, low center of gravity is a pleasure.
- VENICE 2 is slightly longer than VENICE body only.
- VENICE 2 is 44 mm shorter than VENICE with R7 Recorder.
- Compact body with X-OCN RAW Recording built-in (no more need for the external AXS-R7 recorder).
- 4K ProRes Recording is also built in.
- Many updates and more intuitive menus were based on VENICE users' comments
- New high-speed 6.6 Gbps AXS card for 8K 60p recording
- The ethernet connector port moved to the Camera Right side.
- Lemo 2-pin 12V port replaced the Hirose 4-pin at rear.
- Internal mic added.

VENICE 2 8K

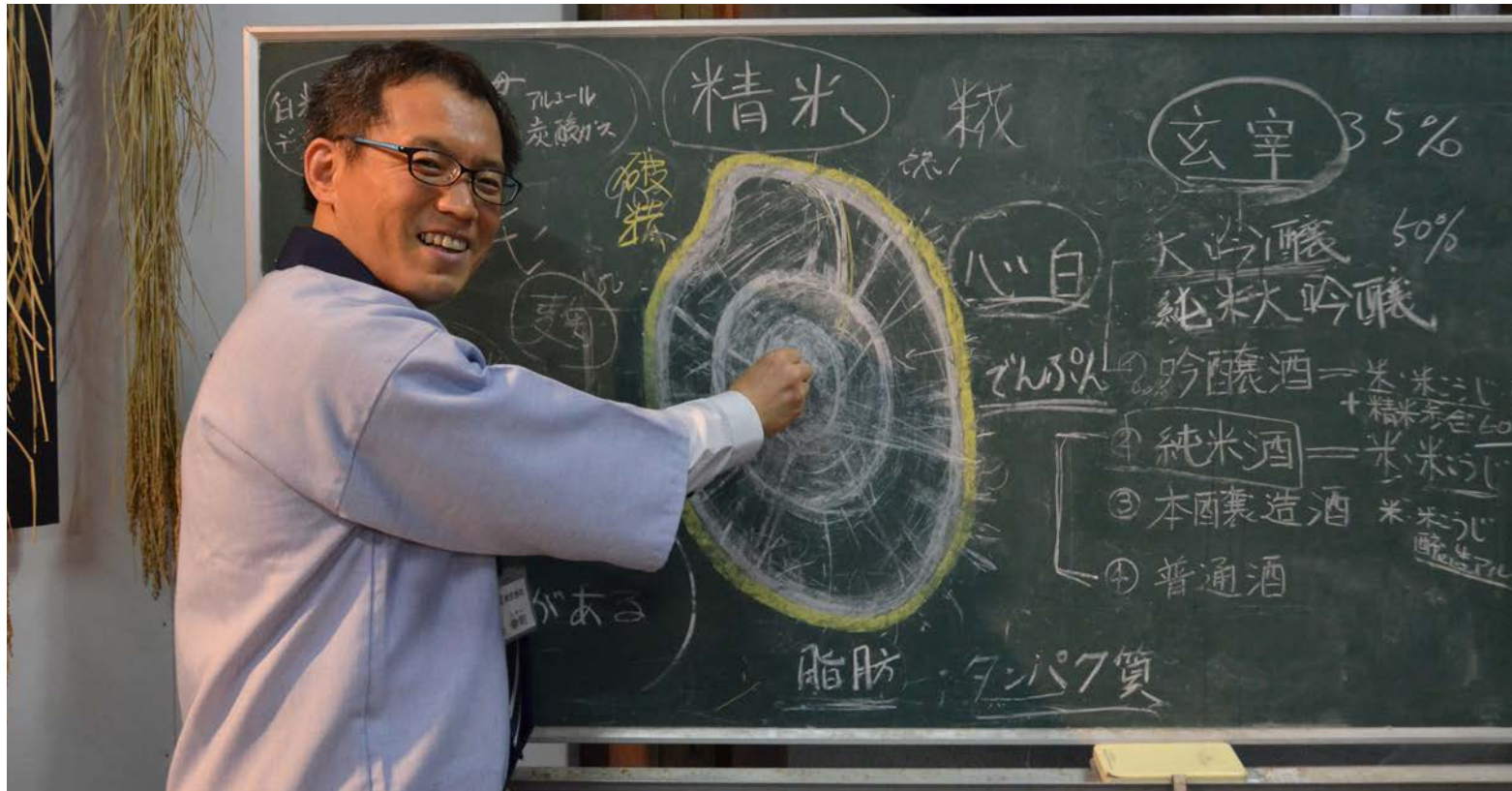
VENICE 2 8K has a 50 Megapixel (8640 x 5760) Full-Frame sensor.

- Full-Frame 8.6K recording in 3:2 imager mode up to 30 fps.
- Full-Frame 8.2K 17:9 recording up to 60 fps.
- Internal X-OCN LT, ST and XT 16-bit (RAW-like) recording.
- Internal ProRes 4K recording oversampled from 8.6K sensor.
- 16 stops of exposure latitude (dynamic range).
- Dual Base ISO of 800 and 3200.
- Internal Clear and ND.3 to ND2.4 filters (8 stops).
- VENICE 2 8K accepts VENICE or VENICE 2 6K sensor block. The camera recognizes the change automatically.

VENICE 2 6K

VENICE 2 6K has a 24 Megapixel (6048 x 4032) Full-Frame sensor. It is the same sensor as the one in the original VENICE, which could also be called first VENICE, VENICE 1, Ur-VENICE, or primogenitary VENICE. As with the original VENICE, VENICE 2 has:

- Full-Frame 6K in 3:2 imager mode up to 60 fps.
- 15+ stops of exposure latitude.
- Dual Base ISO of 500 and 2500.
- Internal Clear and ND.3 to ND2.4 filters (8 stops) .
- Internal X-OCN LT, ST and XT RAW 16-bit recording. That is the major difference between VENICE and VENICE 2 6K.



Ichijo Koji explains the process of polishing rice for Sake. Suehiro Sake Brewery (est. 1850) in Aizu, Japan.

Why is the image good?

You could be peppered with strings of numbing numbers about VENICE 2 — 50 Megapixel sensor, unofficially estimated 4.14 micron photosites, 16-bit recording, 800/3200 dual base ISO and 16 stops of dynamic range.

“You may ask yourself,” poetically following your inner David Byrne (*Once In A Lifetime*), “How do I work this?” You might begin by considering that a separate division at Sony makes the Alpha series still cameras. For example, the Sony a1 flagship camera has a 50 MP 8K 35.9 x 24.0 mm sensor, sublime skin tones and advanced color science. We use an a1 camera here at FDTimes.

You may ask yourself, what is the result of Sony’s owned supply chain straddling sensors to screens, pixels to projection, lenses to living room, megapixels to multiplexes. But of course, you will simply want to see VENICE 2 for yourself, shoot your own tests.

Who needs 8K?

We have heard this chorus before. Who needs finer grain and faster film stocks? Who needs HD? Who needs 4K? Who will enjoy 8K?

FDTimes has been rhapsodizing recently about other new 8K cameras. A pattern emerges. An optical engineer explained, “It seems counterintuitive. You would think that higher resolution gives the moving image more of that dreaded video look. But in fact, the opposite is true. The greater resolution provides a finer canvas and therefore fewer artifacts. It is like the photos in your magazine. If you print with a finer dot pitch, the pictures have a greater degree of tonality, detail and presence. You can certainly soften your image with a camera filter or an unsharp mask in your

post process. Advances in sensor design have enabled simultaneous increases in both resolution and sensitivity.”

It was ironic, in the beginning, that many users of the original VENICE were shooting not in Full Frame but in Super35 format. There were several reasons. Four years ago, the selection of Full Frame lenses was not as vast and eclectic as now. There was a vast inventory of Super35 lenses. And, that original VENICE offered amply mandated 4K 4096 x 2160 Super35 image origination.

Today, rental houses report that a majority of their current VENICE shows are shooting Full Frame. But, I asked mischievously, might their storage shelves lined with long-dusty Super16 lenses be eyed with renewed vigor, now that VENICE 8K could capture Super16 (12.52 x 7.41 mm) format in 3K—if my math is correct?

5.8K Super35 on an 8.6K Full-Frame Sensor

And what about shooting Super35 on VENICE 2 8K? Indeed. There are generous Super35 imager modes: 5.8K 17:9, and 5.5K 16:9, and 5.8K anamorphic Super35 6:5.

Another question comes up. If shows are delivered in 4K, why shoot in 5.8K? For that matter, why shoot 8.6K Full Frame? The detour is long along the beneficent road of oversampling, down-sampling, down-rezzing, VFX work, active backgrounds, mixed reality. But now it is time to detour with Hemingway once again: “Wine is a grand thing,” he said. “It makes you forget all the bad.

Sake Theory and 8K

Sake is a rice wine. It is a very grand thing. Some argue the process is more like beer. No matter, brewing sake suggests an appropriate



Above: The inedible outer hull of rice is brown.

answer to why we like 8K even if the resulting image is only 4K.

Sake is made from rice and comes in various grades. The inedible outer hull of rice is brown. To make sake, you remove the brown husk. The now-white grain is polished, or milled, to remove the outer layers of fats and minerals. The finer the rice is polished, the higher the grade of sake, and usually the cost is commensurate.

The pinnacle of polished sake is Junmai Daiginjo. My favorite is Dassai 23. The number 23 represents the amount of rice remaining after polishing. So, it takes a 77% larger grain of rice and 168 hours of polishing to create this silky textured sake with a nose of flowers, strawberries and layers of flavors that remind me of the imagery that flows from VENICE 2 8K.

Try the wine? Enjoy the elegance of the image.

Practical

Was there ever an art director on a commercial who didn't want to blow up and zoom in on a scene during post production, the better to see the product in all its glory? Don Draper of *Mad Men* would approve of that abundance of resolution to retain good, clean images. As he said, "You can't tell people what they want. It has to be what you want."

You may want to stabilize bouncy images in post. This can be done by enlarging the image slightly and then repositioning it with software, frame by frame. An 8K image offers higher resulting resolution after these post production ministrations.

Research

Media business market research does not necessarily require consulting services from Bain or McKinsey. Just visit your nearest



8K Sony BRAVIA XR Master Series Z9J HDR Full Array LED with 75" or 85" diagonal screens.

Best Buy consumer electronics mega-store. Navigate to the television department. Even now, you will see many affordable 8K TVs. Sony Z8H 8K, Samsung NeoQLED 8K and LG NanoCell 99 Series televisions line showrooms seemingly longer than corridors connecting NAB Central to South Hall. Prices have dropped since your jaw dropped at pre-pandemic CES Shows, when the same 75-inch 8K televisions cost the equivalent of a small country's GDP. Today, giant 8K TVs for your home cost less than a bunch of batteries for your VENICE 2 camera.

Do we see a trend?

Rentals and Owners

As a rental house or owner-operator, you may ask yourself, what about my original VENICE? Sony will continue to support the original VENICE in its Cinema Line. This VENICE does a few things its younger siblings cannot do, for example, simultaneous X-OCN and other format recording.

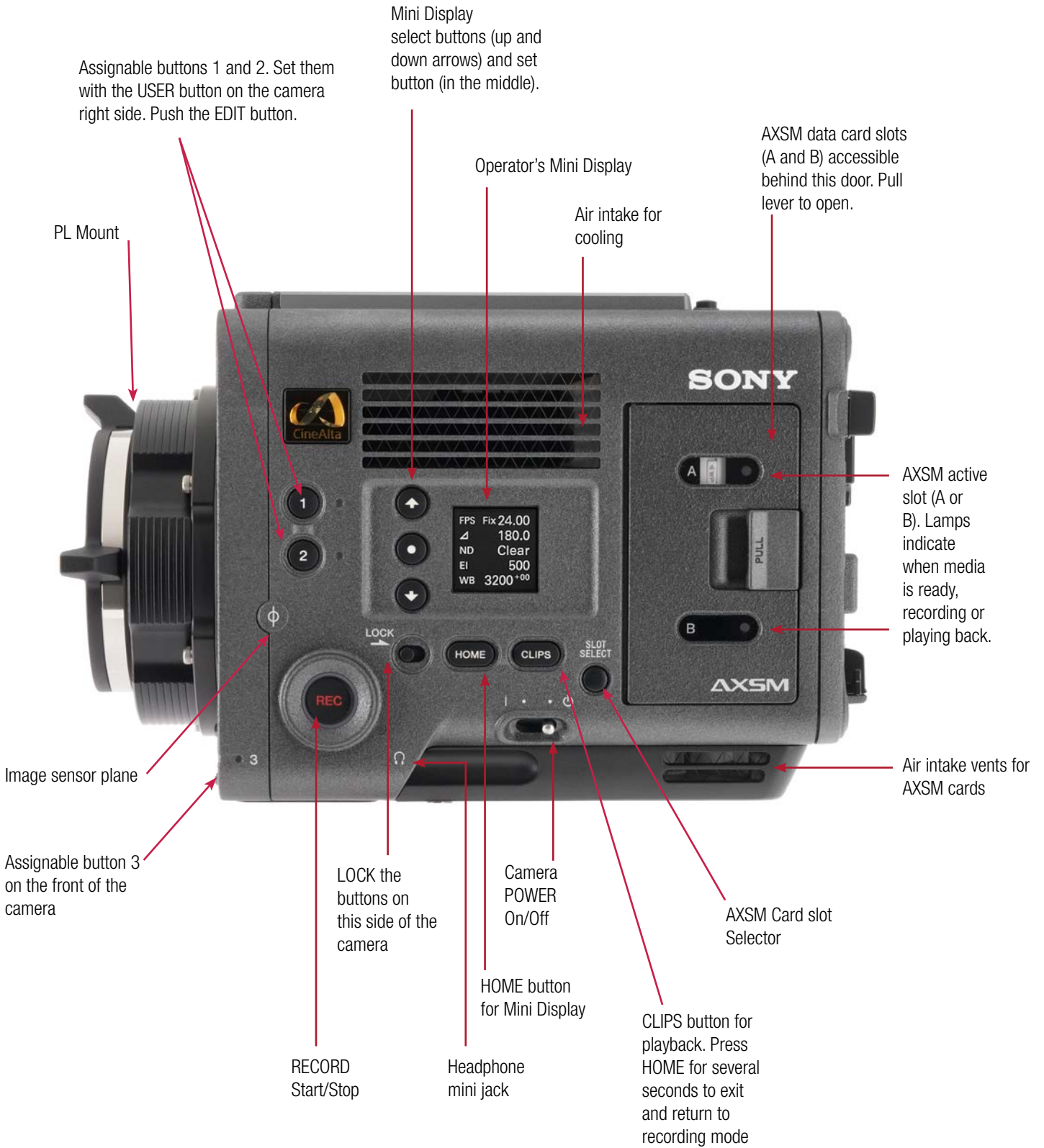
And you may ask yourself which VENICE 2 do I buy? 8K or 6K?

If you are content with your current VENICE footage but would like something lighter and smaller and capable of faster framerates, then the 6K model may be fine. As of this writing, upgrade paths from VENICE 2 6K to 8K have not yet been confirmed.

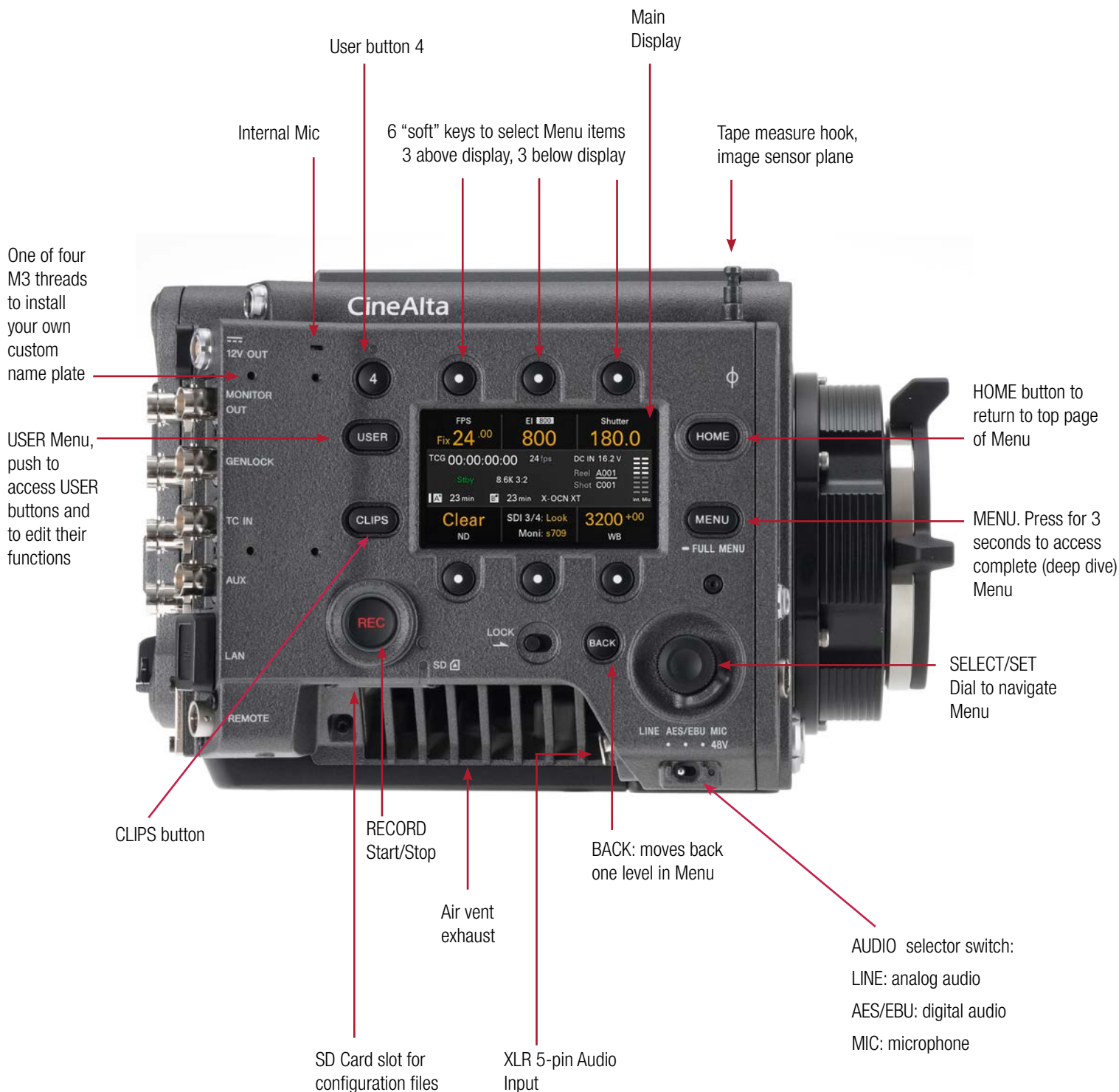
VENICE 2 8K is the flagship model. In addition to its considerable talents, consider also the compelling potential for future-proofing.

None of this is lost on the tycoons in the tower, the masters of the media metaverse. When 8K consumer television consumption reaches a tipping point, perhaps the only question is how much of a premium they, the streaming service providers, might charge to send 8K shows directly to your new 8K TV.

Sony VENICE 2 – Camera Left Side



Sony VENICE 2 – Camera Right Side



Sony VENICE 2 – Front

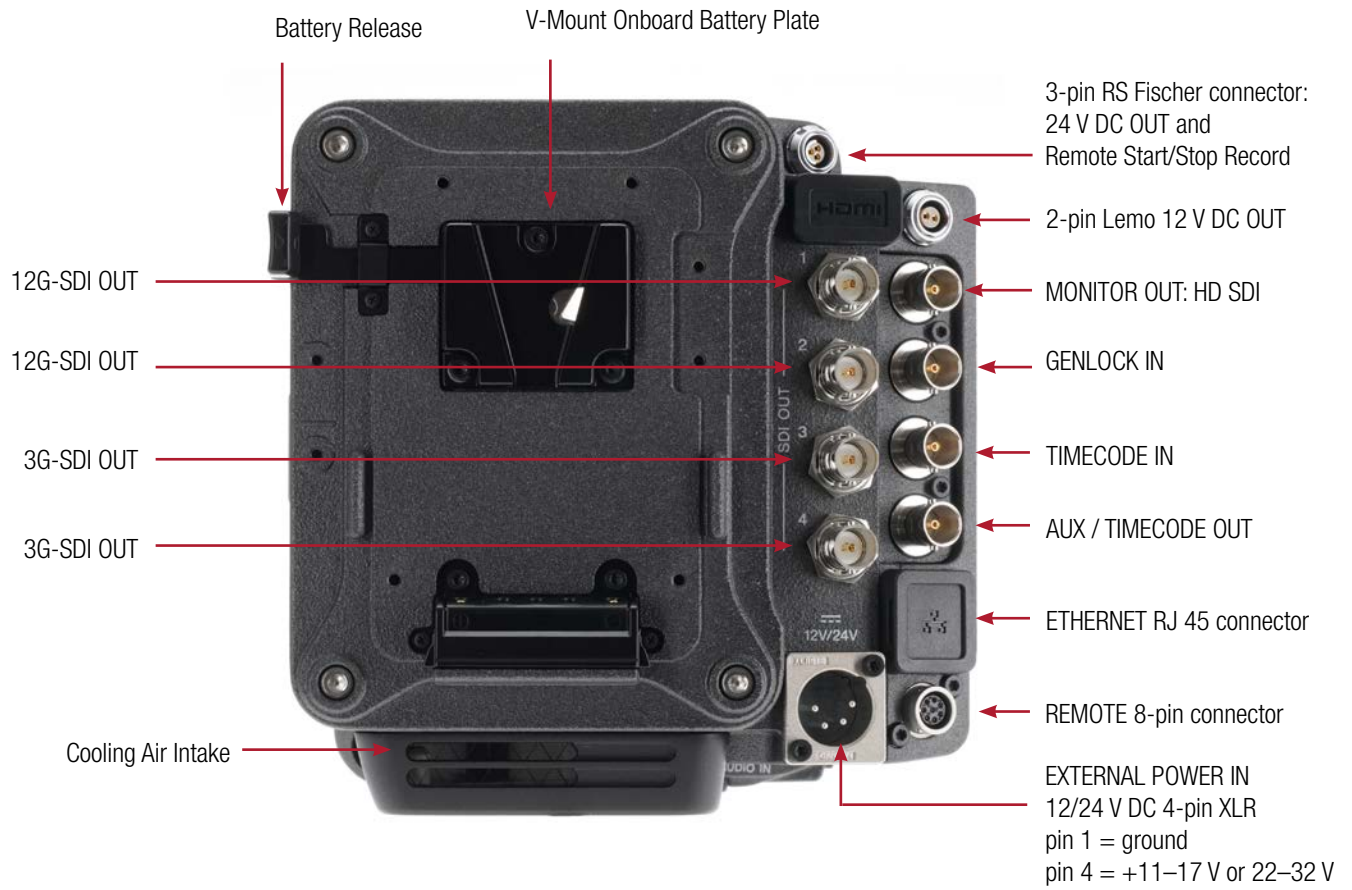
VENICE 8K with PL Mount



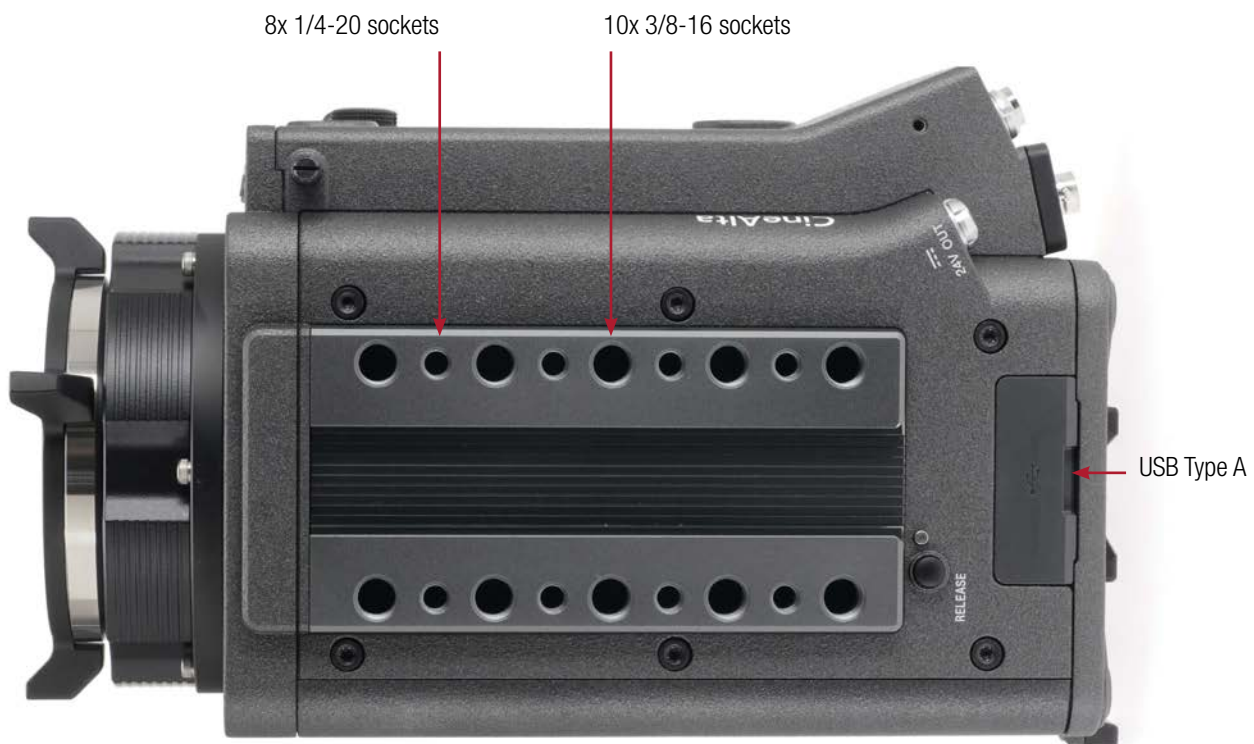
VENICE 8K with PL Mount Removed, Revealing E-mount



Sony VENICE 2 – Rear



Sony VENICE 2 – Top



How to see that it's a VENICE 2 8K



8K
written
here

VENICE 2 8K

One of the few distinguishing ways to tell this is the 8K model—menu shows 8.6K 3:2 sensor mode:



8.6K 3:2 sensor mode.

VENICE 2 8K

How to see if it's a VENICE 2 or original VENICE

Menu shows 6K 3:2 sensor mode.



VENICE 2 6K

VENICE 2 body is 15 mm (.6") longer than original VENICE body.

15 mm
(.6")



Original VENICE records XAVC 4K. VENICE 2 does not.



Original VENICE (6K)

VENICE 2 vs original VENICE



VENICE 2 8K

Air vent for AXS Memory Cards



Original VENICE (6K)

Removable shoulder pad ends short of rear

VENICE 2 vs original VENICE with AXS-R7 Recorder



VENICE 2 8K

2 AXS Memory Card Slots. No SxS Card Slots.



Original VENICE (6K) with AXS-R7 Recorder

2 SxS Memory Card Slots.

2 AXS Memory Card Slots.

VENICE 2 vs original VENICE Front and Rear



VENICE 2 8K Front



Original VENICE (6K) Front

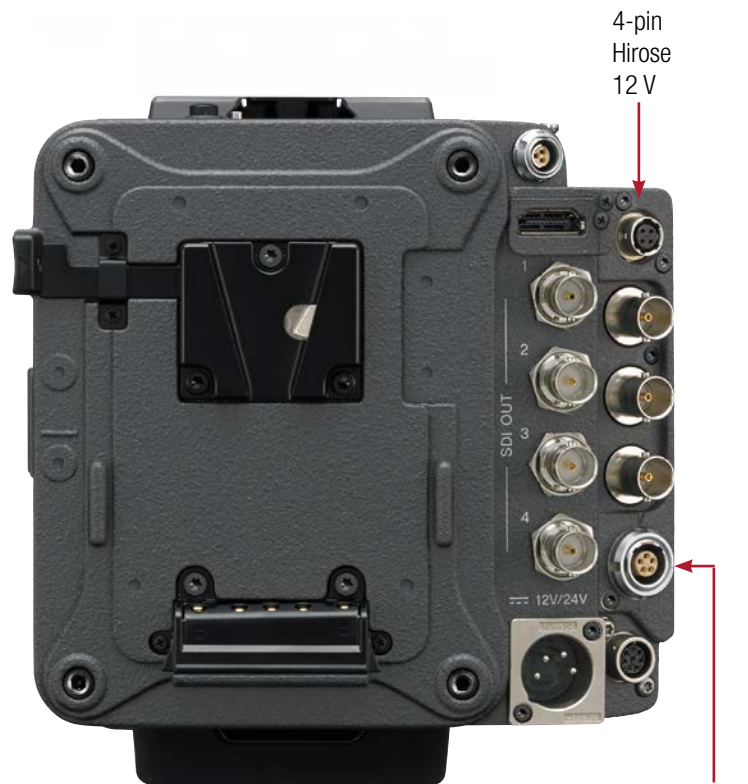
The front of VENICE 2 and original VENICE are the same. The lens mounts are identical. Accessories fit both. The only difference is that the six screws securing the PL mount are now captive and spring-loaded.



VENICE 2 Rear

Ethernet RJ45 moved here

AUX BNC Timecode Out



VENICE (6K) Rear

AUX 5-pin Timecode Out

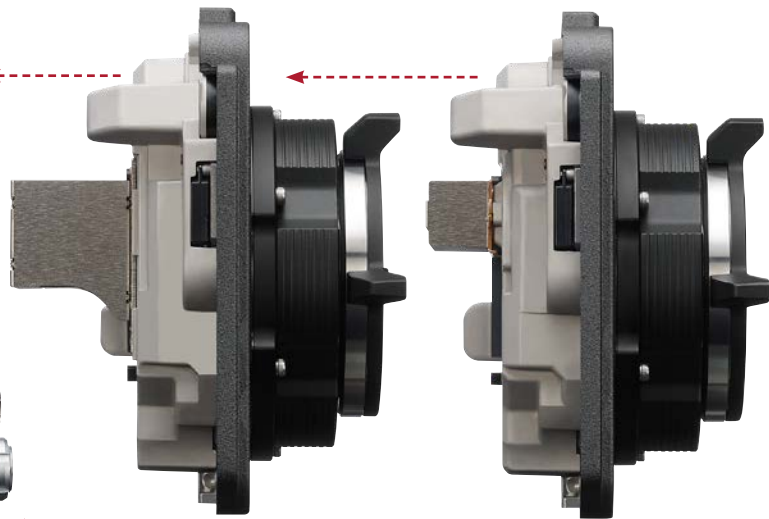
6K and 8K Sensor Blocks

VENICE is divided into 2 parts: a camera body and a sensor block.

- The 8K Sensor Block only fits a VENICE 2 camera body.
- The 8K Sensor Block will fit on VENICE 2 6K. (Swap Sensor Blocks.)
- The 6K Sensor Block of VENICE 2 6K fits VENICE 2 8K. (Swap Sensor Blocks.)
- The 6K Sensor Block of original VENICE fits VENICE 2. (Swap Sensor Blocks.)
- The 6K Sensor Block of original VENICE is the same as the 6K Sensor Block of VENICE 2 6K.



VENICE 2 8K or 6K



8K Sensor Block
only fits VENICE 2

6K Sensor Block is the
same as in original
VENICE and also fits
VENICE 2 (making it a
VENICE 6K).



Original VENICE (6K) with AXS-R7 Recorder



6K Sensor Block of original VENICE
also fits VENICE 2

Sony Cinema Line: FX3, FX6, FX9

Sony consolidated their cine cameras under the name Cinema Line on September 2, 2020. They explained, “The Cinema Line is a series of camera products for a wide range of creators that will bring together Sony’s expertise in image quality, attention to detail, technology and passion in digital cinema.

“Cinema Line will deliver not only the coveted cinematographic look cultivated through extensive experience in digital cinema production, but also the enhanced operability and reliability that meet various needs. The new series will extend beyond traditional cinema camera and professional camcorder form factors.” That hinted at more Sony Cinema Line cameras to come.

The hint of more Cinema Line cameras to come came quickly. FX6 arrived in November 2020. FX3 followed in February 2021. And now, four years after the introduction of VENICE at Sony Studios in Culver City, Sony launches VENICE 2 6K and VENICE 2 8K.

FX3



FX6



FX9



FX3

Sensor: 12.1 MP actual / 10.2 MP effective
Sensor size: 35.6 x 23.8 mm
No Internal ND
Base/Enhanced ISO: 800 and 12,800
Max Res: 3840 x 2160p XAVC S-I 4:2:2 10-Bit
Variable framerate UHD: 1-120 fps
External RAW: 44264 x 2408 16-Bit HDMI
Alpha style E-mount — Full Frame & Super35
Weight (body only): .640 kg / 22.6 oz
Size (body only): 129.7 mm / 5.1" wide 77.8 mm / 3.1" high 84.6 mm / 3.3" deep
Sony Z-Series 7.2V DC
Camera Introduced Feb 2021

FX6

Sensor: 12.1 MP actual / 10.2 MP effective
Sensor size: 35.6 x 23.8 mm
Internal Variable ND: ND.6 - ND2.1
Base/Enhanced ISO: 800 and 12,800
Max Res: 4096 x 2160p XAVC-I 4:2:2 10-Bit
Variable framerate 4K: 1-60 / UHD: 1-60 fps
External RAW: 4096 x 2160 16-Bit SDI
Alpha style E-mount — Full Frame & Super35
Weight (body only): .885 kg / 1 lb 15.4 oz
Size (body only): 110 mm / 4.33" wide 115 mm / 4.5" high 140 mm / 5.5" deep
Battery: Sony BP-U Series 14.4V DC
Camera Introduced November 2020

FX9

Sensor: 20.5 MP actual / 19 MP effective
Sensor size: 35.6 x 23.8 mm
Internal Variable ND: ND.6 - ND2.1
Dual base ISO: 800 and 4000
Max Res: 4096 x 2160p XAVC-I 4:2:2 10-bit
Variable framerate 4K: 1-60 / UHD: 1-120 fps
External RAW: 4096 x 2160 16-Bit SDI
Lever Lock E-mount — Full Frame & Super35
Weight (body only): 2.0 kg / 4.4 lb
Size (body only): 146 mm / 5.75" wide 142.5 mm / 5.61" high 229 mm / 9.02" deep
Battery: Sony BP-U Series 14.4V DC
Camera Introduced September 2019

Sony Cinema Line: VENICE, VENICE 2 6K, VENICE 2 8K

And now there are 6 Cinema Line cameras. The main way to distinguish between the six Sony Cinema Line siblings is by how you will work with them. VENICE and VENICE 2 are for large family gatherings: when you're working with a Focus Puller, Camera Operator (or you're the DP/Operator) and full size camera crew. FX9 is the documentary darling: lightweight and comfortable when resting on your shoulder. FX6 is the handheld polymath, eminently hand-holdable, compact and happily outfitted with accessories for all kinds of situations. FX3 was designed for times when, as Greta Garbo said, "You want to be alone."

How do you decide between VENICE 2 8K and 6K? If you already own a VENICE 6K, the choice is pretty clear: go for VENICE 2 8K. You should be able to swap the sensor block of your original 6K VENICE into VENICE 2 in less than 5 minutes. You can keep the original VENICE as a backup and for jobs where you want simultaneous recording of AXS and SxS media, and for higher framerates.

VENICE 6K



VENICE 2 6K



VENICE 2 8K



VENICE 6K

Sensor: 24 MP
Sensor size: 35.9 x 24 mm
Internal ND: Clear, ND.3 - ND2.4
Dual base ISO: 500 and 2500
Max Res: 6048 x 4032 X-OCN 16-Bit
Variable framerate 6K 3:2 FF 1-60 fps
Internal RAW: 6048 x 4032 16-Bit
PL Mount & Lever Lock E-mount—FF & S35
Weight (body only): kg / lb
Size (body only): 147 mm / 5 7/8" wide 158 mm / 6.25" high 235 mm / 9 3/8" long
Battery: 14.8v V-Mount rear plate
Camera Introduced September 2019

VENICE 2 6K

Sensor: 24 MP
Sensor size: 35.9 x 24 mm
Internal ND: Clear, ND.3 - ND2.4
Dual base ISO: 500 and 2500
Max Res: 6048 x 4032 X-OCN 16-Bit
Variable framerate 6K 3:2 FF 1-60 fps
Internal RAW: 6048 x 4032 16-Bit
PL Mount & Lever Lock E-mount—FF & S35
Weight (body only): 4.2 kg / 9 lb 4.2 oz
Size (body only): 152 mm / 5.98" wide 158 mm / 6.25" high 250 mm / 9.84" long
Battery: 14.8v V-Mount rear plate
Camera Introduced November 2021

VENICE 2 8K

Sensor: 50 MP
Sensor size: 35.9 x 24 mm
Internal ND: Clear, ND.3 - ND2.4
Dual base ISO: 800 and 3200
Max Res: 8640 x 5760 X-OCN 16-Bit
Variable framerate 6K 3:2 FF 1-30 fps
Internal X-OCN RAW: 8640 x 5760 16-Bit
PL Mount & Lever Lock E-mount—FF & S35
Weight (body only): 4.3 kg / 9 lb 7.7 oz
Size (body only): 152 mm / 5.98" wide 158 mm / 6.25" high 250 mm / 9.84" long
Battery: 14.8v V-Mount rear plate
Camera Introduced November 2021

Nobutatsu Takahashi, General Manager of Sony Cinema Line



Nobutatsu Takahashi, General Manager of Sony Cinema Line

Nobutatsu Takahashi is General Manager of Sony Media Solutions and Camera Division Two, which includes the Sony Cinema Line. The inline illustrations are from his presentation.

Jon: Mr. Takahashi, it is a pleasure to see you on the screen of this video conference. Can you please tell us about your job at Sony?

Nobutatsu Takahashi: My full name is Nobutatsu Takahashi, but it's long. I grew up in Austin Texas for about a year, and then I spent three years in California. Everybody called me Nobu, like the famous restaurant.

All proper FDTimes interviews should begin like this, with a discussion of restaurants. Nobu Matsuhisa's original place on La Cienega has been one of my favorite restaurants in LA. Where are you at this moment?

I am in the Sony's new Yokohama office now.

Would you please tell us about your side of the business.

I manage the business administration of Sony's Cinema Line. These are cameras for visual story tellers. If you were to draw a pyramid shape, our CineAlta VENICE, and now VENICE 2, would be at the top. In the middle, you have the FX9, followed by FX6, and then FX3.

We have two different division. One is Media Solutions Business, which was based in Atsugi, and the other is Camera Division Two, which was located in Shinagawa. Now, those two divisions joined together to become one, and moved to our new office in Yokohama. I'm actually working in two jobs, as the General Manager of Media Solutions and also as General Manager of Camera Division Two.

What it is that you do as the General Manager? Is it a worldwide position?

I'm doing basically a business administration type of job, but I work with product planning, designers, engineers, marketing, business

planning, all of the related divisions. I don't quite know how to say it— I'm taking the leadership of the product planning and selling the products, building the communication with customers. I'm in charge of everything about our Cinema Line cameras.

This is worldwide?

Yes. Worldwide and based from headquarters in Yokohama. We have sales companies in each region in the world and work closely with them as well.

How would you explain the difference between the cameras within the Cinema Line?

VENICE and VENICE 2 are our top-of-the-line cine cameras. FX9, FX6 and FX3 are more affordable Cinema Line cameras for users often called as "filmmakers" and "content creators."

Are you also managing the Alpha (Alpha 1, Alpha 7, Alpha 9) camera group?

I used to work with Alpha cameras, but now I'm focused on the Cinema Line.

How did you get into this line of work?

I used to live in California. I was at Sony Electronics Inc. in San Diego from 2007 to 2010. I was the product manager for camcorders for three years. I went to New York, Los Angeles and Sony Pictures in Culver City many times.



At one time, I worked as a cameraman on the production of a surf film for fun. I worked with my friend who also worked at the Sony office at that time.

I enjoyed the filming so much. In California, as you may know, there's a spirit that we should do something, we can make something. It's a challenging spirit. I was so inspired by the west-coast culture.

What was the name of that beach where you were filming?

Cardiff-by-the-Sea. It's located in Encinitas.



Encinitas. You could name a new camera Encinitas or Cardiff or another famous surfing beach north of Venice Pier.

Nobu Takahashi



I would love to.

So, you are a surfer?

Yes. Big time. Sometimes a typhoon comes and we have good waves. Japan is an island country with lots of beaches. I also used to work in the sailing shop in Yokohama.

I enjoyed watching the Tokyo Olympic sailing events at Enoshima. They did a beautiful job covering the races. What cameras did you use on your surfing films? Hopefully Sony.

Yes, it was. I think it was a MiniDV camcorder, the FX1000. The interchangeable lens cinema camera was so expensive, I could not afford to buy it, so I used this camera. But, it worked very well. I soon realized that everyone could express their stories like this. Through movie production, they want to share their emotions with other people.

Is it fair to say that in your years at Sony in San Diego, the company did not exhibit a firm commitment to cameras destined for the top of the cinema pyramid you discussed—the apex, the very high-end of cinema production? But that all changed with the VENICE. Could you please explain that change? If you don't agree, of course, please tell me.

We are very glad to see that VENICE has been widely accepted in the industry. We developed this camera by listening thoroughly to the voices of filmmakers, with the aim of becoming one of the best reliability partners for all creative professionals. Sony developed the world's first digital cinema camera, the HDW-F900, in 2000. That was 21 years ago. We continuously sought the feedback of users in evolving new products while continuing the dialogue with them. This was our commitment to the cinema industry. As you mentioned, since the launch in September 2017, VENICE has been adopted by many film titles, including Hollywood blockbusters like "the Avatar sequel," among many others. VENICE is used in wide applications, not only for cinemas, but also OTT streaming, TV dramas, music videos, and commercials.

Yes, I know that VENICE was also used for *Top Gun: Maverick* and *Black Widow*. To follow up then, what do you think is the reason for the huge success worldwide of the original VENICE?

I think one reason for the success of VENICE, as I mentioned, is that we maintained close collaboration with cinematographers, directors, assistants, rental houses and the creative community by continuously updating the camera and, you could say, making it grow with them. Another factor is the advancement of OTT and the increasing demand for high-end quality and cinema-like content in various applications. These days we see OTT content is increasing and demand for cameras is increasing proportionately. I think that's the environment behind the success of VENICE. We

think those markets, and the products we are making, are very important. We value the cinema industry very much.

Why do you think streaming—Netflix, Amazon, Apple, Hulu, Disney, etc—helped the success of VENICE? Was VENICE not working on major movies before that?

I myself also like to go movies in a theater. It's a totally different experience. I love that. But, now I can watch on demand streaming at midnight or any time I want. I might like to enjoy the movie again, I might want to re-visit and review the movie that I experienced in the theater last time. That option gives audience the ability to enjoy cinema content at any time. Studios can gain more revenue with OTT streaming in addition to theatrical release. I think that is good for the customers, of course, good for the streamers, good for the creators, and good for the camera makers. That may be changing the industry and may help make more content even better.

Are people going back to movie theaters in Japan?

Yes, they are. How about New York?

New York is pretty good too. What's the reason for calling the group of Sony cine cameras "Cinema Line," as opposed to, let's say, "CineAlta?"

The Cinema Line exists for cinematographers, filmmakers, creators and all people involved in content production. We believe that it will contribute to the evolution and popularization of content production centered on the Cinema Line's look and variety. As I mentioned, we see the diversification of movie content in various fields of OTT, as I mentioned, and to the websites and social media. Also, the demand for videos for personal use, such as weddings and vlogs, are increasing. Along with this trend, creators are also becoming more and more interested in impressive cinematic expressions. In response to such needs, we developed the cinematic look cultivated through the development of cinema camera, such as VENICE, and the high operability and reliability that meet the demands of creators for a wider range of users.

So the idea of the Cinema Line is to provide different cameras for different users?

For example, consider the swordsmith, the Katana-kaji. Katana was the sword used by Samurai.



The master swordsmith created the Katana that matched the user's needs and skills. We would like to provide all levels of content creators, who have the same purpose of delivering excitement to the audience, with a unified look and operability that matches their skills, needs, and expressions. That is the purpose of Cin-



Sony Cinema Line, r-l: FX3, FX6, FX9, VENICE, VENICE 2

ema Line. That's why we have a range of different products from VENICE to FX3. You might compare the concept of the Cinema Line to a Katana-kaji.

That also reminds me of Olivander, the wand maker in *Harry Potter*. He said that the wand chooses the wizard. The camera chooses the cinematographer.

That type of concept, yes. We would like to provide the same look, but with different abilities that suit a wide range of cinematographers and filmmakers. That's why we have a range of products.

Can you approximate usage of cameras in the Cinema Line?

We don't have precise percentages, but in terms of the potential market, FX6 is large as it shoots many commercial films and web videos. VENICE and new flagship VENICE 2 are very important from the perspective of building the brand. Basically, the FX6 market is very large. But, I refrain from answering the specifics.

That entry level seems to be the segment that's growing the most rapidly everywhere in the world. How do I put this tactfully? I want to say this in a nice way. Is it important for Sony to capture the high-end? Because, the high-end really may not be that big a market for a huge company like Sony.

As you mentioned, our quantity of the high-end cameras is smaller compared to FX6 and FX3. That's true. However, we think that building a camera for the high-end cinematography is a very good path to leading technology. We are putting lots of resources into the new technologies. Then we can make those technology available to the rest of the filmmaker and creator communities. It is a process of democratization that emerges. In these thoughts, building a camera for high-end cinematography is very, very important for us.

In some ways, it's aspirational. Content creators will always look up to a VENICE, even if they can't afford it. They might say, "Okay, if I buy an FX3 or an FX6 now, maybe the films will be good and someday I'll be able to buy a VENICE."

I want to mention that we do not think the camera, by itself, can make a new era of filmmaking. We think that the creativity and the cinematographer's art will define the new era. We would like to co-work with them to bring that new era in the art of visual sto-

rytelling with Sony's imaging technology. In that stance, we have to have the communication. We have to get closer to cinematographers with our imaging technology. So, we greatly value their collaboration to get the opening into this new era of creativity. And so, we value the high-end cinematography area very much.

Can we talk a little more about VENICE 2? We all have heard about problems of supply chain. Are you on schedule to deliver VENICE next year?

Yes. We are working hard to deliver VENICE 2 to the market as soon as possible. We look forward to hearing the first impressions of VENICE 2, and incorporating the feedback received from various people for future refinements and expressions on usability. As you mentioned, we are all suffering from supply limitation, but we're working very hard to deliver VENICE 2.

I guess Sony has an advantage because Sony pretty much makes everything that goes into the camera—from the sensor, to the circuits, to almost everything else?

Yes. We have our technology that we are designing ourselves. Of course, we have parts partners. We have discussions with our partners daily, but we are working very hard to get VENICE 2 delivered on time.

Is your overall strategy that the original VENICE and VENICE 2 — 6K and 8K— can all live side-by-side? Current VENICE is not going to be discontinued?

No, it's not obsolete. That's a very important statement. They can all live simultaneously side-by-side.

Do you see a need for a camera somewhere between FX9 and VENICE, in terms of price point and function?

That's a very good question. I think there are markets for cameras such as F55 that we had in the past. I think that there's a demand for a main camera for low-budget content production. There is also a need for a second, or "B" camera, in multiple camera setups. We would like to study and consider the market situation. But first, we would like to win the trust from the cinema industry with VENICE and then with the addition of VENICE 2. That is the first thing that we would like to do. But, I agree with you, there is a market for those cameras.

Nobu Takahashi: “We empower creators to bring a new era...”



At left, VENICE 2 8K. Right, VENICE 2 6K.

I think you probably already have the trust for VENICE. Congratulations, it is quite impressive.

Thank you very much. I think that's because we are getting closer to the cinematographers with our technology. By ourselves, we cannot do anything. We would like to keep the communication and good relationship with the cinematography industry.

What's the position that you would like to achieve in the professional imaging business with the Cinema Line?

Looking back on the past, cinema production has always pursued new forms of expression in the challenging spirit of the production field. For example, the original “Wizard of Oz” impressed the audience by expressing the journey from Kansas to the magical land with color. Sony has been developing cinema cameras, such as VENICE and VENICE 2 under the brand CineAlta. CineAlta is a named after “Cinema,” as in movie and “Alta,” as in best in Italian. Showing its brand message of “Emotion in Every Frame”, with beautiful images, delicate skin tones and rich gradations in color, are essential to deliver the story and emotion that the creator wants to convey to the hearts of the audience.

Now, computational photography and the cinematography is the key to the future. Sony Cinema Line considers that its mission is to work closely with cinematographers and help them with our image sensor, core device technology, and efficient workflows to open up a new era of movie production. We hope VENICE 2 will be the best partner for everyone involved in high-end cinema production and co-create the world with unique storytelling to

deliver emotion to people. We also want to increase the number of filmmakers and creators who enjoy content production with the Cinema Line and create a world where many stories touch many people. That's my message.

That's a very good message. It's impressive how Sony is advancing the world of imaging.

That's coming from cinematographers, not from us. Together with your creativity and advanced technology, we can shape a new era. Hang on ... earthquake. We are having an earthquake now.

[The webcam is shaking.]

Are you safe and OK? We can talk later...

I think it stopped.

Whew. If it's safe, may I ask another question? Do you see the VENICE 2 as a camera mostly for rental houses or do you think it will resonate with owner operators as well?

The majority might be rental houses because it is high end camera and VENICE was mostly purchased by rental houses. We guess rental houses might be the majority but I think individual cinematographers could also be interested in purchasing it. Myself, I would want to buy one. I'm asking Yutaka Okahashi-san if he would give me a discount.

Are you personally still filming?

Yes. I am still making lots of short films. Recently, I used our FX6 and FX3 on the shoot. They are very good cameras.

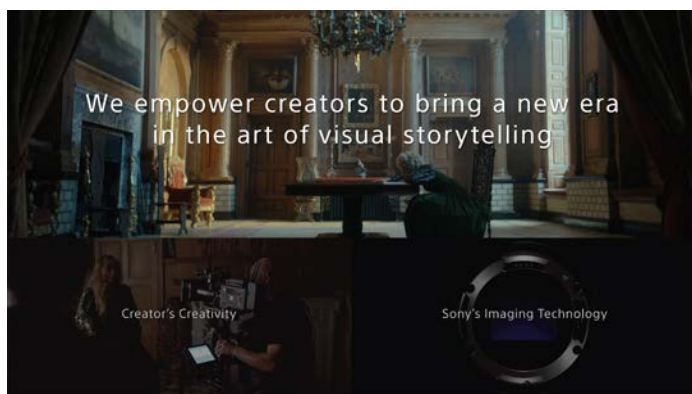
That is very unusual to have a company General Manager at Sony also spending time as a cinematographer who actually shoots with the cameras they make.

I love to shoot.

That's very good.

My dream, after retirement from Sony, would be to have a production house. I would call it Orange Days Production. In San Diego, California, there are very beautiful sunsets. My wife calls these orange days. That's my dream. And it was an honor to see you.

For me as well. Thank you very much.



Q&A with VENICE 2 Team



Jin Yamashita, General Manager of Product Planning



Yutaka Okahashi, Product Planner



Yuuji Ohba, Project Leader of Design Team



VENICE 2 8K

This Q&A is edited from several video conferences over two months. At Sony Corporation in Yokohama, Japan—Jin Yamashita is General Manager of Product Planning. Yuuji Ohba is Project Leader of Design Team. Yutaka Okahashi is Product Planner of VENICE / VENICE 2. For clarity, we are referring to the original camera as just VENICE. The two new models are VENICE 2 8K and VENICE 2 6K.

Jin and Yutaka have been incredibly helpful advisors over the years—updating, advising and explaining FDTimes articles and special reports on F65, F55, AXS-R7, VENICE, and now VENICE 2. I would like to thank them for late nights, early mornings and mutual jet-lag across our 13-hour time differences.

Jon Fauer: Can you please summarize the main concept and how you will position the camera?

Jin Yamashita: First of all, we are so grateful that VENICE has been well received by the market since its launch. We really feel it is great news for Sony that many people are using and appreciate this camera. In designing VENICE 2, one of our most important considerations was a smooth migration to the next camera by users. We wanted it to be intuitive for operators and camera assistants, so the user interface and controls should be consistent. Also color reproduction, operation of the internal ND filters, dual-based ISO and the Extension System.

No one should be worried about a learning curve with this cam-

VENICE 2 Q&A: Name, Nameplates, Highlights, EVF



era. The main physical difference is a smaller size when compared with VENICE and external recorder AXS-R7.

We cherished the voices of customers, so in designing VENICE 2, we incorporated their comments into the essence to the new camera. It is an evolution of image quality, usability and unique features based on the current, highly regarded VENICE. We think VENICE 2 will increase their choices and meet their needs.

Yutaka Okahashi: We got a lot of feedback from users. This was very helpful for improvements. A good example, based on customers' comments, was moving the Ethernet LAN port from the operator side to the right rear side where it is out of the way.

What is the real background of the name—VENICE 2? Venice, Italy; Venice Film Festival; Venice Beach?

Yutaka: VENICE was named after the location Venice, in Los Angeles, California because we expected the camera to be widely accepted and used on the US West Coast which is central to the world of filmmaking. It is where Hollywood exists. Also, Venice is a neighborhood once called the Venice of America because of its canals. Many movies were shot there and the connection with the cinema industry is strong. That's the background of VENICE name and it became well accepted by many users in the industry. So, we wanted to keep this name and make it clear that this camera is the next model of VENICE.

Can a user tell the difference from the outside whether you have a 6K or an 8K camera? Is 6K or 8K written somewhere on the outside?

Yutaka: VENICE 2 8K has "8K" written on the top left corner of the front. VENICE 2 6K does not have any lettering there.

And how can you see whether it is a VENICE or VENICE 2 6K camera?

Yutaka: The easiest way to see the difference is that the fan vents go all the way to the bottom on VENICE 2. Also, please notice the four M3 screw threads towards the rear of the camera right side.

They are provided so rental houses and users can attach a plate to identify the camera, for example 6K or 8K, A camera or B camera, the name of the rental house, and so on.

With those four screw threads you provide on the right side, I can imagine an entire cottage industry of artists making custom nameplates for the camera. Will you continue supporting the original VENICE?

Jin: VENICE 2 will be the flagship of the CineAlta cameras in our Cinema Line cameras and it will not replace anything in Sony's current lineup.

Is the 6K sensor of VENICE 2 the same as the one currently on VENICE?

Yuuji Ohba: Yes, it is exactly the same.

What is the difference in dynamic range, also known as exposure latitude?

Yuuji: VENICE 8K has 16 stops of exposure latitude. On the other hand, VENICE 6K has 15+ stops.

Where would we see the main differences?

Yutaka: According to our tests, highlight retention is about the same with both the 6K sensor and the 8K sensor. You will notice more shadow detail with the additional stop of exposure latitude in the VENICE 8K.

However, when you increase the exposure index of the base ISO, the exposure latitude for highlights will be extended.

Do VENICE and VENICE 2 use the same viewfinder?

Yuuji: Yes. The EVF viewfinder has not changed.

What ISO would you recommend to preserve highlight details?

Yutaka: With VENICE 8K, the native base ISO is 800 and that provides a latitude from +6 stops of highlights to -10 stops of shadow detail. If you "push" one stop, to ISO 1600, then you increase highlight latitude to +7 stops (and -9 stops in the shadows.) And, of course the 8K sensor has a very good signal to noise ratio.

VENICE 2 Q&A: Sensor Blocks, Data, Storage, Users



So that means even pushed one stop, the picture is very good.

Let's say you are a cinematographer working with the VENICE 8K. And you have a 6K spare sensor block. How long does it take to switch the sensors? And do you need a clean room?

Yutaka: You don't need a clean room. Our interchangeable sensor block assembly completely keeps the sensor shielded from dust and dirt. It takes under five minutes. There are four captive screws.

What would be examples of when a cinematographer would change from the 8K to the 6K sensor block?

Yutaka: One motivation for changing the sensors would be for higher frame rates. For example, the 8K sensor records X-OCN XT up to 30 fps in 3:2. The 6K sensor records X-OCN XT up to 60 fps in 3:2.

There are many more combinations of recording formats and maximum frame rates, so please see our chart.

Here is another scenario. Always capturing at 8K takes up more data. So, there may be times when the user will use the 6K VENICE. And then switch the sensor for special scenes that might require image stabilization, repositioning or blow-ups in post-production.

How much more data does the 8K sensor use than the 6K?

Yuuji: Nearly double. You might think that the difference between the 6K and 8K sensor is only 2K. But that delta is only the hori-

zontal pixel information. The total pixel count of the Full Frame 6K sensor is 24 MP and the 8K sensor is around the 50 MP. So, it is double the data storage and data rate.

But I guess as storage becomes ever more affordable, 8K becomes the new normal?

Jin: Yes. Currently, average budgets in the US and UK are higher than other regions. They do not seem to be too concerned about media cards and storage. We agree, the main intention of the new camera is the 8K model. But in other regions worldwide, it's not the same situation. For example, in Japan, theatrical feature film content for Japanese cinemas is usually released as 2KDCP. Production costs are limited. For these markets, probably the VENICE 6K model will be suitable at the moment. So, it depends on the customers. That is why we are launching both the 8K camera and the 6K camera at this time.

Which model do you think existing VENICE users will try?

Jin: I think that customers who already have the original 6K VENICE will prefer to purchase the 8K Venice 2 because they already have a 6K sensor block that can be used in either camera. But in the situation rental houses who do not have a VENICE yet is different. There are a lot of rental houses and potential customers worldwide who do not have the original VENICE yet. So they may prefer to purchase the 6K VENICE 2 now and upgrade to an 8K sensor block at a later date.

Could you please explain the Zoom to Fit function?

VENICE 2 Q&A: Data Rate, Drives, Rialto, Archiving

Right: Sony RAW Viewer with Clip Browser and Clip Viewer running on laptop.

Below: Sony AXS-AR3 Card Reader for AXSM Media, shown at bottom.



Yutaka: Zoom to Fit works this way. Let's say you are capturing in a 3:2 format. But you are viewing on a 17:9 monitor. Traditionally, the left and right sides of the 3:2 image would be pillared—black columns at left and right. So, zoom to fit lets you fill the entire monitor screen with the image. But now, the top and bottom are cropped.

Jon: Is it the familiar VENICE workflow? Is there anything special about finishing in 8K?

Yutaka: Nothing special. Our SDK is implemented by other vendors for their nonlinear editing, VFX and color-grading software.

What is the approximate data rate in 8K Full Frame, 3:2, 24 fps?

Yutaka: In 8K Full Frame, 3:2, 24 fps, data rate is around 3,658 Mbps when recorded in X-OCN ST. And 5,345 Mbps in X-OCN XT.

Is the X-OCN data rate constant?

Yuuji: Yes, it is a constant data rate. It is determined by imager mode and the frame rate. Here is another example: with VENICE 2 8K, the maximum data rate goes up to 6,606 Mbps for Full Frame 8.2K 17:9 at 60 fps. At 24 fps, 8.2K 17:9 is 3,861 Mbps.

That is the reason we are introducing a new AXSM media card with the model name S66. The 66 number refers to the 6,606 Mbps data rate.

I guess you would recommend using SSD drives rather than spinning hard drives?

Yutaka: Yes. SSD storage is not mandatory, but it's recommended for most editing.

VENICE 2 6K can use the current Rialto extension system now. Will there be an 8K Rialto version?

Jin: Yes, it is being worked in. Because of the higher data rate, it requires a different cable system. It is planned to be release by early 2023.

You mentioned one of the new features of 8K VENICE 2 is documentary archiving. What does that mean?

Yutaka: Let me explain with an example. Let's say you are filming a nature documentary. VENICE 2 in 8K offers you the highest quality and the footage will be future-proof for quite some time. Or you are recording the paintings and historical artwork in a museum. This is a special type of image capture. Archiving means preserving the best image quality—making it future-proof.

Jin: And speaking of future-proof, we are already seeing consumer 8K televisions for the home. I think that suggests 8K OTT streaming and broadcast is not too far away. So, capturing in 8K now ensures that your data files are ready for that time.

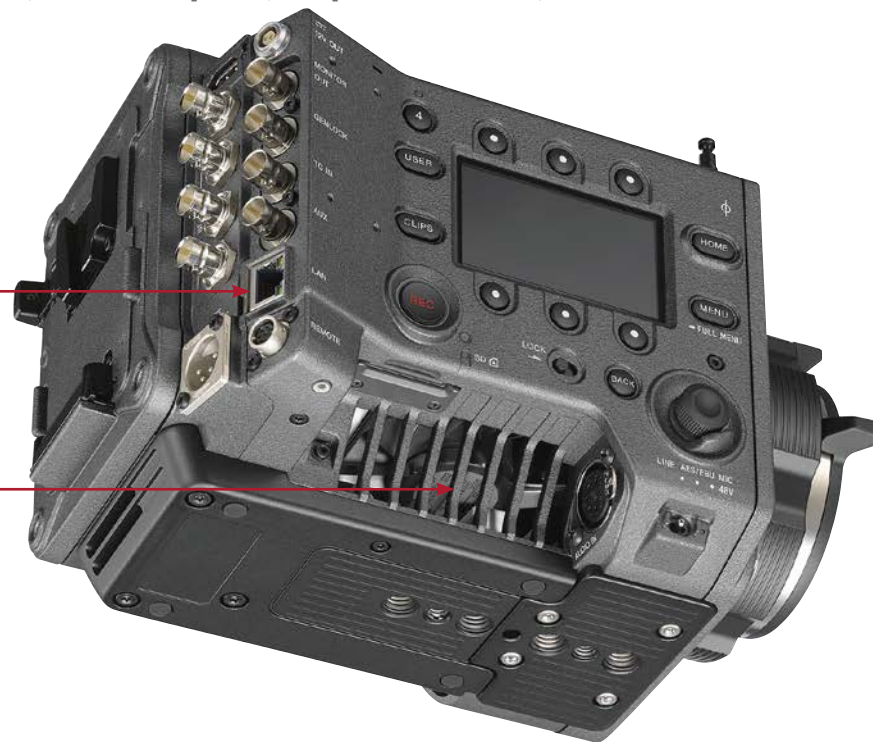
Can VENICE 2 record two different formats simultaneously?

Yutaka: Sorry, neither VENICE 2 8K nor VENICE 2 6K have a simultaneous recording. This is one of the comparisons to VENICE. A distinctive function of VENICE is that it has simultaneous X-OCN and XAVC 4K or HD ProRes recording. People might ask,

VENICE 2 Q&A: Formats, Anamorphic, Aspect Ratios, Dual Base ISO

VENICE 2 Ethernet LAN port is now on the right rear side where it is out of the way of the camera operator

VENICE 2 exhaust grille and cooling fan inside



will VENICE still be part of the Cinema Line? The answer is yes—and people who want dual format recording may appreciate that.

When would dual format recording be helpful?

Jin: Some users may want to begin offline editing as soon as possible. They can download the X-AVC files directly onto their PC on set, or near set, for immediate dailies viewing or editing. The X-OCN files go to the post-production house. That's the purpose of dual recording on VENICE.

But, with VENICE 2 as the flagship model, we assume there will be a DIT, data wrangler or near-set editor who can generate ProRes or DNxHD dailies from the camera original X-OCN files. That is a way to differentiate between VENICE and VENICE 2.

To make VENICE 2 smaller, we put the X-OCN recorder directly inside the camera, compared to VENICE which records internally onto an SxS memory card and has an external AXS-R7 RAW recorder for X-OCN. VENICE only records XAVC, ProRes or MPEG HD internally.

Now, we get to anamorphic. Can you please explain the 6:5 aspect ratio Super35 anamorphic format?

Yutaka: Sure. On VENICE 2 8K, the 6:5 Super35 squeezed image area measures 24.1mm wide x 20.2mm high and it is 5.8K.

On VENICE 2 6K, it is 24.3 mm wide x 20.4 mm high and it is 4K.

The reason for having a 6:5 mode is mathematical. 6:5 is the same as 1.2:1. (Divide 6 by 5.) If you are working with a 2x squeeze anamorphic lens, multiply 1.2 by 2 and you get widescreen 2.4:1 (rounded up from standard 2.39:1)

So, VENICE and VENICE 2 6K have two types of Super35 anamorphic modes—6:5 and traditional 4:3. Essentially, you choose the mode that matches the image diagonal of your anamorphic lens. 6:5 has an image height of 20.4 mm compared to 4:3 which has a traditional height of 18 mm.

What about Full Frame anamorphic?

Yutaka: For Full Frame anamorphic on all cameras, you would use the entire 3:2 sensor area measuring 35.9 x 24 mm.

Do you have a 2:1 aspect ratio anamorphic mode, which is popular for Netflix lately?

Yutaka: If you have 2x squeeze anamorphic lenses, the squeezed ratio on the sensor is 1:1. I would recommend using the Full Frame 3:2 or Super35 6:5 imager modes. And then add user-defined frame lines. VENICE has excellent frame markers. There are presets and two user-adjustable frame markers.

What is the definition of IMAGER MODE? Can we say it is an image area that fully fills the EVF or monitor, and the unused pixels are not recorded?

Yutaka: Imager mode means scanning area of the sensor. It is the same as recorded area of the camera.

Can you please explain how dual base ISO works?

Yuuji: VENICE has two base ISO sensitivities, a low and a high. It means the signal-to-noise ratio and dynamic range is consistent. For VENICE 2 8K, the recommended base ISO is 800 and the high ISO is 3200. For VENICE 2 6K, base ISO is 500 and high is 2500. Of course, you can adjust below and above those settings.

Is the cooling fan in VENICE and VENICE 2 the same?

Yuuji: Yes, the physical size is the same—80 mm. The physical fan is the same. But the part number is different between VENICE and VENICE 2 because the wiring harness is different. VENICE 2 6K and VENICE 8K have the same fan.

Does VENICE 2 support lens metadata?

Yutaka: Lens data support is the same as VENICE. We support Cooke /i Technology. We also support ZEISS eXtended lens data in ZEISS Compact Primes, ZEISS Supreme Primes and FUJINON Premista.

VENICE 2 Q&A: Lens Metadata, Challenges, Design



Yutaka Okahashi and Yuuji Ohba with an early VENICE 2.

Although it might appear that they are celebrating in a well-stocked saloon, in fact, this is a set where cameras are tested. Similar sets are located at Sony DMPC (Digital Media Production Center) facilities in Los Angeles and Pinewood Studios, UK.

What happens if there are future updates to lens metadata, such as distortion mapping?

Yutaka: We will have to implement those changes in future firmware updates. For example, the Zeiss eXtended data originally did not include zoom position information. But when Fujinon launched the Premista zooms, they updated the Zeiss extended lens data and we implemented that in Venice 1 version 6.0. When lens vendors will announce new lens data technology, we need to implement that.

Are many VENICE customers using lens data?

Yutaka: Yes, especially in the VFX market. For example, the extended metadata is embedded in the X-OCN files. Originally, Nuke and After Effects did not read the X-OCN metadata directly. After we received many requests from DPs and post production companies to implement it, we now offer native X-OCN lens data support in Nuke.

If you use the native Sony E-mount on the VENICE, does it record the metadata from E-mount lenses?

Yutaka: Yes, focus, iris and additional information is displayed and recorded.

What were the challenges from the engineering and design point of view for this new camera? I'm sure it was quite difficult because it took four years.

Yuuji: X-OCN provides excellent quality, but the power consumption is more than SxS recording XAVC or mpeg. Also, the 8K sensor manages twice data of a VENICE 6K sensor.

In order to put the 8K sensor into an equivalent VENICE chassis, power reduction and heat dissipation was a big issue. At the same time, providing water spray resistance equivalent to IPX3 was another major mechanical and electrical challenge. For those purposes, we adapted the latest signal processing structures this year and eliminated the waste in the circuits. But we achieved

the increases to the necessary functions. For example, individual LUTS can now be included in all the outputs.

Furthermore, the various voltage generating systems have been improved compared to the VENICE. In terms of the mechanical design, it follows VENICE but the VENICE 2 heat dissipation flow path and the heat conduction efficiency has been reviewed and improved. Because of a significantly lower temperature rise compared to the previous model, we reduced the risks of artifacts and increased noise due to sensor heat.

The VENICE 2 6K sensor is exactly the same sensor as the VENICE. However, because the X-OCN recording operation is now internal, the VENICE 2 chassis is more compact than the combination of VENICE with its AXS-R7 recorder. VENICE 2 has various UI improvements and ProRes 4K can be recorded.

From a visual point of view, I would say that VENICE 2 8K can shoot even more natural pictures than VENICE with its high density 8K sensor and new optical low-pass filter. It seems that there is a tendency to think of the 8K sensor as mostly an increase in the resolution. But rather than aiming for a resolution competition, the effect of over-sampling 8K and the new optical low-pass filter makes it possible to appreciate how natural its images look. It's not a resolution game. It offers smoother skin tones, more natural images. We hope that customers will feel that.

Please tell us more about the optical low-pass filter. Is it even necessary with such a fine sensor?

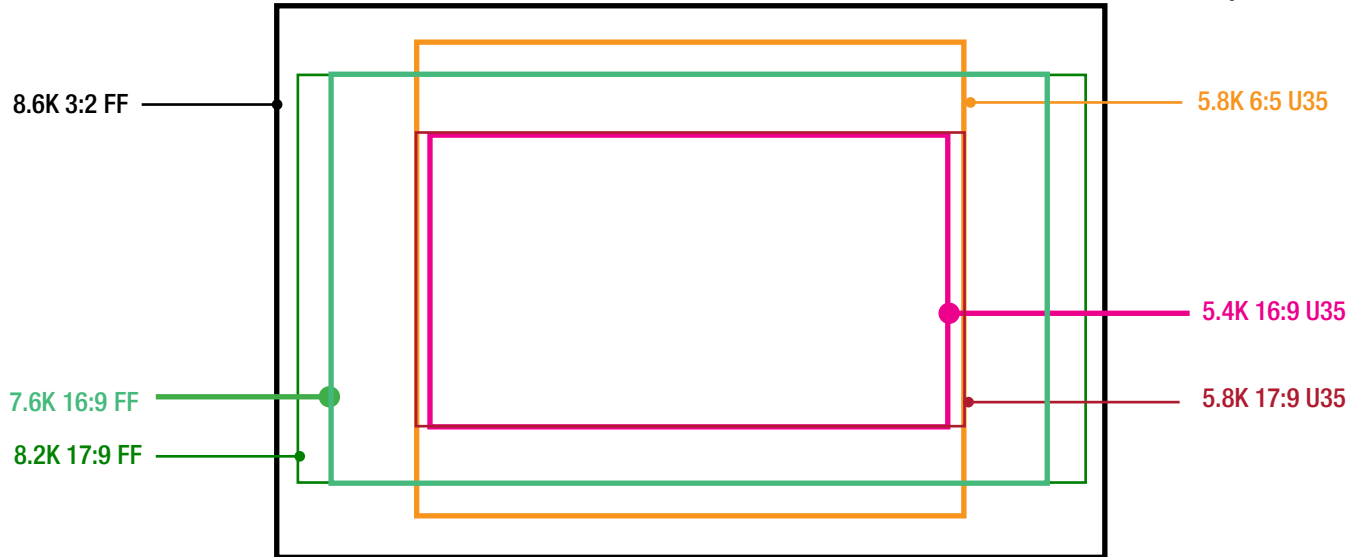
Yuuji: Yes. It is very necessary. Even with the high density of the 8K sensor, we want to reduce aliasing and artifacts and improve color clarity.

Thank you very much for your time.

VENICE 2 8K Imager Modes (v1.0)

Full-Frame

Super35



Imager Mode ¹	Format ²	Resolution	W x H (mm)	Project Frame Rate ³	fps ⁴	License ⁵
5.4K 16:9	U35	5434 x 3056	22.6 x 12.7	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90	-
5.8K 17:9	U35	5792 x 3056	24.1 x 12.7	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90	-
5.8K 6:5	U35	5792 x 4854	24.1 x 20.2	23, 24, 25, 29, 47	1-48	Anamorphic
7.6K 16:9	FF	7680 x 4320	32.0 x 18.0	23, 24, 25, 29, 47, 50, 59	1-60	Full Frame
8.2K 17:9	FF	8192 x 4320	34.1 x 18.0	23, 24, 25, 29, 47, 50, 59	1-60	Full Frame
8.6K 3:2	FF	8640 x 5760	35.9 x 24.0	23, 24, 25, 29	1-30	Full Frame

1: This is firmware v1.0. Additional Imager Modes inevitably become available with future firmware updates.

If an imager mode is not shown in the chart above, you can still choose any aspect ratio you desire with user-defined frame lines. Then, simply pick the closest sensor mode that fits, and crop the remainder in post.

2: U35 is Angenieux's good designation of formats larger than Super35, with image heights greater than 18 mm and usually around 20 mm. It can also be called S35+ but neither designation is official to Sony.
FF=Full Frame

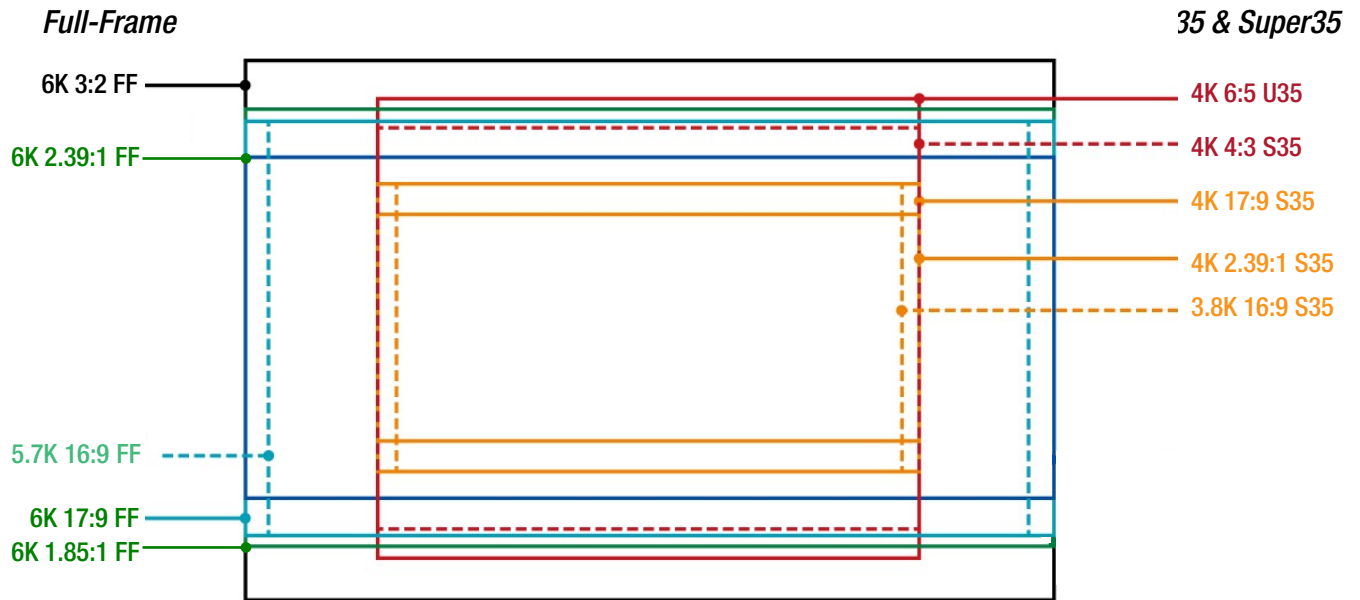
3: For simplicity, Project Frame Rate numbers are abbreviated. 23=23.98; 24=24; 25=25; 29=29.97; 47=47.95; 50=50; 59=59.94

4: These frames rates are for standard base ISO 800. In high base ISO 3200, 1-7 fps is not available.

5: You only need the Anamorphic License if you want to desqueeze the image on the EVF or monitors. If you are shooting with spherical lenses and would like this sensor mode, then you can select it without a license.

FDTimes has consolidated and modified this table from several Sony charts. Details may change.

VENICE 2 6K Imager Modes (same as original VENICE, v6.0)



Imager Mode ⁶	Format ⁷	Resolution	W x H (mm)	Project Frame Rate ⁸	fps	License ⁹
3.8K 16:9	S35	3840 x 2160	22.8 x 12.8	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90, 96, 100, 110	-
3.8K 16:9 Surround View	S35	3840 x 2160	22.8 x 12.8	23, 24, 25, 29, 47	1-48	-
4K 2.39:1	S35	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	-
4K 17:9	S35	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	S35	4096 x 2160	24.3 x 12.8	23, 24, 25, 29, 47	1-48	-
4K 4:3	S35	4096 x 3024	24.3 x 18.0	23, 24, 25, 29, 47, 50, 59	1-48, 49-60, 66, 72, 75	Anamorphic
4K 4:3 Surround View	S35	4096 x 3024	24.3 x 18.0	23, 24, 25, 29, 47	1-30	Anamorphic
4K 6:5	U35	4096 x 3432	24.3 x 20.4	23, 24, 25, 29, 47	1-30, 31-60, 66, 72	Anamorphic
5.7K 16:9	FF	5674 x 3192	33.7 x 19.0	23, 24, 25, 29, 47	1-30, 31-60, 66, 72	Full Frame
6K 2.39:1	FF	6048 x 2534	35.9 x 15.0	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72, 75, 88, 90	Full Frame
6K 17:9	FF	6054 x 3192	36.0 x 19.0	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	Full Frame
6K 1.85:1	FF	6054 x 3272	36.0 x 19.4	23, 24, 25, 29, 47, 50, 59	1-60, 66, 72	Full Frame
6K 3:2	FF	6048 x 4032	35.9 x 24.0	23, 24, 25, 29, 47, 50, 59	1-60	Full Frame

6: These details are mostly the same as for VENICE, firmware v6.0.

7: U35 is Angenieux's good designation of formats larger than Super35, usually with an image height of around 20 mm. FF=Full Frame

8: For simplicity, Project Frame Rate numbers are abbreviated. 23=23.98; 24=24; 25=25; 29=29.97; 47=47.95; 50=50; 59=59.94

9: You only need the Anamorphic License if you want to desqueeze the image on the EVF or monitors. If you are shooting with spherical lenses and would like this sensor mode, then you can select it without a license.

FDTimes has consolidated and modified this table from several Sony charts. Details may change.

Specification Comparisons: VENICE, VENICE 2 6K, VENICE 2 8K

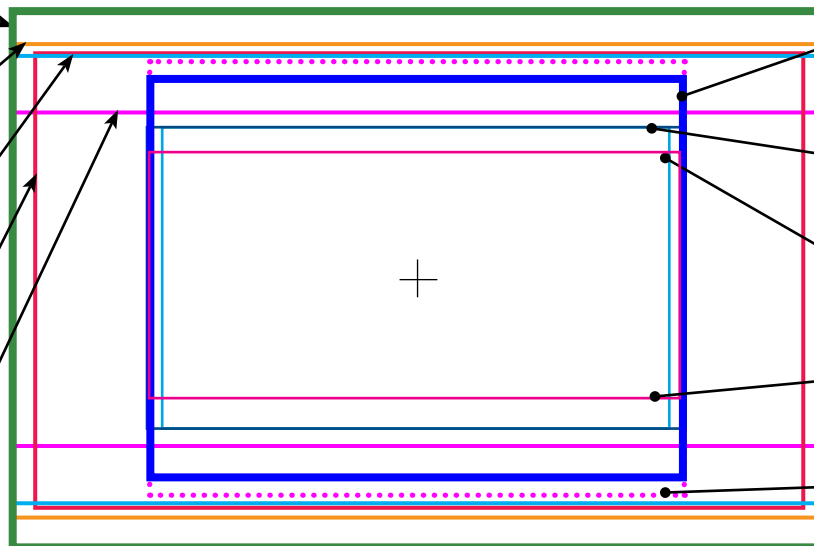
	VENICE	VENICE with AXS R7 Recorder	VENICE 2 6K	VENICE 2 8K
Full Frame Sensor Size	35.9 x 24.0 mm	35.9 x 24.0 mm	35.9 x 24.0 mm	35.9 x 24.0 mm
Internal ND	Clear + 8 stops	Clear + 8 stops	Clear + 8 stops	Clear + 8 stops
Resolution	6,048 x 4,032	6,048 x 4,032	6,048 x 4,032	8,640 x 5,760
ISO Sensitivity	500/ 2500	500/ 2500	500/ 2500	800 / 3200
FF 3:2 top speed	6K x 4K 60 fps	6K x 4K 60 fps	6K x 4K 60 fps	8.6K x 5.8K 30 fps
FF 17:9 top speed	6K x 3K 72 fps	6K x 3K 72 fps	6K x 3K 72 fps	8.2K x 4.3K 60 fps
S35 6:5 top speed	4K x 3.4K 72 fps	4K x 3.4K 72 fps	4K x 3.4K 72 fps	5.8K x 4.9K 48 fps
S35 17:9 top speed	4K x 2K 110 fps	4K x 2K 110 fps	4K x 2K 110 fps	5.8K x 3.1K 90 fps
Recording Formats	XAVC 4K/QFHD, HD ProRes, MPEG50	XAVC 4K/QFHD, HD ProRes, MPEG50 and X-OCN / RAW	X-OCN, 4K ProRes	X-OCN, 4K ProRes
Simultaneous Recording	Yes	Yes	No	No
4K Out LUT apply	No	No	Yes	Yes
8K SDI output	No	No	No	No
Length	235 mm	294 mm	250 mm	250 mm
Weight	3.9 kg	4.7 kg	4.1 kg	4.2 kg
Power Cons.	65 w	92 w	102 w	106 w
Internal Mic	No	No	Yes	Yes
LAN connector location	Operator side	Operator side	Assistant side	Assistant side
12V DC output type	Hirose 4-pin	Hirose 4-pin	Lemo 2-pin	Lemo 2-pin

Original VENICE 6K Full Frame (FF) and 4K Super35 Modes, v6.0

Full-Frame

- 6K FF 3:2, 6048 x 4032
35.9 x 24 mm (1.50:1)
43.5 mm diagonal
- 6K FF 1.85:1 6054 x 3272
36.0 x 19.4
- 6K FF 17:9 6054 x 3192
36.0 x 19.0 (1.89:1)
- 5.7K FF 16:9, 5674 x 3192
33.7 x 19.0 mm (1.78:1)
- 6K FF 2.39:1, 6048 x 2534
Spherical Widescreen
35.9 x 15.0 mm (~12:5)

All VENICE Imager Modes: 6K and 4K



Super35

- 4K S35 4:3, 4096 x 3024
24.3 x 18.3 (1.33:1)
31.1 mm diagonal
- 4K S35 17:9, 4096 x 2160
24.3 x 12.8 (1.9:1)
- 3.8K S35 16:9, 3840 x 2160
22.8 x 12.8 mm (1.78:1)
- 4K S35 2.39:1, 4096 x 1716
24.3 x 10.3
- 4K Ultra35 6:5 Anamorphic
4101 x 3432, 2x Squeeze
(1.195:1) 24.3 x 20.4 mm
31.73 mm Ø

Specifications: VENICE 2 8K and 6K

System

Name	VENICE 2 8.6K	VENICE 2 6K
Model #	MPC-3628	MPC-3626
Imager:	Full Frame CMOS sensor, 35.9 x 24.0 mm	
Photosites:	8.6 K image sensor / 50 MP / ~4.14 µm pixel pitch	8.6 K image sensor / 24.8 MP / ~ 5.93 µm pixel pitch
Dual Base ISO:	800 / 3200	500 / 2500
Exposure Latitude	16 Stops	15+ Stops
X-OCN Recording	X-OCN XT / ST / LT Formats	
ProRes Recording	ProRes 4444 / ProRes 422 HQ	
Audio Recording	LPCM 4ch, 24-bit 48-kHz	
Lens Mount	PL Mount (52 mm FFD, 54 mm ID) over native Lever Lock E-mount (18 mm FFD, 46.1 mm ID)	
Internal ND Filters	Clear, 0.3 (1 stop), 0.6 (2 stops), 0.9 (3 stops), 1.2 (4 stops), 1.5 (5 stops), 1.8 (6 stops), 2.1 (7 stops), 2.4 (8 stops)	

Power

Input Voltage	12 V DC (11.0 to 17.0 V) / 24 V DC (22.0 to 32.0 V)	
Wattage @ 12 V	Approx. 76 W w/ X-OCN XT, 8.6K 3:2, 24 fps	Approx. 73 W w/ X-OCN XT, 8.6K 3:2, 24 fps

Mechanical

Dimensions:	152 x 158 x 250 mm / 5.98" x 6.25" x 9.84" (WxHxD, excluding protrusions)	
Weight:	Approx: 4.3 kg / 9 lb 7.7 oz	Approx: 4.2 kg / 9 lb 4.2 oz

Connections

External DC Input	4-pin male XLR
Battery DC Input	5-pin rectangular connector for V-Mount battery
DC Accessory Output	12 V Lemo 2-pin at rear 24 V Fischer 3-pin x2 (1 at rear; 1 in front)
SDI Output	BNC x4, (12G, 6G, 3G, 1.5G-SDI)
HD Monitor Output	BNC (3G, 1.5G-SDI)
HDMI Output	Type A
Viewfinder	Lemo 26-pin
Audio Input	XLR 5-pin female x1 (LINE/AES/EBU/MIC/MIC+48 V selectable) — also an Internal Mic
Timecode Input	BNC
Genlock Input	BNC
AUX	BNC (Timecode Output)
Remote	8-pin
Lens Remote Control	12-pin
E-mount Contacts	10 pogo pins for lens data
Lens data Contacts	14 contacts for lens data pass-through from front of sensor block to PL or other lens mounts that attach in front
PL Mount Contacts	2 sets of 4 pogo pins – at 12 and 3 o'clock for Cooke /i and ZEISS eXtended Data
Network	RJ-45, 10BASE-T, 100BASE-TX
USB	USB type-A Receptacle
Headphone Output	Stereo Mini Jack
Speaker	Monaural, Internal
Media	AXS Memory A-Series slots x2, SD card slot x1

Specifications may change. There could be errors. Some values are FDTimes unofficial estimates.

New 1 TB S66 AXSM Memory Cards



AXS-A1TS66



A few examples of VENICE 2 8K Recording Times with AXS-A1TS66 Memory Cards

Imager Mode	Project Framerate (fps)	X-OCN XT (minutes)	X-OCN ST (minutes)	X-OCN LT (minutes)
8.6K 3:2	23/24	23	34	58
	25	22	32	55
	29	18	27	46
8.2K 17:9	23/24	32 min	47	80
	25	31	45	77
	29	25	37	64
	50	-	22	38
	60	-	18	32



Two AXS Memory Card slots, A and B.
SxS Cards do not fit.



AXS Memory Card

Camera Control

An accessory Wi-Fi camera control dongle plugs into the USB type A port at the top rear of the camera.

Smartphone, tablets and PC/Mac computers can control all VENICE and VENICE 2 functions with a web browser.

For VENICE 2, Pomfort Livegrade plans to offer VENICE 2 LUT and CDL control at a future date. You can then connect via Wi-Fi or Ethernet cable.



Camera Control for VENICE 2 connects from Laptop to Camera via Ethernet cable.

RIALTO Extension Unit

Your original VENICE RIALTO Extension unit will work on VENICE 2 6K.

VENICE 2 8K will get a RIALTO Extension Unit in the future.



VENICE 2 6K with Rialto (Extension Unit).

VENICE 2 with Light Ranger 2, Bright Tangerine, ZEISS Supreme, Leitz Prime



Sony VENICE 2 8K with Preston Light Ranger 2, Bright Tangerine Misfit Kick and Expert Kit, Leitz Prime.

VENICE 2, LR2-M, Expert Kit, Misfit Kick, Atomos Shinobi 7, Leitz Prime



VENICE 2, Dionic XT 90 VM, Bolt 4K 1500, D-Box, Cine 7, Optimo Prime



VENICE 2, Dionic XT 90 VM, Bolt 4K 1500, D-Box, Cine 7, Optimo Prime



VENICE 2 Camera Body Views



VENICE 2 Camera Views



Angénieux Optimo Primes on VENICE 2

Angénieux Optimo Prime
100mm T1.8
FF



Angénieux Optimo Prime
100mm T1.8
FF



ZEISS Supreme and Radiance Primes on VENICE 2

ZEISS Supreme Prime
135mm T1.5
FF



ZEISS Supreme Prime Radiance
135mm T1.5
FF



Cooke S7/i and Anamorphic/i Primes on VENICE 2



Cooke S7/i FF 100mm T2



Cooke 100mm T2.3 Anamorphic /i U35 (33.54 mm maximum format coverage. Cooke calls it "Epic S35mm Format.")

Leitz Thalia Primes on VENICE 2



Leitz Thalia 45mm T2.9
FF



Leitz Thalia 45mm T2.9
FF

Cooke Varotal/i on VENICE 2

Cooke Varotal/i Zoom
30-95 mm T2.8
FF



Cooke Varotal/i Zoom
30-95 mm T2.8
FF



FUJINON Premista Zooms on VENICE 2

FUJINON Premista Zoom
19-45 mm T2.9
FF



FUJINON Premista Zoom
19-45 mm T2.9
FF



Premista and Varotal/i Zooms on VENICE 2

FUJINON Premista Zoom
19-45 mm T2.9
FF



Cooke Varotal/i Zoom
30-95 mm T2.8
FF



Angénieux Optimo Ultra Compact Zoom on VENICE 2

Angénieux Optimo Ultra Compact Zoom
37-102 mm T2.9
FF



Lens support with built-in /i Lemo connector in the middle is a good idea—at the balance point of the lens. Most zooms put their support way out front, putting extra weight on the mount and harder to balance with lighter, smaller cameras.



Angénieux Optimo Ultra Compact Zoom
37-102 mm T2.9
FF

SIGMA DG DN E-mount lenses on VENICE 2

SIGMA 150-600mm F5-6.3
DG DN OS | S E-mount



SIGMA 105mm F2.8 DG DN Macro
| Art E-mount
FF



Sony E-mount G Master on VENICE 2



Sony E-mount FE 50mm F1.2
G Master
FF



VOCAS E-mount to LPL Adapter

Leitz ELSIE LPL Mount Prime on VENICE 2



Leitz ELSIE 25mm T2.1 Prime
LPL Mount — FF

ELSIE Full Frame Primes come in LPL mount only. Shown here with E-mount to LPL Adapter.

Rob McLachlan ASC, CSC on *Available Light – Homecoming*

Rob's McLachlan's VENICE 2 film begins in the bright sunlight of Palm Springs, drives into LA night exteriors, takes off from LAX and lands in majestic British Columbia locations. The title is *Available Light - Homecoming*.

Rob said, "Any half-decent DP with three truckloads full of grip and electric gear and gorgeous models can make any camera look great. I thought, for my purposes and for every other cinematographer, let's just really put it through its paces, be natural, and hit it with some serious practical situations.

"Normally I use a light Hollywood Black Magic filter, but for this film, I wanted to show the audience a perfectly clean image with nothing between them and the camera. It's not the least bit harsh or videoey. It feels very filmic to me. The image quality is really gorgeous and of course, camera assistants love the camera. Everything is where they want it to be.

"So we up to this little island where I grew up in summers and had some connections. We basically had friends and crew for models. No hair, makeup, or wardrobe people were present. It was just natural. We had ZEISS Supreme and FUJINON Premista lenses. No filtration, just internal NDs. I kept it as clean as I

could, and I shot in a 3:2 aspect ratio. I've never actually done that. I had been shooting with that 3:2 sensor in the original VENICE for a couple of years now and I never actually looked at how well the lenses worked edge-to-edge filling the entire frame. Because you're always cropping 2:1, 2.39:1 or 17:9.

"The other benefit of the Full Frame 3:2 8.6K format was that it gave you way more sky in the shot. Coming out of the grading session a couple of days ago, what really struck everybody was how we couldn't take our eyes off the nuance and the detail in the sky that so often burns out. These were in places where you would expect to have no detail in a hot, whited-out, overcast sky.

"The dynamic range is even better than even the former VENICE, which I had been using a lot. At the same time, it was holding detail in the shadows. For instance, the shot of the float plane landing. The sky is gorgeous, but we zoomed into the treeline to the island across the way. There's still texture in there. It's not blocked up. The really striking thing about it, apart from the dynamic range, is how clean the shadows are. They're absolutely clean as a whistle."



Photo:
Jeff Berlin
using Sony a1

Rob Mclachlan ASC, CSC: Palm Springs



Above: Near Palm Springs. The VENICE 2 8K image sensor has a rolling shutter that is said to be the fastest in the market.
Below: Rob said, "The skies and the shadows are just so clean. No noise. I was shooting all the night scenes at 3200 ISO. This one is at T8."



Rob Mclachlan: British Columbia



Rob said, "We used real people in the film. Braden Haggerty is the leading lady. She was my second AC from 1994-'99. She's now a top underwater cinematographer in western Canada. She's also a stunt driver."



Rob Mclachlan: Available Light

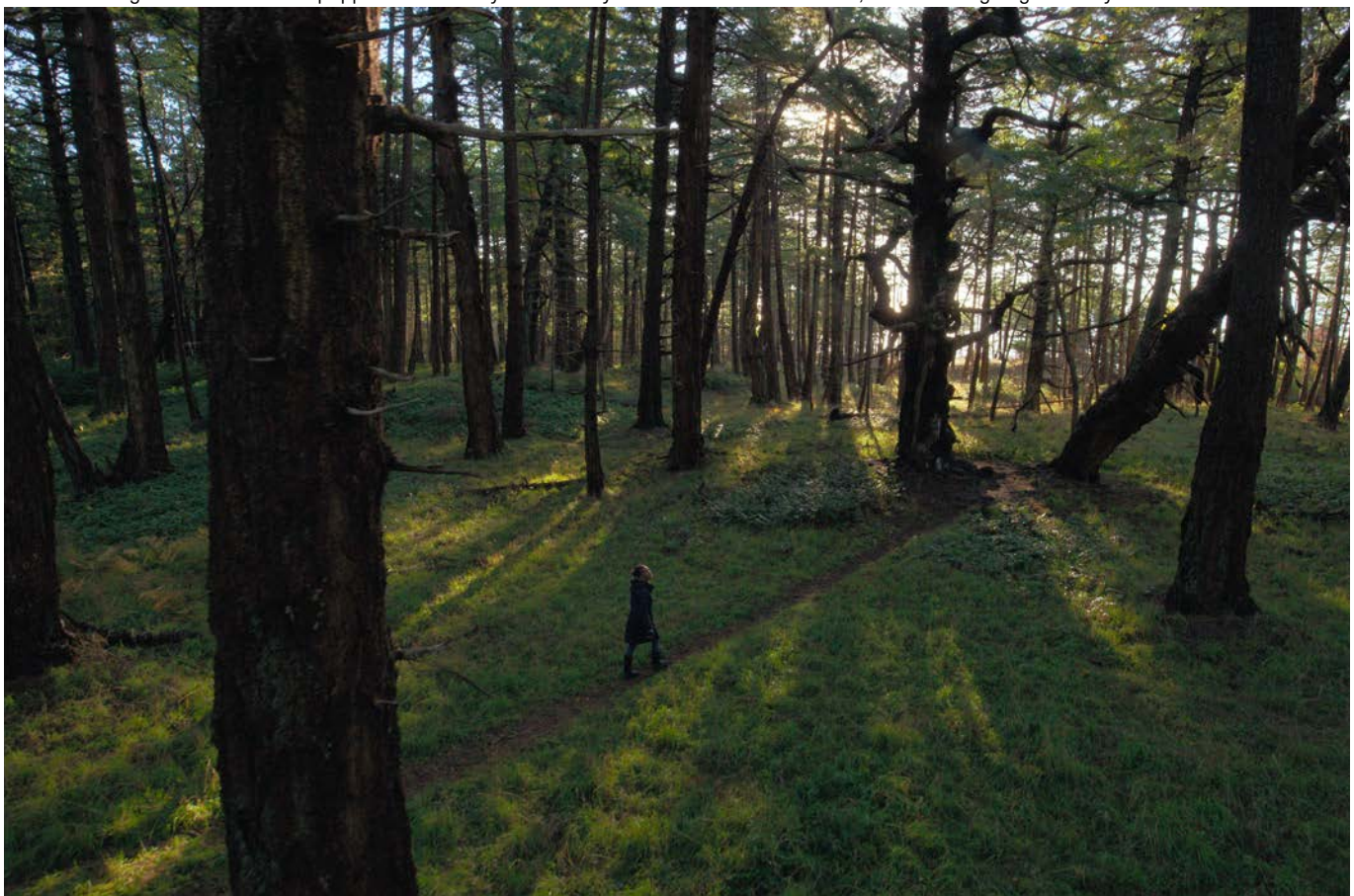


Above: "This is available light. from just the one window. It was very heavily overcast outside at that point. Pouring rain, in fact."
Below: Braden Haggerty and Tim Nagasawa, who was also the show's DIT.





Above: "The fire holds holds its highlight details. I was hoping for a clear moonlit night, because it would've given me a fill level everywhere."
Below: "The greens of the forest popped. The beauty of 8.6K is you can reframe or zoom in, and it's not going to hurt you."





Rob McLachlan with VENICE 2 8K in and around Palms Springs. BTS Production stills by Jeff Berlin.



On location in Palm Springs for *Homecoming*



On location in British Columbia for *Homecoming*

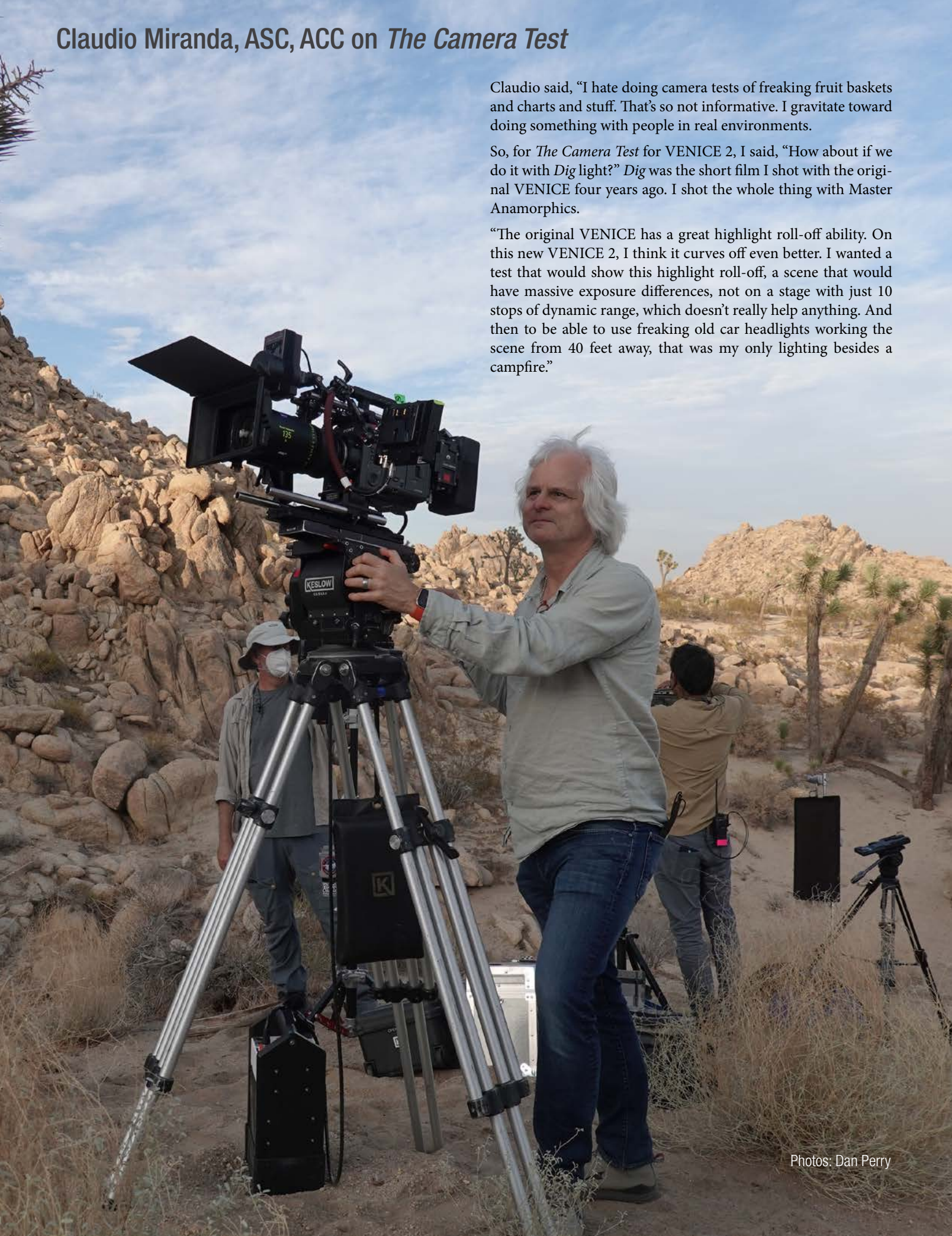


Claudio Miranda, ASC, ACC on *The Camera Test*

Claudio said, “I hate doing camera tests of freaking fruit baskets and charts and stuff. That’s so not informative. I gravitate toward doing something with people in real environments.

So, for *The Camera Test* for VENICE 2, I said, “How about if we do it with *Dig* light?” *Dig* was the short film I shot with the original VENICE four years ago. I shot the whole thing with Master Anamorphics.

“The original VENICE has a great highlight roll-off ability. On this new VENICE 2, I think it curves off even better. I wanted a test that would show this highlight roll-off, a scene that would have massive exposure differences, not on a stage with just 10 stops of dynamic range, which doesn’t really help anything. And then to be able to use freaking old car headlights working the scene from 40 feet away, that was my only lighting besides a campfire.”



Claudio Miranda's *The Camera Test Frames*



Claudio Miranda's *The Camera Test* Firelight Frames



Claudio Miranda's *The Camera Test* Camera Setup



Camera Left side of VENICE 2 8K with Master Anamorphic. This is also called the Operator Side or Smart Side because, in the film era, menus and footage counters were there. VENICE 2 provides a mini menu for the camera operator.



The Camera Right Side is also called the Assistant Side and sometimes the Dumb Side. There are two problems with that. Assistants in Europe may have worked the right side, but not always in the USA in the film days. Bob Smathers, who was the Camera Assistant/Focus Puller on Claudio Miranda's *The Camera Test*, points out that these days, most camera menus are on the right side. And so the Assistant's dumb side should be renamed smart, while the Operator who cannot see the menu is now relegated to a less informative, new dumb side. Bob adds, "One other fun fact is that ACs used to use to use a make-up compact mirror to catch a look at the counter when we were stuck on the dumb side." Note Bob's Light Ranger atop VENICE 2.

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VENICE 2 Special Report

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Prepared for Sony by Jon Fauer

Film and Digital Times

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