

## A Camera called VENICE



“When I went to Venice, I discovered that my dream had become incredibly, but quite simply, my address,” Marcel Proust uncharacteristically succinct, described the city.

“VENICE is the first camera I want to own,” Claudio Miranda ASC, uncharacteristically loquacious in his enthusiasm, described VENICE, Sony’s new Full Frame camera, after shooting its product launch demo. “I can light tabletop pop tarts or a giant night exterior. I can easily work with VENICE on any job.”

This is the Full Frame 24x36 camera that Sony signaled in June. The big news was the big picture. Few details were revealed then.

The camera is named VENICE. In one of the fastest whispers-to-product launches we’ve ever seen, the camera was presented to the world on September 6. It was shown with PL mount, S35 format, with Full Frame, E-mount and updates coming soon.

No more number names. Not F246. VENICE is a high-end, 6K, Full Frame camera with an entirely new Sony designed 24x36mm sensor that has 15 stops of dynamic range and an artistic look. VENICE supports every format from Full Frame 3:2 to Super35 4K full 18mm height 4:3, Anamorphic and Spherical, and everything in between.

Sony Manager Peter Crithary explained, “We really went back to the drawing board for this one. It is the next generation camera system, a ground-up development initiative encompassing a completely new image sensor. We carefully considered key aspects such as form factor, ergonomics, build quality, ease of use, a refined picture and painterly look—with a simple, established workflow. We worked in close collaboration with film industry professionals. We also considered the longer term strategy by designing a user interchangeable sensor that is as quick and simple to swap as removing four screws, and can accommodate different shooting scenarios as the need arises.”

### Sony’s VENICE

Full Frame Sensor 24x36 mm

Painterly Look

6K Full Frame 6048 x 4032 maximum resolution

4K Super35 window

Full Frame, full 6048 photosite width of the sensor  
Widescreen spherical 2.39:1 or Large Format 'Scope

Super35 full height 2.0x squeeze Anamorphic

8-Step, 8-Stop Internal NDs

PL and Ruggedized E-mount

Spherical FF & S35

Anamorphic FF & S35

15+ Stops of Exposure Latitude

Native ISO 500 (maybe 800)

Retains highlights and color detail 6 stops overexposed and 9 stops into the shadows

Power: both 12 VDC and 24 VDC

### Ergonomics

VENICE is compact and comfortable. Sony answered the wish lists and complaints of cinematographers, crews and rental houses. Controls are where you expect them to be. There are LED panels with menus and buttons on both camera left and right sides—ready for operator, assistant or DIT. Menus are streamlined, logical and intuitive.

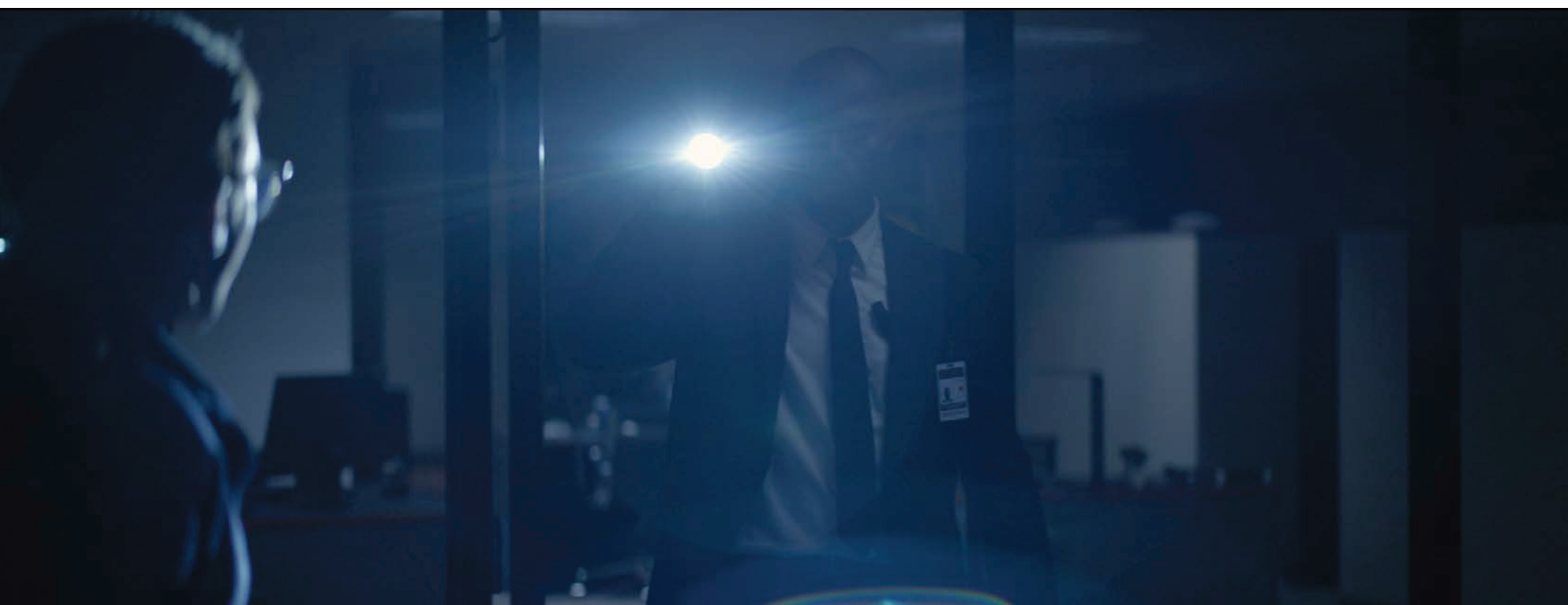


## Sony's VENICE



L-R: Director Joe Kosinski, Cinematographer Claudio Miranda ASC, Focus-Puller Dan Ming—shooting VENICE espionage thriller demo film “The Dig.” Starring Lily Collins and Taylor Kitsch. Production stills by Jeff Berlin.

## 4K Framegrabs from “The Dig”





## VENICE Production Stills from “The Dig”

Production stills by Jeff Berlin





# Travel Guide to VENICE



Shown with Leica Thalia  
35mm Large Format

## Why is VENICE's big picture such a big deal?

- Full Frame is a familiar format — a worldwide standard of still photography for 100 years.
- A Full Frame image has a more natural perspective and magnification than its Super 35mm counterpart.
- Fewer distortions at wide angle.
- Natural depth of field. Shallower if desired.
- A 50mm FF at T2.8 has same field of view and depth of field as a 35mm S35 at T1.4. Equivalent of 2 stops difference.
- Full Frame shares many characteristics of the 65mm format, but the lenses are smaller.
- VENICE Full Frame is backwardly compatible and can work with all Super35 lenses—windowing the S35 image in the 24x36mm sensor area.
- Full Frame sensors offer more flexibility for the designer — sensitivity, dynamic range, resolution, etc.

## Aspect Ratio Agnostic

VENICE is aspect ratio agnostic. Sony's new Full Frame sensor can conjure up almost any conceivable aspect ratio permutation within Full Frame and S35: widescreen spherical, widescreen anamorphic (1.3x, 1.5 and 2x squeeze), 2.39:1, 1.85:1, 1.66:1, 1.33:1, 17:9, Univisium, and the list goes on.

## Studio to Steadicam

VENICE will be welcome on almost any production setup: Studio to Steadicam, stabilizers, gimbals, drones, remote heads, and handheld. The modular and open design has an abundance of mounting points to attach on-board monitors, wireless video, audio and focus systems and other accessories.

## VENICE Image Areas

- 24x36mm Full-Frame 6K Sensor
- Full Frame 24x36 up to a maximum resolution of 6048 x 4032 (firmware update)
- S35 Window mode, Super35 18.66 x 24.89 mm, 4096 x 3024
- (4-perf film equivalent)
- S35 Window mode 14 x 24.89 mm, 4096 x 2160 resolution, similar height as previous Sony CineAltas (3-perf equivalent)

In other words, VENICE's new Full Frame sensor can capture a plethora of permutations, including Full Frame 24mm high anamorphic, S35 18mm high anamorphic, S35+ 20mm high anamorphic, FF spherical, S35 spherical, S35 14mm high (as in F65, F55), etc. That translates into being able to use almost any cine or still photography lens the world has ever seen.

## Look

Sony designed and manufactured VENICE's new sensor with a fresh approach to color science and image processing. High dynamic range captures shadow detail in the darkest areas and retains highlight colors and textures. Skin tones are natural, smooth and silky.

Claudio Miranda described the look of VENICE: "It has a very cinematic look. Colors are really beautiful. It is a sort of softer, cosmetic, tonally well rounded look, with skin tones that are gorgeous. It doesn't feel video-like. It's not harsh. This is a leap forward. Color rendition is really nice. Tonal values hold true in the lower toe of exposure. It holds highlight detail and color information. It doesn't go red in the shadows. I would say there's more dynamic range than the F65"



# Travel Guide to VENICE



Shown with Angenieux Optimo S35 Anamorphic 30-72 A2S

## Build

During development, Claudio was invited by Sony to talk with the engineers. “I wanted them to make a camera that I would use. If it was good enough for me, hopefully it would be good for others. So I went to Japan to talk about menus, look and feel. The camera should be something you could take anywhere: to the North Pole or the Sahara. It should be rugged enough to be dropped off a table.”

I’m sure the Sony engineers were cringing at that thought. Don’t even think about subjecting VENICE to a drop test. Nevertheless, VENICE is extremely rugged and has a very solid feel.

The silent fan in VENICE can easily be cleaned or replaced on set. The airflow is totally isolated from electronic components to keep hostile environments away from delicate parts.

## 8 Steps, 8-Stops of Optical ND Filters Inside

Among many suggestions, Claudio told the engineers to build the 8 ND dual turret with the same familiar steps that most DPs use in their mattebox filters, and Sony did.

VENICE has two servo-controlled, mechanized optical ND filter wheels to reduce exposure up to 8 stops in 8 steps. It goes from clear to ND0.3 ( $1/2 = 1$  stop) to ND2.4 ( $1/256 = 8$  stops).

So: ND.3, ND.6, ND.9, ND1.2, ND1.5, ND1.8, ND2.1, ND2.4.

Claudio got excited here: “Rather than settling for just a few internal NDs, the built-in ND filter selection is one of the best things. As the sun goes down, you don’t have to scramble with a massive number of mattebox filters.” The NDs can be controlled remotely for drone, crane and remote shots.

## Control Panels on Both Sides

VENICE has menu displays on both sides of the camera. The main display is on the camera-right side for easy access by the camera assistant or DIT. The camera operator gets a smaller display on the “smart side”—camera left. This display shows helpful status reports as to frame rate fps, shutter angle, ISO, ND, and White Balance. The menus are intuitive, refreshingly logical and highly customizable.

## EVF

The DVF-EL200 electronic viewfinder has a 1920x1080 OLED display that is sharp enough to see whether the shot is in focus. You can attach and adjust the EVF quickly, without tools. Plug it in with a standard LEMO connector. A dial lets you adjust brightness (it is 2x brighter than DVF-EL100), contrast and peaking.

## Recording

VENICE supports in-camera XAVC or ProRes recording onto SxS cards. Attach an AXS-R7 recorder with 4 screws and it lets you record visually lossless RAW or X-OCN onto AXS cards.

## RAW

With the AXS-R7, you can record 16-bit linear RAW in 4K.

## X-OCN

Also with an AXS-R7, record 6K (future upgrade) 16-bit with significantly smaller files.

## XAVC

XAVC is H.264/AVC intra-frame—for cost-efficient recording in 4K 10-bit and HD high-frame-rates.



# VENICE PL and E-mount

## Lens Mount

The lens mount is delightful, ingenious, and much better than what I expected. I assumed it would be an E-mount with traditional lens adapters.

But Shigeki Ishizuka, President of Sony's Digital Imaging Group, Kimio Maki, Senior General Manager, and the VENICE design group have come up with a native Sony E-mount over which a PL mount, and conceivably almost any other mount, can be screwed onto the front of the camera.

Therefore, VENICE works with your entire inventory of existing PL lenses, will accept Panavision mounts and is future-proof for almost any mount that comes along in S35, FF or Large formats.

VENICE's lens mount system works as follows. It is a solid E-mount with a breech-lock (rotate counter-clockwise to lock). The entire mount and front end were beefed up to support heavy cine lenses. VENICE will open up a whole world of high-end cine E-

mount lenses with Firmware Update 2.0 . Many E-mount lenses are very compact, lightweight and great on drones, rigs, gimbals and stabilizers. The E-mount is fitted with 10 standard Sony metadata and power contacts at 6 o'clock.

An additional set 14 of "pass-through" lens metadata and power contacts sit below the E-mount contacts, ready to communicate with additional lens mounts.

The installation of a PL mount on VENICE is very clever. It is not a traditional lens mount adapter that inserts into the existing E-mount. It is much more solid and secure. Attach the PL mount with 6 solid screws directly in front of the existing E-mount. There's plenty of space because the E-mount flange depth is 18mm and the PL is 52mm.

The PL mount comes with industry-standard lens metadata contacts for Cooke/i at 12 o'clock.



Push saftey button up and then rotate E-mount breech clockwise to unlock



**Quick and Easy Sensor swap:**  
Remove the front-end sensor block module by unscrewing 4 large silver-colored hex screws.

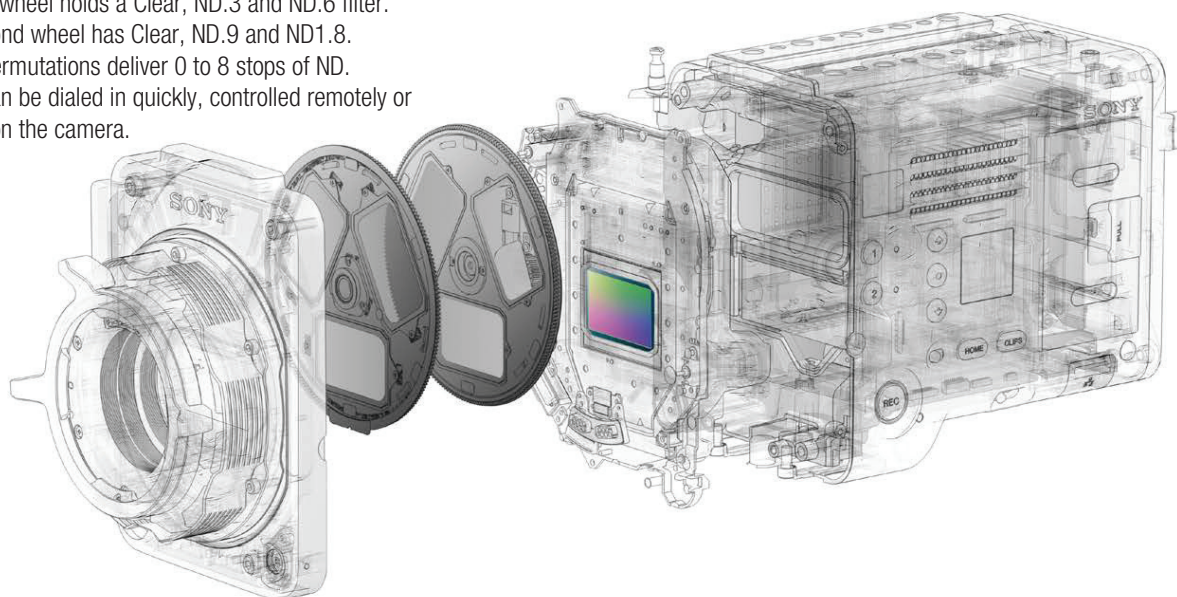


## VENICE: Modular and User-Swappable Sensor Block



Interchangeable Sensor Block Assembly with Full Frame Sensor and E-mount. This module can be quickly and easily swapped by the user. Opportunities abound. You will be able to upgrade the sensor and keep the camera. Could it be that various sensor blocks, with different ISO ratings and looks might be "loaded" into the camera the way film stocks are loaded in magazines? Or maybe there could be a sensor for super slow motion or high frame rate.

Two turrets hold three high quality optical ND filters in each. The first wheel holds a Clear, ND.3 and ND.6 filter. The second wheel has Clear, ND.9 and ND1.8. These permutations deliver 0 to 8 stops of ND. Filters can be dialed in quickly, controlled remotely or directly on the camera.





## Sony's VENICE, cont'd and Q&A



### Dual Recording

VENICE can record two streams simultaneously onto two separate media cards. For example: RAW or X-OCN on the AXS-R7 as a digital negative and XAVC or ProRes onto internal SxS cards for editing. VENICE will also, with a firmware update, record RAW or X-OCN on the AXS-R7 and XAVC 4K internally at the same time. When not using the AXS-R7, VENICE can record both XAVC 4K and ProRes simultaneously. If you're using one SxS card, it would be ProRes 422 Proxy.

### Production to Post

With 15 stops of latitude and a wide color gamut, VENICE follows familiar Sony workflows of the F65 and F55. VENICE can work in the same color space as the F65 and F55 and Rec. 2020. Your images will flow seamlessly from camera to cart, dailies to grading, and ultimately to theaters, screens, tablets and displays.

### Browse and View

Catalyst Browse and the RAW Viewer are free Sony software downloads for grading and transcoding.

Catalyst Browse lets you browse files, see and edit metadata, view video, apply color correction and establish looks. Use Catalyst Browse to transcode and copy files to connected hard drives, network storage or Sony's Media Cloud.

RAW Viewer is an application that provides highest quality debayering of RAW files, enables QC of recorded files, does color grading and supports a number of control panels.

### Future Proof

VENICE has a modular design. The sensor block can be exchanged and swapped. When the next Sony sensors arrive, you'll be able to upgrade without having to buy a new camera.

### VENICE Q&A with FDTimes

#### Are there Anamorphic Full Frame lenses?

Yes: Ultra Panavision, Hawk65 and most recently, Scorpio AFF.

#### What Spherical Full Frame lenses are here now?

Many: ZEISS CP.3, Leica Thalia, Cooke S7/i, Leica M0.8, Angenieux Type EZ-1 and EZ-2, new Angenieux Optimo Ultra, Sigma FF High Speed Cine Lenses, IB/E Optics Raptors...

#### What about still photography lenses?

More than 300 million Full Frame still photography lenses are out there, waiting to be outfitted with a lens mount adapter.

#### What about Sony E-mount still and cine lenses?

Absolutely, including superb Sony G-Master lenses. My guess is that Eastern Enterprises, P+S, TLS, Duclos and others will soon be very busy modifying G-Masters and other E-mount still lenses with 0.8M gear rings. Also, remember the FE PZ 28-135mm f/4 G OSS Zoom Lens. It's E-mount, Full Frame, with optical image stabilization that will be very helpful for aeriels and bouncy vehicles.

We'll get to mounts in a minute. Meanwhile, rest assured, VENICE's E-mount is very rugged. VENICE accepts not only E-mount but also PL mount lenses.

#### If I'm a rental house, what about my enormous inventory of existing PL-mount lenses?

Not to worry. VENICE will accept any PL-mount Super35mm lens and format—anamorphic or spherical. VENICE's Full Frame sensor offers a significantly larger image canvas within which existing Super35 (and maybe 16mm and B4) formats can be used.

**A large review of Full Frame - Large Format lenses follows, on pages 25-34.**



## Q&A with Sony's VENICE Team

### **FDTIMES: Where are the VENICE cameras and sensors made?**

**SONY'S VENICE TEAM:** VENICE cameras are built at the Sony Global Manufacturing Facility southwest of Tokyo. VENICE sensors are designed by our engineers and come from our Sony Semiconductor Manufacturing Corporation in Kumamoto, on the island of Kyushu, Japan.

### **How did you come up with the name VENICE?**

We considered several names, but decided upon Venice for several unique reasons. The light and ambiance of Venice, Italy has attracted artists, poets and filmmakers for centuries. Many famous movies were filmed in Venice, and the Venice film festival which celebrates the art and craft of filmmaking. And then, of course, there is Venice, California—which is close to Hollywood and the worldwide center of filmmaking.

### **What was the main concept in developing the camera?**

We carefully considered what the next generation camera needed to be, and how we could make it future proof. We intended this camera to be a reliable partner for creative professional filmmakers. Our goal was to have an intuitive design and refined functionality that would make it a pleasure to work with. The newly developed 36x24mm Full Frame sensor and Full Frame ready lens mounts offer access to a great variety of lenses—spherical, anamorphic, S35 or FF. VENICE is intended to help cinematographers express themselves artistically, for directors to realize their dreams without compromises, and for producers to revel in the versatility of the camera.

### **What was the design concept?**

"Simple and Robust" was the design concept. After conducting a series of interviews and prototyping possible designs with creators, we decided on placing the operation panels on both sides of the camera. These panels are optimized for simple operation in harsh conditions, and special attention was paid to the placement, feel and number of buttons.

### **What were the challenges in terms of design?**

To clearly, and logically lay out the interface and connectors without compromising usability was a challenge. In terms of the UI and user interaction, we wanted to not only meet the industry standards for usability, but also to create a camera so effortless that crews will focus on their artistry and not on operating the camera.

### **What were the engineering challenges during development?**

We wanted to design a very solid, durable camera body. Unconventional methods had to be employed for the internal thermal design. The new image sensor has high sensitivity. So, we designed the circuitry very carefully to be able to make use of the maximum performance of the image sensor. The mechanical 8 x ND as huge challenge, as was the internal cooling system. We are proud to say we accomplished what we set out to do.

### **What research was done and how is it reflected in the design?**

We spent a significant amount of time with filmmakers around the world. They represented a wide range of backgrounds, from working on big budget feature films to independent documentaries. They were given a chance to use mock-ups of the interface and we asked them to perform different tasks that they might typically do before, during and after shooting. Based upon the results we closely observed, and as a result the designs were revised

and we conducted a second round of closed tests with interactive prototypes. The results of these tests dictated all areas of the design, from the user interface to the number, size and placement of the buttons.

### **You position VENICE as Sony's flagship model. Why then does VENICE have a 6K sensor while the F65 has an 8K sensor?**

VENICE has a lot of advantages compared to the F65. VENICE has a Full Frame sensor and its Latitude, Signal-to-Noise Ratio and Dynamic Range are a higher specification than F65. That's why we place VENICE as the flagship model. Picture quality of a camera should be determined not only by sensor resolution but also by sensor size, number of photosites, dynamic range, image processing, and much more. Considering the current market situation and desired picture quality, look, and color reproduction, we decided to choose a 6K large format sensor.

### **Is the Full Frame sensor developed by Sony?**

Yes, it is. This is Sony's first Full Frame sensor newly developed for a high-end digital motion picture camera. We introduced the prosumer HandyCam NEX-VG900 in 2012 featuring an earlier developed Full Frame sensor. But that was a different camera for a different audience.

### **Is the VENICE sensor the same as the $\alpha$ series still cameras?**

No, the VENICE sensor was designed and manufactured from the ground up specifically for this high-end cinema camera, for the highly demanding requirements of filmmaking. Without getting into all the details, the color filters are different, and the cinema camera sensor can capture High Dynamic Range exceeding Rec. 2020, which is a much wider color space than P3.

### **Why is the sensor rated at 500 ISO?**

Considering the optimal balance of dynamic range, we set it to 500. A dynamic range equivalent to F65 is achieved, but with lower noise. In addition, the sensitivity is changeable from 125 to 4,000. So we'll see how cinematographers will decide to rate VENICE.

### **What is the benefit of VENICE's interchangeable sensor block?**

Customers can change the sensor block assembly themselves without sending the camera to a service facility. For example; a rental house might want to change the CMOS sensor or the ND mechanical turret. In addition, the customer can change the cooling fan assembly easily, even on location. The strategy here is to offer a future proof camera system where the sensor is concerned, so when new sensors are developed with improved or different features, for example Ultra High Frame Rate, then the new block can be used for different projects, or for different scenes within a project, then go back to the primary sensor block for the film without having to switch to a different camera.

### **How does Fast Image Scan work to minimize Jello-Effect?**

As Sony's image sensor technology improves, so does the ability to greatly minimize effects such as "jello". Electronic circuit stacking and internal memory on the CMOS enable Fast image scan

### **Why is VENICE not FZ mount like the F55 and F5?**

The flange focal length of the FZ mount is 19mm while the E-mount is 18mm. At this time, we prioritize the advantage of compatibility with E-mount, which enables adaptability of a larger variety of lenses: smaller, lighter, wider and different.



## Sony's VENICE, cont'd



PL Mount

Shown with Leica Thalia 35mm Large Format

Why would you work with an E-mount on VENICE?

There are superb E-mount lenses from Sony, ZEISS and others.

Many are small and lightweight—helpful for shooting on drones, gimbals, rigs or handheld.

FE designates Full Frame E-mount.

GM stands for Sony G-Master. These stellar lenses are top of the line, with gorgeous bokeh and breathtaking looks.

E-mount lenses open up new vistas for Sony's VENICE.

Here are some examples.

FE 12-24 F4 G

FE 16-35 F2.8 GM

FE 100mm F2.8 STF GM OSS

FE 70-200 mm F2.8 GM OSS

FE 24-70 mm F2.8 GM

FE 85 mm F1.4 GM FE PZ

28-135mm F4 G OSS FF Cine

FE 35 mm F1.4 ZA

FE 50mm F1.4 ZA

FE 16-35 mm F4

FE 24-70 mm F4

FE 70-300mm F4.5-5.6 G OSS

FE 90 mm F2.8 Macro G OSS

E-mount



Shown with Sony G-Master FE 16-35mm F2.8 GM Full Frame E-mount wide zoom



## Sony's VENICE, cont'd



### RAW and Internal Recording

The AXS-R7 Recorder (above) attaches with 4 screws to record 16-bit linear RAW in 4K onto AXS cards in a future firmware update.

For the smallest size and weight, VENICE records XAVC or ProRes in-camera onto SxS cards (below),





## Sony's VENICE, cont'd

Sony DVF-EL200 Viewfinder is shown in handheld position towards front of camera.

Adjustable top handle is attached facing the rear.

Shown with Cooke S35 Anamorphic /i 32mm



Sony DVF-EL200 EVF attaches to many mounting points on the camera. Here it is at the rear—helpful for operating on a geared or studio fluid head.

Also, note how the top handle is also adjustable forward and back, and also faces front or rear.



## Sony's VENICE Specs

Power	12V DC (11~17.0V) and 24V DC (22~32.0V)		
Weight (body only, no AXS-R7)	Approx. 3.9 kg (8 lb, 10 oz) without lens, handle, EVF, bottom plate or accessories		
Dimensions	133 x 159 x 172 mm (excluding protrusions) / 5.24 x 6.26 x 6.77 in		
Sensor	Full-Frame CMOS 24.7 Megapixels total, 24.4 Megapixels effective, 6048 x 4032		
Sensor Dimensions	24.1 x 36.2 mm, 43.5 mm Diagonal. Photosite size ~ 6 microns		
8 Steps, 8 Stops Built-In NDs	Clear, ND 0.3, 0.6, 0.9, 1.2, 1.5, 1.8, 2.1, 2.4 in 1-stop increments (1/2 - 1/256)		
ISO	ISO 500		
Lens Mount	Native breech lock E-mount, 18mm flange focal depth PL Mount attaches over E-mount with 6 screws, 52 mm flange focal depth		
Latitude	15+ Stops		
Resolution, Aspect Ratios and Frame Rates*	Res.	Aspect Ratio	FPS
	3.8K	16:9	1-60 fps
	4K	17:9	1-60 fps
	4K	4:3	1-48 fps
	4K	6:5	1-30 fps
	5.7K	16:9	1-30 fps
	6K	17:9	1-30 fps
	6K	1.85:1	1-30 fps
	6K	2.39:1	1-30 fps
	6K	3:2	1-24 fps
White Balance	2000~15,000 Kelvin with Green/Magenta adjustment, AWB		
Gamma Curve	S-Log3		

Image Recording Formats XAVC and ProRes	XAVC 4K Class480: 23.98p, 24p, 25p, 29.97p XAVC 4K Class300: 23.98p, 24p, 25p, 29.97p*, 50p, 59.94p XAVC QFHD Class480: 23.98p, 24p, 25p, 29.97p XAVC QFHD Class300: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p MPEG HD422(1920x1080): 23.98p, 24p, 25p, 29.97p, 50i, 59.94i HD ProRes 422HQ: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 59.94i HD ProRes 422: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 59.94i HD ProRes 422 Proxy: 23.98p, 24p, 25p, 29.97p, 50p, 59.94p, 50i, 59.94i
Image Recording Formats RAW / X-OCN AXS-R7 Required	RAW SQ 4K 17:9 (4096 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p 3.8K 16:9 (3840 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p X-OCN ST/LT: 6K 3:2(6048 x 4032)*: 23.98p, 24p, 6K 2.39:1 (6048 x 2530)*: 23.98p, 24p, 25p, 29.97p 6K 1.85:1 (6048 x 3270)*: 23.98p, 24p, 25p, 29.97p 6K 17:9 (6048 x 3190)*: 23.98p, 24p, 25p, 29.97p 5.7K 16:9 (5672 x 3190): 23.98p, 25p, 29.97p 4K 6:5 (4096x3428)*: 23.98p, 24p, 25p*, 29.97p* 4K 4:3 (4096x3024): 23.98p, 24p, 25p, 29.97p 4K 17:9 (4096 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p 3.8K 16:9 (3840 x 2160): 23.98p, 24p, 25p, 29.97p, 50p, 59.94p
Audio Recording Format	LPCM 4ch , 24-bit 48-kHz

\* indicates implementation after firmware update

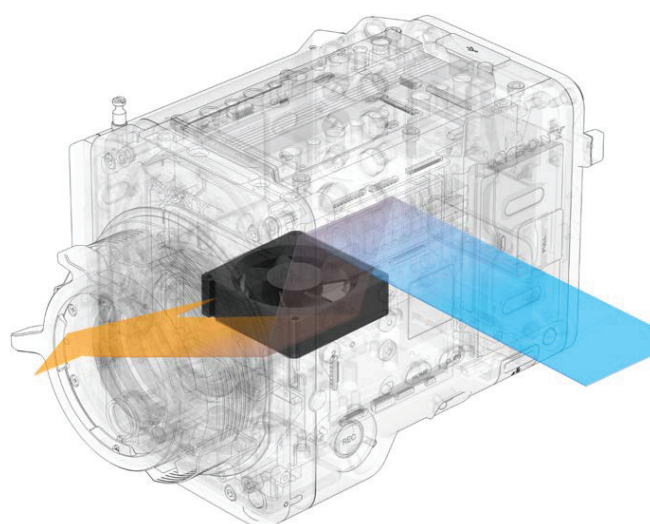
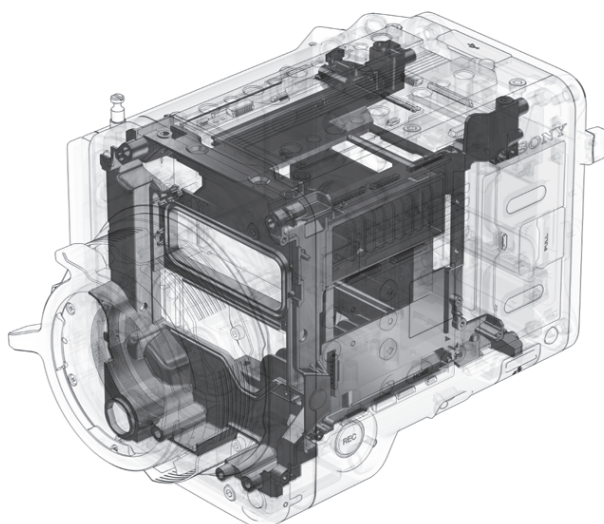
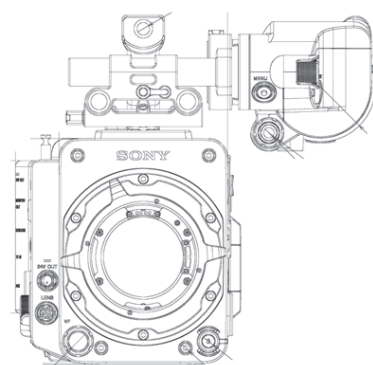
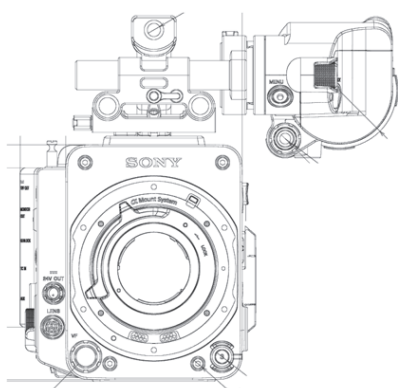
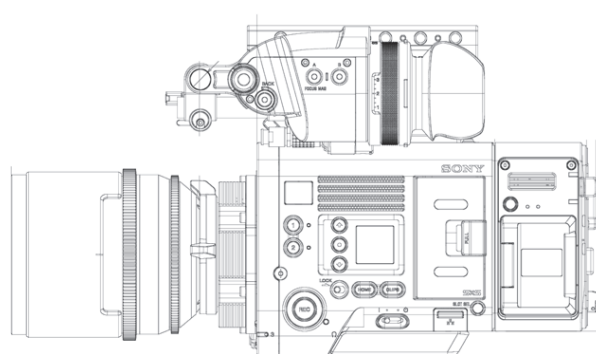
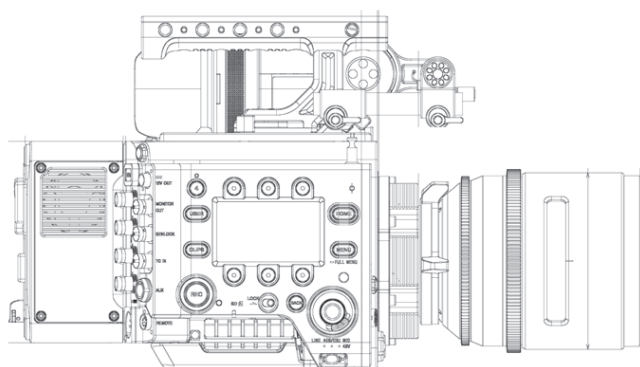


# Sony's VENICE Specs

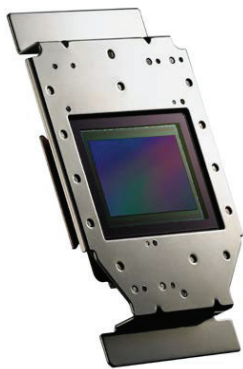
## Inputs/Outputs

DC Input	XLR 4-pin (male)
Battery DC Input	Square-shaped 5-pin connector
DC Output	12V: 4-pin ×1 24V: Fischer 3-pin ×2
SDI Output	BNC×4, (12G, 3G, 1.5G-SDI)
HD MONI Output	BNC×1 (1.5G-SDI)
HDMI Output	Type A ×1
EVF	LEMO 26pin
Audio Input	XLR-type 5pin (female) ×1 (LINE/ AES/EBU / MIC / MIC+48V selectable)
Timecode Input	BNC ×1

Genlock Input	BNC ×1
AUX	LEMO 5-pin (female) ×1 (Timecode Output)
Remote	8-pin ×1 (with firmware update)
Lens	12-pin ×1 (with firmware update)
Lens Metadata Contacts	4-contacts ×2, conforming to Cooke /i Protocol
Network	RJ-45 type ×1, 10BASE-T, 100BASE-TX
USB	USB host, type-A ×1
Headphone Output	Stereo mini jack ×1
Speaker Output	Monaural
Media	ExpressCard/34 slot×2 SD card slot ×1



## Sony's VENICE Imager Modes



VENICE's 24x36 mm Full-Frame image sensor

Software License	Imager Mode	Resolution	W x H (mm)	Supported Project FPS	Select FPS
-	3.8K 16:9	3840 x 2160	22.8 x 12.8	23, 25, 29, 50, 59	1-60*
	4K 17:9	4096 x 2160	24.3 x 12.8	23, 24, 25, 29, 50, 59	1-60*
Anamorphic License	4K 4:3	4096 x 3024	24.3 x 18.3	23, 24, 25, 29	1-48*
	4K 6:5*	4096 x 3432	24.3 x 20.4	23, 24, 25, 29	1-30*
Full Frame License	5.7K 16:9*	5670 x 3190	33.7 x 18.9	23, 25, 29	1-30*
	6K 17:9*	6048 x 3190	35.9 x 18.9	23, 24, 25, 29	1-30*
	6K 1.85:1*	6048 x 3270	35.9 x 19.4	23, 24, 25, 29	1-30*
	6K 2.39:1*	6048 x 2534	35.9 x 15.0	23, 24, 25, 29	1-30*
	6K 3:2*	6048 x 4032	35.9 x 24.0	23, 24	1-24*

## VENICE Recording Formats

Format	Profile	23.98	24.0	25.0	29.97	50	59.94
RAW		✓	✓	✓	✓	✓	✓
X-OCN ST	X-OCN ST	✓	✓	✓	✓	✓	✓
	X-OCN LT	✓	✓	✓	✓	✓	✓
XAVC 4K	Class480	✓	✓	✓	✓		
	Class300	✓	✓	✓	✓	✓	✓
XAVC QFHD	Class480	✓		✓	✓		
	Class300	✓		✓	✓	✓	✓
MPEG HD		✓		✓	✓	✓	✓
HD ProRes	ProRes422HQ	✓	✓	✓	✓	✓	✓
	ProRes422	✓	✓	✓	✓	✓	✓
	ProRes 422 Proxy	✓	✓	✓	✓	✓	✓

## VENICE Firmware Update Versions

*Tentative as of Sept. 2017*

### V1.0 with initial delivery of VENICE

#### V2.0

##### Imager Modes

- 4K 6:5 Anamorphic
- 6K 1.85:1 (Full Frame)
- 6K 17:9 (Full Frame)
- 6K 3:2 (Full Frame)

##### Lens Metadata

- E-mount lens support

##### Recording Format

- ProRes

##### Simultaneous Recording

- RAW & ProRes

##### Shooting Function

- Select FPS

##### Monitor Outs

- Additional preset MLUTs

- User 3D LUTs

##### Viewing Assist

- Surround View
- Dot by dot magnification
- Auto White Balance
- High-Low Key

##### Monitor Out Function

- Operator side clips button

#### V3.0

##### Imager Modes

- 5.7K 16:9
- 6K 2.39:1

##### Simultaneous Recording

- XAVC 4K / QFHD & ProRes Proxy
- RAW / XOCN & XAVC 4K QFHD

##### Shooting Function

- Paint Menu (Custom Mode)
- Cache Record (AXS, SxS)

##### Monitor Out Function

- 12G-SDI (for 4K 50/60p)

##### Shooting Assist Function

- False Color

##### Hardware Enabled

- Remote S700 Protocol
- 12-pin lens remote

##### Network Function

- Wired LAN Control
- Wireless LAN Control (with CBK-WA02)



# Sony VENICE Full Frame and Super35 Formats



## VENICE Full Frame (FF)

24.1 x 36.2 mm (1.50:1)  
43.5 mm diagonal

1.78:1 (16:9) FF  
20.22x36 mm

1.85:1 FF  
19.46x36 mm

2:1 FF (18:9)  
Storaro Univisium  
18x36 mm

2.39:1 FF  
Spherical Widescreen  
15.06x36 mm

FF Anamorphic  
Scorpio AFF  
2x Squeeze  
24x28.68 mm  
37.4 mm diagonal

## Super35 (S35)

18.66x24.89 mm (1.33:1)  
31.1 mm diagonal

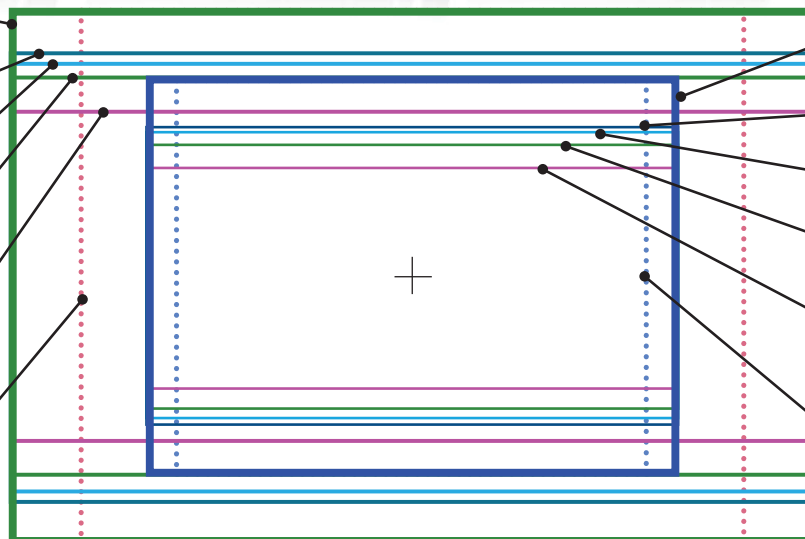
1.78:1 (16:9) S35  
13.98x24.89 mm

1.85:1 S35  
13.45x24.89 mm

2:1 (18:9) S35  
Storaro Univisium  
12.45x24.89 mm

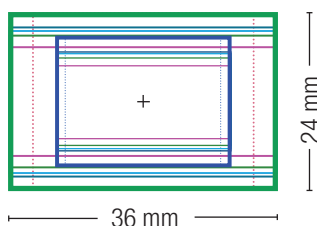
2.39:1 S35  
Spherical Widescreen  
10.41x24.89 mm

Anamorphic S35  
2x Squeeze (1.195:1)  
18.66x22.30 mm  
29.08 mm diagonal

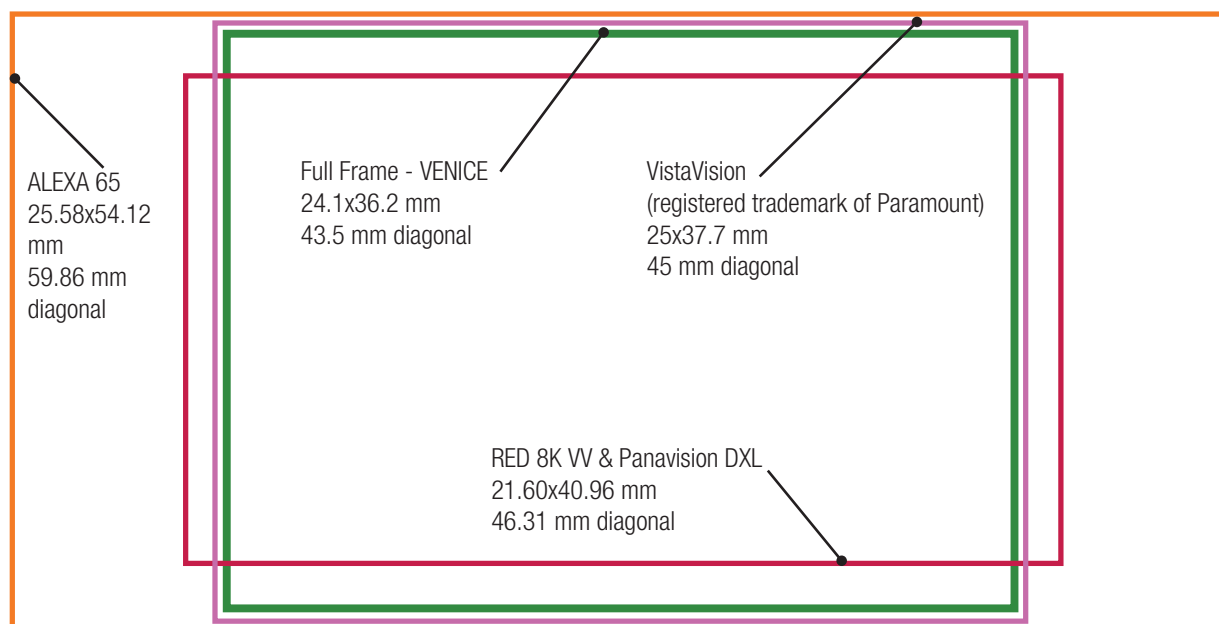


Please note: aspect ratios are generic and not specifically VENICE

## FF & S35 Actual Size



## Sensor Size Comparisons: Alexa 65, VistaVision, Sony Full Frame, RED VV & Panavision DXL



## New Angénieux Optimo Ultra 12x: Full Frame, U35, S35

Full Frame 36-435mm T4.2 - 46.3mm Ø

for Full Frame/VV Cameras: Sony's VENICE FF, RED 8K VV, Panavision Millennium DXL, ARRI Alexa 65 cropped to FF



U35 26-320mm T3.1 - 34.6mm Ø

for "Super35Plus" Cameras, ARRI Open Gate, RED 6K Dragon, RED Helium 8K



S35 24-290mm T2.8 31.1mm Ø

for all Super35 cameras





# Ingenious Angénieux Optimo Ultra 12x



The next-generation Angénieux Optimo Ultra 12x is a high-end, multi-format zoom with interchangeable modules to cover sensor sizes from Full Frame 24x36 and RED 8K VV to U35 and S35. It is the venerable Optimo 24-290 reference redefined, the zoom lens that accompanied almost every major motion picture production since it was introduced in September 2001.

Now, sixteen years later, the new Optimo Ultra 12x Zoom refreshes the industry benchmark with a completely new design, even better optics and more rugged mechanics. The classic Angénieux cinematic look continues with smooth skin tones and a pleasing balance between contrast and resolution.

The big news involves bigger pictures. With Angénieux's IRO (Interchangeable Rear Optics) technology, the Optimo Ultra covers many formats: Full Frame/VV, Ultra35 (Super35Plus) and Super35. Versatility is achieved by swapping the rear group and lens barrels of the base lens, which is the Angénieux Optimo Ultra 12x 24-290. It is configured for S35 format out of the box. Also in the box is the U35 (S35+) rear group with dedicated focus, iris and zoom barrels.

The FF / VV rear group and lens barrels are purchased as an additional extra. But, with new FF cameras here now or coming soon, skipping this option would be like racing a Formula 1 car with Go-Kart tires.

Changing formats is as simple as unscrewing the rear assembly, swapping the focus, iris and zoom rings, and attaching the new rear group. It is a quick and easy task for rental houses and service facilities. Rings and rear groups are calibrated and optimized for each specific lens, with the same serial number on each component. In this way, focus marks remain consistent and re-shimming should not be necessary.

How does the new Optimo Ultra 12x in its basic S35 configuration compare with the venerable Angénieux 24-290? The Optimo Ultra covers a larger image circle: 31.1 vs 30 mm. Maximum aperture is the same, T2.8—as is the 162mm front diameter and close focus of 4 feet. At 472mm long, the Ultra 12x is only 32mm (1.3") longer than its predecessor.

The ingenious format flexibility of the Optimo Ultra offers rental houses and owners a wide choice of formats, focal lengths and apertures in one lens with three sets of rear groups and barrels.

## Three Formats

- **S35 24-290mm T2.8 - 31.1mm Ø**  
All S35 cameras
- **U35 (Super35Plus) 26-320mm T3.1 - 34.6mm Ø**  
ARRI Open Gate / 6K RED Dragon, RED Helium 8K
- **Full Frame FF/VV 36-435mm T4.2 - 46.3mm Ø**  
for Sony's new VENICE camera, RED 8K VV, Panavision Millennium DXL (8K VV), ARRI Alexa 65 cropped to FF.

## Optical Design

- New optical design to enable Full Frame and VV coverage
- Up to 200 LPM resolution. (40 LPM = 4K; 80 LPM = 8K)
- Superb image quality. No ramping of aperture
- Minimal breathing of focus. Fast maximum aperture
- IRO Interchangeable Rear Optics
- Aspheric elements minimize color fringing and distortion
- Short MOD (Minimum Object Distance - Close Focus)

## Mechanical Design

- Completely updated design from the 24-290 and 28-340
- Improved durability with special anti-abrasion coating
- Easier to service
- Weight reduction of moving components using new materials
- Improved resistance to moisture and dust (with dust traps)
- Precise, assistant-friendly focus ring with 321 degrees of rotation and more than 70 focus marks
- User changeable focus barrels by rental houses and service facilities—focus scales available in Imperial or Metric
- Passive thermal compensation from -20°C to +40°C means focus marks remain accurate in extreme weather conditions and the zoom stays smooth even in very cold climates
- Universal thread accepts many different lens mounts

## Lens Mounts

- Comes with PL mount standard
- Additional lens mounts to come in the future

# Angénieux Optimo Ultra 12x, cont'd

## S35 Basic Lens and U35 Kit

Out of the box basic set includes one **S35 Optimo Ultra 12x Zoom** as well as the **U35 Kit** with Rear Group, Iris, Zoom and Focus Barrel



Carrying handle is an optional accessory

### S35 Components



**S35 24-290 T2.8** includes these components (above): Rear Group, Iris, Zoom and Focus Barrel. Remove to make way for the U35 Kit (below).

### U35 Kit



**U35 26-320 T3.1 Kit:** Rear Group, Iris, Zoom and Focus Barrel

## FF and WV Kit

*Optional (Essential!)*

The Full Frame / WV Kit—with Rear Group, Iris, Zoom and Focus Barrel—must be ordered with S35 + U35 Ensemble

Serial numbers must match to ensure consistent calibration and focus mark accuracy.

### FF/WV Kit



**FF/WV 36-435mm T4.2 Kit:** Rear Group, Iris, Zoom and Focus Barrel

## Accessories

- Screw-in Front Protective Glass Optical Flat
- Carrying Handle
- Angénieux’s existing 1.4x and 2x Extenders are compatible with the S35 version, but not with the U35 and FF/WV versions of the Optimo Ultra 12x Zoom

1.4x and 2x Extenders



Carrying Handle



## Angénieux Optimo Ultra 12x Zoom Specs

Lens Configuration	24-290mm T2.8	26-320mm T3.1	36-435mm T4.2
Format	S35	U35 (S35+)	FF / WV
Focal length (mm)	24-290	26-320	36-435
Aperture	T2.8-22	T3.1-22	T4.2-22
Image Circle (mm)	Ø 31.1	Ø 34.6	Ø 46.3
Iris Blades	9	9	9
Front diameter (mm)	162	162	162
Length (mm)	472mm	481mm	523mm
Length (inches)	18.6"	18.9"	20.6"
MOD (meters)	1.22 m	1.24m	≤1.35m
MOD (inches)	4'	4'1"	≤5'
Weight (kg)	12.6 kg	12.75 kg	12.75 kg
Weight (lb)	27.7 lb	28.1 lb	28.1 lb



# Full Frame Cine Lenses: September 2017 Update

*Q&A Continued from page 16*

**What Full Frame Cine Lenses are available for VENICE?**

FDTimes: I'm glad you asked that question. From A to Z: Angénieux, ARRI, Canon, Cooke, Hawk, IB/E Optics, Leica, Panavision, Schneider, Sigma, Sony, ZEISS.

**What about Large Format 65mm Lenses?**

Yes, they fit, just like FF lenses cover S35 as well.

**Some examples?**

See the pages that follow.  
Apologies to anyone omitted: time and space ran out.



## Cooke S7/i Full Frame Plus



18 mm	25 mm	32 mm	40 mm	50 mm	75 mm	100 mm	135 mm
T2-22	T2-22	T2-22	T2-22	T2-22	T2-22	T2-22	T2-22

## SIGMA Cine Full Frame High Speed Primes and Zoom



14 mm	20 mm	24 mm	35 mm	50 mm	85 mm	135 mm	24-35 mm
T2-16	T1.5-16	T1.5-16	T1.5-16	T1.5-16	T1.5-16	T2-16	T2.2-16



## Full Frame Cine Lenses

### ZEISS Full Frame Compact Primes CP.3 and CP.3 XD



15 mm	18 mm	21 mm	25 mm	28 mm	35 mm	50 mm	85 mm	100 mm	135 mm
T2.9-22	T2.9-22	T2.9-22	T2.1-T 22	T2.1-22	T2.1-22	T2.1-22	T2.1-22	T2.1-22	T2.1-22

### ZEISS Full Frame Compact Zooms CZ.2



15-30 mm	28-80 mm	70-200 mm
T2.9-22	T2.9-22	T2.9-22

### Canon Full Frame EF Cinema CN-E Primes



14 mm	24 mm	50 mm	85 mm	135 mm
T3.1-22	T1.5-22	T1.3-22	T1.3-22	T2.2-22

### Schneider-Kreuznach Xenon Full Frame FF Primes



18 mm	25 mm	35 mm	50 mm	75 mm	100 mm	135 mm
T2.4-22	T2.1-T 22	T2.1-22	T2.1-22	T2.1-22	T2.1-22	T2.1-22



## Full Frame Cine Lenses

Sony FE PZ 28-135 f/4 G OSS E-mount FF zoom

28-135 mm mm
f/4.0-22



### Angénieux Type EZ Full Frame Zooms



22-60 mm	45-135 mm
T3.0-32	T3.0-32



### Leica Full Frame M 0.8 Primes



21 mm	24 mm	28 mm	35 mm	50 mm
f/1.4-16	f/1.4-16	f/1.4-16	f/1.4-16	f/0.95-16

## Large Format Cine Lenses

Leica Large Format Thalia Cine Primes



24 mm	30 mm	35 mm	45 mm	55 mm	70 mm	100 mm	120 mm	180 mm
T3.6-22	T2.9-22	T2.6-22	T2.9-22	T2.8-22	T2.6-22	T2.2-22	T2.6-22	T3.6-22

### IB/E Optics Large Format Raptor Cine Macros



100 mm	150 mm	180 mm
T2.9-22	T2.9-22	T2.9-22

# Large Format Cine Lenses

## ARRI ALEXA 65



### Prime 65

24mm	28mm	35mm	50mm	80mm	100mm	150mm	300mm	50-110mm
T4.8-32	T4-32	T3.5-32	T3.5-32	T2.8-32	T2.2-32	T3.2-45	T4.5-45	T3.5/4.5-32

### Prime 65 S

mm	35	45	55	75	90	120	150
T	2.5	2.8	2.8	2.8	2.8	2.5	2.8

### 2017 Prime DNA Medium-Soft

mm	35	45	55	70	80	85	110	150	200
T	3.5	2.8	2.8	2.8	1.9	1.3	2.8	2.8	2.8

and Prime DNA Special, Prime DNA Soft...

## Hawk 65 Large Format Anamorphic Lenses



40mm	45mm	50mm	60mm	70mm	80mm	95mm	120mm	150mm	200mm
T 2.2	T 2.2	T 2.2	T 2.2	T 2.2	T 2.8	T 2.8	T 2.8	T 2.8	T 4.0

## Panavision Primo 70 and Primo Artiste



mm	14	24	27	35	40	50	65	80	100	125	150	200	250	28-80	70-185	200-400
T	3.1	2	2	2	2	2	2	2	2	2	2	2.8	2.8	3	3.5	4.5

## Ultra Panavision 70 Anamorphic Lenses



mm	35	40	50	65	65(2)	75	75(2)	100	135	180	290	400
T	2.8	2.8	2.8	2.0	2.0	2.0	2.8	2.8	2.8	2.8	4.0	6.0



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