Jon Fauer ASC www.fdtimes.com Issue 113 Feb 2022

FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide

Alice Brooks, ASC on *In the Heights*.
Photo: Macall Polay © 2020 Warner Bros.

FILM AND DIGITAL TIMES

Art, Technique and Technology

Film and Digital Times is the guide to technique and technology, tools and how-tos for Cinematographers, Photographers, Directors, Producers, Studio Executives, Camera Assistants, Camera Operators, Grips, Gaffers, Crews, Rental Houses, and Manufacturers.

It's written, edited, and published by Jon Fauer, ASC, an award-winning Cinematographer and Director. He is the author of 14 bestselling books—over 120,000 in print—famous for their user-friendly way of explaining things. With inside-the-industry "secrets-of the-pros" information, *Film and Digital Times* is delivered to you by subscription or invitation, online or on paper. We don't take ads and are supported by readers and sponsors.

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Leitz HENRI DP/Director's Finder

Reintroducing HENRI.

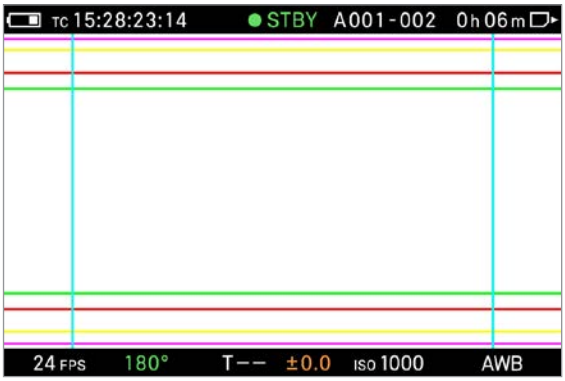
We first met prototypical HENRI in December 2020, named after the Swiss grandnephew of Ernst Leitz I.

Dr. Henri Dumur was a Managing Director of Ernst Leitz Optische Werke Wetzlar. He joined the company in 1903 at the age of 18. He spent 60 years working, supporting the company and the Leitz family.

LEITZ HENRI is here now, ready to support cinematographers and directors in the quest for great angles while location scouting and during daily production.

Paired with the SIGMA fp L camera, you have a 3.68 Million dot EVF, unlimited aspect ratios and up to 5 user-definable framelines.

Paired with the Leica SL2-S, you have a 5.76 Million dot EVF and can choose one of five common framelines.



SIGMA fp L screenshot showing framelines for 1.33:1, 1.85:1, 2.39:1, 2:1 and 2.76:1 aspect ratios.

Leitz ELSIE prime lens in LPL Mount

SIGMA fp L camera with EVF-11, SSD for 12-bit uncompressed CinemaDNG

Leitz HENRI with L to LPL Mount, Siberian birchbark handgrip, Carbon fiber 15mm LW support, Start / Stop / Shutter control, Lens support, optional LPL to PL Adapter.

Choice of handgrip caps:

- RAL 9005 Jet Black (standard)
- RAL 5012 Light blue
- RAL 7042 Traffic grey
- RAL 1007 Daffodil yellow
- RAL 1026 Luminous yellow
- RAL 3020 Traffic Red
- RAL 9016 Traffic White
- RAL 6018 Yellow Green

Leitz HENRI DP/Director's Finder

HENRI from Leitz transforms a SIGMA fp L or Leica SL2-S camera into an incomparable DP/Director's Finder.

What's this? *Incomparable*. FDTimes almost spouts a superlative? Is the eighth FDT style commandment broken? "Thou shalt avoid superlatives. Someone, somewhere always claims something better. As with National Geographic, avoid contentious adjectives; never 'best.'

The World's 50 Best Bars named the Connaught Bar in London best this year and there were a few whimpers of protest, "What about the Hemingway Bar in Paris?" Forbes annointed their Clean Dirty Martini the best in the world. It is chilled as Hemingway instructed, "so cold you can't hold it in your hand" and with an olive entombed in a sphere of ice. But we're here to talk about HENRI.

What makes HENRI incomparable as a DP/Director's Finder is its ability to not only find the shot on set or location, but also to take stills and videos and curated screenshots of each setup.

You hold HENRI as with a vintage Leicina or Beaulieu Super8 camera. The swing-away handle is wrapped in Siberian birch bark. It is waterproof, antibacterial and has an elegant feel. A built-in thumb-activated button can control the camera. Flip the handgrip up to reveal a threaded Arca Swiss plate on the bottom that can attach to a monopod or tripod head.

HENRI comes with carbon fiber rods of various lengths and a lens support. Designed specifically for the Leica SL2-S and SIGMA fp L—HENRI comes with an LPL Mount and LPL to PL adapter. Since these cameras are members of the L-Mount Alliance, you can also use the L-Mount lenses or L-Mount to M, EF, F, PV, SP70, and many other adapters.

HENRI + Leica SL2-S gives you a brilliant 5.76 Million dot EVF. You can shoot 24 MP stills. Or you can record up to C4K 4096 x 2160 video downsampled from the Full Frame 6000 x 3168 24 MP sensor. SL2-S records up to 10-bit internal MOV C4K, 29.97 fps, 4:2:2 files onto an internal SD card or externally via HDMI.

HENRI + SIGMA fp L lets you view with a 3.68 Million dot EVF or the 2.1M dot rear TFT LCD with accessory magnifier loupe. The fp L shoots 61 MP stills. For video, fp L can record internal 8-bit uncompressed CinemaDNG UHD 4K at 24 fps and H.264 MOV to 29.97 fps. It can also record uncompressed 12-bit UHD 4K CinemaDNG at 24 fps to an onboard SSD via USB-C. It also records ProRes RAW and BRAW via HDMI.

Best of all, the SIGMA fp L offers unlimited, user-definable framelines and aspect ratios.

So, HENRI is more than a finder for cinematographers and directors. With HENRI as a versatile support system, you could even shoot the entire film.

HENRI with
L to LPL Mount

220 cm long carbon fiber rods, 15mm Ø

Siberian birchbark handgrip.

This beautiful handle can actually be replaced by almost any standard 5.2" x 7/8" Ø / 130mm x 22.2mm Ø mountain bike grip. (Who would want to do this? :)

Handgrip retracted

Lens Support

Arca Swiss bottom plate

Leitz HENRI. Choice of SL2-S or fp L Camera

Leica SL2-S

SIGMA fp L

HENRI was designed by Leitz Cine to accept a Leica SL2-S or SIGMA fp L. Both cameras are members of the L-Mount Alliance. The L-Mount has a flange focal depth of 20 mm and inside diameter of 51.6 mm. HENRI's optical center, mounting and balance have been calculated around these two cameras. However, you can certainly use a Leica M, Sony alpha, Canon RF, Nikon Z or other mirrorless camera with an appropriate mount adapter.

Each lightweight support rod receptacle has two "wings" that fold out as levers to tighten or loosen

L to LPL Mount attaches directly to camera

Leitz HENRI

HENRI Accessories

L to LPL mount with LPL to PL adapter

Attachment plate for L-Mount cameras. Works with other cameras or lenses and can be inverted when a completely flat surface is required.

140 cm carbon fiber rods, 15mm Ø

300 cm carbon fiber rods, 15mm Ø

Leitz HENRI DP/Director's Finder with Leica SL2-S

ELSIE Full-Frame Primes are named after Elsie Kühn-Leitz, granddaughter of Ernst Leitz I, daughter of Ernst Leitz II.

ELSIE primes come in the following focal lengths: 15, 18, 21, 25, 29, 35, 40, 50, 65, 75, 100, 125 and 150 mm, all T2.1.

Leica SL2-S

The Leica SL2-S conveniently switches from Still to Cine mode with direct menu access. Available aspect ratios and frame-lines are: 1.33:1 (4:3), 1.66:1 (5:3), 1.78:1 (16:9), 1.85:1 (37:20), 2.35:1 and 2.40:1.

Size: 5.7 x 4.2 x 3.3" / 146 x 107 x 42 mm (W x H x D).

Weight: 2 lb / 931 g (with battery).

Leitz HENRI with Leica SL2-S

Lightweight lens support is intended for heavier lenses with bottom threaded sockets such as Leitz PRIME lenses.

Start-Stop cable: 3.5mm 4-gang male to male, plugs into SL2-S headphone or mic jack.

Start-Stop Button

Product photography by FDTimes.
HENRI and ELSIE provided by Leitz.
Leica SL2-S loaned by Lensrentals.
SIGMA fp L courtesy of SIGMA.

SL2-S DP/Director's Finder

1. The Leica SL2-S PHOTO mode has a black background.

2. Go from PHOTO to VIDEO mode by touching the TFT display. Or navigate with the joystick. Or assign a button. VIDEO mode has a white background.

3. By default, the top button closest to the top display is mapped to toggle between PHOTO-VIDEO modes. Note that shutter angle is shown.

You can toggle the RECORDING MODE from VIDEO to CINE. In CINE, settings are shown in shutter angle and EI ASA. In VIDEO, settings are shown as shutter speed and ISO.

4. Press the joystick in to enlarge the image for critical focus. (See examples below.)
Then, jump between 3 Focus Enlargement Settings by rotating either the front or the rear thumbwheel dial.

Overall scene

Enlarged for focus

HENRI + SL2-S with Leica M 0.8 Primes

21mm f/1.4

24mm f/1.4

28mm f/1.4

35mm f/1.4

Leica M to L Adapter

50mm f/1.4

50mm f/0.95 Noctilux

75mm f/2.0

90mm f/2.0

Leica M0.8 primes are cinematized, geared and de-clicked by Leitz. They are based on classic Leica M lenses, carefully selected. M0.8 primes come in 8 focal lengths from 21 to 90 mm. Full Frame, compact, lightweight, with manual focus and iris, the entire set fits into a Domke or Billingham shoulder bag.

Leica M lens mounts have a 27.8 mm flange focal depth. The Leica SL2 or SL2-S camera has a 20 mm flange focal depth. To accommodate the 7.8 mm difference in depth, use Leica's M to L Adapter. This also opens the large world of Leica M still lenses, ancient, vintage or modern: Summilux, Summicron, Elmarit, Noctilux, Thambar, Hektor.

Certainly, you can use Leica, SIGMA, Panasonic or other L-Mount lenses directly on the SL2-S. And yes, you could also use a Leica M10 with a 2.4 million dot LCD Leica Visoflex Typ 020 EVF or Leica M11 with the new 3.68 million dot OLED Visoflex 2. But, warning: "Using the original Visoflex 020 with the new Leica M11 can result in irreparable damage to the camera and/or the Visoflex."

HENRI DP/Director's Finder with SIGMA fp L

SIGMA fp L is described by SIGMA as the smallest Full Frame mirrorless camera in the world. It has a 61 Megapixel sensor—as does the Sony a7R IV.

It has the same body as the original SIGMA fp which has a 24 Megapixel sensor and also fits HENRI just as well.

SIGMA fp and fp L offer 3 ways to look. In its most compact configuration, you can view the LCD directly. Or attach the EVF-11 Electronic Viewfinder to the side. Or add the LVF-11 magnifier loupe to the rear.

EVF-11 uses the HDMI port, so you cannot attach an external Atomos or Blackmagic recorder. You can, however, record externally to an SSD via pass-through USB-C.

HENRI with SIGMA EVF-11

Electronic Viewfinder: 0.5 inch, 3.68 Million dot OLED display, tilts from level to 90° up.

LVF-11 comes with a baseplate that screws into the 1/4-20 thread of the camera base.

HENRI with SIGMA LVF-11

3.15" 2.1 Million dot LCD rear display with LVF-11 magnifier loupe,
diopter adjustable from –2 to +1,
2.5x magnification.

Because the LVF-11 is optical only, not electronic, the HDMI and USB-C ports are readily available for external recording or monitoring.

HENRI with SIGMA fp L + EVF-11 + SSD

HENRI + SIGMA fp L + SSD
with EVF-11
and Samsung 1 TB T7 SSD
for 12-bit UHD 4K uncompressed
CinemaDNG RAW recording

HENRI + SIGMA fp L + Primes

35mm F2 DG DN C

A SIGMA DG DN Contemporary I-Series Prime set will fit into a small backpack or shoulder bag. These lenses have Auto or Manual focus and Auto or Manual (indexed) aperture. They're great for scouting or you could shoot an entire feature with these compact optical gems.

90mm F2.8 DG DN C

65mm F2 DG DN C

45mm F2.8 DG DN C

35mm F2 DG DN C

24mm F2 DG DN C

24mm F3.5 DG DN C

20mm F2 DG DN C

HENRI + SIGMA fp L + Zooms

28-70 F/2.8 DG DN C

For an infinite choice of focal lengths, SIGMA has four great still photo zooms. The 28-70 is in the Contemporary series and is the most compact. The 14-24 and 24-70 are part of the SIGMA Art Series, with the best performance. Until there's a DG DN version, the DSLR style 70-200 works with an L-Mount adapter.

Either set—primes or zooms—are a lot lighter and easier for location scouting. You can save schlepping bigger and heavier cine lens for when filming begins.

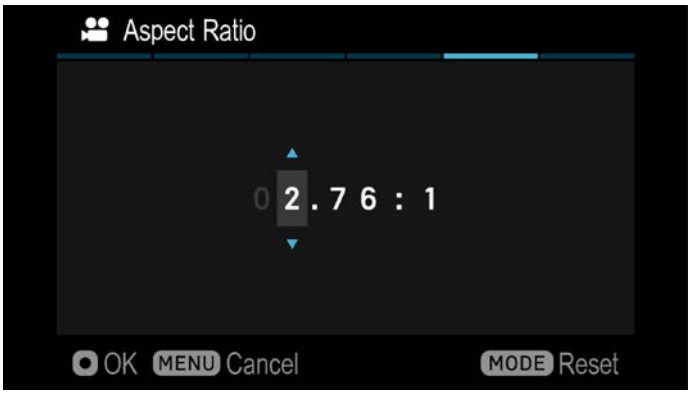
14-24 F2.8 DG DN Art

24-70 F2.8 DG DN Art

70-200 F/2.8 DG OS HSM S with MC-21 L-Mount Adapter

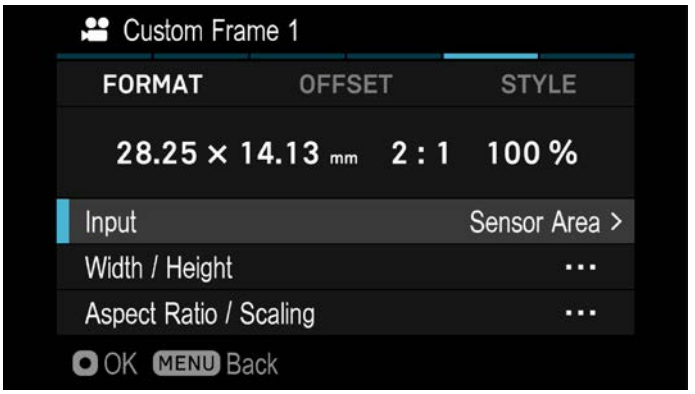
fp L: Unlimited Framelines

SIGMA fp L has user-defined framelines and aspect ratios. The menu screen is intuitive, elegant and simple. Enter any aspect ratio and image size you want. Multiple frame lines, colors, styles and shading abound.

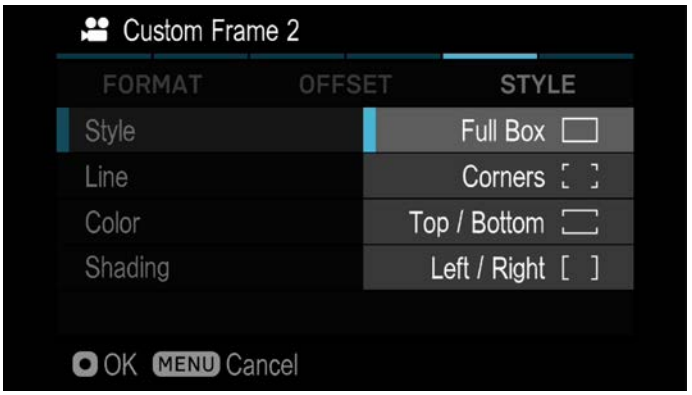


1. Direct numerical entry of any aspect ratio.

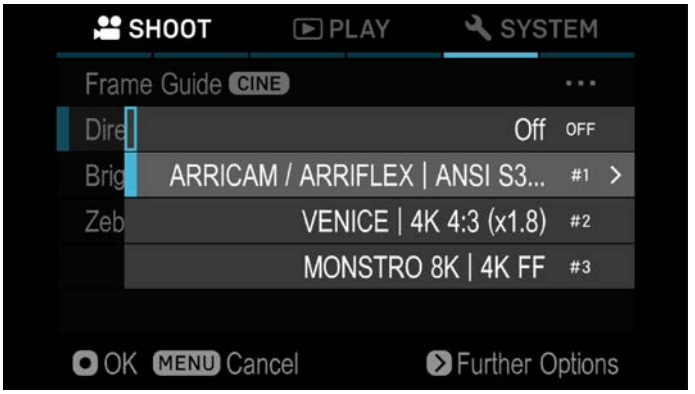
It works in familiar film-style ratios of xx.yy : 1
You can also enter the aspect ratio as a whole number head-scratcher style such as 22:8 (2.75:1 — almost 2.76:1 Ultra Panavision 70, as in *Ben-Hur* and *The Hateful Eight*.)



2. Or, enter aspect ratio defined by actual sensor area in mm.
In this example, we want to use the fp L finder to scout a scene to be shot with an ALEXA SXT with an aspect ratio of 2:1. We know the ALEXA's sensor is 28.25 mm wide. So the height will be 14.13 mm. Navigate to STYLE for frameline color and width. OFFSET repositions the framelines.



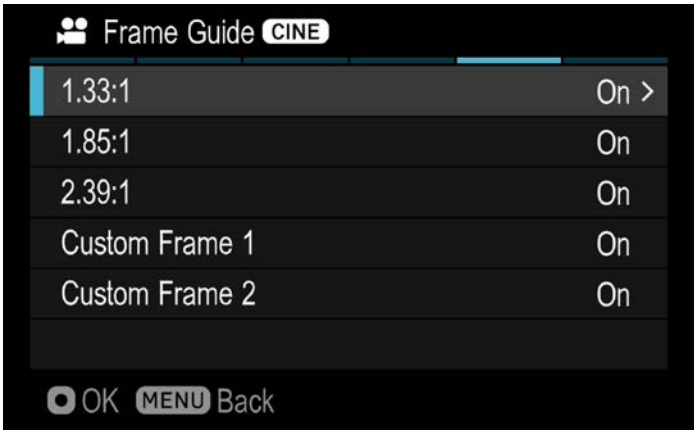
3. The Custom Frame STYLE menu offers choices of:
- Frameline appearance (Full Box, Corners, Top-Bottom, Left-Right)
- Frameline thickness
- Frameline color
- Shading (masks outside picture area)



4. Director's Finder mode matches ARRI, SONY or RED camera sensor modes instead of having you calculate size and shape.

You can view Custom Frames and Director's Finder framelines at the same time—sort of a mix and match approach.

5. You can set up to 5 framelines to display concurrently. Three are pre-determined: 1.33:1, 1.85:1 and 2.39:1. Two are user-definable, which is super helpful.



6. Turn the framelines on and off here. For example, you may want to compose for 2.39:1 for theatrical release and 2:1 for Netflix.

CINE Mode

When using the fp L as a Finder in CINE mode, press the Red REC button to capture the scene in video. Or press the shutter button to capture a still.

To capture stills with the shutter button, be sure to set the menu as follows:

SHOOT > Shutter Button Settings (CINE) > Shutter Button Functions (CINE) > Shutter.

Still Mode

Of course, in STILL mode, the shutter button takes the still photo.

SCREENSHOT

To capture a still image with framelines, use the SCREENSHOT function. You can also include camera settings if you like. If you're using an L-Mount lens, the focal length and focus distance will also be included in the Screenshot (see example at bottom right).

To capture a SCREENSHOT, first press the DISPLAY Button and then the TONE, COLOR, MODE or OK Button.

The latest fp L firmware lets you assign SCREENSHOT to a button, for example, the left "button" of the 4-way rear dial:

SHOOT > Custom Buttons Functions > Left Arrow "Button" > Screenshot.

Screengrab with in-shot display data turned to MINIMAL. Single frameline adjusted to thin width and no crosshair.
Because this was shot with a PL to L-Mount adapter, the lens metadata is not displayed. Remaining data is out of frame: fps, shutter, F-stop, ISO, color temperature, etc.

Screengrab with multiple framelines, record settings and lens data displayed. This setup is helpful for scouting. You can return at a later date and match focal length. Note: focal length and focus distance only show up if you're using an L-Mount Alliance lens.

And then you can slide the top switch of the camera from CINE to STILL and shoot a 61 MP (9520 x 6328) photo, which prints 31" wide x 21" high at 300 dpi.

Claudia Raschke on *Fauci*

Fauci *is a National Geographic Documentary Film about the life of Dr. Anthony Fauci, the world-renowned infectious disease specialist, physician and public health official. He has been at the forefront of every pandemic from AIDS to COVID-19.* Fauci *streams on Disney+.*

Claudia Raschke grew near Hamburg, Germany. She was interested in art and dance and watched a lot of movies because her mother owned a chain of cinemas. In 1983, Claudia enrolled in the Martha Graham school of dance and studied art and cinematography at NYU. She started working as a 2nd AC for Jost Vacano, BVK, ASC and Stefan Czapsky, ASC. She worked as a DP on features and then moved into award-winning documentaries.

Jon Fauer: What was the impetus for doing the film "Fauci?"

Claudia Raschke: The co-director, John Hoffman, approached me and said, "You did *RBG*. We want to make a documentary about Dr. Fauci, who has been the longest serving public servant in government, 50 years on the job, seven presidents, innumerable congressional testimonies." We wanted to shed light on this amazing man. Not many people knew about him at the time. And then COVID happened. All of a sudden, he became a household name. To this day, he is on the news almost every day. He gives us all great guidance during a very difficult time. Our initial approach was to understand this incredible public servant. And then, as we looked at archival footage, we saw that he was a man whose character was forged by the HIV crisis, and now he was being tested again by the COVID pandemic.

I am very grateful that I had the opportunity to meet him. He was very different from *RBG*, Ruth Bader Ginsburg, who was much more standoffish. It took time for her to warm up to me, but it was because she was dearly afraid of cameras and lights.

I don't know what her experiences were prior, but when she saw the camera, she would say, "Oh, there's a camera person." She would close up. She felt vulnerable. Whereas Dr. Fauci was so approachable. But because of COVID, there was also, "Okay, six feet away, girl, you stand over there." He would give me this look, and it reminded me very much of *RBG* who would also shoot me this look of, "You are too close."

When did filming begin?

It actually began earlier. Janet Tobias, the other co-director, had already started filming Dr. Fauci for a different project in 2018. At that time, she said to him, "Nobody has ever made a portrait film on you. We really should do that." And then, magically, John Hoffman, who had worked with Dr. Fauci on *Weight of the Nation* and other projects, also wanted to make the film, so they combined forces together. John and I had worked together on several films, including *Weight of the Nation*. John was planning to use a lot of archival footage and interviews, some of them maybe stylized. To create an intimate sense of Dr. Fauci, while presenting him in the truest possible way—rather than being an active camera—we took a truly unobtrusive point of view.

What do you mean by stylized interviews?

Sometimes you go to a place and embrace what that location is all about. You find a beautiful angle that is suitable for your character. Hopefully the background emulates something that the character also is talking about, or brings to the conversation. When you stylize something, you might try to shadow the light in certain parts of the scene so it doesn't interfere with the story.

Stylized, for the directors, was the way to avoid distracting from who Dr. Fauci is. As John once asked me, "Do you think we can just have a black void background for everybody else except for the core family?" We talked about that. Of course, my concern was how to work in a way that felt cohesive throughout the entire film.

The lighting in Dr. Fauci's office was beautiful. Was it natural light? You had nice shafts of light on the background.

We shot with two cameras side by side to provide more coverage. We had 135 mm and 50 mm Canon CN-E Cinema Primes. To achieve shallow depth of field, we shot at T2.2.

As for lighting, when I first walked into Dr. Fauci's office, I thought, "Oh my goodness, this is cramped and cluttered full of things. Where am I going to set up the equipment? And there is a huge window that makes our lighting susceptible to the weather conditions." John said, "Look, we are limited in time when we're interviewing him, because he's extremely busy. And now during COVID, he's even more busy and that's his priority. If we are allowed and permitted to sit him down, it'll be maybe for 60 minutes at a time. But because it's about his entire life, we need multiple sessions, so I need you to come up with a plan that we can repeat over and over again to look like one continuous interview with identical lighting."

And then John said, "I love this wall." That's the wall with

Photo: Visko Hatfield

multiple, reflective, award plaques. But, when you are shooting against a wall, there is no depth. He was basically seven and a half feet from the camera, and he was about three feet in front of the wall. Our filming area was 10 feet by 10 feet for two cameras, sound and lighting.

And you had his giant plant in there as well.

We had that giant plant and his table. We tried to move everything out and that was quite a process. I mean, his office is like a museum. It is testimony to all of his achievements: the medals that he has been given, prizes he has won and how he has been recognized. I moved all of those things in order to black out the window and temporarily turn the office into more controllable filming space.

So you blacked out the windows and put lights inside?

Yes. After blacking out the windows completely and moving whatever we could, John and I decided what was to keep in shot. I did the math of how much room I needed for my lighting, how to arm the fixtures out on booms, and make it all happen.

What kind of lights were they?

LED lights. The main key light was an ARRI SkyPanel 60 with a shallow Chimera Lightbank and a 4'x4' frame of 250 diffusion.

You had several layers of diffusion?

Yes. The SkyPanel 60 already has a diffusion glass panel that you slide in, and the Chimera gives you a second layer of diffusion. And then we added a 250 frame which was the third diffusion layer. That knocked the light level down as well. But soft lights spread light all over the place. We added 4x4 solid floppies left and right of the source to cut spill light off the walls, and added a 72"x 24" floppy solid meat axe flag to reduce the bounce off the ceilings. In addition, we added Duvetyn below the 4x4 frame and the single net to slow down the light on Dr. Fauci's shirt. It was a giant sculpture, but really, it was essentially a single source.

How you got the shafts of light on the background?

The background light was a Source 4 Leko 500W with a 50-degree lens dimmed down to warm the color temperature coming through the open office door. One of my favorite Rosco Gobo abstract patterns emulates afternoon rays of sun coming through at an angle. It was in tune with the idea of Dr. Fauci reflecting on his life.

I liked how you took great care in your lighting. It was not what might be called documentary style or grab and run lighting. Yours was carefully done and it looked beautiful. So, shall we talk about cameras and lenses next?

I used my trusted and true Canon Cinema Primes. I used them on *RBG* as well. For filtration, I used Schneider Hollywood Black Magic. With the super sharp Canon lenses and cameras with Full Frame, high resolution sensors, I just wanted to take care of softening some of the details, especially the wrinkles.

Which cameras were they?

We had Canon EOS C500 Mark II cameras, recording in Canon Log 2, Cinema Gamut, 4K, Full frame, 2.35:1 aspect ratio. Having that 5.9K Full Frame sensor was adding extra resolution and fabulous to work with.

A rhetorical question: why did you decide to go Full Frame?

It is an interesting question, because we had that debate. When you shoot Full Frame, and in a 2.35:1 aspect ratio, that tells me it is going into theaters, hopefully around the world. Obviously, the third wave of COVID radically changed that idea and we only had a very limited theatrical run. But with that in mind, you want to have the best dynamic range, the best resolution. So having a Full Frame sensor was a delight for me. It's like a new canvas to paint on.

I like your canvas analogy. Did you find that Full Frame gave you greater perspective and separation from the background?

I find that Full Frame emulates our perception better. And that's also why I felt shooting in 2.35:1 was appropriate. Although we are all used to seeing interviews in 16:9, having the widescreen format gives you a different perspective. I wanted the audience to feel the way we did in the presence of Dr. Fauci.

Shooting pretty much wide open, did you have a focus puller?

No focus puller. We didn't have any room, and COVID restricted who was allowed in the room—only two crew members at a time. We were not even allowed to have the sound person in the room.

You did your own focus?

Yes. I was incredibly grateful for having a camera with such advanced focus technology. I could not use auto focus with the prime lenses, but I relied on the DAF (Dual Pixel Auto Focus) sensor technology for camera's face detection and the focus guides. DAF can recognize whether or not you are in focus, but also in which direction (near or far) and by how much you're off. Nailing focus in Full Frame is critical and more complicated than ever. Canon's dual pixel CMOS sensor has a precise focus intelligence when used in face detect mode then you're able to easily track somebody in cinéma vérité.

For example, if they turn away or become obscured, the DAF tracking doesn't hunt for something else. Once your subject turns back around, you're back on track. Older AF systems would randomly search for something else or be drawn to a high contrast background, therefore leaving the subject in soft focus.

With your manual focus Cinema Primes, focus guides are those two green triangles that point up or down, for near or far, in the viewfinder and come together when you're in focus?

Exactly. DAF technology informs the green focus guide symbols during face tracking and shows which way the focus is off (near or far indicator at the top or bottom). It is very helpful when I work with Canon primes with manually focus. DAF feeds the information from the lens to the camera via the electronic connections in the lens mount. That way you have a focus tool that gives you instant feedback as your subject moves around but leaves the focus pull in the creative hands of the DP/Operator.

In the interviews, we often were working with a depth of field of three inches. The reason, again, was the desire to not have the background compete with the face. At 3.5 feet away, the background doesn't completely soften unless you shoot wide open. But wide open at T1.5, I wouldn't be able to track him. I would've only had his eye and his eyelashes in focus and an out of focus nose.

For moving shots where he's walking down the hall near his office, I guess you were handheld?

Yes. The C500, just like the C300, can be reduced to just having the smart grip on the right side. It's very easy to carry around, supporting it with your left hand underneath, and then grabbing the focus when needed. The smart handle has either your ISO control or the iris control, depending on how you have programmed it. And you can be really compact. The C500 is lighter for me than the C300. So I had no problem downscaling it so quickly from Sachtler Video 20 tripod to handheld mode.

What camera settings did you like?

We shot mostly at 800 ISO for the best dynamic range. But sometimes I needed to adjust my ISO, and it's easy to bump your ISO for lower lighting conditions. We shot 4K, 422, 10-bit XF-AVC. It's the same codec as in the C300 Mark III.

When did you start and finish principal photography?

I joined the team around August 2020. We shot for about a year.

Were the logistics difficult?

Getting into Fort Knox might have been easier than entering the NIH (National Institute of Health). We had to be tested, of course. But getting into the NIH with gear meant was like going through border control. You pull up to a big gate, they have multiple security people, dogs that are sniffing. You have to step out of your vehicle, leave everything open, and step into a room where then they take your ID and verify who you are, and that you actually having a permit to enter, otherwise you'll be turned away. This entire process happened every day.

Well, that's reassuring. Did your choice of equipment contribute to the style of the film?

I couldn't have asked for a better camera to work with because of the sensor, the dual pixel technology, the way that you can downscale it, the buttons that are readily available on the camera and the smart handle, and the incredible sharp LCD viewfinder. It's just a beautiful camera system.

Five years ago, I founded The Kamera Kollekitv in New York with a group of six highly experienced cinematographers who share common ideas about shooting. When you take on a project, sometimes it lingers over years and you might not be available. The Collective provides colleagues we can recommend who have the same sensibility and 20 plus years of experience. In The Kamera Kollekitv, we own our cameras and share our gear with each other. If we have multiple camera shoots and somebody is not using their camera, then we can use each other's gear. When the C500 came on the market, we had a big debate: are we letting go of our C300 Mark II cameras? Should we upgrade to the Mark III, or should we go for the C500? And after doing some testing, we all decided to move to the C500. I think it was the best move ever.

On your documentaries, do you ever use zooms?

I favor primes, just because of the look. There's a philosophical question about that. When you're using a zoom, there's obviously the practicality of zooming in when you can't get close enough. I use the Canon Cine-Servo 17-120 T2.95 and it is one of my favorite cine-zoom lenses to work with. However, at his point, it does not cover Full Frame. So that was not an option on *Fauci*. But, for other films, I always have it as part of my package.

When you're shooting cinema verité style, sometimes you have barriers. You are limited in terms of access, so you need to be able to punch in for the details that are really relevant to the story. But I choose primes when I have the space. When you want a closeup, you can walk up to somebody, just as members of the audience could step closer to somebody, and then the person you're photographing would also know that you're close. It is different when you are using a zoom and you're just pushing in, and yes, it can be more unobtrusive. But at the same time, it doesn't have the same psychological translation.

When you are using a prime lens for intimate moments, you are very close to your character, and there is a trust that they want to share their story, and they acknowledge and accept you in that space. I find that is very powerful. That may explain my tendency to use primes for vérité. Also, you have the ability to open up the aperture, especially in low light conditions. And the Canon sensors have proven themselves over and over again in how beautiful the shadow details are and how you can just step into darkness and still see.

Let's hope Canon lens designers will be reading this interview and they'll be inspired to make Full Frame cinema zooms.

Yes, I hope so too. That would be my wish.

You mentioned earlier that Dr. Fauci was quite approachable.

He's not shy and he's also funny. By the end of filming, we felt very close. I mean, I watched this man cook. It's one of the scenes that's not in the film, but I absolutely adored it. It was just an amazing scene of him cooking a very traditional Italian holiday dish. He was cooking penne pasta, and every few seconds he would test one and then he would reset the timer, saying, "Another 30 seconds." He would stare into the pot and then take his fork and taste again. It was so scientific. I've never seen anybody cook so scientifically.

I guess those Jesuit teachers at Regis High School, that he mentions, certainly taught him how to speak well.

He is incredibly articulate, indeed. And he is not judgmental. We tried to pressure him in terms of his political opinion. But he said, "I don't want to even go there, because what I'm concerned about is the health of the nation and how we can navigate this. Politics have nothing to do with it."

Politics seemed to be his biggest source of confusion. He said, "I do not understand why there is such aversion to vaccination or such aversion to science, when science is what brought us such help with vaccines for AIDS, Ebola or malaria. Science is so essential." He seemed very baffled why there was such opposition.

Not just here, but in Europe as well.

It's everywhere. *In the Same Breath* is a documentary by Nanfu Wang that goes into this topic.

Galileo said, "I do not feel obliged to believe that the same God who has endowed us with sense, reason and intellect has intended us to forgo their use." Your film on Dr. Fauci, a man with sense, reason and intellect, was powerful and essential.

I'm glad you liked it. Dr. Fauci is an amazing man.

Canon EOS R5 C

EOS R5 C

EOS R5

Jan 19, 2022. You see it right away, on the front: EOS C. C as in Cinema. On the left side, there's a big red shutter/start-stop button. The Canon EOS R5 C Full-Frame hybrid video and stills, mirrorless, RF-mount 8K camera is here.

From the front, the R5 C looks very similar to the R5, which launched on July 9, 2020. If you said that the R5 was essentially a remarkable 45 megapixel still camera that also did 8K video, well, the new R5 C is a remarkable 45 megapixel camera equally adept at both stills and video. If you were ever thwarted from endless recording by over-heating, the new R5 C seems to have more endurance than a camera operator without meal breaks.

It's the depth that's different. R5 C has a fan for "cool runnings" during uninterrupted non-stop recording. The official, non-bobsled Canon terminology is "active cooling system."

Notice the Cerberus-like, three-way main switch, on the top left side, for equal access to Photo, Video and OFF. The extra depth of the camera provides not only extra space for the fan, but also for additional ports and controls. The function buttons are nicely numbered, 1 through 13.

As Canon's Ryan Synder pointed out, "this is a full EOS R5 in still mode and a full Cinema EOS in video mode.

EOS R5 C for Cine

EOS R5 C is Canon's first camera to record internal 8K (8192 x 4320) 12-bit Cinema RAW Light up to 60 fps. It is also the lightest Cinema EOS camera. There are two internal slots: one CFexpress and one SD. You can record internal RAW Light to the CFexpress and a proxy or XF-AVC file to the SD (V90 300 MB/s recommended). It also does relay recording.

Cinema RAW Light was introduced with Canon's EOS C200. You also find it on the C300 Mark III and C500 Mark II. File sizes are significantly reduced from standard Cinema RAW. Cinema RAW Light comes in 3 varieties: RAW HQ (high quality), RAW ST (standard quality), and RAW LT (light recording). All three modes are 12-bit at every frame rate.

- On the EOS R5 C, Full Frame 8K is available in RAW Light ST 12-bit up to 30 fps, 2.0 Gbps data rate and RAW LT to 60 fps, 2.6 Gbps. But not in RAW HQ.

EOS R5 C

EOS R5

Canon EOS R5 C

EOS R5 C

EOS R5

- R5 C can also record 4K 120 fps Full-Frame, uncropped and 4:2:2 10-bit XF-AVC and MP4.
- Dual Pixel CMOS AF (Autofocus) can track faces, animals and vehicles with appropriate lenses, even in slow motion (HFR).
- Simultaneous Audio Recording even in slow motion (HFR)
- RF Mount (20 mm flange focal depth)
- Canon Log 3, HLG/PQ
- Unlimited recording time
- Time Code mini connector (DIN 1.0/2.3. Canare cable recommended because it has a longer barrel that is easier to remove)
- HDMI RAW Output
- 4K and 2K oversampling from 8K sensor

As expected, Atomos Ninja V+ will record ProRes RAW from the R5 C via HDMI up to 8K 30fps.

EOS R5 C for Stills

Tatsuro "Tony" Kano, Executive Vice President and General Manager of Canon USA Imaging Technologies & Communications Group said, "Imaging professionals are living in a multimedia world. Gone are the days of only needing to be sufficiently equipped and skilled at video or stills. The EOS R5 C provides end-users with a camera that can tackle all facets of the ever-demanding multimedia and content production landscape."

And so, turn the top switch to Stills and you have most of the features of the EOS R5 C:

- 45-megapixel CMOS sensor, approx. 36.0 x 24.0 mm, with approx. 4.40 µm square photosites.
- DIGIC X image processor
- ISO 100-51200, expandable to 102400.
- Dual Pixel CMOS AF II
- High-speed continuous shooting of up to 12 frames-per-second in mechanical shutter mode and up to 20 fps in silent electronic shutter mode.
- Eye, Face and Head Detection AF
- Animal Detection AF
- Vehicle subject detection
- (no IBIS, but there's digital stabilization for video and optical IS with equipped lenses)
- Uses most R5 accessories
- New Multi-Function Shoe. Compatible with optional TASCAM CA-XLR2d-C XLR microphone adapter for up to 4-channel digital audio
- Weight: 1.7 lb. (body only)
- Size: 5.6" wide x 3.8" high x 4.4"deep.
- 3.2-inch variable-angle LCD monitor and 5.76 million-dot viewfinder
- Dual card slots: one CFexpress and one SD UHS-II
- USB Video Class (UVC) enables direct video streaming
- New DR-E6C power supply for continuous recording

Shipping March 2022. Estimated retail price: $4,499.

EOS R5 C

Cooke Varotal 30-95 T2.9 FF Zoom

Cooke is back in the Varotal zoom lens business two new Full Frame Varotal zooms: 30-95 mm T2.9 and 85-215 mm T2.9. They come in PL or LPL mounts.

These things seemed to go in cycles. Horace W. Lee designed the legendary Cooke Speed Panchros a century ago, in 1921. Fifty years later, in 1971, Cooke introduced the 20-100 mm T3.1 Varotal zoom, designed by Gordon H. Cook. Primes returned in 1998 with Cooke S4. Cooke's CXX Short/Fast 15-40mm T2.0 came in 2006. More primes followed, until now.

The 30-95 Varotal matches and complements Cooke S7/i T2 Full Frame primes. Skin tones appear even smoother—not softer, but cosmetically gentler. The lens is compact, rugged and convenient for the current crop of smaller Full Frame cameras. It looks like a Cooke, not only with the images it captures, but also with the familiar hardened, shiny black anodized barrel.

The 30-90 T2.9 might remind you of the Cooke Varo-Panchro 20-60 T3.1, introduced in 1981. It was heralded as having optical performance similar to a prime. And it didn't breathe. You could rack focus from a close-up low angle to the far-away crowd and the image did not shift. On *All the Right Moves* in 1983, with all the mud and rain, changing prime lenses was not practical. The 3x zoom range covered wide to mid-range. And so, the Varo-Panchro worked as a variable prime, not because we didn't want to zoom but because we didn't have time for lens changes.

The new Cooke 30-95 T2.9 Varotal can work in similar ways. Expect to see it on Steadicams, handheld, remote heads, car mounts, underwater housings, and on fast-paced dramas where 20 lens changes a day would amount to a half hour of extra time that cannot be scheduled.

The Cooke 30-95 Varotal covers pretty much the same field of view as that first Varo-Panchro 20-60, with a similar 3x zoom range. (Divide focal lengths by approximately 1.4 for the FF-to-S35 conversion.) The 30-95 FF Varotal is almost the same size and weight as the 20-60 S35 Varo-Panchro, with an even smaller front diameter. This is remarkable because common wisdom used to be that Full Frame lenses would be 1.4 times bigger and heavier than their Super35 counterparts.

Cooke Varotal 30-95 mm

- Aperture range: T2.9 – T22
- Front Diameter: 114 mm
- Length from front to mount: 10" / 255 mm (just 3 inches longer than an average S7/i)
- Weight: 8.8 lb / 4 kg (just slightly more than an average S7/i)
- Angular rotation of iris scale: 48 degrees
- Angular rotation of zoom scale: 112 degrees
- Angular rotation of focus scale: 280 degrees
- Lens gears are industry standard M0.8
- Cooke /i Technology lens data contacts in lens mount and 4-pin connector
- Maximum image coverage: 46.31 mm diagonal

Cooke Varotal 30-95 T2.9 FF Zoom

Si Bell on *A Very British Scandal*

Si Bell's previous appearance in FDTimes was February 2020 in which he talked about his work on Peaky Blinders. *Here he is, above, on* A Very British Scandal.

Jon Fauer: Please tell us about *A Very British Scandal.*

Si Bell: *A Very British Scandal* stars Claire Foy and Paul Bettany. It's about the Duchess and Duke of Argyll in the 1960s. Quite dramatic, it was about their very messy divorce and it was one of the first times a woman was really shamed by the mass media because she was a celebrity.

There are three episodes for Amazon Prime and BBC, premiering on Boxing Day in the UK. It's sort of a sequel. There was *A Very English Scandal*, with Hugh Grant, about a completely different story with a very different style.

Let's jump into technical things.

We used ARRI ALEXA Mini with Canon K35 primes. We tested a lot of lenses. We tried large format, anamorphic, different cameras. I had shot *Peaky Blinders* on the MONSTRO 8K. We were talking about a very fluid style requiring a very light handheld camera, with lenses that flared and had a soft feel. We loved the K35 lenses and what they brought. Because we weren't locked into having to shoot full 4K, we could use the Mini, and the K35 covered the Mini's Super35 image area.

There was no 4K requirement?

We recorded in 3.2K HDR with a 2.22:1 aspect ratio which was fine for Amazon and the BBC.

Anne Sewitsky, the director, and I liked the vintage Canon K35 primes for their look, size and close focus ability. There's a lot of dynamic camera movement, handheld, and very, very close shots where we're really in the faces of the characters.

It was funny, because when we first started shooting, Claire Foy asked me, "Why are you so close?" When she did *The Crown*, they were much further back on longer lenses. We knew this series was going to be compared to *The Crown* — it's a similar period, it's Claire Foy, it's royal, it's the UK, and it has similar locations. We wanted something unique and different. We had to try to create a look that was different.

Describe the Look.

It was more vibrant, more colorful, handheld, close, flarey, and soft.

How did you decide on a 2.22:1 aspect ratio?

Well, it's a weird one. I think it came out of nowhere. Anne initially wanted to shoot 2.35:1 or similar. And the producers at Amazon suggested 2.22:1. "We've done that before," they said. It was one of those funny conversations where we said, "Oh, right. We can do that? Okay, cool."

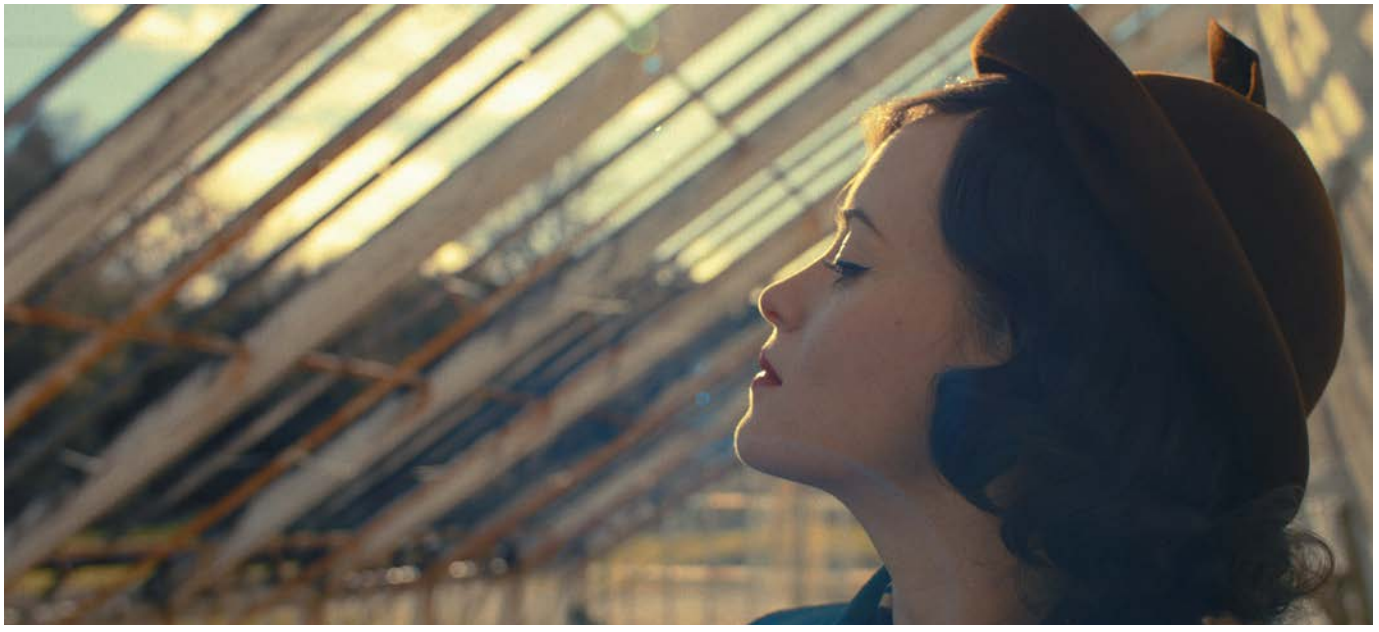
Where did you get the vintage Canon K35 primes?

We got them from Canning 24, the rental company that supplied us on *Peaky Blinders* and other shows. They've been really good and have supported me from the start.

Were these rehoused K35s?

Yes, rehoused with PL mounts by TLS, True Lens Services. The

Frames from *A Very British Scandal*



set consists of 18mm T2.8 (slower, smaller, closer focus), 18mm T1.5, 24mm T1.6, 35mm T1.4, 50mm T1.3, 55mm T1.3, 85mm T1.3.

There's a lot of camera movement in *A Very British Scandal*. What did you use?

We were handheld and we also used the Ronin 2 with DJI Master Wheels. Our grips carried the Ronin around and I was operating the wheels. We had a dolly with a jib arm as well, so we also put the Ronin 2 on the jib arm.

Did you shoot on location or in studios?

It was pretty much all location. We didn't have any sets built, but we had some locations that were heavily dressed. We were in London in the middle of a complete lockdown. Clubs and the poshest hotels in London were available because basically they were just empty. Luckily, with our COVID protocols, we were allowed a decent amount of extras in the party scenes for certain days. Everyone was tested.

When did you shoot?

It was basically from March, April, May, June 2021.

Shall we talk about lighting?

We had big lighting setups with big sources through the windows, with lots of lifts and cranes. It was tough but good work. We used a lot of Arrimax 18Ks (Open-face, lens-less, 22.8" diameter parabolic facetted reflector and focusing from 15° to 50° beam angle.) We also had ARRI M90 (9K, also lens-less) and K5600 Lighting Alpha fixtures. We'd start big and then soften them and work from there. There were also a lot of practicals.

And lots of smoke? Was there ever a British movie without smoke?

Lots of smoke, yes. The thing is, it was the 1960s and everyone's smoking indoors. We were trying to make it naturalistic. We tried to avoid big, unnatural beams of light coming from windows. Coming from the school of Dogma films, I think Anne hated anything that looked slightly unnatural. For example, she might say, "Oh, Si, the window's too bright. It doesn't look real." It was lovely working with Anne.

She turned this from what could have looked like a standard British TV drama into something really special. That came from her ideas, what she wanted, and everything that she brought to the script.

Si Bell's Lighting Notes for *A Very British Scandal*

Tungsten Springball on boom arm with black fabric to keep light off the rear wall.

Skypanel S60 with Chimera and egg Crate, 3200°K.

40 Watt Tungsten bulb on dimmer, on both sides of bed.

Skypanel with Chimera and egg crate, 5600°K.

Book light with 575W HMI bounced into unbleached muslin.

Arrimax 18K HMI, with #250 Half White Diffusion frame, through window.

Blacked out behind camera.

Floppy solid for negative fill.

Skypanel through window, 5600°K through #250 Half White Diffusion 4'x4' frame.

Si Bell's Lighting Notes for *A Very British Scandal*

18K with #250 Half White Diffusion frame, through window, further diffused through net curtain.

SkyPanel S60, 3200°K with Chimera and egg crate, through 4'x4' frame of #250 Half White Diffusion, and 4'x4' egg crate frame

40W practical tungsten bulb in b.g.

18K bounced into Poly (Bead Board)

18K with #250 Half White Diffusion frame

Alice Brooks, ASC with detuned Panavision G-Series 50mm T2.6 and Lin-Manuel Miranda on *tick, tick...BOOM!*

Jon Fauer: I admire your work. Well, why don't we begin at the beginning? How did you get into this business?

Alice Brooks, ASC: I was a child actor in New York and I grew up on sets. I always loved the camera people. I just would watch them all the time. My first word was "Moon" but I am told I was pointing to a light. Lighting has always been magical to me. My dad would let me watch any movie with him when I was a kid, as long as I would attempt to read the credits. And so that is how I learned to read and learned to love movies.

How did you become a child actor who grew up to be a cinematographer?

We moved to Los Angeles from New York when I was 10. I went to high school on Laurel Canyon and Riverside. We lived across the street from Warner Brothers and five minutes from Clairmont Camera. My sister was always on a series. My parents would pick me up after school and take me to whatever studio she was working at. I would sit in a dark sound stage doing my homework and watch the crew work. When I was 15 I decided I wanted to be a cinematographer.

I went to film school at USC. It was really incredible to go to film school in Los Angeles and start forming relationships with companies. Denny Clairmont gave us great deals on equipment. He'd come to our classes and introduced himself at the beginning of the semester. You could basically check out anything they had. Kino Flo was another great place. For $50, you could show up at three or four o'clock on a Friday afternoon and whatever was available, you could shove into your car.

Were you shooting a lot of student films for your classmates?

Yes, a lot. At the time, most of the people who went to USC wanted to be directors, producers or writers. That gave me the opportunity to just shoot all I wanted. When I graduated, I realized I didn't have enough work to put together any sort of reel. I didn't want to go to grad school and end up with student loans. So I spent the following year hanging out at USC and offered to shoot all the grad students' films. I waited tables so that I could have the weekends free to do these thesis films. I shot close to 30 films that year. That's how I met Jon Chu. We have worked together for the last twenty years, including "In The Heights" for Warner Bros. I shot Jon's thesis film. I also met a lot of wonderful

Alice Brooks, ASC on *tick, tick...BOOM!* with Panavision DXL-2, dented Teradek BOLT 3000, Preston LR2. photo: Macall Polay

people and I still work with them today.

Nice. Film students often ask how to get into the business. That might be the best success story of all.

It's all about people, relationships, trying things, experimenting and learning by making mistakes.

Let's talk about technical things on *tick, tick...BOOM!*, directed by Lin-Manuel Miranda, now streaming on Netflix. What lenses did you have?

We had two sets of Panavision G series and a couple of T series as well. Dan Sasaki tried to match them as closely as possible and detuned all the lenses.

Tell us about the lens detuning process.

tick, tick…BOOM! is a semi-autobiographical movie about Jonathan Larson, the writer of the hit musical *RENT*. The film takes place in January 1990 in New York City. I sent Dan lots of different images that were our visual inspiration for the film: Nan Golden's work from that time period in the late 80s and early 90s and other New York street photographers. I also had many still photographs from my apartment in New York City from that time period which was very similar to Jonathan Larson's tenement apartment with the bathtub in the kitchen.

I shared with Dan that Lin-Manuel Miranda and I are the same age and we wanted 1990s New York to look the way we remembered it. It was the way a 10-year-old remembered it. It's etched in my memory: the memory of a child where color, light and emotions are all heightened.

Dan and I went back and forth to figure out how to find lots of layered imperfection in the lenses.

During prep, I also did different Live Grain tests. We ended up with Kodak 5279 at 3%. It goes on a scale from 1 to 10. Which I also needed to consider while we were modifying the lenses.

We detuned the lenses and shot with them for almost two weeks and then we shut down for almost 6 months for the pandemic lockdown. When we came back the COVID restrictions did not allow for the the use of atmosphere. So I sent the lenses back to Panavision to further detune them to make them bloom a bit more in the highlights.

But in the opening scenes on the stage, it looks like there's a lot of smoke.

That was VFX magic. We worked really hard to make it as perfect as possible. First ,we lit it knowing that we would be adding smoke later on. Then, after the main unit wrapped at the theater, a VFX unit came in and shot smoke plates. The dimmer board operator stayed with the VFX unit and ran through all my lighting setups to get the plates in the right light. And then Phosphene, who did the VFX, layered everything together. I think the result was pretty amazing.

In the end, I was grateful that we didn't have to sit in New York

Alice Brooks on the Moondance Diner set on *tick, tick...BOOM!*

theater workshops, where there's no airflow at all, with smoke, masks and face shields for eight days. I think we would've all suffocated.

Anyway, that's the only place where we did digital smoke. I was constantly trying different things to achieve something close to atmosphere without atmosphere on set. The detuned lenses helped. Dan Sasaki changed the center elements so that the highlights bloomed in a slightly different way. We also used Tiffen Black Promist filters. It was mostly the 1/8th Black Promist in front of the lens or sometimes we would pull the mattebox off just to get more flares on the edges of the frame.

What camera did you have?

The Panavision DXL2. I've used that now for three projects in a row, including *In the Heights*. I really like it. It was interesting because I asked Lin, "How involved do you want to be in picking out lenses and camera?" He replied, "I want to know everything."

We went to Panavision, shot tests with lots of different cameras and lenses. Then we went to Company 3 and projected the footage. It was really like a blind taste test for him and fun to see what he liked. Maybe it was because he had been watching dailies on *In the Heights* for the nine months prior to filming *tick, tick…BOOM!*. Something intuitive attracted him to the DXL2 camera again.

Were you were shooting 8K on the Panavision DXL ?

We shot 7.5K. The reason was because at 7.5K, in anamorphic, you end up with an exact 4K final resolution after cropping to 93%. The extra 7% was for VFX and in case we needed to stabilize shots.

What compression was it?

Compression was 5:1. There's a little bit of slow motion which was maybe 7:1 or 8:1.

Did you have a Director's viewing LUT?

We started with a base that is in the camera—it's the Light Iron film LUT. We did two or three days of camera tests with the actors, camera, hair, makeup and production design, and then Stephen Nakamura, the colorist at Company 3, and I tweaked the LUTs slightly.

How long did grading take?

We ended up somewhere around 14 days. We did the HDR pass, then we did the P3 pass, and then we went and redid the HDR pass again afterwards - after the P3.

I don't think I would do the HDR first again because with HDR, you're looking at a 32-inch monitor. I felt like I just was missing the projected image. And also missing some detail. I didn't think HDR was the right look for this movie at all. We only used peak 600 nits. We lifted our black levels. I had the same problem on "In the Heights," although we did the P3 and then the HDR.

Then there are these conversions from P3 to HDR or HDR to P3

Framegrab: Andrew Garfield and friends in the Moondance Diner. © 2021 Netflix, Inc.

that just haven't work so far for my movies at all.

It sounds like you, like me, often prefer SDR to HDR.

For now I am not a huge fan of HDR. There are certain things I like - that you can see into the shadows a little bit more, but if you light it the way you want it to look then there's no need for it. I do really like our final Netflix HDR streaming version. Even though I would do things in a different order next time, I think we ended up with a fantastic finished film.

Sometimes it shows too much detail and is not as rich. That will be the next debate as the pendulum swings the other way.

How many people have HDR television sets anyway?

I do, and I usually turn the HDR off and just set it to regular SDR.On *tick, tick...BOOM!*, it seems that a lot of your interiors were shot with relatively wide focal lengths.

All our sets were very small, and I did want him to feel trapped within this world. We wanted it to feel claustrophobic. We wanted to be able to see the ceiling and the walls and just get a sense of everything sort of crushing in on him. Both the apartment and the diner are long and narrow.

How did you light, for example, the diner, the apartment and the theater?

For the Moondance Diner, we were on set at Steiner and it was a complete recreation of the actual diner that used to be on Sixth Avenue near Canal Street. For this set, we used several different direct sources, among them was a row of ARRI T-12 (10K Tungsten Fresnels) on rails right outside the window that could be raised or lowered depending on the shot. There was also a huge sun source, which played from the south, consisting of two 20Ks on a lift that were very close together with an 8'x8' rag in front of it to create one huge source. This was placed as far back as possible away from the diner. For day ambient outside the diner and lighting the green screen we had Arri SkyPanels in articulating softboxes . We also had LED hybrid space lights. All the LED units were set to 4100 Kelvin.

For Jonathan's apartment set, the windows faced east in the living room and the back windows face west towards the Hudson River. It is a railroad apartment so there are no windows on the north and south sides. I wanted Andrew Garfield, who played Jonathan Larson, to be able to use the whole apartment. So we lit mostly from outside. The walls appeared white to camera; they were actually painted a light gray and the floors were painted a middle gray. I used this to our advantage letting the light bounce around the room or skipping off the floors. We had T-12s on rails outside the window for really steep angles. We played a lot with time of day. Sometimes we'd have big bounce sources as if the sun was reflecting on building across the street, coming back in. For night we used carefully positioned practicals around the apartment and mimicked the street lights outside coming in. One was steel green and the other sodium vapor. We also used car headlight passes from the street below by having Color Force LED fixtures in a long row on the stage floor that chased north as if a car was driving.

And for the theater?

We shot in the real New York Theater Workshop on East 4th Street. We tried to rent as many of their lights as possible: old PAR cans on the walls—on the trees, some LEKOs, an HMI follow spot, and birdie footlights.

Were you shooting with the lenses wide open?

On *tick, tick...BOOM!* we wanted a very shallow depth of field for instance at the theater it helped so that you really felt like you were on stage with him and I wanted the audience to feel what it was like for Jonathan Larson to perform, not that they were an audience sitting there watching the show. And so we shot almost the whole movie at a T2.8.

Framegrabs from *tick, tick...BOOM!*

Andrew Garfield as Jonathan Larson in his apartment in *Tick, Tick...Boom!* © 2021 Netflix, Inc.

Above: Alexandra Shipp as Susan in *Tick, Tick...Boom!* © 2021 Netflix, Inc.
Below: Andrew Garfield as Jonathan Larson on New York City Subway © 2021 Netflix, Inc.

If you have an accident in the Swiss Alps and need an air rescue, dial 1414. Roaming phone owners can call +41 333 333 333. The emergency radio telephone frequency is 161.3 MHz. One of REGA Swiss Air-Rescue's 18 helicopters or 3 ambulance jets is probably on standby within 15 minutes away at one of 13 bases.

Swiss rescue by air began on November 24, 1946 when an American DC-3 (C-53 transport aircraft) crash-landed on the Gauli Glacier in the Bernese Oberland. Swiss pilots Victor Hug and Pista Hitz landed two lightweight planes on the glacier. Working with two Swiss mountain rescuers who had climbed for 13 hours to reach the wreck, they made eight round-trip flights to rescue everyone.

REGA is an acronym of German, French and Italian names for the Swiss Air-Rescue service. It was founded on April 27, 1952 by Dr. Rudolf Bucher as a private, non-profit organization. REGA does not receive financial assistance from the government. They are supported by annual dues from about 3.2 million members, consisting of 38% of the Swiss population. There's a good reason you want to be a member. For 40 Swiss Francs a year, REGA waives search and rescue fees, or reduces the costs, if you are not covered by regular insurance.

REGA and its origins are covered by Frank Mirbach in his documentary *Gletscherflieger—Faszination in Weiss,* with the not-literally translated English title *Switzerland: Glacier Pilots*. The 52-minute film was produced by Mirbach's production company Mineworks Film GmbH with MedienKontor Movie GmbH for the European cultural TV channel ARTE and its GEO 360° programming.

Frank Mirbach and crew used a Blackmagic Pocket Cinema Camera 6K and Pocket Cinema Camera 4K. Post-production was done with DaVinci Resolve Studio.

Jon Fauer: How did you get started in the business?

Frank Mirbach: I've been a movie freak since my 12th birthday. I attended the Academy of Media Arts in Cologne. Then, I worked a lot as a freelancer. After that, I joined a production company based here in Aachen. And for quite some time, I run my own company. (*mineworks.de frankmirbach.com*)

Where do you live?

In Aachen. It's a university town near Cologne, the westernmost city in Germany, next to the Dutch and Belgian borders. It was a royal residence of the emperor Charlemagne. He was buried in Aachen Cathedral in 814. I enjoy living here because you can go

Frank

by car or bike and in five minutes you are in a different country.

So, why does a German guy who lives far from any mountains do a film in Switzerland about Swiss air rescue?

We've been doing a number of documentaries with MedienKontor, a production company in Berlin, for the German-French public network ARTE (arte.tv). Their TV and streaming show GEO 360° is based on the well-know magazine GEO. It's very high-end and they do 24 or 26 episodes each year. It's been running for about 17 years. We started working with them on a film about loggers in British Columbia. That was the beginning of the collaboration. We had a personal connection to REGA, the Swiss air rescue service, and that is how this project began.

When did you film?

We shot in March and April 2021.

Where in Switzerland were you?

It was mainly around Zurich, the Bernese Oberland and St. Moritz. The helicopter base was in Samedan, a small village nearby.

Samedan is beautiful. I worked one college summer at the Swiss Avalanche Institute in Davos, two mountain ridges away. Please tell us about your camera and lens package.

With COVID and the very limited space in little glacier planes, I chose Blackmagic Pocket Cinema Cameras. I had been shooting with Blackmagic as B-Camera and C-Camera for quite a while. But when the glacier pilot job came along, I thought, "Could we really dare to shoot the whole film only with Pocket Cinema cameras?"

They worked flawlessly. There was not a single incident where the cameras shut down, not even in freezing temperatures. We had a Pocket Cinema Camera 6K and a Blackmagic Pocket Cinema 4K. They were supported with Sachtler aktiv heads and flowtech tripods. For lenses, we Canon EF 16-35 mm, 24-70 mm and 70-200 mm L series lenses—all f2.8.

The 70-200 had a 2x extender on the 4K camera with a Metabones Speedbooster that we used occasionally. We used a Chrosziel follow focus with add-on gears for the Canon lenses. Around the camera, there was a Chrosziel mattebox, full Tilta cage with top handle, 15mm lightweight support rods and a Zacuto Kameleon EVF. As you can see in the production stills, the Blackmagic Pocket Cinema Camera is fully outfitted like an A-Camera.

It looks like the camera is attached directly to the aktiv head?

We had a quick-release plate on the bottom of the camera, under

the Tilta cage. It pops into the Sachtler aktiv fluid head. I bought the Sachtler setup after having rented it for a while. It's super stable, fast and ideal for documentary work because it doesn't weigh a lot, and you have the aktiv head which levels very quickly with a single locking lever.

The Tilta cage is very durable, high quality, and well-thought out. For me, I think it's the best cage you can have for this camera. A Tilta handgrip on the left and a handle on top attach to the cage. The top handle is the biggest one that you can get and it is very good.

The Zacuto Kameleon EVF connects to the Pocket Camera via HDMI?

The Zacuto Kameleon EVF has HDMI and SDI inputs. However, the Pocket Camera only has an HDMI connection. That was one of the reasons I bought the Kameleon Pro EVF—because the Gratical Eye only has SDI. The Kameleon has a 1920 x 1080 OLED display. It is small, lightweight, and I connect it with a coiled cable into the D-Tap port of a compact SWIT 14.4V, 98Wh battery.

Let me ask you a crazy question. With all the accessories you have on the Pocket camera, what's the advantage over just using, let's say, an URSA Mini Pro?

Well, I don't own an URSA. It's a bit bigger and heavier. But, I'm currently actually considering the purchase of the URSA 12K because it's insanely inexpensive.

Blackmagic recently lowered the URSA Mini Pro 12K price.

I have to tell you that I'm really spoiled now by the Pocket Cinema Camera. The quality is outstanding. It's unbelievable and ironic because I love expensive equipment and good cameras. You probably could shoot a James Bond movie with the Pocket Cinema Camera without anyone in the audience noticing. The skin tones are great, the dynamic range is impressive, the camera is rugged enough with the cage and reliable. I don't know how they do it at those prices.

Blackmagic is a company with great people and so much good technology. Let's talk about lenses. When you're on manual focus with the Canon lenses, is the focus repeatable?

That's an issue that you certainly have with photo lenses. The quality is excellent. But the focus marks are often not repeatable. I prefer PL lenses with real gears, but they're super heavy and big. And so, for this job, that wouldn't have been a wise decision.

How do you check focus? Do you have peaking turned on?

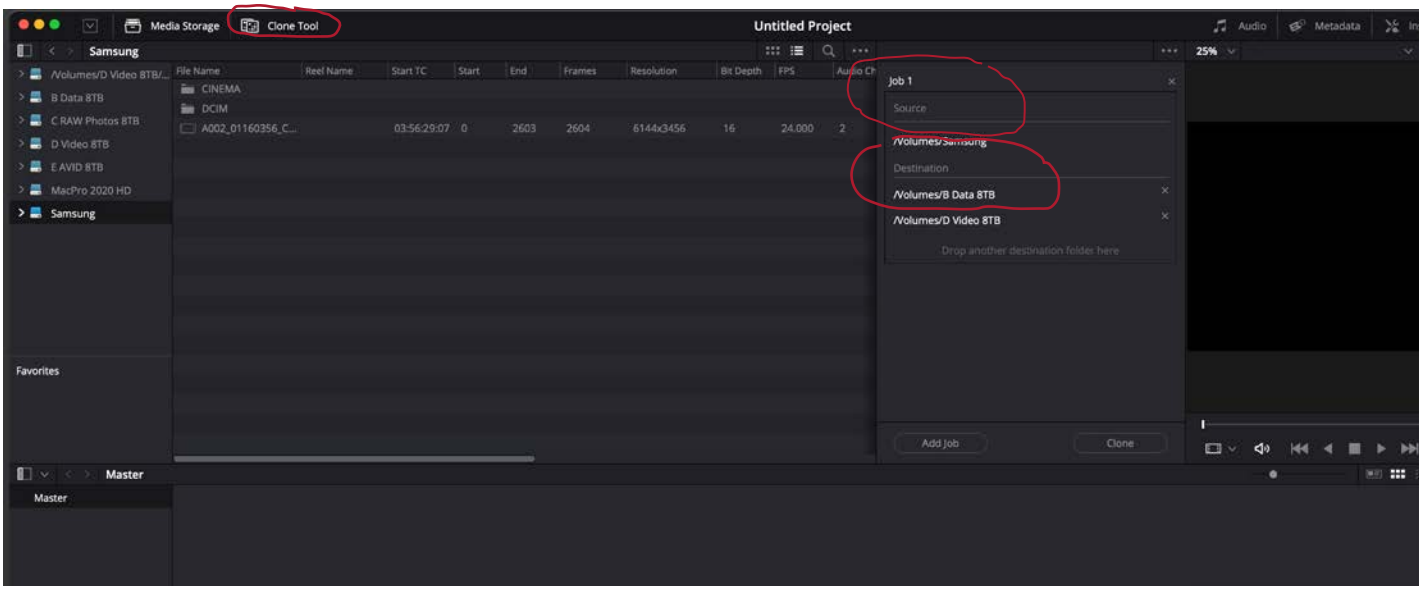
The Zacuto EVF has a thing that they call edge enhance with three different steps. It works well.

Do you use the Pocket Cinema Camera's rear monitor/display when you're shooting?

Yes, sometimes to judge colors and also to zoom into the picture by 50%, because that is not sent out via HDMI to the viewfinder. So, to check critical focus, you have to view it on the camera's monitor. But that was difficult in the bright sunlight on the glaciers where we filmed.

What were your camera recording settings?

We recorded 6K BRAW (Blackmagic RAW). We started off with



DaVinci Resolve's Clone Tool on Media Page showing Source and Destinations

Q0, constant quality, but the files were too big. So we recorded the majority of the show in Q1. I have a small SSD hard drive mounted on top of the camera. It is very fast and reliable. We use the Pocket Cinema Camera's USB-C connection to record directly to the hard drive. The holder for the SSD is also by Tilta; it attaches to the cage.

I should not forget to mention that it is outstanding how Blackmagic lets you actually connect off-the-shelf SSD drives, and not proprietary stuff.

Did you edit and grade yourself?

We have an editor at our company. All our post-production was done on DaVinci Resolve Studio. I think we had four or five terabytes of data.

Did you have a DIT on the job?

Because of COVID, I was my own DIT. I also use DaVinci Resolve to download and check the camera files. It's the very first step that I do at the end of every day. It is important to make sure that the media is being copied completely without any errors. And then I watch the footage to see if everything's there.

You plug the same SSD drive from the camera into your laptop running DaVinci Resolve?

Yes. I use a 16" MacBook Pro, with the original files from the Samsung SSD on one side and two physical hard drives on the other side. I use the DaVinci Resolve Clone Tool to copy, with checksum, simultaneously to the two external hard drives. One drive goes to the editing room, where it's copied to a Promise RAID 6 array with 32 terabytes for post-production. The second drive is a backup.

So you clone, edit, grade and output all in DaVinci Resolve?

Yes. In most cases.

Take us through your Blackmagic RAW—BRAW process.

I know the RAW world from still photography and we use REDRAW with our RED cameras. I always like to shoot in RAW because you can tweak the look in post-production. I just put a basic LUT on my screen and my viewfinder to see the colors, and then we grade everything from there. It's basically a Log file in 6K DCI, which is the best quality that you can get. There are lots of presets in Resolve for Blackmagic cameras, or you can use them as a basis to start from and then adjust the picture from there, as you like.

Was your Pocket Cinema Camera the 6K Pro or the regular 6K model?

The 6K, because the Pro wasn't out yet when I bought it. Then they came out with the Pro. The onboard ND filters would've been great for the production because it's really awkward to put them in the mattebox under the circumstances we shot in, but the 6K Pro wasn't available at that time.

I'm a bit more reluctant to buy new equipment these days because I know that a quarter of a year later, newer stuff comes out. It's like with the iPhone.

What were the main challenges of your Swiss air rescue documentary?

There were the physical demands of the production. We were at high altitudes; the air is a lot thinner. We were all pretty fit. But it's not trivial when you say to your assistant, "Can you grab that flowtech tripod and bring it here—it's just over there, 50 meters away." Those 50 meters can leave you gasping for air.

It was also a challenge to organize this film, to get close to the REGA team and to be able to do the things that you see in the documentary. It was a long journey. I had been planning and preparing it for three years before we began.

Blackmagic URSA 12K Camera Update 7.7

Blackmagic URSA Mini Pro 12K with Bright Tangerine Top Handle, Left Field Dovetail Baseplate, Left Field Universal 15mm LWS Quick Release, URSA Mini Baseplate, Drumstix Titanium Rods, Misfit Kit Mattebox, IDX Imicro-98 Batteries with IDX Hot Swap Plate.

December 20, 2021. Blackmagic URSA Mini Pro 12K gets an update. Blackmagic Camera 7.7 Update provides:

- Improved color balance.
- Improved demosaicing for better shadow detail MTF.
- Improved demosaicing reduces moiré effects on fine patterns.
- Improved USB-C camera connections.
- Blackmagic RAW 2.2.1

URSA Mini Pro 12K's sensor performance is improved with adjustments to its demosaicing algorithm. This offers a more neutral color balance and enhanced clarity in shadow areas.

Blackmagic Camera 7.7 update for URSA Mini Pro 12K provides a more neutral color balance for better skin tones and natural highlight rolloff.

The chance of seeing moiré patterns has been reduced when filming very high resolution scenes with very high frequency (finely-textured) fabrics (tweeds, plaids) or architectural details (bricks).

Blackmagic RAW 2.2.1 comes with general performance and stability improvements, along with Adobe Premiere Pro plug-in performance and stability improvements .

Quick Review

Blackmagic URSA Mini Pro 12K has a 12,288 x 6,480 12K Super35 sensor with 14 stops of dynamic range. That's 80 megapixels per frame.

New color science and Blackmagic RAW makes working with 12K a breeze. If you are finishing in 8K and 4K, oversampling from the native 12K gives you images with subtle skin tones, extraordinary detail and a film-like look. You can shoot at 60 fps in 12K, 120 fps in 8K, and up to 240 fps in 4K Super16. These resolutions are windowed to fill the entire frame; they are not crop modes.

URSA Mini Pro 12K comes with an interchangeable PL mount or EF mount.

A four-position ND (IRND) filter wheel is built in. It has Clear, ND.6 (2 stops), ND1.2 (4 stops) and ND 1.8 (6-stops) filters.

URSA 12K records to two internal CFast cards, or one UHS-II SD, or an external SSD via a high-speed USB-C port.

DaVinci Resolve Studio is included in the camera's crazy low price that's about the cost of a roundtrip premium economy ticket from Melbourne, Australia to New York City.

Higher Resolution is Not a Digital Look

URSA Mini Pro 12K's extremely high resolution, as we're seeing with other high rez cameras lately, is counter-intuitive to the argument that "Oh, higher resolution means a bad digital look." On the contrary, these cameras can capture incredible detail, wide dynamic range and rich colors while reducing artifacts, moiré and "mini stair steps" that have been the main culprits of the dreaded video look that they call "crispy" in France.

And so, URSA 12K is finding its way on features, episodic shows, commercials, streamers and IMAX. The high rez definition around objects is helpful for working with green screen, active backgrounds, VFX, compositing and CGI.

Blackmagic Camera 7.7 update is now available as a free download from the Blackmagic Design website:
blackmagicdesign.com/support/family/professional-cameras

Easyrig's new STABIL Light

Eirik Heim with Easyrig Stabil on location in Senja, Norway. ALEXA Mini 2.6 kg + Canon prime ~ 590 g + batteries and AKS = ~ 2 kg.

Easyrig's new STABIL Light is a spring-loaded arm that smooths your moves while working with an Easyrig Minimax.

It supports cameras and gimbals from 2 to 7 kg. This includes many of the newer, lighter, smaller packages: ALEXA Mini, Mini LF; Sony FX6, FX9; Canon C300, C599; RED V-RAPTOR, KOMODO; DJI Ronin 4D, etc.

What's an Easyrig Minimax? In the photo above, Minimax is the vest and backpack with shock absorber that supports your camera weightlessly from a fixed bracket overhead. STABIL Light is the accessory L-shaped, spring-adjustable overhead support that replaces Minimax's rigid arm.

With Minimax alone, the camera would move up and down as you walk or run. With Minimax + STABIL Light, up and down movement is absorbed. So, when the script calls for the camera to follow the good guys chasing the bad guys along a narrow path through a dense forest, Minimax + STABIL Light + gimbal + camera will glide you smoothly through the scene.

Quick review:

- STABIL Light + Minimax take payloads of 2 7 kg (4.4-15.4 lb).
- STABIL Light is indeed lighter and more agile than its older sibling, STABIL G2.
- Big brother STABIL G2 with Easyrig Cinema 3 can support camera packages of 5 - 25 kg (11 - 55 lb).
- STABIL G2 with Easyrig Vario 5 supports 5-17 kg (11-38 lb).

Take a look at the STABIL Light video: *youtu.be/Xay7UnCnfDA*

Easyrig founder Johan Hellsten chases cross country skiers smoothly on foot.

David Paul in New Zealand shows how you can remove the bounce of footsteps with a lightweight Ronin RS/SC style gimbal and Blackmagic Pocket Cinema Camera.

UK DP Sam Wordsworth shows how to adjust STABIL Light's up and down movement with its tension knob so the Minimax's string does not lengthen or shorten when you walk or run.

The STABIL Light arm can be locked in a 90 degree position and it folds quickly for easy transport.

Available now from Easyrig and Easyrig resellers worldwide: *easyrig.se/contacts/*

Inside Angénieux Optimo Ultra Compact Zooms

Clément Mondésert with Optimo Ultra Compact Zoom.

Clément Mondésert is the Project Manager for Angénieux Optimo Ultra Compact Zooms. He started at Thales LAS France in Saint-Héand three years ago, first as project manager for head-up displays and small zooms for helicopters and drones. Clément joined the glamour and excitement of the cine team about a year ago.

Jon Fauer: When will the Angénieux Optimo Ultra Compact 37-102 Full Frame Zoom lenses begin shipping?

Clément Mondésert: We are starting full-scale delivery of serial production Ultra Compact Zooms at the beginning of 2022 for the 37-102 mm T2.9 Full-Frame zoom. Some were already delivered at the end of December 2021. The 21-56 mm T2.9 "wide-angle" Full-Frame zoom will be delivered at the beginning of 2023.

Why not introduce both lenses simultaneously?

For production reasons and also as a good way to get customer feedback on the first model before finishing the second one. It was the same with the Super35 Optimo zooms: the Optimo 28-76 came after the Optimo 15-40.

When did the Optimo Ultra Compact Zoom project begin?

The genesis of a new zoom has been a continuous process. We always scrutinize the market to understand the requirements of end-users and to consider products that might fulfill their needs. Anticipation drives our product policy. It was clear that as soon as the Full-Frame format appeared and started to expand to the point where it is now, we knew we would have to renew our entire product line in order to offer Full-Frame optimized Optimo zoom lenses.

We started with the Optimo Ultra 12x with an IRO (Interchangeable Rear Optics) for Full-Frame as well as Super35 and Ultra35. Next, we launched Optimo Primes to cover the Full-Frame format. Then, it was time for our lightweight spherical zooms to go Full-Frame as well.

It takes about one year from the initial concept and choosing the actual focal lengths to the optical, mechanical and electronic design. After that, we order the materials, machine the parts, polish the lenses, and then assemble everything.

Please describe the design process.

The first step was long and hard work to establish the parameters. Our optical engineers aimed at maximizing optical quality, minimizing optical defects, in a small envelope, with defined limits of size and weight. Thanks to computer simulations with

our Angénieux custom-designed software, we are able to be quite accurate in predicting the optical performance of the lens.

The optical combination determines the product architecture. Then we work on the mechanics to define how we move the optical elements that must all be perfectly aligned with each other. It is also a challenging process to make everything very precise and compact.

The architecture and the detailed design of the lens take into account additional constraints: all the components must be reliable, available and industrially feasible—that is, readily manufacturable.

As soon as we have the first product, we conduct a set of tests. Not only do we proceed with conventional optical tests, but we also subject the lens to specific environmental tests. This ensures that performance is consistent at different temperatures (the zoom is passively athermalized), when shipping, when dropped, and after an endurance test representative of the product life. Consequently, before shipping the first serial production units, we know that the lens is robust enough and meets the most demanding requirements.

Did you say dropped?

Yes. It is part of the environmental testing program. The zoom is tested in extreme heat, humidity and cold. Then, it is placed in our typical packaging and dropped from various heights to check that the optical tuning is still the same after shipping. We want to be sure that the lens we ship from Saint-Héand, France arrives in the same condition at our customer's destination.

Did someone go out with a prototype and shoot tests?

This time we did not made a traditional prototype. Sometimes, we might still make prototypes of sub-assemblies if we think there is a risk that we didn't master something completely, or there are certain uncertainties, but not at the full product level.

We unveiled the Ultra Compact in September in New York and you saw our first product. Serial production started next. In three months, we were able to go from the first product that we showed to the market to the first commercial deliveries in December. And so, the one you saw in September was not a prototype. It was our first production model.

How did you arrive at the Full-Frame zoom focal lengths (e.g. 37-102, 21-56)? Did you multiply the Super35 values by 1.5?

The Full-Frame Optimo 37-102 and 21-56 Ultra Compact zooms are heirs to the famous and award-winning Super35 Optimo 28-76 and 15-40. They correspond respectively to similar fields of view and 2.7x zoom ratios. In that sense, the Optimo

Ultra Compact zooms are of the same lineage as the venerable Angénieux lightweight Optimo zooms: similar 2.7x zoom ratios, high-end, short, light and fast lenses.

Are these Full-Frame lenses "simply" wider diameter versions of the classic Angenieux Optimo Super35 zooms?

Being heirs to a famous family of lenses does not mean that they are a simple reboot or copy of the former ones for a larger sensor format. For Optimo Ultra Compact, the Angénieux team completely designed new zooms from a blank page. Since we originally developed the 28-76 and 15-40 some 15 years ago, improvements have been made both in our optical calculations and design tools, as well as our industrial capabilities. We also learned a lot from our last product developments (Optimo Ultra 12x and Optimo Primes)—not only technically, but also industrially.

Making a completely new design enabled us to harvest these new means to explore new possibilities and to enhance the overall performance. So in a sense, yes, these lenses follow in the footsteps of the historical Optimo zooms that were developed 15 years ago.

On the other hand, you cannot say that we developed the same zoom that we developed 15 years ago. In terms of industrial capabilities, we are now able to manufacture optical and mechanical components that we were not able to make before. In that sense, the Optimo Ultra Compact is completely new.

Were there any other challenges?

Specific to the Optimo Ultra Compact development is today's environment. Due to the Covid crisis, our design engineers had to learn to work remotely. Of course, manufacturing has to be done in person. The situation is still really tough from an industrial point of view as we are facing scarcity/shortage issues in many areas, like all manufacturers. It is getting harder and harder to supply electronics, and even glass or metal. Not only do we ponder technical matters, but we also have to make decisions to ensure that we will be able to supply the material to manufacture the zooms. Supply chain is a key to success in this challenge and this is where the strengths and resources of a major group like Thales express themselves.

Is there a Super35 "speed booster" IRO for these lenses?

Our strategy as a first step is for the Optimo Ultra Compacts to be unveiled and delivered as Full-Frame-only versions. But the lens is IRO ready. It can have an interchangeable rear to adapt to other formats in the future.

Are the Optimo Ultra Compacts made entirely in France?

Our answer is an emphatic yes. The entire design was conducted by our technical team (optical, mechanical, electronics) based in Saint-Héand, France. Industrialization and serial production is also done in our historical plant in Saint-Héand.

Synergy and proximity between design and production are crucial to the success of such a complex new product launch. Our factory is a real asset because it gathers, in the same place, the technical design and production teams. Our production lines are also very comprehensive. We are able to machine glass for our lenses in-house. Next door, we have mechanical machining for very technical and precise inner parts, as well as outer parts of the lens. And, when you go through another door, you are in the integration line where all these components are mounted, assembled by experienced and skilled technicians, and where the zooms are tuned.

How would you compare Optimo Ultra Zooms to EZ Zooms in terms of optical design and quality?

EZ zooms are a real success because they are very lightweight, have good overall optical quality and are more affordable. However, if you put an Optimo Ultra Compact and an EZ Zoom on a lens projector, you will see the differences in terms of resolution, distortion, chromatic aberrations, etc.

Optimo Ultra Compacts are well balanced for coverage of the entire frame: from the center to the edges. On the EZ Zooms, we made some compromises. There are far fewer compromises on the Optimos. Furthermore, Optimo Ultra Compact lenses are equipped with lens metadata and have a full-closure iris, which is not the case with EZ zooms. The image circle coverage is also wider with the Optimo Ultra Compacts. They cover Full-Frame (46.3 mm diagonal), or more, at all focal lengths and focus distances, whereas EZ Zooms exhibit a slight loss of relative illumination in some conditions.

Photos of the first Ultra Compact Zoom taken by Jon Fauer in September 2021. Serial production models might look slightly different.

I would say there are two main technical differences. First is the architecture. Optimos are designed with a rod-variator, a concept inherited from the classic Super35 Optimos. This way of guiding the optical elements makes the zoom very accurate and robust. It also enables our zooms to be very lightweight zooms compared to other technologies. Cams tell the optical elements where to be and the rods let them travel smoothly. We don't have heavy, traditional ball bearings.

EZ zooms do not benefit from these technologies. And, in terms of detailed design and production, Optimos also inherit the high-end features of the family. Each product line has its reasons that are based on the type of application and production.

Do Ultra Compact Zooms match EZ Zooms in color, contrast and look?

That was not the intention. Ultra Compact Zooms match the Optimo line of Angénieux lenses: Optimo Primes and Optimo Ultra 12x. It was an important target to really have the same look for the entire high-end Optimo Full-Frame range of lenses.

How did you achieve the incredibly light weight and small size of the Full-Frame Ultra Compact Zooms?

Certainly, we use aspheric optical elements. The optical materials are a very important part of the size. And thanks to computational simulation, we are able to assess, more or less, the weight of the final products quite early in the project. That's key to our decision-making when we begin. So, we know the weight of each optical combination even before having drawn any mechanical parts.

Do the Ultra Compact Zooms have an internal palette option as you have with the Optimo Primes?

No. Zooms are much more complex than Primes. For example, the iris of an Optimo Ultra Compact Zoom moves in relation to an optical element in the zoom assembly as you change focal length to correct for certain parameters. An internal optical palette would not be consistent.

Estelle McGechie, ATOMOS CEO

A conversation with Estelle McGechie, Chief Executive Officer of ATOMOS.

Estelle McGechie was named to the position of Chief Executive Officer of ATOMOS on September 22, 2021. She has returned to Melbourne, Australia with her family after a successful career in the United States at The Walt Disney Company, Apple, Logitech, Apple and Frame.io.

Jon Fauer: Please tell us how you started in this business?

Estelle McGechie: It was a combination of factors. My father was very technical and a lot of that rubbed off, but ever since I can remember, I've always been interested in storytelling. When I entered the industry, computers were becoming commonplace and changing the creative landscape. I started volunteering on film sets and edited anything I could lay my hands on. That experience led to becoming a showrunner on my own series in Australia and working with a team of editors.

You were working in both technical and creative areas?

Yes, both the creative and technical aspects of storytelling just made sense to me. I swayed between creative editing and technical consulting, working with some of the largest companies in the world.

Where did you first meet Jeromy Young?

We met at one of the Apple Final Cut Pro events after the Apple ProRes codec was first launched in 2006.

I always wondered where the spark came from at ATOMOS to engineer products capable of recording ProRes RAW. It seemed that ATOMOS was one of the few companies to take the ball and run with it, while also doing a great job working with other camera manufacturers to implement ProRes RAW.

Jeromy and the engineering team at ATOMOS were tenacious and quickly recognized the potential. They believed in supporting the development of ProRes. Adopting ProRes RAW was the next obvious step.

Apple ProRes RAW is an elegant engineering achievement with excellent performance and quality. Apple also invests a lot of time and effort to ensure their hardware enhances the creative process. It is evident with every hardware launch, from the Mac Pro and the ProRes accelerator card, Afterburner, to the M1 chip—each announcement introduces an acceleration in performance.

Do you see ATOMOS foremost as a hardware company?

ATOMOS has a great reputation when it comes to hardware. When it comes to filming on-set, we recognize that the point of capture is critically important. We take that role seriously and so we make products that are robust and perform under pressure.

When I think of our NINJA V and NINJA V+, that one compact device is able to support many functions. It's great for on-set recording and provides access to a range of codecs—from Avid DNxHD to H.265 to ProRes to ProRes RAW. That is extraordinary development by any measure. But you can also preview your content with incredible clarity on our bright 1000 cd/m² AtomHDR monitor, play back on-set, mark favorites, save meta-

NINJA V

SHOGUN 7

NINJA V on LUMIX BS1H

data and have all that extra info flow directly into your creative edit.

When you add the AtomX CAST to your NINJA V — now you have a Ninja CAST and you've transformed your on-set recorder into a 4 x HDMI input multi-stream switching power machine. With the 4-up display, you can see yourself as you stream. The large, easy-to-switch buttons make it easy to control, and support for high frame rate makes it ideal for gamers.

That we can do all of that, deliver all of that functionality, in such a tiny footprint is quite radical and we're driving the technology that makes it possible, to make this powerful, versatile mini-computers. These devices change what's possible for our customers. Recently I was looking at our Instagram channel and I came across one of our customers holding a Panasonic LUMIX GH1 with a NINJA V with a caption, "You just extended the life of my camera."

ATOMOS not only extends the functions of a camera, we turn it into a multi-codec, high quality, capture assistant — I say assistant because we have all sorts of features that help you capture content with more confidence. We've built in the features our customers require including on-screen exposure analysis, framing, anamorphic de-squeeze, focus assist tools and more.

Because we capture data directly from the camera sensor, our products have the ability to transform what has been classified as a prosumer camera into a system that holds its own against high-end professional cameras. Creatives invest a lot of money in their rig. It's rarely only a camera. It's an investment in an entire system that includes lenses, accessories, cages, and controls. Speak with anyone who works with cameras, and you'll understand that there's an emotional investment too. Familiarity with the camera system itself is an investment — an investment in time. Being able to enhance its capabilities and truly turn your camera into something that it wasn't intended to be, to extend its life and develop new functions, is an excellent fit with our central message — to democratize filmmaking and all forms of content creation.

In relation to software? You'll have to watch this space.

Please expand on democratization.

The key to democratization is access. That can be both in terms of cost and ease-of-use. ATOMOS makes high quality, professional, cost effective products to democratize filmmaking, game streaming, and all other forms of content creation. ATOMOS has evolved the core product line to develop next-generation, adaptable, multi-function devices. Our products help our creative customers access the same high-quality options that are required by Hollywood blockbuster productions. For example, our SUMO 19 device has been used on the sets of key studio franchises such as Mission Impossible or Star Wars and we're very proud that we can compete in that space. It confirms that our products provide the right features, quality and performance. We know, and our customers know, that they can trust our technology to support their creative vision. That we can

ATOMOS SHINOBI 7

NINJA V+ recording Apple ProRes RAW over HDMI from a Sony FX6.

make that technology affordable and put it in the hands of every filmmaker is very important to our vision of democratization.

Do you listen to customers and complainers?

Absolutely. If we don't hear all types of feedback, then we limit our opportunity to improve. I've heard and read a lot of feedback; I'm absorbing all of it and our recent AtomOS firmware updates are a testament to our actions to the feedback we received. Some examples are advanced fan controls on the NINJA V/V+, which allow creatives to manually reduce the fan speed while recording to run quieter and then boost it between takes keep the system cool. Another example is support For Sony FS series camera RAW and Panasonic BS1H. We also added program record with graphics and PIP for AtomX CAST, audio delay and more. All these features have been made available as free updates and were frequently requested by creatives.

Somebody mentioned that ATOMOS acquired Timecode Systems. How does that fit in?

ATOMOS acquired Timecode Systems back in 2019 — it's extraordinary tech that synchronizes multiple sources of sound and video wirelessly or wired using timecode. It works across all multicamera formats using any combination of cameras and audio — from pro broadcast cameras, audio recorders to mirrorless/DSLR and smartphones. We've already built the Timecode Systems tech into our products, and we have customers using these features today.

You said earlier that your mantra is to democratize the process. Does that mean continued work on both the high-end as well as the entry/affordable level?

Yes. We've always bridged both high and entry level creative functionality. When you think about making a product equally approachable and functional for both an experienced and new

NINJA V+ on Canon R5 C.

ATOMOS NINJA V+ recording 8K ProRes RAW HQ 24 fps from Canon R5.

NINJA V on SIGMA fp L

NINJA V on LUMIX S1H

creative, it goes back to developing a product with great UI/UX with progressive disclosure; it's approachable for a new creative with advanced features and functions for a pro. Just because someone is technically proficient doesn't mean they want to be embroiled in an overly-technical process. We are constantly challenging ourselves to improve.

ATOMOS headquarters is in Melbourne?

Yes, our headquarters is in Melbourne, but we're a worldwide company with teams in Japan, Germany, UK, France, India, China, the US and more.

Is UI (User Interface) programming done all around the world as well?

All around the world. I don't sleep. That's why I'm wearing glasses on this Zoom call, so you can't see the dark circles.

Same with me. I'm eternally jetlagged. Thanks for an illuminating discussion.

Musashi Optical OptMore Extenders

What's the Difference between Expanders and Extenders?

Musashi Optical System Co. has, pardon the pun, expanded their line of expanders and extenders. What's the difference? Musashi Optical's Michael Burnham explained it succinctly: "Every bit of an Expander's image circle is designed to be used, whereas not every bit of image circle of an Extender is designed to be used."

- If you have a Super35 lens and want it to fill a Full-Frame sensor, use an Expander.
- If you have a Super35 lens, or a Full-Frame lens, and want to make it more telephoto (increase the focal length), use an Extender. The image is enlarged by the same amount as with an Expander, but the optical designers treat anything outside the sensor area as a "throw-away" because it is not used.

Musashi Optical System Co. designs and builds expanders (OptMag) and extenders (OptMore) in Japan. Here's a look at the lineup.

OptMore Extenders Full-Frame PL to PL

OptMore TL-FFX2 2x Extender PL to PL Full Frame.

Musashi Optical's FFX2 OptMore 2x Extender fills a Full-Frame PL mount camera's sensor up to a 46.3 mm Ø image circle. You lose 2 stops of light. A 135mm T2 with the 2x extender attached becomes a 270mm T4.

There are 7 elements in 4 groups. Of course, the FFX14 works with Super35 lenses and cameras as well. Optmores have aluminum bodies and stainless steel PL mounts. No back focus adjustment.

OptMore TL-FFX14 1.4x Extender PL to PL Full Frame.

Musashi Optical's FFX14 OptMore 1.4x Extender is for Full-Frame PL mount lenses on PL cameras with image circles up to 43.3 mm Ø . You lose 1 stop of light. So, let's say the longest lens in your set is a 135mm T2. Attach the 1.4x extender between lens and camera, and you have a 189mm T2.8. There are 5 elements in 3 groups.

Not compatible with all lenses—check with Musashi-Opt.

OptMore Extenders S35 PL to PL

OptMore TL-PLX2 2x Extender PL to PL Super35.

Doubles the focal length of Super35 PL mount lenses on S35 PL cameras. 2 stop light loss. Built-in flange back adjustment, so you don't need shims.

OptMore TL-PLX14 1.4x Extender PL to PL Super35.

1 stop light loss. Built-in flange back adjustment.

www.musashi-opt.com

Musashi Optical OptMag Expanders

Musashi Optical OptMag Expanders S35 PL to FF PL

OptMag TL-OMFF 1.7x PL Expander for a Super35 lens on a PL mount Full-Frame camera.

The OptMag 1.7x Full-Frame Expander increases the image circle of a Super35 lens to cover a Full-Frame sensor up to an image circle of 46.3 mm. Focal length is increased by 1.7x. You lose 1.5 stops of light. (A 10mm T1.4 S35 lens becomes a 17mm T2 FF lens.) The integrated flange back adjustment means you don't have to shim to adjust flange focal depth.

The deeper inside depth makes the OMFF (1.7x) compatible with more PL mount Super35 lenses than the OM14F (1.4x).

OptMag TL-OM14F 1.4x Expander for a Super35 lens to on a PL mount Full-Frame camera.

Not all Super35 lenses work with this Expander—check with Musashi-Opt first. Your S35 lens should cover an image circle of 31 mm Ø in Super35 to fill a 44 mm Ø Full Frame sensor with the OM14F. Focal length is increased by 1.4x.

You lose 1 stop of light. (So a 10mm T1.4 S35 lens becomes a 14mm T2 FF lens.) Integrated flange back adjustment.

Musashi Optical OptMag Expanders S35 PL to FF E-Mount

OptMag OMFFE 1.7x and OM14FE 1.4x are E-mount to PL mount Expanders. They are are optically similar to the two PL-to-PL Expanders. The big difference is that a Sony E-mount is attached to the camera side, secured with 6 strong set screws sunk into the stainless steel base. This eliminates the uncertainty (wiggle, drooping, flex, soft focus) that might result from using a separate E-mount to PL adapter between camera and Expander.

These OptMag Expanders with E-mount work well with Sony FX3, FX6, FX9 as well as VENICE and VENICE 2 (using their native E-mount) and Sony a7, a1 and a9 ILCE cameras.

OptMag TL-OMFFE 1.7x PL Expander for a Sony E-mount Full-Frame camera to use a Super35 PL lens.

This Expander has the same specs as the OMFF above, except instead of PL to PL, it fits directly onto Sony E-mount cameras.

OptMag TL-OM14FE 1.4x Expander for a Sony E-mount Full-Frame camera to use a Super35 PL lens.

Same specs as the OM14F above, except instead of PL to PL, it fits directly onto Sony E-mount cameras.

Sachtler aktiv 10, 12 and 14 fluid heads

Quick: how long does it take to level a fluid head?

Stopwatches started at FDT labs. A flat-base head and legs took an inordinate amount of time to loosen each leg, one at a time, extend or shorten the first one, lock it, loosen the second leg, get the bubble level closer to the center, lock it, adjust the third leg, and probably tweak some more.

A ball leveling head and legs like the ever-popular Sachtler Cine 7+7 with 100mm bowl carbon fiber legs takes about 5 to 10 seconds: fumble for the lock knob underneath, loosen it, jiggle the head to level, fumble for the lock knob again.

A Sachtler aktiv head levels in 1 to 2 seconds, faster than it even takes to explain why the product name aktiv has a lowercase "a" and its sibling legs begin with lowercase "f" for flowtech.

On Jan. 19, 2022, Sachtler announced the new 100mm bowl aktiv fluid heads. The lineup consists of:

- aktiv 10 and 10T (for camera systems 0-12 kg / 0-26.5 lb)
- aktiv 12 T (0-14 kg / 0-30.9 lb)
- aktiv 14T (0-16 kg / 0-35.3 lb)

You probably already know the smaller Sachtler aktiv heads with 75mm bowl bottoms:

- aktiv 6 (0-8 kg / 0-17.6 lb),
- 8 and 8T (both 0-12 kg / 0-26.5 lb)

By the way, the "T" in the product name means that the top of the head is fitted with a Sachtler Touch & Go S (Euro Style) Quick-Release Plate. No "T" in the name means it uses a side-load plate.

Sachtler's aktiv SpeedLevel technology very well might be the most innovative advance in keeping your camera level since three tripod tips touched the ground to film *Workers Leaving the Lumière Factory* in Lyon, France on March 22, 1895.

To level an aktiv head, pull up on the spring-loaded lever that looks like a lopsided happy face mouth in front. This releases tension and allows the head's ball to move around within the tripod's bowl. Push the lever back to the head and it locks in place.

Sacthler's SpeedSwap lets you quickly release the head from the tripod, the faster to move it to a dolly, slider, hi-hat or baby legs.

Barbara Jaumann, Sachtler aktiv Product Manager at Vitec Production Solutions, explained, "With the addition of these three new aktiv fluid heads, together with our flowtech 100 tripod range, camera operators can now set up heavier payloads faster and with more flexibility. The aktiv12T and aktiv14T heads have a greater payload range and more counterbalance steps than the DV12 and Video15 heads that they will replace in the Sachtler range."

The carbon fiber flowtech tripods that Barbara mentions arrived in 2017 with 75mm bowls. The flowtech 100 that fit these new aktiv heads came in 2018. Three helpful red happy face tripod leg locking levers near the top are there so you don't even have to bend down to adjust the length.

The three new aktiv heads all have 15 steps of counterbalance tension and 7 steps of pan and tilt fluid drag.

Because there's no traditional bowl clamp to lock the head to the tripod, aktiv heads on flowtech tripods can be spread flat on the ground for low-angle shots.

An illuminated PrismBubble is visible through two ports: from above or from the rear. It uses one 3 V CR 2032 battery.

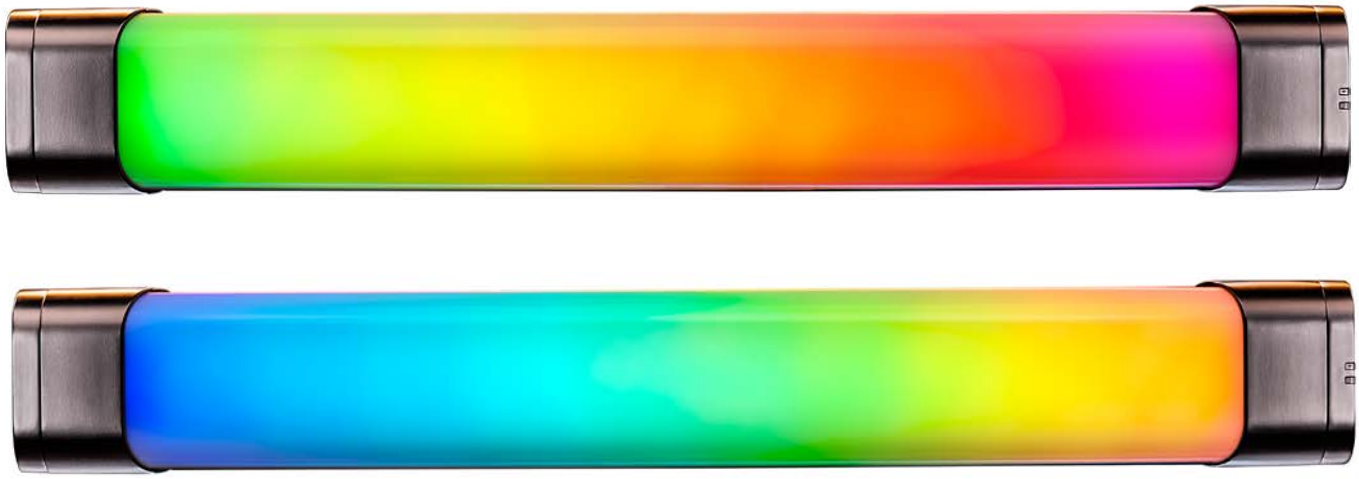
www.sachtler.com/en/aktiv/

Sachtler aktiv and flowtech

Lift the SpeedLevel Lever until the head is free for leveling, shown above. Do not lift the lever past the tactile detent position...unless you want to remove the head from the tripod. In that case, lift the Lever all the way up, as shown below.

Above: Illuminated 2-window bubble level and index marks.

Sachtler aktiv 14T on flowtech 100 with mid-level spreader, removable rubber feet, and padded carrying bag



RR Double Rainbow comes in 2 and 4 foot lengths.

When would you use an RR Double Rainbow fixture from Quasar Science?

Surely not many script sluglines begin with:

EXT. SOMEWHERE OVER THE RAINBOW - DAY

But these Quasar Science fixtures have active LED pixels that are meant to move. So, instead of a static rainbow, picture a car chase sequence set up inside a studio. It's a head-on two shot of driver and passenger. You might have an active backdrop. To simulate the effects of headlights and tail lights from other cars whizzing by, along with reflections from street lamps and neon-lit store fronts, Quasar Science RR Double Rainbow and R2 Rainbow Linear LED fixtures come with built-in effects or individual pixel control that you can run remotely.

The RR 50 is 24 inches long and has 20 discreet LED pixels. The RR100 has 48 pixels and is 48 inches long. Pixels in lighting are the individual light-emitting diode groups—quite different from the pixels that are photosites on digital camera sensors.

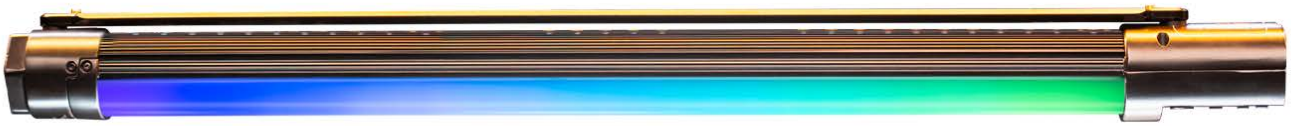
Of course, Quasar Science fixtures are equally adept at regular, non-effect, RGB lighting with high TLCI ratings, 2000-6000K, Hue and Saturation Control, and Full Gamut Color Mixing.

Quasar Science was started in 2012 by Studio Lighting Technicians Steven Strong, Evans Brown, Jay Yowler and Ray Gonzales. By 2014, they had color correct, flicker free LED light bulbs in almost every shape of consumer and popular practical light bulb from A19 to MR16 to R40, with consistent color temperatures, and dimmable. Next came LED tubes to retrofit in typical fluorescent fixtures.

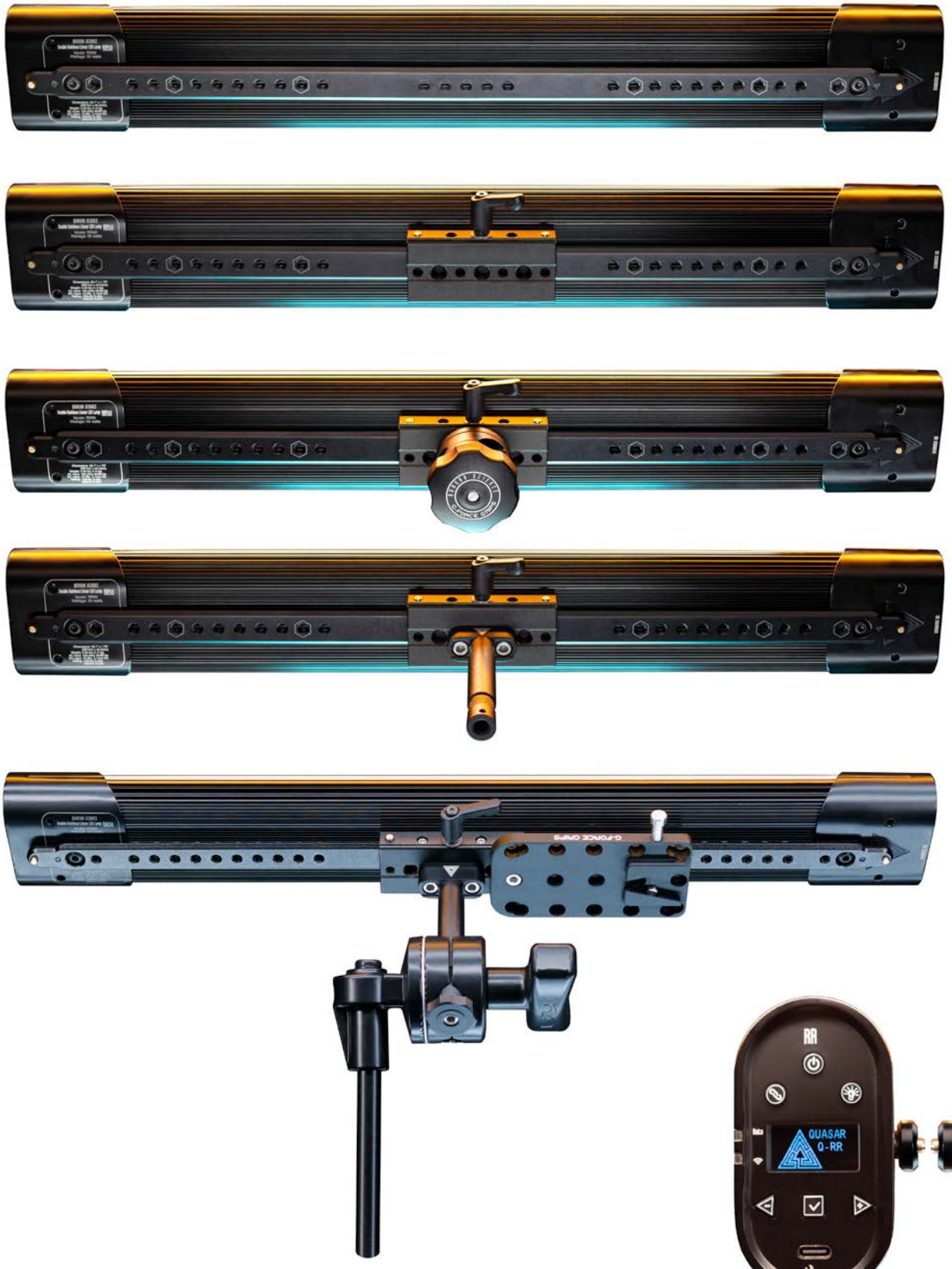
Soon, lots of people were using these bare LED tubes alone, not inside fixtures, for lighting everything from portraits to practicals to built into the set design. The rest is history.

Quasar Science was acquired by The Vitec Group in April 2021. *www.quasarscience.com*

R2 Rainbow comes in 2, 4 and 8 foot lengths.



Mounting Quasars



Quasar Science Rainbow RR and R2 come with the Ossium Rail attached to the rear of the fixture and a slider that adjusts the mounting position.

The Slider...well...slides along the Ossium Rail, and can be tightened where needed.

The Slider is tapped with 1/4-20 and 3/8-16 threads.

An Ossium Baby Pin, Rotator Block Mount, or Battery Plate can be attached.

Control Side End Cap

Power Side End Cap

DJI Mavic 3

DJI Mavic 3 Cine

Mavic 3 is DJI's latest foldable quadcopter camera drone. As with earlier Mavic models, it fits into a backpack and shoots stunningly smooth, stabilized video and stills. A big 5,000 mAh battery keeps Mavic 3 aloft up to 46 minutes. In addition to flying longer, like an Olympic motto, it goes farther, faster, surer than its predecessor Mavic 2 Pro.

Highlights

- Dual-lens system with:
  - Hasselblad 4/3" (1⅓") CMOS, 24mm f/2.8 FF equiv.
  - 1/2" CMOS sensor, 162mm f/4.4 FF equivalent.
- 5.1K Video 24 - 50 fps, DCI 4K 24-120 fps. 20 MP Stills.
- Cine Version with internal 1 TB SSD and ProRes 422 HQ.
- Bigger battery: up to 46-minute flight time
- Increased monitoring distance: 1920 x 1080 60p up to 15 km.
- Intelligent flight modes, including ActiveTrack 5.0, MasterShots, QuickShots, Panorama and Hyperlapse.
- Color Science: HNCS (Hasselblad Natural Colour Solution)
- 6 fish-eye vision sensors and 2 wide-angle sensors continuously see obstacles in all directions and navigate safe flight routes to avoid them.
- Geofencing alerts you to sensitive locations and altitude restrictions. AeroScope Remote ID system identifies the drone. Integrated AirSense system warns you of nearby airplanes and helicopters transmitting ADS-B signals

Lenses

The new Hasselblad 4/3 (1⅓") CMOS sensor camera has an 84° field of view (in Full-Frame equivalent of 24mm f/2.8-f/11).

Right above the main lens, there's a second lens/sensor. It has a 1/2" CMOS with a 15° field of view, equivalent to a 162mm f/4.4 Full-Frame lens.

Curran Daly, DJI North American Communications Manager, explained, "Mavic 3 offers a 28x Hybrid Zoom (optical + digital) from the combination of its 4/3" Hasselblad CMOS and its ½" 162mm Tele Lens cameras. The 4/3" CMOS camera offers a 4x Digital Zoom and the Tele Lens takes over at 7x enabling the 28x Hybrid Zoom. Both cameras on the Mavic 3 are fixed focal length, meaning that actual zooming is digital, not optical. However, in a hybrid zoom environment of multiple cameras, switching between each camera is considered optical zoom."

Video and Stills

DJI Mavic 3 Cine records MOV Apple ProRes 422 HQ to a 1 TB internal SSD or microSD card:

- 5.1K (5120 x 2700), 24 - 50 fps.
- DCI 4K (4096 x 2160), 24 - 120 fps.
- UHD 4K (3840 x 2160), 24 - 120 fps

DJI Mavic 3 Cine also records MP4 / MOV; MPEG-4 AVC/H.264, HEVC/H.265 to 1 TB SSD or microSD:

- 5.1K (5120 x 2700), 24 - 50 fps.
- DCI 4K (4096 x 2160), 24 - 120 fps.
- UHD 4K (3840 x 2160), 24 - 120 fps
- FHD (1920 x 1080) 24 - 200 fps

Regular DJI Mavic 3 does not do ProRes. But it does record the same H.264/AVC and H.265/HEVC resolutions and framerates to an internal 8 GB or microSD.

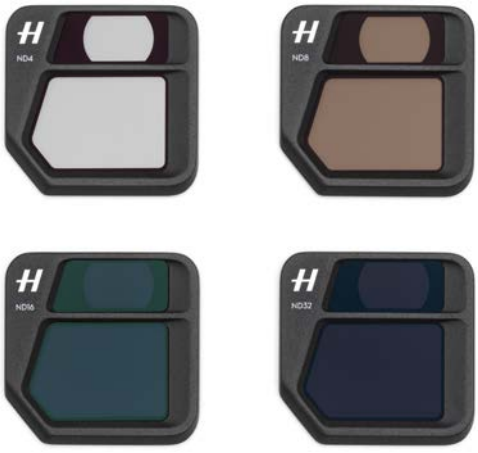
Photos courtesy of DJI

Above: DJI RC Pro remote controller. Below: DJI RC-N1 remote controller

The new DJI RC Pro remote controller, at left, has a built-in 5.5", 1920 x 1080, 1000-nit high-bright screen. It can operate up to 15 km on the 2.4 and 5.8 GHz bands. Runtime is up to 3 hours and it can charge in 90 minutes.

DJI Mavic 3 Cine includes the RC Pro remote controller, with the DJI Fly app pre-installed.

DJI Mavic 3 includes the DJI RC-N1 remote controller and you have to download the DJI Fly app to your iOS or Android device.



DJI Mavic 3 ND FIlters come in two optional sets:
ND4, 8, 16, 32 (ND0.6, 0.9, 1.2, 1.5) = 2, 3, 4, 5 stops
and
ND64, 128, 256, 512 (ND1.8, 2.1, 2.4, 2.7) =6, 7, 8, 9 stops).

Tiffen Mavic 3 Filters

DJI Mavic 3 Cine with Tiffen ND6/PL, composite courtesy of DJI and Tiffen.

Aim high. The Tiffen Company introduces the Tiffen DJI Mavic 3 Filter ND/Polarizer Kit and 6 Filter ND & ND/Polarizer Kit.

Each filter snaps in front of both lenses—the 4/3" and the 1/2"—of the Mavic 3 camera. Of course, they fit both the DJI Mavic 3 and the DJI Mavic 3 Cine drones.

The Tiffen 3 Filter ND/Pola Kit comes with Neutral Density/Polarizer filters (ND4/Pol, ND8/Pol, and ND16/Pol). Note that Tiffen calls them PL, as in ND4/PL, but "Pol" or "Pola" is indelibly etched in my brain from years of using Tiffen Polas. The numbers 4, 8 and 16 are filter factors. They correspond to familiar ND0.6, ND0.9 and ND1.2. The Polarizer is stacked on top of the ND filter; as you rotate it, the degree of saturation, intensity, glare reduction and reflection-removal changes.

Polarizers are most effective when you are aiming at a 90° angle from the sun. The index line helps keeps settings consistent.

The Tiffen 6 Filter Kit offers the same ND4/Pol, ND8/Pol and ND16/Pol filters and also includes Neutral Density (ND4, ND8, ND16) without the Polarizer.

Tiffen 3 Filter Set for Mavic 3 (left)

ND4/PL, ND8/PL, ND16/PL Filters
Waterproof & Anti-Scratch Multi-Coating
Aluminum Filter Clip
Metal Carry Case & Cleaning Cloth

Tiffen 6 Filter Set for Mavic 3 (right)

ND4/PL, ND8/PL, ND16/PL Filters
ND4, ND6, ND8 Filters
Waterproof & Anti-Scratch Multi-Coating
Aluminum Filter Clip
Metal Carry Case & Cleaning Cloth

Tiffen Warm Diffusion Filters

The Tiffen Company adds a new line of filters to their great, big selection of front-of-the-lens filters. Tiffen's Warm Diffusion filters give your image sensual, silky-smooth skin tones and warm glowing specular highlights.

The new Antique Warm Diffusion filter sets suggest a modern vintage look. While discussions often veer to vintage lenses and deconstructing the digital image, you could picture Tiffen's Warm Diffusion filters like a visit to the Musée D'Orsay. With five degrees of density, your look can acquire a diversity ranging from Monet's Impressionist obsession with London fog ("Without fog London would not be beautiful," he said) to the precision and glowing bokeh of "L'Absinthe" by Degas.

Describing looks and filters is like describing fine wines or writing about a visit the art museum. Your lighting and style, camera, lens and filters will all influence the artistic look. Francis Kenny, ASC, who inspired Tiffen's Warm Diffusions, while working on a film, said: "I was looking for something that would enhance skin tones. It's all about the actors' faces and eyes. These Warm Diffusion filters have a romantic feeling without losing clarity—giving practicals and specular highlights a slight halation. They smooth out complexions and enhance mid-tones, while maintaining rich shadows. My favorites are the Antique Satin in ⅛th strength. They look spectacular at T2 to T4."

Antique Satin

The Antique Satin series adds an overall warm glow to the scene. Fine details and skin textures are smoothed out. Overall image sharpness is maintained. You might see a slight reduction of contrast: bright areas and bright skies are muted a bit. Black areas and shadows are less dense but detail remains; they do not become murky. They are excellent for most complexions.

Antique Pearlescent

Antique Pearlescent filters are like a skin-tone spa treatment for the actors. They add an atmospheric glow, with mild desaturation of colors and slightly more pronounced glowing specular halations. You might like them on period pieces as a simpler, modern, single-slot filter alternative to a Lightflex or VariCon.

Antique Black Pearlescent

Along with warm skin-tones, Antique Black Pearlescents maintain deeper black and shadow detail. Highlights appear richer. The look is a romantic smoothness without excessive halation or loss of contrast.

Could you use two separate filters, like a Tiffen Pearlescent and an 812 or 81 filter, to get the same effect as an Antique Pearlescent?

No. Andrew Tiffen, SVP and COO, explains, "The Antique (Warm) Diffusion filters' common thread is the use of Antique Bronze Glimmer Glass (as opposed to the Bronze Glimmer Glass that is a golden bronze). In the Antique Pearlescent and Antique Black Pearlescent, the Antique part increases along with the Pro-Mist part in grade. The advantage of the Antique component as a warming element is that it is more organic.

"The 812 is an overall color shift (dyed color filter) applied equally to all areas of the scene. The Antique Pearlescent and Antique Satin reacts with the light in the scene, selectively warming highlights and flare in a more natural way that is more reminiscent of the glow of sunlight. It is not simply a color shift as is the 812 and cannot be replicated in post."

As with the rest of Tiffen's filters, the Warm Diffusions are manufactured in their Hauppauge, NY factory. Tiffen's Colorcore Process laminates the filter substrate between two pieces of Water White optical glass. It is then ground and polished flat to a precise tolerance of 1/10,000th of an inch (2.54 microns).

Each filter comes in standard sizes of 4x4", 6.6x6.6", 4x5.65", and 138 mm in densities of ⅛, ¼, ½, 1, and 2. Special sizes and strengths, including 3 and 4, are available upon request.

More details: *tiffen.com/pages/warm-diffusion-filters*

Denz Lens Adapters

This is a good time to be in the lens adapter business. Despite the best efforts of standardization advocates like Dr. Winfried Scherle and others, lens mounts are like the American wild west before the standard railroad gauge was set at 4' 8.5" (1435 mm) in 1863.

Bottle caps, wine corks, 35mm film gauge, Coca Cola ingredients and SAT college entrance exams are standardized. But not lens mounts in the cine and photo business.

And so, lots of high-precision lens mount adapters are now available from DENZ in Munich. A quick note on terminology. As Jarred Land rightly pointed out, FDTimes has also been inconsistent in naming adapters. I'll try to do better and put the camera side first, followed by the lens mount adapter. So: RF to PL, L to LPL, etc. Not all manufacturers do this.

www.denz-precision.com

RF to PL

L-Mount to PL

LPL to PL

Fujifilm GFX to PL

Sony E-mount to PL

Sony E-mount to Canon EF

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Executive Producers

emit.fr
lowel.com
litepanels.com
ocon.com
servicevision.es
smallhd.com
woodencamera.com

Producers

antonbauer.com
atlaslensco.com
cartoni.com
cinemaelec.com
ibe-optics.com
ottonemenz.com
photocineshop.com
C&L Studio: camarasyluces.com
tokinacinemausa.com
transvideo.eu

Co-Producers

aatondigital.com
BandH.com
chrosziel.com
manfrotto.us
mole.com
msegrip.com
orcabags.com
pstechnik.de
sachtler.com
steadicam.com

Associate Producers

16x9inc.com
brighttangerine.com
carstage.om
chengseng.com
chrosziel.com
cinetech.it
cmotion.eu
dmglumiere.com
denz-deniz.com
easyfocus.at
easyrig.se
filmtools.com
hd-systems.biz
idxtek.com
inovativ.com
jlfisher.com
loumasystems.biz
mytworks.com
musashi-opt.com
nanliteus.com
panasonic.com
pat-acc.com
raid-japan.com
ronfordbaker.co.uk
rosco.com
sekonic.com
shapewlb.com
vocas.com
whitepointoptics.com

Rental Houses

abelcine.com
arri-rental.com
bertonevisuals.com
camalot.com
camarasyluces.com
cinediving.com
www.hd-systems.biz
jpfcine.cl
kofilmrental.com
koernercamera.com
lemac.com.au
lensrentals.com
lites.be
ljud-bildmedia.se
lvrusa.com
musitelli.com
nacinc.com
panalight.it
photocinerent.com
rvz.fr
sanwa-group.com
servicevision.es
storyline.no

Media Partners

afcinema.com
airstar-light.us/film
bscexpo.com
camerimage.com
cinec.de
cinegearexpo.com
fsfsweden.se
ibc.org
icgmagazine.com
imago.org
inter-bee.com
nabshow.com
soc.org

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Media and Production Partners

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SERVICE VISION
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ATLAS LENS CO.
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IBE OPTICS

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