Jon Fauer, ASC www.fdtimes.com Feb 2025 Issue 129

FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide

The Bigger Picture

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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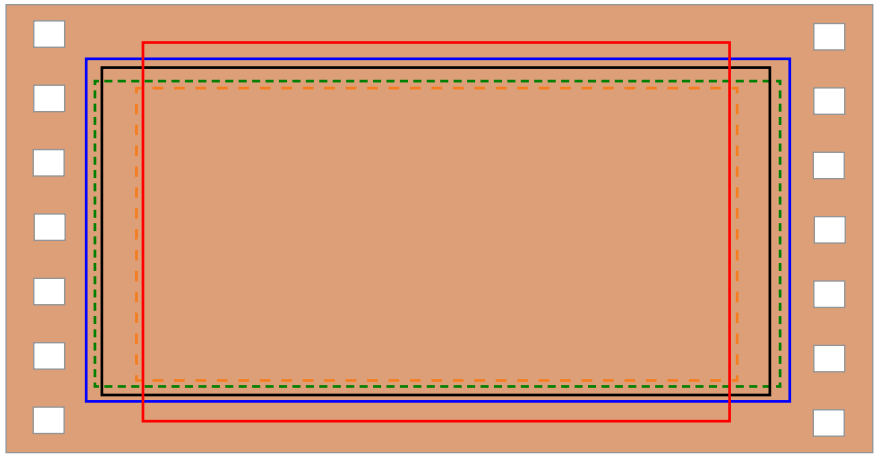


The headline on the cover of the Film and Digital Times April 2019 edition was "THE BIG PICTURE." It was a year of Full Frame / Large Format / Leica Format / LF / VV.

Here we are now, almost 6 years later, with an even BIGGER PICTURE. Cameras for 65mm Digital are getting lighter, smaller, faster. Some are more affordable. It has been said, "There never was a format big enough for big creative ambitions."

Rhapsodizing about 65mm Format's distinguishable aesthetic virtues are difficult to resist. More natural perspective.

Backgrounds that appear closer but separated by shallower depth of field. Higher resolution and less noise. Higher sensitivity, higher dynamic range, smoother images. The 65mm Format has always been aspirational and inspirational. Now, this new and advanced Digital Age of 65mm provides wonderful ways to see the world, to capture images with new looks and to tell unique stories with bigger pictures and magnificent perspectives.

This edition begins with a look back at 65mm and then moves on with reports of new 65mm cameras, lenses and lots more.

On the Cover: Large, Larger, Largest

LF Large Format Blackmagic PYXIS 6K

LF Leica Format Leica SL3-S

Larger Format Fujifilm GFX ETERNA

65mm Format Blackmagic URSA Cine 17K

65mm Format ALEXA 265

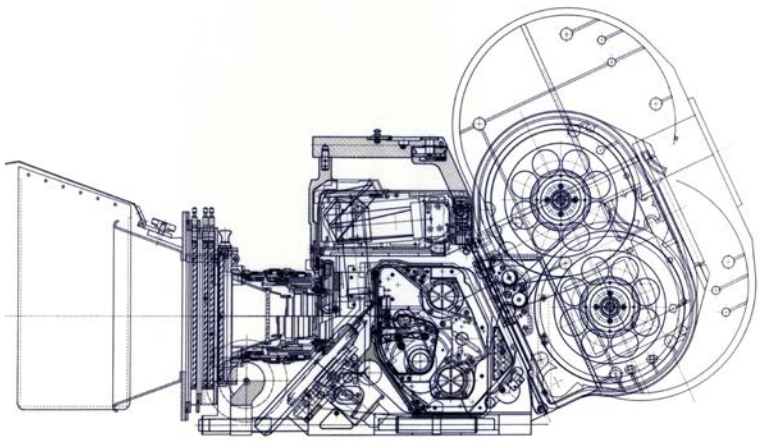
Also in this edition: 65mm Format Lenses

Leitz THALIA 65

Cooke Panchro/i 65

IB/E Optics FF to 65 Expander

1985: ARRIFLEX 765 Film Camera



The first 65/70mm film may have been an 1896 short: *The Henley Regatta* by Birt Acres. Fast forward to 1955 and *Oklahoma,* filmed in Todd-AO. Mike Todd described it as "Cinerama out of one hole." The MGM Camera 65, designed by Panavision, arrived in 1956 and in 1959 Panavision released Super Panavision 70.

In 1985, ARRI began work on the ARRIFLEX 765 motion picture camera. They completed 10 cameras by 1988. Otto Blashek was head of the design team. In an interview with Alexander Felsenberg (*in70mm.com*), Blaschek said, "Our market research and discussions started in 1983, and it was our US subsidiary, Arriflex Corporation (ARRI Inc) who contributed to this to a great extent."

Volker Bahnemann, who joined ARRI's US distributor in 1962, was President and CEO of ARRI Inc and ARRI/CSC Rentals from 1978-2010, and board member of ARRI AG, said, "The 765 camera came out of the ongoing desire in the industry to revive the big-screen blockbuster and David Lean type of large format, epic picture. Panavision and ARRI were both interested in doing something. Because there was not sufficient capacity in Munich, the ARRIFLEX 765 camera project got off the ground when I assured funding through an outside group of investors to set up a new R&D facility. Otto Blaschek, ARRI's chief engineer, was charged with the project and set up the new facility in Vienna. That is how ARRI Austria was started. The ARRIFLEX 765 was their first project."

The ARRI 765 made future camera developments possible. It could go to 100 fps, forward and reverse. It had a huge spinning mirror shutter that couldn't be linked mechanically as had been done in the past. Because of the large mass of the mirror, movement and the 65mm film itself, they couldn't use traditional toothed belts. This was the first camera with electronic syncing of independent motors for each of the major functions and became the basis of the ARRIFLEX 435 and other cameras to follow. The movement was a multi-link design, from which the 435 benefitted as well. Construction of the ARRIFLEX 765 began in 1985, and three years later, 1988, the cameras were ready.

Otto Blaschek added, "In most cases, earlier 65mm cameras were not completely suitable for sync sound recording. Sometimes, their noise-level was as high as approximately 50 dBA at a frame rate of 25 fps. In many cases, these cameras were also extremely heavy and bulky, so filming was not so simple and involved great efforts.

"Another problem was take-up of the wider and thus heavier film stock. There were frequent break-downs. Generally speaking, operational dependability was not guaranteed to such an extent as we are used to with today's professional 35 mm cine cameras. These were some of the reasons why there were no more 'big films' shot in the 65 mm Format during the past years. Technology was simply not perfected enough. This is where we saw our prospects."

The ARRIFLEX 765 was designed with what was described as "the user ergonomics of 35mm motion picture cameras" of the time. It weighed 70 lb. (A 35BL-4s was 32 lb.) The 765 has a standard 5-perf 65mm gate, with dual 3-claw pulldown (on each side of the film), and dual single-pin registration. This stabilizes the film to less than .1% of picture height at reasonable sound levels.

The projected image has an aspect ratio of 2.2:1, with a film negative area about 3 times larger than a 35mm anamorphic frame and 2.5 times larger than a Super35 frame.

ARRIFLEX 765 Specs

Format:	65mm - 5 perf Aspect Ratio: 2.2:1.
Mirror Shutter:	180° - 5° in 15° increments; 172.8°, 144°.
Lens Mount:	Maxi PL — 64 mm inside diameter.
FFD:	73.5 mm Flange focal depth.
Aperture:	52.50 x 23.00 mm (1.91" x 0.87").
Groundglass:	48.40 x 22.00 mm (1.91" x 0.87")
Viewfinder:	4x / 8x
Noise level:	< 25 dbA.
Video assist:	80/20, 50/59, 100% video on request..
Frame rates:	2 - 100 fps forward and reverse.
Run-up time:	0-24 fps in 1 second.
Magazines:	500' (150 m) and 1000' (300 m) displacement.
Movement:	dual 3-tooth pull down claw, dual single pin registration.
Motors:	2 crystal controlled motors: movement + shutter and 2 motors in magazine.
Power:	24 V DC.
Dimensions	(L-W-H) with 500' mag, without lens: 22.4" x 14.6" x 15.7"
Dimensions	(L-W-H) with 1000' mag, without lens: 24.8" x 14.6" x 20.9"
Weight:	≈ 70 lb (32 kg) with 500' (150 m) loaded mag, without lens

2014: 65mm Rebooted—ARRI ALEXA 65 Digital Camera

Franz Kraus, formerly Managing Director of ARRI Cinetechnik from 1997 to 2018, ARRI Film & TV Services from 1983 to 2018, and currently Advisor to ARRI, discussed the ALEXA 65 launch of September 2014:

"We wanted to build a camera for the most demanding applications in filmmaking and envisioned a true 65mm Format camera, sharing as much as possible the technology and imaging attributes of ALEXA. This consideration began shortly after the introduction of the ALEXA but materialized around 2013.

"We wanted to maintain the dynamic range, colorimetry and all the successful features of the ALEXA. But we also wanted to add as much resolution as possible and to revisit a format we already had brought to market 25 years ago with the ARRIFLEX 765. And we wanted to have a true 65mm Format sensor.

"A digital 65mm Format capture system is far less complex and expensive than the 65mm Format film version. It is more or less just the expense for the dedicated 65mm Format camera and its lenses. No expensive film stock, processing, reduction printing or scanning; only sufficient storage capacity and data handling.

"Everybody who had shot in the larger format, be it IMAX, 65mm Format or VistaVision, indulged in the beauty of the large real estate of the format. When you have more of the same good pixels it makes a difference, just as it does when you have a larger area with the same fine grain structure of film.

The target for the ALEXA 65 was to meet and surpass 65mm Format film."

ALEXA 65 Specs

Sensor type	ARRI A3X CMOS sensor
Sensor image area	54.12 x 25.58 mm (diagonal 59.86 mm)
Sensor Resolution	6560 x 3100 (maximum recordable)
Weight	10.5 kg / 23.2 lb
Size (body without mount, EVF, handle, antenna)	L: 338.7 mm / 13.3" W: 208.3 / 8.2" H: 163 mm / 6.4"
Overall length (body with XPL mount)	L: 387.8 mm / 15.3" Mount adds 49.05 mm / 1.9" to length
Power	24 VDC
Lens Mount	ARRI XPL Mount, later LPL Mount
Lens Mount Contacts	LDS
Shutter	Electronic, 5° - 358° adjustable in 1/10° increments
Frame Rate	20 - 28 fps at launch, Open Gate. Updated: 20 - 60 fps in 2015.
ISO Settings	200 - 3200 ISO. Base is 800 ISO.
Dynamic Range	>14 stops
Recording Format	Uncompressed ARRIRAW
Recorder Crop Modes	5-perf 65mm Format (full aperture, 1.78 extraction), 8-perf 35mm (36 x 24 mm)
Storage (type)	Codex XR 480GB capture drive (max 27 fps in Open Gate) Codex SXR 2TB capture drive (max 60 fps in Open Gate)
Storage (recording time)	SXR: 43 minutes @ 24 fps XR: 11 minutes @ 24 fps
Viewfinder	ALEXA EVF-1
BNC connectors	4 x 3G SDI - MON (1) Out: 2 x 3G SDI - MON (2) Out: 2 x 3G SDI
Other connectors	Focus / Iris / Zoom motor connections
	5 x RS 24V for accessories
	1 x 12V for accessories
	TC I/O (5-pin Lemo)
	1 x LDD, 2 x LCS, ACC
	BAT (pin 1: GND, pin 2: +24 VDC)
	ETHERNET, EXT (multi-pin accessory),
Monitoring	3 independent color outputs: 1. EVF LogC/709/ARRILook 2. MON (1) OUT LogC/709/ARRILook 3. MON (2) OUT LogC/709/ARRILook (All with optional overlays.) MON OUT tools: Zoom, Overscan, Overlay info, Frame Lines, False Color, Peaking

2025: ALEXA 265. Walter Trauninger.

Walter Trauninger in the ARRIAL Museum—with (right to left) the new ALEXA 265, ARRIFLEX 765 and ALEXA 65.

Walter Trauninger is the Managing Director of Arnold & Richter Cine Technik. He joined ARRI in 1986 and headed development of the ARRIFLEX 435, 235 (with its sculptural dolphin fin shaped magazine), 416, ARRICAM, ALEXA, and AMIRA cameras.

The following pages are a shortened version of the 32-page FDTimes ALEXA 265 Camera Report at: fdtimes.us/alexa265

Jon Fauer: ARRIFLEX 235 was the first camera in the first edition of FDTimes. "It's so comfortable sitting on your shoulder, you'll be reluctant to put it down," I said. The new ALEXA 265 is also impossible to resist. Please remind us about your work in the 65mm Format.

Walter Trauninger: That was one of the reasons ARRI Austria was founded in April 1986. I was assigned to the design team working on the original ARRIFLEX 765 film camera's movement and drive system. The initial goal was to run up to 100 fps, which was no small undertaking considering that the acceleration of the 65mm film loop exceeded 1,000 G. We all started by working at drawing boards, which was very cumbersome. Fortunately, I got an early IBM PC XT computer for the calculations and we introduced CAD at ARRI Austria, which enabled us to speed up the calculations from many hours to a couple of minutes.

Two years later I took over as 765 Project Manager. We announced the camera in 1989 and before long it was available to productions. A particular highlight came in 1993 with *Little Buddha*, directed by Bernardo Bertolucci and filmed by Vittorio Storaro, ASC, AIC, who used the 765 for historical flashbacks.

That's a long time to develop a camera for a format used on only a handful of films. Why did ARRI want to build the 765?

Originally, there was interest in higher frame rate acquisition, so we wanted a 65mm camera that could reliably shoot at 60 fps for an entire production. The image quality was remarkable because you didn't have motion blur. The impression was incredibly realistic, but you had to project it at 60 fps as well.

ALEXA 65 launched in September 2014—and now, 10 years later, the ALEXA 265—December 2024. Clearly there's magic in the Larger Format.

We have always wanted to make cameras offering the highest image quality to the top end of the market. The 765 was mainly used for specific scenes or sequences in films that required exceptionally high image quality, and it is still used for that today.

The ALEXA 65 taught us that if you can offer an efficient digital workflow, filmmakers want to shoot entire movies in 65mm. Once that had been proven so successfully, it made sense to stick with the format and offer a smaller, modernized camera.

Why do you think there's so much interest in the 265?

The 65mm Format is inspiring and aspirational, and the 265 is the next step forward for that format. The resolution is very high, and yet the pixels are still large. We enhanced its low-light performance, denoising algorithms, dynamic range, and above all, made it smaller and lighter and more ergonomic. The sensitivity and dynamic range are not compromised; they are improved. The ALEXA 265 offers cinematographers and directors a different perspective, a different point of view that comes with this format.

Some people wonder whether you will build new 65mm Format lenses for the 265 cameras. Signature 65 lenses would be nice.

Let's see...

What were the challenges in manufacturing the 265?

It was challenging because it is not a mass-production camera—partly because of the high manufacturing costs, and also because the market is not that big. And if you make too many cameras, it's not so special anymore.

Why is it expensive?

The revision to the sensor was a very intensive process that required a lot of resources. Also, the amortization of development costs per camera were high, given that we were only making 100 cameras.

In summary, what was the idea behind doing the 265 camera?

Our concept is to offer the best camera you can get in every capture format. The 265 reflects our commitment to the highest discipline of filmmaking by offering a versatile and fully featured camera for the 65mm Format.

David Zucker and Andrew Prior

David Zucker (above, left) is Product Manager of the ALEXA 265 camera system. Andrew Prior (above, right) is Head of Technology and Development for ARRI Rental worldwide. Both are based at ARRI's UK facility in Uxbridge, a suburb of London.

When did you start thinking about an updated 65 mm camera?

David: The ALEXA Mini came out soon after the ALEXA 65. The Mini's success pointed to where camera sizes and shapes were going. It didn't take long before cinematographers were asking for a smaller version of the ALEXA 65, especially after the ALEXA Mini LF appeared in 2019. But the technological breakthroughs of the ALEXA 35—especially cooling and power management—really made it possible for us to fit a 65mm sensor into a significantly smaller camera.

Andrew: It helped that a number of ALEXA 65 films were up for major awards around that time, so there was a lot of positive sentiment about the format. The final green light to go ahead with the project was less than two years ago.

Did cinematographers provide specific suggestions?

Andrew: Yes, the basic parameters of the project were guided by direct feedback from ALEXA 65 cinematographers, camera operators, assistants, directors, producers and crew. Over the last 10 years, we have serviced hundreds of ALEXA 65 projects across our three rental regions (US, UK and EU).

Certainly, we were aware that they all wanted a smaller 65mm camera, because many of them would carry an ALEXA Mini LF for shots requiring a more compact body. They loved the image of the ALEXA 65, but were interested in improvements like higher dynamic range, greater sensitivity and easier workflow.

How did those comments land in camera development?

David: We developed a completely new revision of the existing 65mm sensor, expanding dynamic range from 14 to 15 stops, increasing sensitivity from 3200 to 6400 EI and reducing noise. We put a lot of work into finessing the optical path of the new camera body. Reducing the amount of stray light has increased contrast and will allow for the true nature of the lens to be revealed in the image without any optical contamination.

Describe 265 recording, data wrangling and post production.

Andrew: The workflow is pretty much identical to that of the ALEXA 35. The ALEXA 265 records onto the same Codex Compact Drives as the ALEXA 35 and Mini LF. It only records ARRIRAW, and has three sensor modes: 65mm 6.5K Open Gate, 5.1K crop, and 4.5K crop (which is the familiar ALEXA Mini LF Open Gate sensor size and resolution). So, you can shoot with Large Format lenses on this camera as well.

A big priority for the project was to offer non-specialized data wrangling because we wanted to make 65mm as easy to work with as any other format. You can use any Codex Compact Drive reader or docking station, and like all ARRIRAW cameras, the ALEXA 265 is compatible with HDE.

Is the ALEXA 265's color science the same as the ALEXA 35?

David: Yes, the ALEXA 265 uses the same LogC4 workflow and the same REVEAL Color Science as ALEXA 35. We have also implemented super color matching, whereby each 265 camera matches every other 265, and aligns nicely with the ALEXA 35 and every future ARRI camera. To achieve this, the spectral response to light of every camera is profiled because there can be slight variations in color between each sensor. First with the ALEXA 35 and now with the 265, we profile those spectral responses and compensate for the tiny variations, with the result that every camera matches, making color grading easier.

Andrew: Another important point is that the ALEXA 265 also uses the same accessories that were developed by ARRI for the ALEXA 35. Combined with the smaller size and weight, it means the ALEXA 265 completely dispenses with the physical limitations that used to go hand-in-hand with bigger and heavier 65mm cameras. Now, with ALEXA 265, you have amazing image quality and you also have unrestrained creative freedom.

What have been your favorite experiences over the past 10 years of ALEXA 65 and what is special about the 65mm Format?

Andrew: The best experiences of the last 10 years have been the relationships we've built with filmmakers through the 65 camera and lens program. The format is special because of its size—the magnification and the field of view—but also because of its history and the emotional relationship filmmakers have with it.

David: That's right—this camera is the closest you're going to get to a 5-perf 65mm film frame. It comes directly out of that cinematic history. Because of its form factor and versatility, the ALEXA 265 will allow cinematographers to achieve images that have never really been seen before in 65mm. The bottom line is that we just love the format, we know that creators love the format, and we want it to continue.

Achim Oehler

Dr. Joachim (Achim) Oehler has worked on every ARRI digital camera. He was the project leader of the original ALEXA 65 camera. These days, he is Director Imaging Frontend R&D Camera Systems ARRI Group. Before ARRI, he worked as a geophysicist and planetologist doing research on digital imaging for planetary missions. Achim supervised sensor development for the ALEXA 265.

Jon: What is different about the sensor in the new ALEXA 265?

Achim Oehler: It's a revised version of the familiar ALEXA 65. We invested a significant amount of resources to revise it, so it's not just a quick fix that avoids altering the underlying layers. It can almost be thought of as a new sensor—a complete revision where you change the layout, you improve the circuits, and you redo the entire sensor with a new mask set. So, that's what it is: a real, true, revision B sensor that took a lot of work and investment, and we are very proud to have it.

Can you explain the dual-gain architecture a bit more?

You have a pixel and the pixel is read out in two passes. We call one pass high gain and the other low gain. The pixel itself delivers a signal for each of them. So, it's not just that you take one signal from the pixel and amplify it in two different ways, it's that the pixel delivers two different signals that are amplified in two different ways. And then, the sensor delivers two frames that are blended into a single frame in the processing electronics of the camera.

What is it that sets ARRI sensors apart?

One big difference is the question of whether you put A/D converters on-chip or off-chip. To put A/D converters off-chip, as we do in the ALEXA 265 and also the original ALEXA 65, is something special. We believe it's very beneficial because the thermal load from the chip is minimized since the A/D converters consume most of the power. Due to our high dynamic range architecture, we need to temperature-stabilize the sensor. The Peltier cooling for those sensors is essential. If the A/Ds are not on-chip, then they don't need to be cooled as well. It takes away thermal load from the part that you have to temperature-stabilize.

Is the sensor work and image science done in-house at ARRI? How does your team interact with the color science team?

I lead a team of 16 people at ARRI in our Imaging Front End department. We do the sensor, the front end—everything up to the linearized image. And then, this linearized and artifact-free image is sent over to the image science team members who do their magic.

Michael Göpel

Michael Göpel is a Senior Project Manager at ARRI, responsible for the ALEXA 265. He is based at ARRI's headquarters in Munich, having joined the company in 2018 after a decade spent building optical systems for space flight applications.

What was the biggest challenge for you with the ALEXA 265?

It was how to get such a big sensor into such a comparatively small body without sacrificing image quality. Our starting point was the ALEXA 35 body. Next, we worked on finding ways to make the 65mm Format sensor and everything else fit.

Workflow was the second big challenge. We wanted to get rid of the need for any external device, like the Vault, which meant doing all the image processing inside the camera. We had to ensure that the sensor would deliver a very good image that didn't need post-processing. Furthermore, we developed a new processing board for the camera using different technology with lower power consumption. So, the ALEXA 265 is not power-hungry at all. In fact, its power consumption is less than the ALEXA 35.

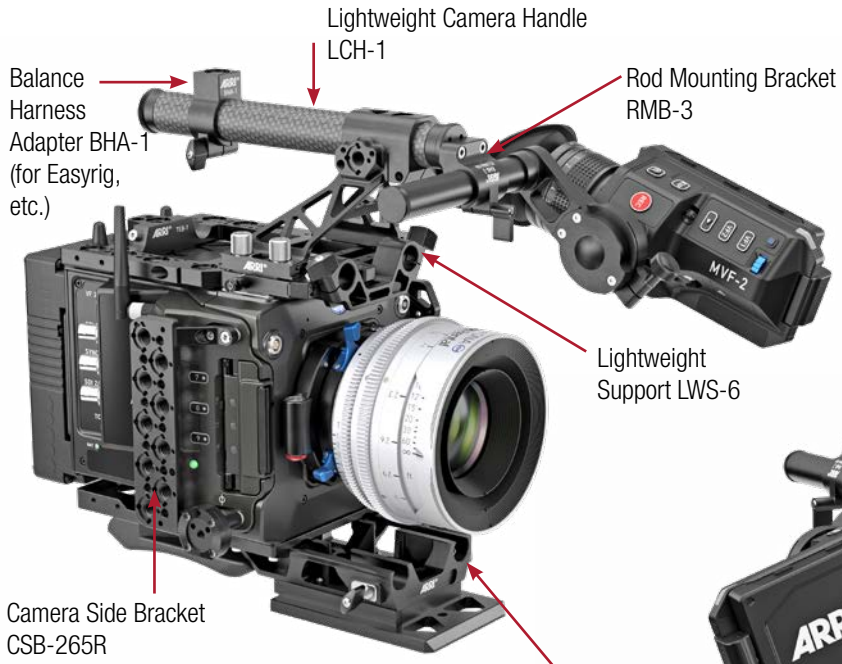
Is it a totally new processor?

It's a new FPGA. This also helped to make the camera a bit smaller overall. That was very successful. The ALEXA 265 is only 4 mm longer and 11 mm wider than the ALEXA 35, which means that all the same accessories can be used, with the exception of one side bracket. We want to enable users to be more creative without the burden of too many new things. Keep it simple.

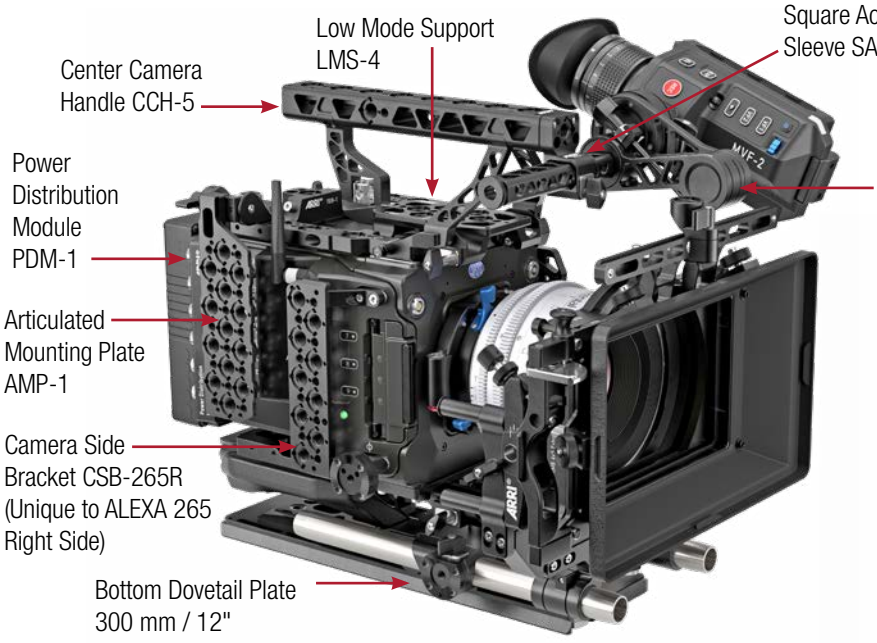
Why did you decide on the new filter cartridge system rather than the internal ND filter slider of the ALEXA Mini LF?

The ALEXA 65 had the Internal Filter Module (IFM) option. You had to insert the ND filters from the front, with the lens removed. We wanted to move on from that. A mechanical slider system with a couple of filter stages would have been an option, but the more we looked at it, the more flexibility we wanted. We knew from speaking to cinematographers that they wanted NDs in single stops all the way from ND.3 up to ND2.7, and a cartridge system could achieve that. Once we hit on the filter cartridge concept, it grew, with more people contributing ideas. One of the first DPs who saw it immediately opened the filter cartridge door and started shining a flashlight inside to see what it did to the image. We hadn't even tried that ourselves. There are all kinds of possibilities for the future; it's a very expandable system.

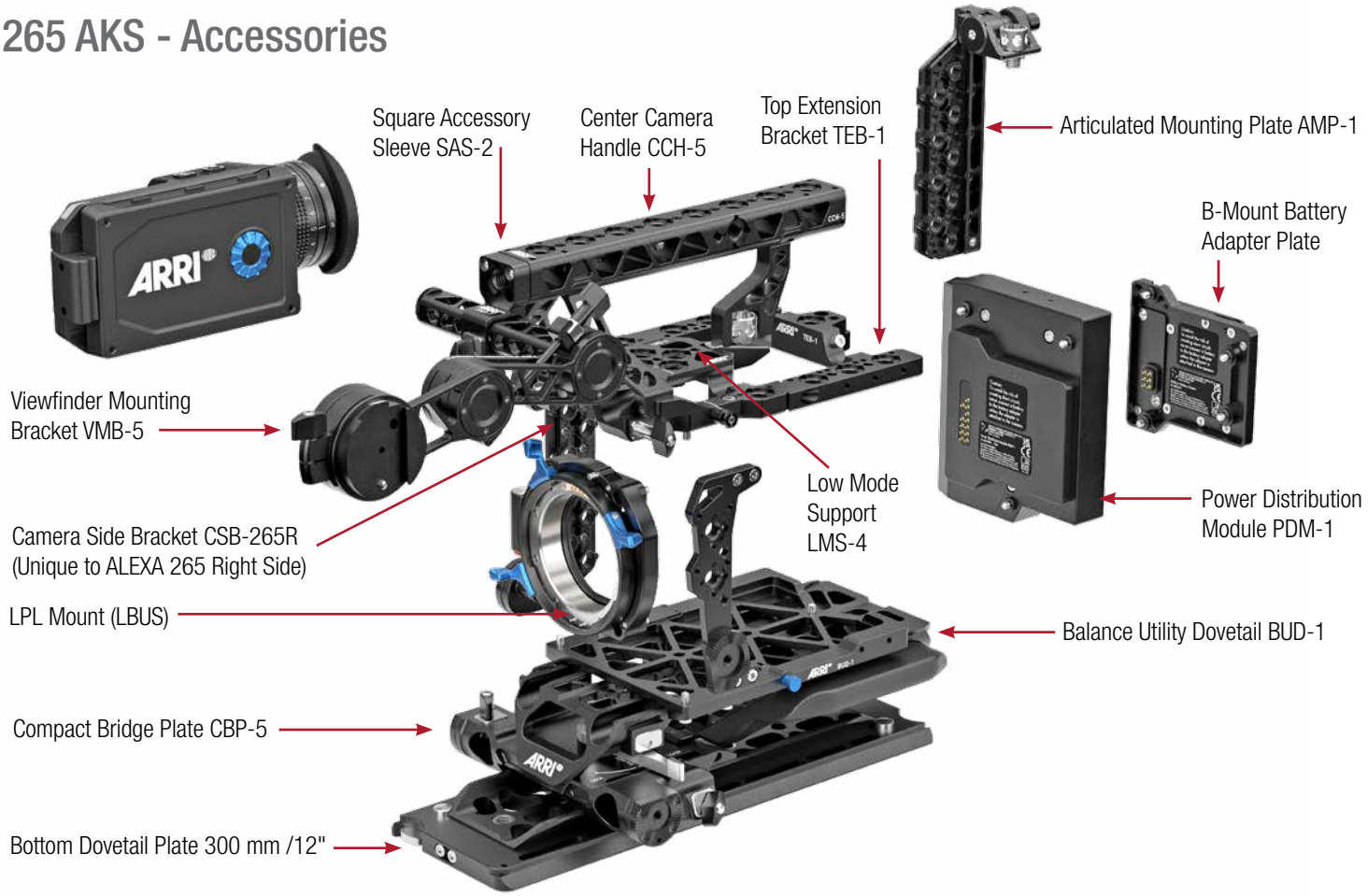
ALEXA 265 Handheld Setup



ALEXA 265 Studio Setup



265 AKS - Accessories



265 Filter Cartridge

You may ask, "Why doesn't the 265 have an ND filter wheel or slider system?"

Look inside and peer at the enormous 65mm Format sensor. Oh, internal filters would add a lot more real estate.

The 265 Filter Cartridge System is clever. Open its door on the camera left side. Insert the Filter Cartridge.

It's a lot easier and faster than attaching a filter to the rear of a lens. Clearly, you are asking for more than NDs. You are thinking of effect filters, and little LED Varicons. And what about a small, electronically variable ND?

Filter Cartridge Access Door is weather-sealed to keep dust and spray out.

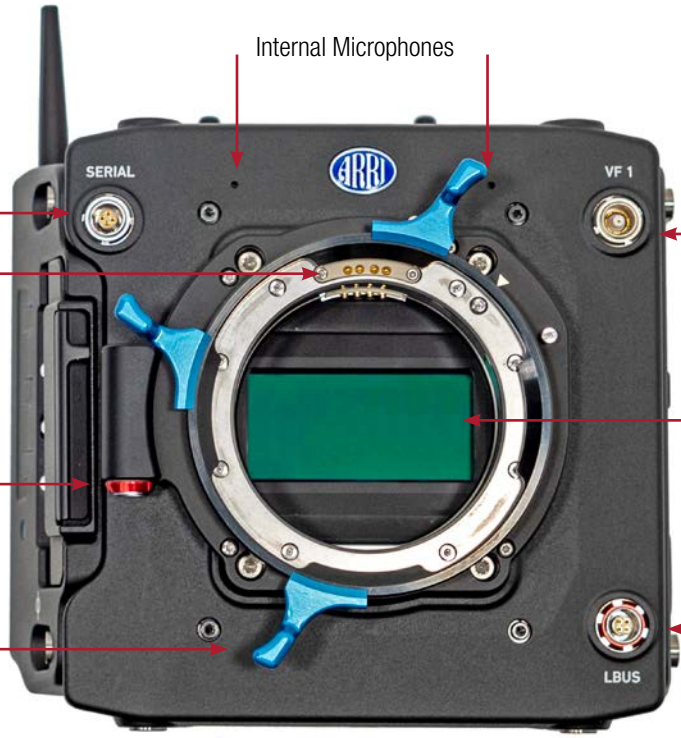
Filter Cartridge inside: here's an ND1.2.

ALEXA 265 camera records metadata from the Filter Cartridge and can displays it live on monitors.

Filter Cartridge removed.

ALEXA 265 Camera Views

Front



Camera Left

ALEXA 265 Camera Views

Camera Right

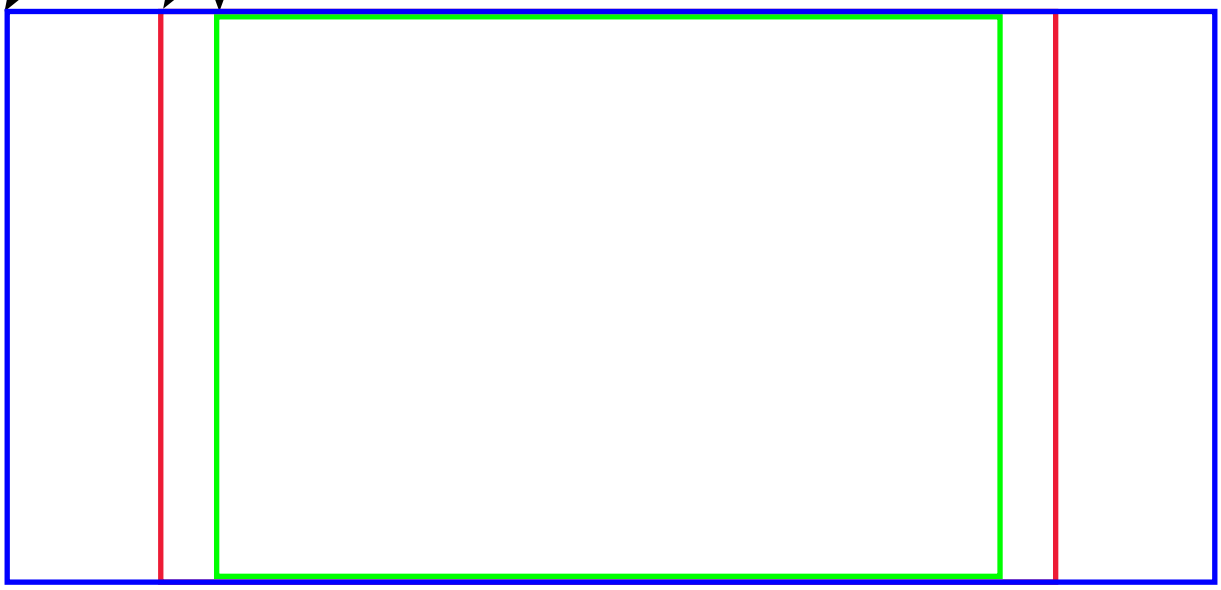
Rear

ALEXA 265 — 3 Sensor Modes

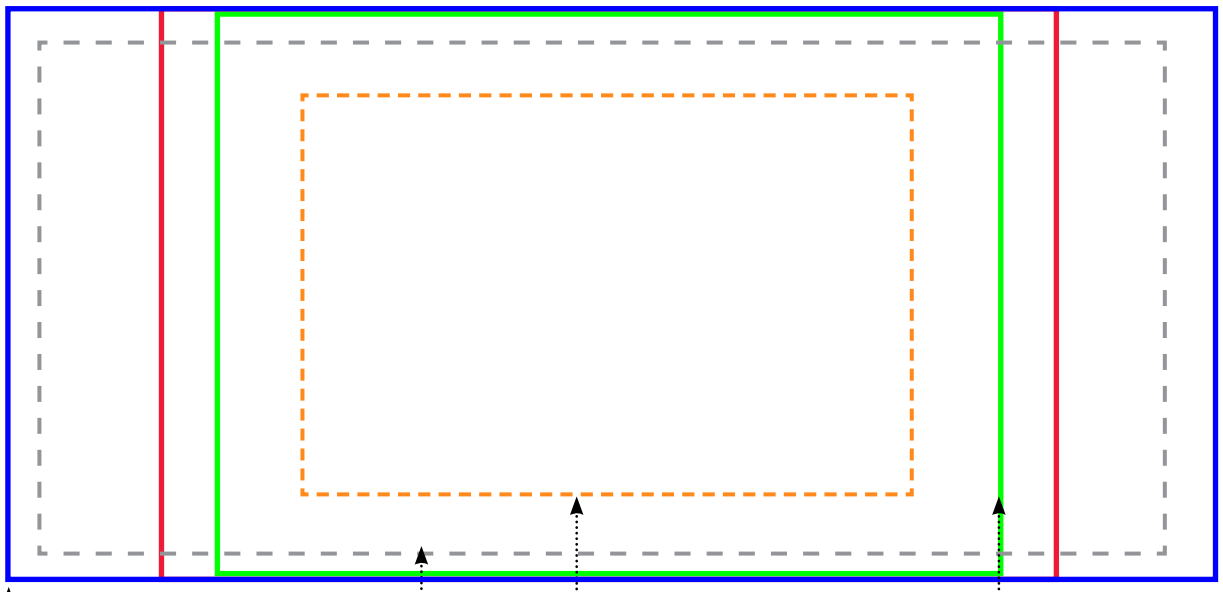
ALEXA 265 6.5K Open Gate
6560 x 3100 photosites
54.12 x 25.58 mm
2.12:1 aspect ratio
59.86 mm Ø
0.75 - 60 fps

ALEXA 265 5.1K
5120 x 3100 photosites
42.24 x 25.58 mm
1.65:1 aspect ratio
49.38 mm Ø
0.75 - 60 fps

ALEXA 265 4.5K
4448 x 3096 photosites
36.70 x 25.54 mm
1.44:1 aspect ratio
44.71 mm Ø
0.75 - 60 fps
(Same sensor area and resolution as ALEXA Mini LF; however Mini LF top speed is 40 fps in Open Gate.)



ALEXA 265 compared to ARRIFLEX 765, ALEXA Mini & Mini LF



ALEXA 265 6.5K Open Gate
54.12 x 25.58 mm
(6560 x 3100)
2.12:1 aspect ratio
59.86 mm Ø

ARRI 765 film camera
52.5 x 23.0 mm
2.28:1 aspect ratio
57 mm Ø

ALEXA Mini (Super35)
28.25 x 18.17 mm
(3424 x 2202)
1.55:1 aspect ratio
33.59 mm Ø

ALEXA Mini LF
36.70 x 25.54 mm
(4448 x 3096)
1.44:1 aspect ratio
44.71 mm Ø

ALEXA 265 Framelines

All 3 Sensor Modes of ALEXA 265 have similar standard framelines in camera.

ALEXA 265 6.5K Open Gate

6560 x 3100 px
54.12 x 25.58 mm
2.12:1 aspect ratio
59.86 mm Ø
0.75 - 60 fps

Std. Framelines

2.39:1	1.85:1
2.20:1	1.78:1
2.00:1	1.43:1
1.90:1	

ALEXA 265 5.1K

5120 x 3100 px
42.24 x 25.58 mm
1.65:1 aspect ratio
49.38 mm Ø
0.75 - 60 fps

Std. Framelines

2.39:1	1.85:1
2.20:1	1.78:1
2.00:1	1.43:1
1.90:1	

ALEXA 265 4.5K

4448 x 3096 px
36.70 x 25.54 mm
1.44:1 aspect ratio
44.71 mm Ø
0.75 - 60 fps

Std. Framelines

2.39:1	1.85:1
2.20:1	1.78:1
2.00:1	1.43:1
1.90:1	

Want More?

Create your own with ARRI's online Frame Line & Lens Illumination Tool (FLLIT): *tools.arri.com/flt*

ALEXA 265 Partial List of Specs

Sensor	6560 x 3100 photosites. 54.12 x 25.58 mm. 59.86 mm Ø. 65mm Format ARRI A3X Rev.B CMOS sensor with Bayer pattern color filter array. 8.25 µm photosite pitch. Optical low pass, UV, IR filter.
Frame Rates	Sensor: 0.75 - 60 fps. Project: 23.976, 24, 25, 29.97, 30, 48, 50, 59.94, 60 fps
Camera Weight	3.3 kg / 7.3 lb (camera body with three antennas and LPL Mount (LBUS))
Camera Size	147 x 163.3 x 191.4 mm / 5.79 x 6.43 x 7.54 in (HxWxL camera body with LPL lens mount)

Sensor Modes	**Active Image Area (Dimensions)**	**Image Circle Diameter (Ø)**	**Active Image Area (Photosites)**	**Recording Resolution (Pixels)**	**Top Speed Maximim fps (ARRIRAW)**
6.5K Open Gate 2.12:1	54.12 x 25.58 mm	59.86 mm	6560 x 3100	6560 x 3100	1TB: 29 fps 2TB: 60 fps
5.1K 1.65:1	42.24 x 25.58 mm	49.38 mm	5120 x 3100	5120 x 3100	1TB: 37 fps 2TB: 60 fps
4.5K LF 1.44:1	36.7 x 25.54 mm	44.71 mm	4448 x 3096	4448 x 3096	1TB: 43 fps 2TB: 60 fps

Exposure	Adjustable from EI 160 - 6400 in 1/3 stops. Dynamic Range: 15 stops
Shutter	Electronic shutter, 5.0°- 358° or 1s - 1/8000s
Recording Codec	MXF/ARRIRAW (ARRIRAW is recorded as MXF files, as with ALEXA 35.)
Recording Media	Codex Compact Drive 1TB (CA08-1024), Codex Compact Drive 2TB (CB16-2048)
Viewfinder	MVF-2 (Multi Viewfinder) OLED 1920 x 1080 EVF, and 4" LCD 800 x 480 flip-out monitor. Same as ALEXA 35. Viewfinder diopter is adjustable from -5 to +5.
Color Output	Rec 709, Rec 2020, Rec 2100 PQ, Rec 2100 HLG, LogC4
Look Control	Custom color look (ARRI Look File ALF4 or Look Library), Custom Color Management
White Balance	Manual and auto white balance, adjustable from 2,000K to 11,000K. Color correction from -16 to +16 CC (1 CC = to 1/8 Rosco Plus and Minus Green).
Filters	Drop-in Filter Cartridge System with filter identification
Anamorphic Squeeze	1.00, 1.25, 1.30, 1.33, 1.50, 1.65, 1.80, 1.85, 2.00, 1.30 Vertical, 1.33 Vertical, 1.50 Vertical
Lens Mounts and Adapters	ARRI LPL Mount (with LBUS), LPL-to-PL, PL Mount (with LBUS), PL Mount (with Hirose) EF Mount (with LBUS), Leitz M Mount for ARRI.
Flange Focal Depth	LPL Mount: 44 mm. PL mount: 52 mm.
Power Consumption	20.5 V - 33.6 V DC. ~75 W (camera body with MVF-2 viewfinder).
Power Inputs	PWR — LEMO 8-pin for external power. BAT — interface at rear for onboard battery plate
Power Outputs	1x RS Fischer 3-pin 24 V, remote start/stop and shutter pulse. 1x 12 V LEMO 2-pin. 1x LBUS — LEMO 4-pin with 24 V power out. 1x AUDIO LEMO 6-pin can provide 12 V. 1x ETH — LEMO 10-pin has 24 V accessory power out. PDM-1 Power Distribution Module acccessory attaches to the rear of the camera, provides 4x 24 V, 2x 12 V, 1x D-Tap and B-mount battery plate.
Image Outputs	2x VF CoaXPress for MVF-2 viewfinder and CCM-1 Monitor. 2x 12G SDI BNC: 422 1.5G HD; 422 3G HD; 444 3G HD; 422 6G UHD; 422 12G UHD; 444 12G UHD.
Remote Control	Camera Companion App. ARRI Electronic Control System (ECS). Web-based via WiFi & Ethernet. Camera Access Protocol (CAP) via WiFi & Ethernet GPIO interface for integration with custom control interfaces

ALEXA 265 dimensions compared with ALEXA 65

ALEXA 265

191.4 mm / 7.54"

63.3 mm / 6.43"

147 mm
5.79"

ALEXA 65

387.8 mm / 5.27"

208.29 mm / 8.20"

163 mm
6.42"

Cooke Panchro 65/i Lens Series

This is an update on our previously reported announcement of Cooke Optics Panchro 65/i Lens Series for 65mm Format digital cinema cameras.

As Danny Haikin, Chief Commercial Officer at Cooke Optics, explained, "An increasing number of camera manufacturers are embracing the 65mm Format."

Yes they are.

Blackmagic URSA Cine 17K 65 was shown under glass at Cine Gear in June and out in the open at IBC in September.

ARRI ALEXA 265 arrived in New York on December 7.

FUJIFILM GFX ETERNA was shown under glass at InterBEE Japan the day after Cooke announced Panchro 65/i.

Danny continues, "As such, Cooke is pleased to provide filmmakers with the Panchro 65/i series, which brings the signature Panchro look to even larger formats and widens the lens options available to productions that are embracing this impressive capture method.

This lens series is inspired by the legendary Speed Panchro line, beloved by filmmakers since the 1930s, now reimagined for modern larger format cinematography. Cooke has carefully crafted the Panchro 65/i lenses to preserve the unique aesthetic qualities of the Panchro line.

"Aberrations are skillfully integrated into the optical design, delivering that classic Panchro feel across a much larger image circle to meet the demands of this larger format."

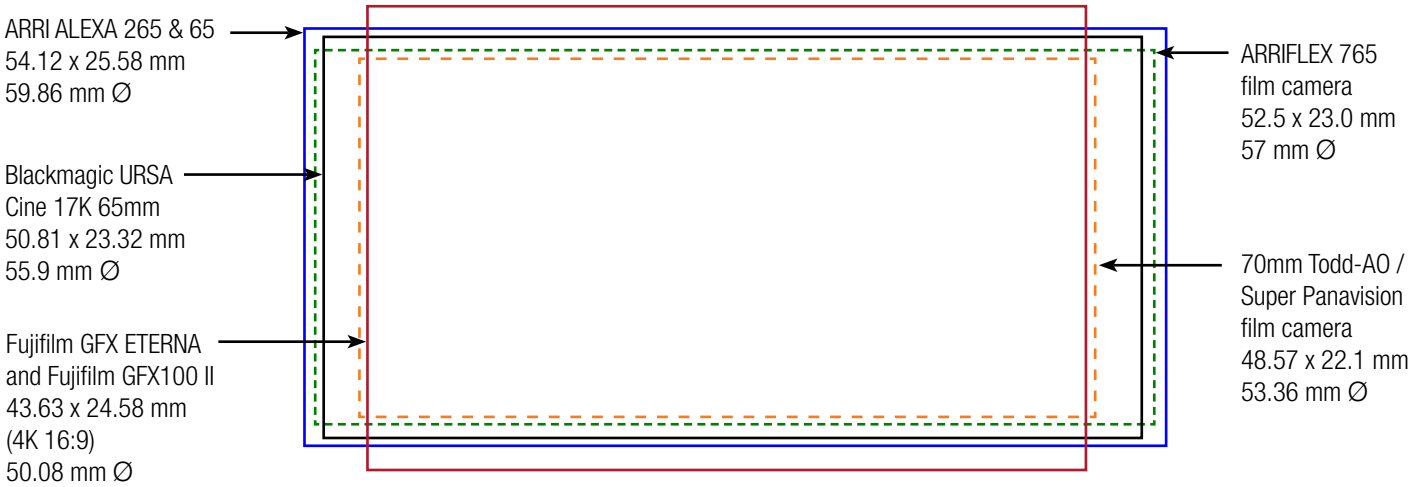
6 Focal Lengths

The Panchro 65/i series will include six focal lengths: 30mm T2.8, 40mm T2.8, 55mm T2.5, 75mm T2.5, 100mm T2.5, and 152mm T2.9.

They all stop down to T22 and are equipped with Cooke's latest /i technology. The Panchro 65/i series is lightweight across the range (1.8 kg to 2.3 kg).

cookeoptics.com

65mm and Larger Format Sizes



Field of View — More Math: Comparable Lenses for Same Angle of View

To compare comparable focal lengths (if the sensor proportions are similar), divide the sensor diagonal of the 65mm Format Larger Format camera by a Full Frame camera's 43.27 mm sensor diagonal. (e.g. 59.86 ÷ 43.27 = 1.38 ratio.) It's OK to round out the numbers, so 60 ÷ 43 = 1.4.

Then, divide the focal length of a 65mm Format lens by 1.4 to find the comparable Full Frame/Large Format focal length.

Or, multiply the Full Frame focal length by 1.4 to find the comparable 65mm Format focal length.

For example, a 30mm Cooke Panchro 65/i lens would result in an angle of view slightly wider than the Cooke S8/i 21mm on a Full Frame camera.

Cooke Panchro 65/i Lens Series

Focal Length	**30 mm**	**40 mm**	**55 mm**	**75 mm**	**100 mm**	**152 mm**
T-Stop range	T2.8 - T22	T2.8 - T22	T2.5 - T22	T2.5 - T22	T2.5 - T22	T2.9 - T22
Angular rotation of iris scale	90°	90°	90°	90°	90°	90°
Min. marked object distance	400 mm	450 mm	500 mm	600 mm	700 mm	1300 mm
	16 in	18 in	20 in	2 ft	2 ft 3 in	4 ft 3 in
Close focus from lens front	199 mm	262 mm	317 mm	412 mm	475 mm	TBC
	7.8 in	10.3 in	13.0 in	16.2 in	18.7 in	TBC
Angular rotation of focus scale ∞ to MOD endstop	270	270°	270°	270°	270°	270°
Length from front of lens to lens mount (LPL)	157 mm	144 mm	139 mm	144 mm	166 mm	TBC
	6.2 in	5.6 in	5.5 in	5.6 in	6.5 in	TBC
Max. front diameter	125 mm	110 mm	110 mm	110 mm	110 mm	110 mm
	4.9 in	4.3 in	4.3 in	4.3 in	4.3 in	4.3in
Max. diagonal angle of view for 65mm Format (ALEXA 265: 54.12 x 25.58 mm. 59.86 mm diagonal)	90.2°	74.5°	56.9°	44.2°	33.6°	22.5°
Max. diagonal angle of view for FF format (36 x 24 mm. 43.27 mm diagonal)	71.4°	57.1°	43.1°	32.6°	24.6°	16.3°
Max. diagonal angle of view for S35 format (24 x 18 mm. 30 mm diagonal)	52.5°	41.0°	30.7°	22.9°	17.2°	11.7°
Total weight (with lens mount)	2.3 kg TBC	1.8 kg	1.8 kg TBC	1.7 kg TBC	1.8 kg TBC	TBC
	5.0 lbs TBC	4.2 lbs TBC	4.0 lbs TBC	3.7 lbs TBC	4.0 lbs TBC	TBC

Maximum format cover	ALEXA 265, 54.12 x 25.58 mm = 59.86 mm diagonal
Focus scales	Dual Focus scales - Imperial and Metric, scales marked from infinity to MOD
Focus drive gear	140 teeth 0.8 metric module
Iris scales	Two opposing linear T-scales – whole and third stops marked
Iris drive gear	134 teeth 0.8 metric module
Screw-in filter	M105 x 0.75 (Only designs so far are 40/55/75/100 - Not for 30. All other TBC)
Mount	LPL

These are preliminary specifications, subject to change, and my errors may abound.

Focal Length — Math: Same Lens on a 65mm Format, FF or S35 Camera

The math that confounds, especially at 2 am when you're in quadruple plutonium time overtime, is about using the same lens on a 65mm, Full Frame or Super35 Camera. For example, in the chart above, a 30mm lens is always a 30mm lens, no matter what camera you put it on. So, it has a wide 90.2° angle of view in 65mm Format. The Full Frame camera has a smaller sensor, so the very wide angle of that previous 65mm camera is essentially cropped in Full Frame and no longer looks extremely wide. And then, on a Super35 camera, you wouldn't think of a 30mm lens as being wide angle.

Blackmagic URSA Cine 17K 65

This is an update from previous Blackmagic URSA Cine 17K 65 sightings and FDTimes reports.

A Blackmagic URSA Cine 17K 65mm Format was under glass at Cine Gear and emerged in the open at IBC. It was quickly clear that this was a serious camera, carefully conceived, rugged for rentals, affordable to buy, with excellent images and an entirely new way to look at the big picture. It is lightweight, well-balanced, made of magnesium and carbon fiber.

Camera crews and rental managers lined up for hands-on time. Lens makers and lensmongers jockeyed for position to see how theirs looked, fit or covered.

New 65mm Format lenses are announced in this edition. More are coming.

USRA 65 has a new 65mm Format RGBW 17,520 x 8,040 resolution sensor. (50.81 x 23.32 mm, 55.9 mm Ø.) That's a native aspect ratio of 2.2:1. Crop the sides for 2:1, on top for 2.39:1, or anywhere you like. The sensor's OPLF (optical low pass filter) has improved IR filtering for a better red color response.

This new sensor builds on Blackmagic's designs that went into their URSA Mini Pro 12K (Super35) and URSA Cine 12K LF (Full Frame) cameras. The URSA 65 has large, sensitive photosites that provide at least 16 stops of dynamic range.

- The camera comes with interchangeable PL, LPL and Hasselblad lens mounts with metadata contacts.
- 3-pin Fischer RS Remote Start-Stop and 24V 2A in front.
- Also in front, a 7-pin LEMO for Start-Stop and Serial connection—also provides 24V 2A.
- USB-C port in front supplies power and video to EVF.
- At the rear: 2-pin LEMO 12V 1.5A for accessories.
- 12G-SDI out, 10G Ethernet, USB-C, XLR audio connectors at the rear.
- 8-pin Lemo power connector at rear for external 24V and 12V (24V recommended.)
- Onboard B-mount (Bebob style) battery plate comes with the camera for batteries from Bebob, Core SWX, IDX, Blueshape. Other battery plates are in the works.

There's a 5" HDR LCD fold-out touchscreen monitor on the camera left side. On the camera right side, there's a second 5" HDR touchscreen monitor that includes a helpfully dedicated focus puller's mode.

URSA 65 records to an included Blackmagic Media Module 8TB—up to 4 hours of Blackmagic RAW in 17K using the full height, full width 65mm Format sensor, or 20 hours in 4K. Blackmagic RAW files store camera metadata, lens data, white balance, digital slate information and custom LUTs.

Every camera is pre-installed with a PL lens mount and comes with an 8TB Media Module. Also included: top handle, WiFi antennas, baseplate, 24V power supply, 24V B-mount battery plate. A lovely, custom Pelican case is also included.

Blackmagic URSA Cine 17K 65 is US$29,995, excluding tax. Blackmagic URSA Cine 17K 65 with EVF will be US$31,495.

Blackmagic URSA Cine 17K 65

- Sensor Size: 50.81 mm x 23.32 mm (65mm Format)
- Pixel Pitch: 2.9 microns
- Lens Mount: PL mount. URSA Cine Mount LPL included.
- Dynamic Range: 16 Stops
- 2 Monitor Displays: 5" swing-away on left side, fixed on right. 1920 x 1080 Resolution. 1500 nits. LCD capacitive touchscreen.
- 1 Camera Status Display on left side.
- Electronic Viewfinder: Full 1920 x 1080. 6.22 Million dot OLED.

i/Technology with compatible PL, LPL lenses and electronic EF and Hasselblad HC lenses when using optional EF lens mount or HC lens mount.

Blackmagic URSA Cine 17K 65 — Formats, Aspect Ratios, Image Size, etc.

Format		Aspect Ratio	Max FPS	Resolution	Sensor Size WxH (mm)	Diagonal (mm)	Sensor area	Full or Scaled	Codec	Con-stant Bitrate	Constant Quality	De-squeeze
65mm Format	17K	2.2:1	60	17,520 x 8,040	50.81 x 23.32	55.90	Open Gate	Pixel for pixel	Black-magic RAW	3:1, 8:1, 12:1, 18:1	Q0, Q1, Q3, Q5	None 1.3x 1.5x 1.6x 1.66 1.8x 2.0x
	17K	2.4:1	60	17,520 x 7,296	50.81 x 21.16	55.04	Full Width					
	17K	2:1	60	16,128 x 8,040	46.77 x 23.32	52.26	Full Height					
	17K	17:9	60	15,360 x 8,040	44.54 x 23.32	50.28	Full Height					
	17K	16:9	60	14,304 x 8,040	41.48 x 23.32	47.59	Full Height					
Full Frame (LF)	12K	3:2	60	12,288 x 8,040	35.64 x 23.32	42.59	Full Height	Pixel for pixel	Black-magic RAW	3:1, 8:1, 12:1, 18:1	Q0, Q1, Q3, Q5	
	12K	16:9	70	12,288 x 6,912	35.64 x 20.04	40.89	Cropped					
	12K	17:9	72	12,288 x 6,480	35.64 x 18.79	40.28	Cropped					
	12K	2.4:1	90	12,288 x 5,112	35.64 x 14.82	38.60	Cropped					
	12K	6:5	60	9,648 x 8,040	27.98 x 23.32	36.42	Full Height					
65mm Format	8K	2.2:1	100	11,680 x 5,360	50.81 x 23.32	55.90	Open Gate	Scaled	Black-magic RAW	3:1, 5:1, 8:1, 12:1	Q0, Q1, Q3, Q5	
	8K	2:1	100	10,752 x 5,360	46.77 x 23.32	52.26	Full Height					
Full Frame (LF)	8K	3:2	100	8,192 x 5,360	35.64 x 23.32	42.59	Full Height					
	8K	16:9	120	8,192 x 4,608	35.64 x 20.04	40.89	Cropped					
	8K	17:9	130	8,192 x 4,320	35.64 x 18.79	40.28	Cropped					
	8K	2.4:1	170	8,192 x 3,408	35.64 x 14.82	38.60	Cropped					
65mm Format	4K	2.2:1	100	5,840 x 2,680	50.81 x 23.32	55.90	Open Gate	Scaled	Black-magic RAW	3:1, 4:1, 5:1, 6:1	Q0, Q1, Q3, Q5	
	4K	2:1	100	5,376 x 2,680	46.77 x 23.32	52.26	Full Height					
Full Frame (LF)	4K	3:2	100	4,096 x 2,680	35.64 x 23.32	42.59	Full Height					
	4K	16:9	120	4,096 x 2,304	35.64 x 20.04	40.89	Full Width					
	4K	17:9	130	4,096 x 2,160	35.64 x 18.79	40.28	Full Width					
	4K	2.4:1	170	4,096 x 1,704	35.64 x 14.82	38.60	Full Width					

Blackmagic URSA Cine 17K 65 — Formats

Press the Menu button to open Camera Dashboard (starboard and port sides).

The top line is sensor mode: 17K, 12K, 8K or 4K.

The next line lets you pick the aspect ratio and resolution within each sensor mode.

The bottom line decides whether Blackmagic RAW is recorded at Constant Bitrate or Constant Quality.

(We like Constant Quality 3:1).

17K (65 Format) Sensor Mode

Aspect Ratio	Resolution	Sensor Size WxH (mm)	Ø (mm)
2.2:1	17,520 x 8,040	50.81 x 23.32	55.90
2:1	16,128 x 8,040	46.77 x 23.32	52.26
17:9	15,360 x 8,040	44.54 x 23.32	50.28
16:9	14,304 x 8,040	41.48 x 23.32	47.59
2.4:1	17,520 x 7,296	50.81 x 21.16	55.04

12K (Full Frame) Sensor Mode

Downscaled from 17K to match URSA Cine 12K LF

Aspect Ratio	Resolution	Sensor Size WxH (mm)	Ø (mm)
3:2	12,288 x 8,040	35.64 x 23.32	42.59
6:5	9,648 x 8,040	27.98 x 23.32	36.42
2.4:1	12,288 x 5,112	35.64 x 14.82	38.60
17:9	12,288 x 6,480	35.64 x 18.79	40.28
16:9	12,288 x 6,912	35.64 x 20.04	40.89

Blackmagic URSA Cine 17K 65 — Formats

8K Sensor Mode - 65 Format Width
8K Downscaled from 17K, Common Height

11,680 x 5,360	(8K 2.2:1) Open Gate (Full Width & Full Height)
10,752 x 5,360	(8K 2:1) Full Height

Aspect Ratio	Resolution	Sensor Size WxH (mm)	Ø (mm)
2.2:1	11,680 x 5,360	50.81 x 23.32	55.90
2:1	10,752 x 5,360	46.77 x 23.32	52.26

8K Sensor Mode - FF Format Width
8K Windowed (Cropped), Common Width

Aspect Ratio	Resolution	Sensor Size WxH (mm)	Ø (mm)
3:2	8,192 x 5,360	35.64 x 23.32	42.59
2.4:1	8,192 x 3,408	35.64 x 14.82	38.60
17:9	8,192 x 4,320	35.64 x 18.79	40.28
16:9	8,192 x 4,608	35.64 x 20.04	40.89

4K Sensor Mode - 65 Format Width
8K Downscaled from 17K, Common Height

5,840 x 2,680	(4K 2.2:1) Open Gate (Full Height & Full Width)
5,376 x 2680	(4K 2:1) Full Height

Aspect Ratio	Resolution	Sensor Size WxH (mm)	Ø (mm)
2.2:1	5,840 x 2,680	50.81 x 23.32	55.90
2:1	5,376 x 2,680	46.77 x 23.32	52.26

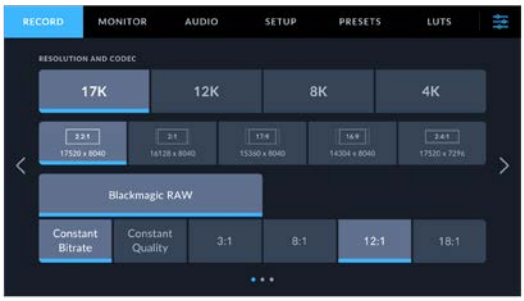
4K Sensor Mode - FF Format Width
4K Windowed (Cropped), Common Width

Aspect Ratio	Resolution	Sensor Size WxH (mm)	Ø (mm)
3:2	4,096 x 2,680	35.64 x 23.32	42.59
2.4:1	4,096 x 1,704	35.64 x 14.82	38.60
17:9	4,096 x 2,160	35.64 x 18.79	40.28
16:9	4,096 x 2,304	35.64 x 20.04	40.89

Blackmagic Camera Menus and Style

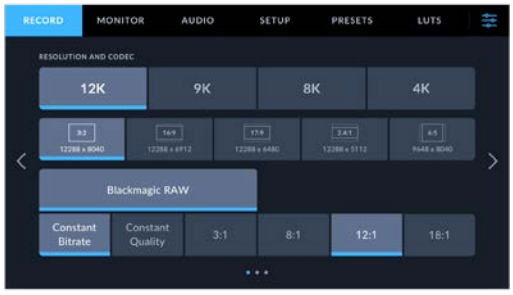
See the similarities of style and menu structure in the Blackmagic family of cameras: URSA 17K 65mm, URSA 12K LF, and PYXIS 6K LF.

Blackmagic URSA Cine 17K 65mm Camera



URSA Cine 17K 65
with LPL mount
Sensor size: 50.81 x 23.32 mm
Diagonal: 55.91 mm

Blackmagic URSA Cine 12K LF Camera



URSA Cine 12K LF
with PL mount
Sensor size: 35.64 x 23.32 mm
Diagonal: 42.59 mm

Blackmagic PYXIS 6K LF Camera

PYXIS 6K
with L-Mount
Sensor size: 35.93 x 23.95 mm
Diagonal: 43.18 mm

Blackmagic PYXIS 6K

Blackmagic Design continues to encourage eclectic cine setups—from micro to mini, MFT to Full Frame to 65—cameras that fit in a pocket, on the shoulder or as a full chockers studio rig.

PYXIS 6K is the fairest of them all, a Bauhaus box, cute cube of a camera with an L-Mount in front and enough mounting points to please even the most demanding AC or race-car rigger.

The Blackmagic PYXIS 6K has a 36x24mm Full Frame 6K sensor with 13 stops of dynamic range. It records Blackmagic RAW up to 6048 x 4032 resolution, covering the entire full-height, full-width (Open Gate) 3:2 sensor area onto internal CFexpress cards.

Specifications inside are similar to the Blackmagic Cinema Camera 6K. Outside is where things are quite different. The Cinema Camera 6K looks and feels like a large hybrid mirrorless video/still camera with a rear tilting monitor, the camera to take when you want to be unobtrusive.

The PYXIS is what you want when mounting to gimbals, drones, cars, remote heads and pretty much anything else that benefits from its multitude of ¼-20 and ⅜-16 threaded mounts on top and bottom. Its lightweight, rugged and compact body is made from CNC machined aluminum.

PYXIS is everything you want if you had wished the Cinema Camera 6K came in a cube. PYXIS 6K comes in three models: L-Mount, PL or Locking EF. The L-Mount version is the most versatile because it accepts L-to-PL, L-to-EF adapters, and L-to-almost-anything-else adapters.

PYXIS 6K is available from US $2,995.
blackmagicdesign.com/products/blackmagicpyxis

Blackmagic PYXIS 6K camera body
4.69 in high x 4.17 in wide x 5.94 in deep

PYXIS 6K Details

- 36 x 24mm Full Frame 6K sensor with optical low pass filter.
- Open Gate 3:2 6048 x 4032 up to 36 fps.
- 6K DCI 17:9 6048 x 3200 up to 48 fps.
- Full height 6:5 4832 x 4032 Anamorphic 6:5 up to 36 fps.
- Super35 4:3 4096 x 3072 up to 50 fps.
- Super 35 4K DCI 17:9 4096 x 2160 up to 60 fps
- Super16 16:9 2112 x 1184 up to 100 fps
- Choice of L-Mount, PL or locking EF lens mount.
- Built-in 4” 1920 x 1080 HDR 1500 nit LCD screen.
- Dual native ISO 400 and 3200.
- Records Blackmagic RAW and H.264 proxies.
- Dual CFexpress card recording.
- 12G-SDI for monitoring with status overlay.
- Mini XLR audio input with 48 volt phantom power.
- Uses high capacity BP-U series batteries.
- Camera comes with Standard Right Side Plate, Right Side SSD plate, 60W power supply, DaVinci Resolve Studio activation key.

Highly recommended accessories:

- URSA Cine EVF,
- PYXIS Monitor Kit,
- URSA Cine Handle,
- PYXIS Rosette Plate.

Blackmagic PYXIS 6K camera
with Top Handle, EVF, L-Mounted SIGMA Prime Lens,
Onboard IDX SB-U50 (BP-U style) 14.4 V Battery

Blackmagic PYXIS 6K

Port Side with Monitor / Menu Display

Front with L-Mount

Starboard

Rear

Top

Bottom

Q&A with Kristian Lam, Senior Product Manager, Blackmagic Design

Jon Fauer: Where and how did you get the PYXIS name? Pixie…picture…?

Kristian Lam: Just as URSA is the name of a constellation, PYXIS is also named after a minor constellation in the southern sky. PYXIS also means "small box" in Latin, which we thought was a nice coincidence and cheeky word play given that this is a box style camera.

I like the L-Mount very much. How is it being accepted — hopefully great?

Our L-Mount adoption has been really great and very well received by our customers. Not only does this allow our customers access to all these brilliant modern L-Mount lenses from Leica, SIGMA and Panasonic, but the short focal distance means that customers can adapt all kinds of older vintage lenses they have in their collections and use them on a modern, high-resolution camera.

I remember you're the one who introduced me to Dr. Andreas Kaufmann at Leica Camera back in 2019, so in no small part thanks to you as that conversation and introduction eventually led us to becoming a member of the L-Mount Alliance.

Can you use any USB-C cable for the EVF/Monitor?

Technically, the "viewfinder" port outputs a DisplayPort signal, so we recommend using a DisplayPort compatible USB-C cable.

Up to what length can you run the PYXIS monitor remotely via USB-C — like on a remote head / crane?

While we have not tested any extremely long cable runs, there's no reason it would not work. Longer run cables usually have signal amplifiers and repeaters that will help maintain signal integrity over longer distances.

Theoretically, if someone made a PL to L Mount adapter with /i data pass-through (maybe Leitz?) could the PYXIS record that lens metadata?

Sure, and that's the beauty of Blackmagic OS. Since we write our own operating system for the cameras that we build, we can easily add new features to deal with pretty much any protocol that comes along. Given that we already deal with /i data on our other cameras, and even on the PYXIS 6K PL mount, we already have the know-how should it eventuate.

Bottom view

Rear view

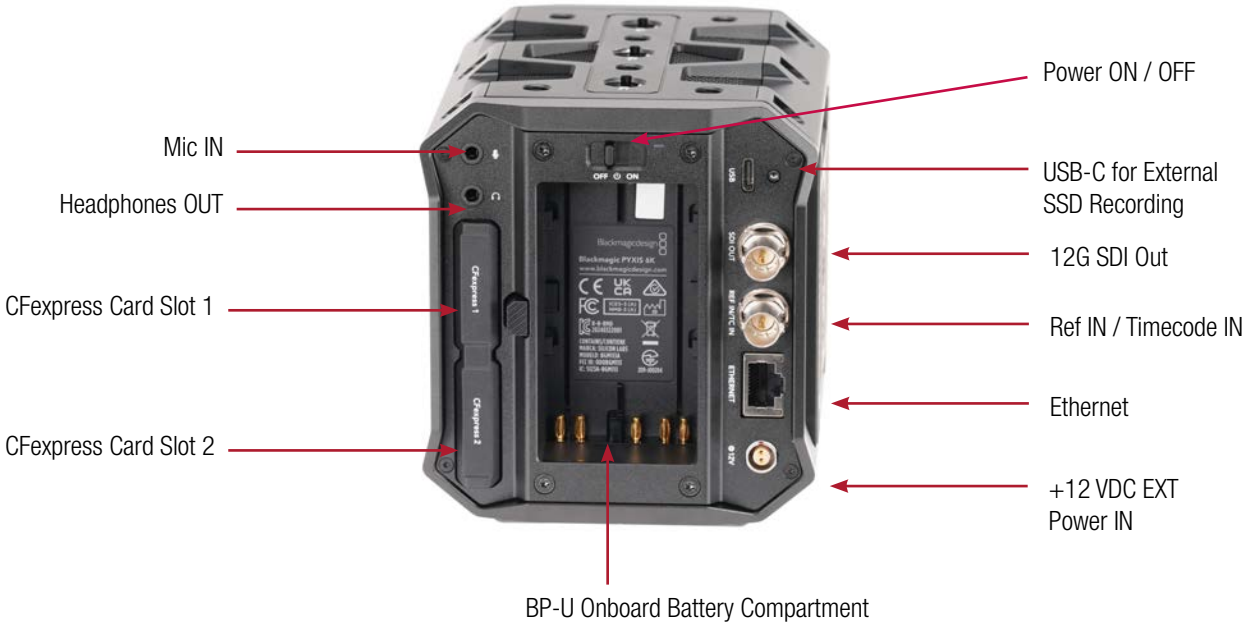
Format, Resolution, Picture Sizes, Max FPS, etc

Format	Resolution	Picture Width mm	Picture Height mm	Diagonal mm	Area	Maximum Frame Rate (fps)
Open Gate	6048 x 4032	35.93	23.95	43.18	Full	36
6:5 Anamorphic	4832 x 4032	28.7	23.95	37.38	Full Height	36
6K DCI	6048 x 3200	35.93	19.01	40.64	Full Width	48
6K 16:9	6048 x 3408	35.93	20.24	41.24	Full Width	46
6K 2.4:1	6048 x 2520	35.93	14.97	38.92	Full Width	60
Super35 4:3	4096 x 3072	24.33	18.25	30.41	Window	50
4K 16:9	4096 x 2304	24.33	13.69	27.92	Window	60
4K DCI 17:9	4096 x 2160	24.33	12.83	27.51	Window	60
Super16 16:9	2112 x 1184	12.55	7.03	14.38	Window	100
HD	1920 x 1080	11.4	6.42	13.09	Window	120

Calculated with pixel pitch of 0.00594 mm.

Blackmagic PYXIS 6K

Rear View



Blackmagic PYXIS 6K

Leitz ELSIE 15mm T2.1 Full Frame Prime Lens, LPL Mount

L-Mount to LPL Adapter

L-Mount to LPL Adapter

Front View

USB-C EVF port for video and power

L-Mount lens pogo pins for data, active focus/ iris zoom, lens power

L-Mount

6K Full Frame 36x24 mm Sensor

Blackmagic PYXIS 6K Viewing

The PYXIS 6K camera cube is extremely expandable with essential accessories. I recommend the URSA Cine EVF that comes with a mounting bracket, 15mm fore/aft rods and a 19mm starboard/port rod. ($1,695). Also, get the PYXIS Monitor (which comes in a few different options) for 5" viewing and touchscreen camera control. (From $295).

Minimalist PYXIS: EVF attached directly to top of camera. No handle.

The URSA Cine EVF is a 6.22 million dot OLED 1920x1080 viewfinder.

PYXIS with URSA Cine Handle on top and URSA Cine EVF and Rosette/Cheese Plate on the starboard side.

Top view of URSA Cine EVF and its carbon fiber adjustment rods.

The EVF has user-definable buttons. Defaults are: Zoom (for focus), Exposure Tools (False Color, Zebras) and Record Start/Stop buttons. The 3 VF Function buttons default to 1: Focus Assist (peaking, lines) on/off. 2: Display LUT on/off. 3: Status Text on/off.

The URSA Cine EVF connects to the camera via a single USB-C DisplayPort cable.

The PYXIS Monitor attaches to the camera in place of the EVF.

PYXIS Monitor EVF Kit has the same mounts and rods that come with the URSA Cine EVF.

PYXIS Monitor Kit has all the hardware to mount to the camera without a top handle. This is excellent for Hasselblad style looking down at top of camera viewing.

PYXIS 6K EVF Positions

URSA Cine EVF mounted to top of camera, no handle.

This is the standard right side plate. To remove, undo 4x 2.5mm hex screws.

EVF mounted forward for shoulder-resting handheld setups.

The camera comes with this SSD side plate with Velcro straps.

EVF positioned more towards the rear.

PYXIS Rosette Plate is also a cheese plate. ($59).

URSA Cine EVF Extension attaches to an eyepiece leveling rod.

Attach an external SSD to the rosette plate with something like this SmallRig SSD Holder.

Cinematographers everywhere will love Leica Camera's new SL3-S. Photographers as well. "S" as in Speed, Sensitivity, Stills and Cine.

The SL3-S works nimbly as a premium L-Mount mirrorless hybrid camera, as a Directors Finder with infinite framelines, as a companion on location scouts or for pre-viz. It takes beautiful 24MP stills and moving pictures. It is IP54 rated and offers Leica Content Credentials—a metadata signature that identifies the creator, the camera and separates authentic from artificial.

In a landscape where many cameras crop the sensor to 16:9 or less than full height, the SL3-3 captures the entire 24MP 3:2 full-height Full Frame (Open Gate area approx 35.64 x 23.76 mm) up to 6K internally (including ProRes 422 HQ C6K) and 6K RAW externally.

There are preset and user-definable framelines in the Video menu. Go to CAPTURE ASSISTANTS. Enable INFO PROFILE > SETTINGS > FRAMELINES. There, you can choose up to 3 sets of aspect ratios with almost any permutation of width and height from 1 to 99. And so, SL3-S understands the math of 1.85:1 and 37:30 being the same, and lets you enter either set of values. Two additional custom framelines are available. Enter the desired picture area in millimeters and then adjust scale, frameline thickness (stroke), color, shading and how you'd like to see it (box, corners, top/bottom, left/right.

Video images are beautiful and Open Gate opens wonderful possibilities for composition, flexibility in post, and Full Frame anamorphic lenses. In-Body Image Stabilization (IBIS) is almost like a tripod in the sky, helping to keep handheld filming wobble-free.

All this versatility makes for a wonderful Super35 or Full Frame Directors Finder. The SL3-S comes with a nice neoprene-style padded shoulder strap that will surely be more comfortable than what you currently have dangling around your neck.

The SL3-S has an L-Mount ("L" as in Leica), with a 20 mm flange focal depth, and 51.6 mm diameter. This enables the ever-growing world of L-Mount lenses, not only from Leica, but also from members of the L-Mount Alliance: SIGMA, Panasonic and Samyang. (Leitz Cine, Blackmagic Design, DJI and Astrodesign are also in the L-Mount Alliance.)

- Attach a Leitz Cine L-Mount to LPL Mount (below) and look

Leica SL3-S — identified by black LEICA lettering — with native L-Mount

Leica SL3 -S with Leitz Cine L-Mount to LPL Adapter

Leica Noctilux-M
50 f/0.95 ASPH

through HUGO and ELSIE primes—for example, the gorgeous, perspective pleasing new Leitz ELSIE 15 mm T2.1.

- Add a Leitz Cine LPL to PL mount for Leitz THALIA 65, PRIME and ZOOM lenses. Or pretty much any other PL mount cine lens.
- Use Leica M lenses, vintage and current, with Leica's L to M mount adapter (above). Yes, you can attach Leitz M 0.8 primes directly.
- Or, attach Leica R lenses with Leic'as L to R mount adapter.

Leica launched the SL camera system in 2015 to address the converging professional worlds of stills and cine. The original SL (Typ 601) had a 24MP sensor and 4K video, but leaned more towards stills.

The SL2 upped the sensor resolution to 47MP with IBIS image stabilization and 4K video up to 60 fps.

Leica's SL2-S still did stills—at higher speeds and sensitivities, and added more video capabilities with a new 24MP sensor.

The Leica SL3, introduced in March 2024, has a new 60MP sensor.

And now, here is the new Leica SL3-S, cine-centric 24MP camera.

If it's still phoography one wants more than cine, the new SL3-S does not disappoint. Images snap into focus instantly, silently. This is the fastest Leica camera yet, able to capture stills up to 30 images per second with continuous autofocus. There are three focus technologies at work here: phase detection (PDAF), depth mapping (object detection AF) and contrast detection.

The SL3-S has a CFexpress type B media card slot and can record video internally up to ProRes 4:2:2 HQ in 5.8K at 30 fps or C4K up to 60 fps without time limits. You can also record onto a small external SSD (like a Samsung T5) via USB-C, as well as 5.9K RAW up to 30 fps onto external recorders.

The 5.76 million dot viewfinder is a pleasure to look through. At 120 images per second, it is better than groundglass finders.

The Leica SL3-S is available now at a suggested retail price of US $ 5,295. For more information: *leica-camera.com/sl3-s*

Leica SL3 -S with new Leitz ELSIE 15mm T2.1 lens and Leitz L-Mount to LPL Adapter.

Leica SL3 — identified by white LEICA lettering

Leica SL3-S Jump Start

POWER On / Off

Press the power button to turn the SL3-S on. It is usually ready to roll in less than a second.

Press the button for 2 seconds to turn the camera off.

Press it briefly to sleep.

This is the splash screen when you first begin using the camera.

Joystick: Focus area, menu and submenu navigation and selection.

PLAY: Review

FN button default: LCD display profiles

MENU

Push the MENU button. The Control Center shows major settings. To adjust, use the touchscreen, joystick or dials. To dive deep into all parameters, push the MENU button again.
Shown above: PHOTO mode.

Jump to VIDEO / CINE mode by touching VIDEO on the display or press the Function button 4 on top of the camera—by default, the left of the two buttons. To see shutter speed as shutter angle and ASA instead of ISO in VIDEO mode, go to MENU > Cine Mode > enable.

When charging the battery in the camera with a USB-C cable, the On-Off / Status Display pulses green and goes solid green when fully charged (after about 3.5 hours).

USB-C

There are two memory card slots: CFexpress Type B on top and SDXC II (recommended) at bottom. You can also record to an external SSD via USB-C.

SL3-S Controls

New Leitz ELSIE 15mm T2.1 Prime Lens

SL3-S with an LPL Mount Cine Lens

Shutter and Video Record / Stop

Since this is a manual aperture cine lens and metadata is not passed through, F or T Stop is not shown on this top display.

Leica SL3 -S with a Leitz Cine L-Mount to LPL or L-Mount to PL Adapter works as a versatile Directors Finder — or compact cine camera — or a still camera.

Shutter angle (instead of shutter speed) and ASA (instead of ISO) are displayed when Cine Mode is enabled.

EVF: 5.76M dots. 60 fps or 120 fps readout. Magnification approx. 0.76x at 3:2 Open Gate. Image coverage: 100 %, exit pupil 21 mm. Adjustable diopter -4 to +2. Latency: 5 ms.

Right thumbwheel default: L-Mount lens aperture. Also: Manu page and submenu navigation.

SL3-S with an L-Mount Lens

Leica Summicron-SL 35mm f/2 ASPH

The SL3-S dials and buttons are customizable.

Here are some default and suggested settings—

Right dial default: shutter speed / shutter angle. In Program (Auto) exposure mode, it adjusts exposure compensation.
Also: Menu page navigation.

Left dial:
Default: Setting ISO

Depth of field, when using L-Mount lenses, shown here: front, back and actual focus.

Function button 3 — You can assign this button to magnify the image for manual focus by pressing the button don for 2 seconds, then choosing MAGNIFICATION from the menu.

Function button 4 default: toggle PHOTO and VIDEO modes

Leica SL3-S Framelines

One of my favorite things about the SL3-S is the ability to display up to 5 user-definable framelines individually or together. This is especially helpful when using the camera as a Directors Finder.

Be sure you are in VIDEO mode (not PHOTO mode).

Here are the menu settings:

- MENU >
- CAPTURE ASSISTANTS > Select an INFO PROFILE >
- Turn that Info Profile ON >
- Select SETTINGS >
- Scroll down to second page of SETTINGS >
- Select FRAMELINES >
- Enable the Frameline and/or >
- Modify the framelines...

1. Framelines are found in the VIDEO Menu under CAPTURE ASSISTANTS.

2. Enable an INFO PROFILE and select SETTINGS.

3. Within the INFO PROFILE, scroll down to the 2nd page and select FRAMELINES.

4. The top 3 Frameline choices are entered as ASPECT RATIOS.

There are 2 additional Frameline sets, called CUSTOM FRAMELINES.

5. ASPECT RATIO Frameline settings conveniently do most of the math for you. For example, 2.39:1 can also be entered as whole numbers: 24 width and 10 height.

6. CUSTOM FRAMELINES are entered as Frame Size (sensor dimensions in mm.) Maximum size (Open Gate) is 35.64 x 23.76 mm.

Leica SL3-S Video Profiles

If Hemingway liked moveable feasts, the SL3-S is a banquet.

There are 5 Video Profiles with at least 85 permutations of video frame rates, formats, resolutions, codec. You can lock individual parameters, for example 6K and 24 fps, to prevent making choices that are impossible.

You can easily go from one Profile to another while filming.

To modify the parameters, go to:

MENU > Select a VIDEO PROFILE >

Enter SETTINGS. It's an 11 course menu. Starting from the top left:

- Format: MOV, MP4, RAW
- Resolution: 6K OG, C6K, 6K, C4K , 4K, 3.5K, FHD
- Frame Rate: 23.98 to 179.82 fps
- Codec, Compression, Format / Bit Depth, Gamma.
- Sensor size: 35mm (Full Frame) or APS-C (almost S35 at 24 mm wide x 16 mm high).
- Audio
- Output: Internal CFexpress, Internal SSD, or external HDMI.

Leica SL3-S Formats, Resolution, Frame Rate, etc.

File	Resolution	Max. Frame rate	Bit rate	Format / Bit Depth	Compression	Codec
MOV	6K Open Gate (3:2) 5952 x 3968	29.97 fps	200 Mbps	4:2:0 / 10 bit	Long GOP	H.265
	C6K (17:9) 5952 x 3136	29.97 fps	200 Mbps	4:2:0 / 10 bit	Long GOP	H.265
	6K (16:9) 5888 x 3312	29.97 fps	200 Mbps	4:2:0 / 10 bit	Long GOP	H.265
	C4K (17:9) 4096 x 2160	59.94 fps	800 Mbps	4:2:2 / 10 bit	ALL-I	H.264
	4K (16:9) 3840 x 2160	59.94 fps	800 Mbps	4:2:2 / 10 bit	ALL-I	H.264
	FHD (16:9) 1920 x 1080	119.88 fps	400 Mbps	4:2:2 / 10 bit	ALL-I	H.264
	FHD Slo-Mo (16:9) 1920 x 1080	179.82 fps in 29.97	100 Mbps	4:2:0 / 10 bit	Long GOP	H.265
MOV ProRes	C6K (17:9) 5776 x 3056	29.97 fps	1939 Mbps	422HQ		ProRes
	C4K (17:9) 4096 x 2160	59.94 fps	1944 Mbps	422HQ		ProRes
	FHD (16:9) 1920 x 1080	59.94 fps	454 Mbps	422HQ		ProRes

These are just a few. Of course, there are 23.98, 24, 25 and 29.97 frame rates for these line items. For the higher bit-rate ProRes recording, a USB-C connected SSD is recommended.

You can also capture RAW 6K 16:9, C4K 17:9 and 3.5K 4:3 to an external recorder via HDMI.

Leitz ELSIE 15mm T2.1

Welcome to the newest member of the Leitz ELSIE Full Frame+ cine lens family: ELSIE 15mm T2.1. That makes 13 Leitz ELSIE primes, from 15mm to 150mm, all T2.1.

Designed and produced at Leitz Park in Wetzlar, Germany, ELSIE primes have the familiar Leitz and Leica warmth, resolution, look and smooth skin tones. ELSIE lenses are compact, close-focusing and ergonomic. Flares are there when you want them and controllable when you don't. Bokeh are smooth. Skin tones are smooth. The new ELSIE 15mm T2.1 matches the rest of the set, but there's something special and different. How is that?

Leitz Cine representatives said, "The 15mm has a little something extra in it. We planned the ELSIE 15mm to work with both the ELSIE series as well as LEITZ PRIME series (where the widest is 18mm). We brought some characteristics of LEITZ PRIME into this optical design by increasing performance a bit and decreasing the amount of corner shading and distortion. We believe this resulted in a uniquely beautiful approach to wide angle image-making."
leitz-cine.com/product/elsie

Leitz ELSIE Specifications

Leitz ELSIE Lens	15mm	18mm	21mm	25mm	29mm	35mm	40mm	50mm	65mm	75mm	100mm	125mm	150mm
Aperture	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1	T2.1
Close Focus (ft)	1'2"	1'2"	1'2"	1'2"	1'2"	1'2"	1'2"	1'8"	2'2"	2'6"	2'10"	4'2"	5'
Close Focus (m)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.5	0.65	0.75	0.85	1.25	1.5
Circular Iris Blades	15	15	15	15	15	15	15	15	15	13	13	15	15
Weight (lb), approx	5.5	5.3	5.3	4.4	4.4	4.4	4.4	4.4	4.4	4.6	4.6	5.5	5.3
Weight (kg), approx	2.5	2.4	2.4	2	2	2	2	2	2	2.1	2.1	2.5	2.4
Front Diameter (mm)	114	114	114	95	95	95	95	95	95	95	95	114	114
Front Filter Threads	—			M92 mm x 1								M112 x 1.5	
Length / Image Ø	Length: 6.3" / 160 mm. Image Circle Diagonal: 46.5 mm												
Lens Mount / Net	LPL Mount (44 mm flange focal depth) with /i Technology lens data. Rear Net Holder.												
Barrels and Gears	Focus: 270° Rotation / Iris: 51.45° Rotation. Matched 0.8 M gear locations for all focal lengths.												
Focus Scales	Quick change from Imperial to Metric scales — just flip the focus ring												

Holding Still and Moving - Leica SL3-S and Leitz ELSIE 15mm T2.1

Let's take go on location with the new Leitz ELSIE 15mm T2.1—paired with the new Leica SL3-S.

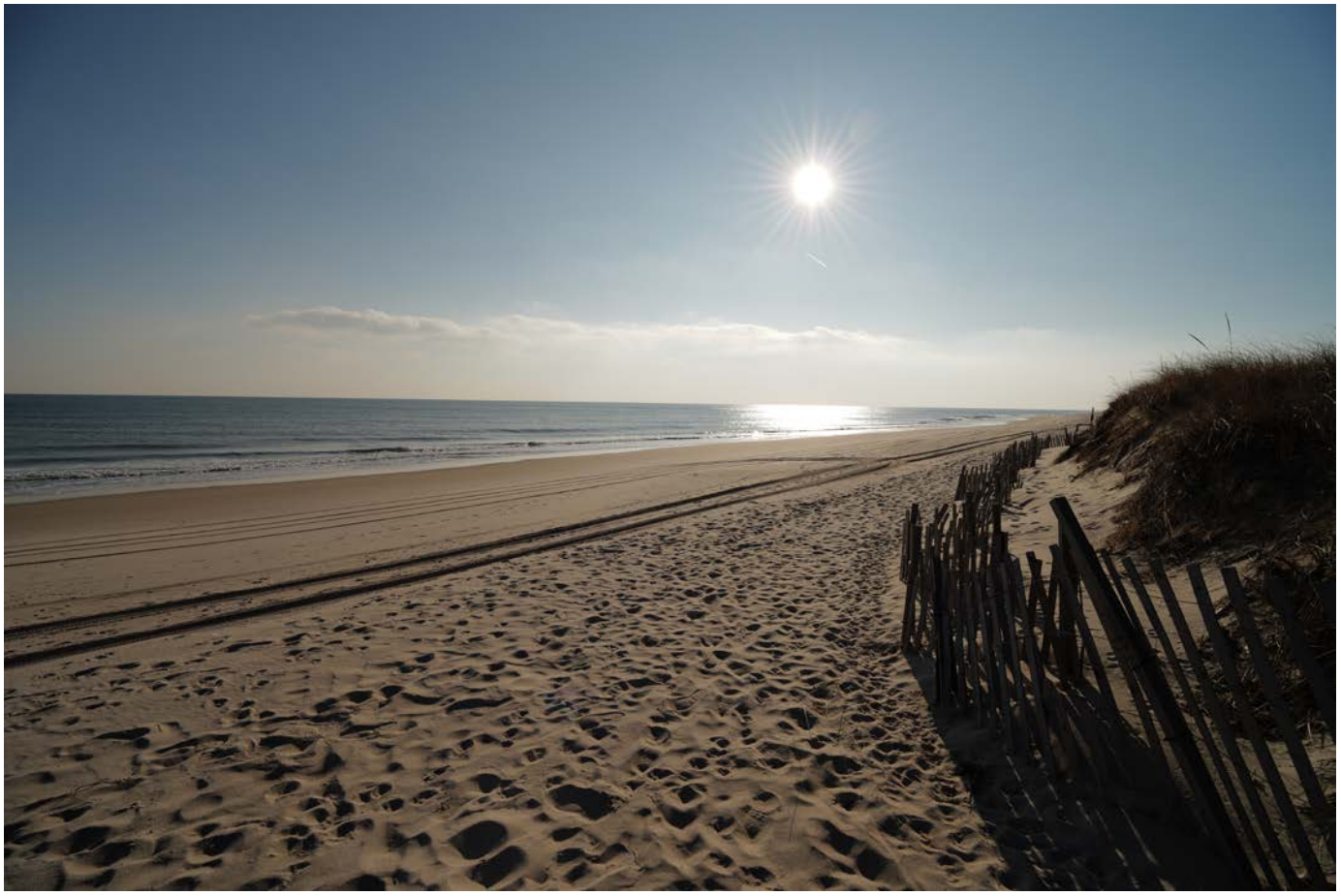
Still moving images follow on the next pages.

ELSIE 15mm T2.1 is a very wide spherical lens. It feels almost anamorphic, capturing wide vistas with minimal distortion. This is the lens for wonderfully wide setups, close and wide action shots, or *Birdman* style in-your-face portraits.

The ELSIE 15mm is newly beloved in the gorgeous ELSIE series — with minimal falloff or shading around the edges (which would be distracting on a super wide vista with lots of sky.) Nice geometry. The verticals on the sides of frame are not distracting. Sharp and smooth when holding still and moving.

Wide wintry frames with the Leica SL3-S in 6K Full Frame, Full Height, Open Gate, with Leitz ELSIE 15mm T 2.1.

Still Moving Pictures: SL3-S & ELSIE 15mm



Leica SL3-S in 6K Full Frame, Full Height with Leitz ELSIE 15mm T 2.1.

A DP Walks into a Museum with SL3-S and ELSIE

EXT. PARRISH ART MUSEUM - AFTERNOON. Leica SL3-S Open Gate 6K. Leitz ELSIE 15mm.

A DP walks into a museum. What could possibly go wrong?

The DP is trying out the new Leitz ELSIE 15mm prime cine lens on the new Leica SL3-S camera.

In fact, nothing goes wrong.

After taking still and moving images of Southampton's wintry windswept beaches, what better place to illustrate the prowess of the wonderfully wide angle 15mm ELSIE than the large and high-ceilinged indoor space of the Parrish Art Museum in Water Mill?

The DP stumbles upon an interesting exhibit: *Ralph Gibson—Nature : Object*. He films and photographs the photographs, testing 6K Open Gate SL3-S and ELSIE's angles of view.

And then, a happy accident. In the corner of the room, a placard explains that the exhibit is made possible by Leica Camera USA.

Ralph Gibson has been working with Leica cameras for more than 60 years. His first Leica was an M2. He now has an M11. In 2021, he was honored in the Leica Hall of Fame lifetime achievement award.

ralphgibson.com

Born in Hollywood, his father worked at Warner Bros and was an Assistant Director for Alfred Hitchcock. He learned photography in the US Navy and attended the San Francisco Art Institute. In a Musée Magazine interview (Issue No. 4.), Gibson said, "The Navy gave me an extremely strong technical background. There, it was all about resolution and sharpness and grey scale."

He worked for Dorothea Lange. "Being with her in the dark room all day, I learned a tremendous amount about content. I wanted to be a photojournalist and that's what I did…I bought a trench coat and came to NY. But it was not for me. I didn't like somebody telling me what to photograph."

Working on films with Robert Frank impressed the importance of having his own theme. Gibson pawned two Leica cameras to pay the rent and publish his first book, *Somnambulist,* in 1970.

The Parrish Art Museum describes how the current exhibition, RALPH GIBSON—NATURE : OBJECT "posits that nature's structures and patterns are reflected throughout industrial design... comprising a series of diptychs that pair views of landscapes, plant life, and the human figure alongside their formal counterparts in the built and manufactured environment.

"Foreground and background appear to collapse in these tightly composed photographs; a visual compression produced in part by Gibson's Leica rangefinder camera and the 135mm lens. He has used these tools exclusively throughout his career, favoring the frame's format for its relationship to the golden mean, an ancient Greek philosophy of balance and proportion. Gibson heightens these harmonic principles by presenting black-and white images alongside color. 'What one sees in the photograph is not necessarily in the photograph,' he explains.'"

parrishart.org/exhibitions/ralph-gibson/

Two days later, Ralph Gibson gave a gallery talk at the Parrish. Equipped with Leica SL3-S and Leica Summicron-SL 35mm f/2 ASPH Lens, what could possibly go wrong this time? Halfway through the lecture, Ralph announces how he usually composes vertically. Oops. After a lifetime of muscle memory filming horizontally, it's time to quickly and quietly reframe.

Thanks to Mike Giannattasio, President of Leica Camera Inc. (above, right, with his Leica SL3-S) for moving heaven and earth to make a pre-release Leica SL3-S available prior to launch.

To Robert Tirrell, General Manager of the Leica Store and Gallery New York and his crew for making the SL3-S and lenses available. Thank you Andreas Kaufmann for setting this adventure in motion; Stefan Daniel, Executive Vice President, Photo and Technology and the team at Leica Camera AG for all their help; and everyone else who made this journey possible.

Thanks to Rainer Hercher, Laura Kaufmann, Seth Emmons and the Leitz Cine wizards of Wetzlar for sending the new ELSIE 15mm, seemingly still warm from assembly.

I appreciate the generous access and permissions granted by the Parrish Art Museum, and Melanie Wine Tolan, Deputy Director of Communications.

I am most grateful to Ralph Gibson (above left, with his Leica M11), who patiently put up with this DP trying out a new camera. Can a DP come close to capturing decisive moments a single frame at a time instead of 24 times each second? If the object of attention is Ralph Gibson—who inspires viewers with incredible photographs and captivates audiences with articulate insights into art, photography, cinema, lenses and life—and the camera in hand is a Leica SL3-S, then things become possible.

Above all, Ralph Gibson encouraged verticals and cured this cinematographer's long affliction of horizontal framing.

11 Leitz THALIA 65 Primes

Now there are 11 Leitz 65mm Format THALIA 65 Primes. The newest arrival is the widest: a beautiful 20mm T3.6 THALIA 65.

All Leitz Thalia 65 Prime lenses exceed 65mm Format coverage, with an image diagonal of 60 mm. There are three macro lenses in the set. The 24, 55 and 120 mm THALIA 65 Makro primes focus to 1:2, meaning that you can fill the frame with an object that in real life is twice as large as the sensor. The focus barrels are marked not only with distance, but also magnification factor and exposure (light loss) for which you have to compensate.

The 90mm THALIA-T looks like the rest of the THALIA set on the outside, but its optical characteristics are different. Wide open, it has a vintage, romantic, slightly hazy and soft look. Stop down from T2.2 to T5.6 and things become progressively sharper, perhaps less vintage, veering toward post-modern. THALIA-T was based on venerable Leica optical designer Max Berek's 1930s Thambar portrait lens with: soft, glamorous, Greta Garbo glowing highlights. More details: *leitz-cine.com* — and to find a rental company carrying THALIA 65, go to: *leitz-cine.com/store-finder*

Focal Length (mm)	20	24 Makro	30	35	45	55 Makro	70	90 THALIA-T	100	120 Makro	180
Maximum Aperture	T 3.6	T 3.6	T 2.9	T 2.6	T 2.9	T 2.8	T 2.6	T 2.2	T 2.2	T 2.6	T 3.6
Close Focus (ft / in)	1'2"	7.8"	1'8"	1'10	2'	11.7"	1'8"	3'	2'4"	22.5"	5'
Close Focus (meters)	0.4	0.2	0.5	0.55	0.6	0.3	0.5	0.9	0.7	0.57	1.5
Weight (lb)	4.29	3.13	3.31	3.08	3.21	3.61	2.34	2.3	2.56	3.66	3.57
Weight (kg)	1.95	1.42	1.50	1.40	1.46	1.64	1.06	1.04	1.16	1.66	1.62
Length (in)	5.2"	4.9"	5.2"	5.2"	5.2"	6.1"	4.9"	4.9"	4.9"	6.9"	6.1"
Length (mm)	131.5	124.5	131.5	131.5	131.5	154.5	124.5	124.5	124.5	175	154.5
Image Circle	60 mm Ø										

Mount: PL and LPL - with /i Technology lens data
Front Diameter: 95 mm
Focus Barrel: 270° Rotation

Iris: 15 Blades, circular through all stops
Makro (macro): 1:2 ratio
Matched Focus/Iris Ring locations for all focal lengths

New Leitz 20mm THALIA 65

The 65mm Format cries out for vast vistas, David Lean scenes, wide windswept desert sunsets, epic alpen-glowing mountain ranges.

When the script slug line says:

EXT. PATAGONIA - MAGIC HOUR

you know it's scramble-time for the super wide 20mm Leitz THALIA 65.

This is the latest and widest in the Leitz Cine series of THALIA 65 lenses.

Its very wide 112.2° horizontal angle of view covers the entire 65mm Format frame (59.9 mm x 25.6 mm). If, gasp, you are filming in less epic formats, your 20 mm THALIA 65 covers 83.9° horizontal angle of view in Full Frame (36 x 24 mm) and 63.3° in Super 35 (24.9 x 18.7 mm).

IB/E Optics Full Frame to 65mm Format Expanders

When ALEXA 265, Blackmagic URSA 65 and Fujifilm ETERNA cameras were announced, some people wondered whether enough 65mm Format lenses were available. But surely you have lots of Full Frame or Full Frame+ lenses?

Now, IB/E Optics introduces the new PLx1.4 65-E (E for Expanders). They accept most Full Frame PL Mount and LPL Mount lenses to expand the image circle and focal length by 1.4x to cover 65mm Format up to 60mm image diameter. You only lose 1 stop of light.

For example, a 14 mm T2 SIGMA Full Frame High Speed Cine Lens has a 43.3 mm image circle. With the new IB/E Expander, 14 mm (FF) x 1.4 = 19.6 mm focal length in 65mm Format. The image circle math is: 43.3 mm (FF) x 1.4 = 60.62 mm (65mm Format). Since you lose 1 stop, maximum aperture is T2.8.

Wait, wait. Don't Expanders degrade the image? These have two aspheric elements and high-index low-dispersion glass for maximum resolution and contrast with minimal added aberrations. They retain the character of the original lens—even wide open. Also, exceptionally, the IB/E 1.4 65-E expanders have lens metadata pass-through contacts in the usual 12 o'clock positions.

Specifications

- Expands Full Frame (large Format / VV) lenses to 65mm Format
- 60 mm maximum image diameter (for 65mm Format sensors).
- 3 Models: PL-PL, LPL-PL, and LPL-LPL.
- Lens Data pass-through (/i electronic contacts on both ends at 12 o'clock positions).
- High-index, low-dispersion glass.
- Two aspheric elements.
- Extended Color Correction (APO).
- 1.4x Magnification.
- T2.0 Max. Input T-Stop.
- 1 stop light loss.
- Weight: 0.7 kg / 1.5 lb.
- Not compatible with mirror-reflex cameras.

ibe-optics.com

IB/E Optics Full Frame RAPTOR Scope

Here's the new RAPTOR Scope system from IB/E Optics. And it is fast: F/5.6 in Full Frame and F/4 is Super35It covers Full Frame up to a 44 mm image circle.

There are 3 configurations: Standard, Endo and Borescope.

The standard configuration comes with a set of 5 Full Frame M-mount lenses: 24, 35, 50, 75 and 90 mm. It also accepts almost any Leica M lens. Optional lens mounts also include PL, LPL, EF and E.

The Endo version has a narrow, waterproof tube with an integral T4.5 lens—excellent for nature cinematography or that ECU tabletop spot of a drink pouring over an ice cube in a cocktail glass.

The Borescope version removes the pan and prism modules for straight-on views into claustrophically tight spaces.

Specifications

- Pan-Tilt-Roll: 0.8M geared, unlimited 360° rotation.
- Focus - Iris: 0.8 Geared. 180° Focus rotation; 90° Iris rotation.
- Super35: Rear 0.75x Booster for S35mm format.
- Aperture: F/5.6 in FF (44 mm ∅) - F/4.0 in S35 (35 mm ∅).
- Camera Mount : UMS PL mount; optional LPL, EF, FZ.
- Front Mount: Leica M. Optional Front Mounts PL, LPL, EF, E.
- Max. Image ∅: 44 mm ∅ Full Frame.
- Length: (Flange to Front): 32,3 cm / 12.7" (PL to M version).
- Weight: 4.4 kg / 9.8 lb.

ibe-optics.com

RAPTOR Scope Accessories

Johanna Coelho, Cinematographer of *THE PITT*

THE PITT *is a 15-episode series about a 15-hour shift in a Pittsburgh hospital emergency room. It is airing now on MAX. They call it "a realistic examination of the challenges facing healthcare workers in today's America as seen through the lens of the frontline heroes working in a modern-day hospital."* THE PITT *comes from* ER *and* West Wing *executive producer John Wells, a graduate of Carnegie Mellon School of Drama in Pittsburgh. It may remind you of* ER *with* West Wing *brilliant dialog.*

Johanna Coelho is the cinematographer of THE PITT. *They were still filming in January when we discussed her work on the series.*

Jon: Really good job. It looks like you were very busy with handheld cameras.

Johanna: It's almost all handheld. We use different tools, but the look is consistent. Sometimes the camera sits directly on the shoulder. Some of our operators use Ergorigs to operate handheld as they would normally, but the weight of the camera is transferred from your shoulders to the hips. For sequences where people move fast or the camera operator has to go backwards quickly, they use a ZeeGee rig on top of the Steadicam arm.

Are you operating as well?

No. We have two camera operators, and I watch the monitors from both cameras.

What cameras are you using?

Our camera gear is rented from Rare Breeds. We have ARRI ALEXA Mini LF cameras shooting Open Gate ProRes 4444 XQ so we can finish in true 4K. The cameras were chosen because we wanted to be very mindful of the camera weight for the operators who are handheld all day. We also wanted to have a Large Format sensor to keep it cinematic—to be close to the actors but still have a shallow depth field to keep things more immersive.

Let's talk about lenses.

We are full Angénieux on this show. We have the Angénieux Optimo Primes. And we also use the new series of Angénieux Optimo Ultra Compact Zooms. They match beautifully and are extremely lightweight.

The 21-56 mm T2.9 and 37-102 mm T2.9 Ultra Compact Zooms do not weigh much more than the lightweight Optimo Primes. The zooms weigh about 5.5 pounds. They're almost the weight of the primes which are very light as well, at about 3.75 lb each. We never physically see a zoom move in the final cut. But it's easy for us to resize when we need to.

Obviously, we tested all kinds of different lenses during prep.

We really love the Optimos because of the way they look and the way they capture skin tones. And we do have many different skin tones on this show. The colors of the set are respected with these lenses and I appreciate that. They have a lovely cinematic feeling. Honestly, I couldn't find any other lenses that could fulfill the requirements needed for this show.

Did you use any Internal Optical Elements (IOP) or rear filters?

No, just clean. We tested the IOP and I felt that any effect elements were taking away from what we were trying to achieve. But even without IOP or filters, there is still a gentle softness, a smoothness, with the natural glass. We also tested filters on set. We didn't like them. So it's all pure. We wanted this show to feel real, to see the details.

Was *THE PITT* done documentary style? Did you know where the actors would be going?

We block the scenes on the day, watching the actors move and making adjustments as needed. We rehearse with our operators for safety and because there's so much choreography between the actors moving nonstop and all the background action. But things can change a little bit during the takes. We do not have any marks for the actors. That's why we work handheld with the cameras, so we always adjust with the actors.

Your focus pullers must love you.

This was very challenging but very rewarding.

How do they handle focus?

Our A-Cam 1st AC Jacob Depp and B-Cam 1st AC Kirsten Celo work off 13-inch SmallHD monitors. They are on set, as close as they can without being in the shots. They usually hide in rooms or in a place that's out of view. But they're not by the cameras. It's impossible for them. There are many places for them to hide on our big set that occupies almost the entire stage.

We have a lot of 360 degree nonstop camera moves. We keep up with the actors for this feeling of being right there with them. In general, the distance between the front of the lens and the actor more or less remains consistent, but there is also a lot of improvisation. The camera wanders to what they see, comes back to them sometimes and then focuses on the background. There's a lot of storytelling told by the focus. So our focus pullers are real artists.

The focus pullers understand what we are looking for. Everyone is paying attention to the script because everything—the medical information, the looks, the exchanges between the actors and what's happening in the background—requires the full coordina-

Photo courtesy of Warrick Page and HBO. © MAX 2024.

tion of what we need to see and when. Our Camera Assistants are really good at judging the distances and they know when to anticipate moves.

Do they have focus tools?

They are using Preston Light Ranger 2 focus assist systems. They don't really have any other choice in these situations.

> [A-Camera Focus Puller Jacob Depp adds: The Preston Light Ranger 2 is pivotal on this show. With no marks, actors going from gurney to gurney, and the cameras always moving, it's the best tool to feel confident that the image is sharp every time. I have my LR-2 set up off the front of the top handle just above the lens. I'm using an MDR 4 with the HU3. My monitor is a SmallHD 1303.]

How do you keep both cameras out of each other's way, especially when doing 360s?

The A-Camera generally defines the move. That's why we have A-Cam Op Erdem Ertal with a prime lens. It's usually the 50mm or 75mm Angénieux Optimo Prime, but we mostly use the 50mm. We place the B-Camera where we know it will be out of view. That's why we have B-Cam Op Aymae Sulick with an Angénieux Ultra Compact Zoom lens.

She sets the focal length for a specific moment and then has to run to another spot to get another moment and then yet another. We do a lot of this. She's a ninja running through the set.

Like a Ninja running through the set!

Sometimes we have calm situations where the actors are sitting down, and then we'll use both cameras for matching coverage at the same time, with the prime and zoom matching sizes. The camera crew members are really great. They have to work as hard as any medical team. This show would never be the way it is without them and the pace at which they work.

Are you shooting mostly wide open?

No, lens apertures are usually at a T4 — almost all the time except for some night scenes. The reason for T4 is for focus. I want to be mindful of the Full Frame shallower depth of field with so much improvisation and so much play of focus. At T2.8, focus might have been more risky — and I think it looks great at T4.

If you're working at a T4, what is the reason to choose Primes for the A-camera instead of having zooms on both cameras?

That's a good question. It is a way to respect the style we are going for. Being on a Prime forces us to always stick to our field of view and the distances we're trying to keep with the actors. Also,

Photo courtesy of Warrick Page and HBO. © MAX 2024.

the Primes are a little lighter than the Zoom, so that helps with the rigs and handholding. So, I really feel that Primes give us the structure that we have to respect and match with the Zooms.

Rhetorical question: why did you choose the Ultra Compact zooms rather than Angénieux Type EZ Zooms?

Because the Ultra Compacts match to the Optimo Primes perfectly. They are such an excellent match that we do not have to correct between the Zooms and the Primes in grading, which is amazing. The EZ Zooms are great, but they don't have exactly the same quality.

How would you describe the look of Optimo Primes and Ultra Compact Zooms?

They're very artistic. Are they as soft as some other lenses? No, but that's not what we are looking for. We want something real but still cinematic and that's really what these lenses provide. They're great on skin tones. Color rendition is beautiful. And as I mentioned before, they are so compact and lightweight.

Are you filming in a real hospital?

We are on stage at the Warner Bros Studios. Some of the hospital exteriors are in Burbank at St. Joseph's hospital.

What about the opening aerials and exteriors of Pittsburgh?

We went there for a week in September. The opening aerial sequence was done by Drone Operator John Tremba and his team piloting a DJI Inspire 3.

Please tell us about your lighting.

I have an incredible collaboration with Production Designer Nina Ruscio, who involved me in every set decision that would affect camera and lighting. When we built the set, I was lucky to be involved in the placement and choices of lighting. We installed troffers in the ceiling with dimmable, bi-color Cush Hybrid x2 24V LiteRibbon LED strips inside. That gave us full control with good CRI [98 TLCI] that worked for all the skin tones. Generally, we didn't want any lighting on the ground. In addition to the troffers that were set at 4,000 degrees Kelvin, the recessed LED can lights were at 3,200 Kelvin—slightly warmer to add a bit of color contrast.

No lights on the floor at all?

We do not have any lights on stands except for some very specific situations—for example, through a window. Also, we hae custom lights made by our chief lighting technician Keelan Carothers, attached directly to the left and right sides of the camera matteboxes, using the same LED tape used in the troffers, but with some diffusion on them.

We have pole lights with ROSCO DMG Lumiere DASH DOT LED fixtures on the ends. Sometimes we hae several of them, as actors pass by multiple electricians holding the lights which are often moving with the cameras. [DMG DASH is a battery-operated LED fixture about the size of an iPhone. The DOT is a round Diffuser accessory that attaches magnetically to the front of the DASH.]

Our key grip Maxwell Thorpe made a lot of tools to help us out. He also created diffusion frames that attached to the troffers.

Do you have a DIT on set?

The series is continuous. The story begins in the emergency room at 7:00 AM and continues for 15 hours because it's 15 episodes. We go from early morning to sunset and then to twilight. It's all progressive. So it's really helpful to have a DIT on set to help calibrate the color before it goes into final grading.

Where are you grading?

Picture shop. Our colorist is Paul Allia. He's grading on DaVinci Resolve.

How long does it take to do each episode?

We complete each episode in 9 days. The original schedule was planned for 11 hour days, but sometimes we finish after around 10 hours. We complete about 9 to 10 pages a day. That's a lot of setups. We work quickly.

We rehearse and often we are shooting 5 minutes later. No one waits. The cameras are ready to go. The lighting is ready as well. On many jobs, it can feel like they are waiting on the camera department or the lights. Here, it's the reverse, in general. We just punch through. We don't stop. We keep going all day because we are not really waiting for anything on the camera, grip or electric side. However, there's a lot of medical or prosthetic work that sometimes can take more time.

How do the actors and crew know medical procedures?

They did two weeks of medical bootcamp. EMT technicians and doctors taught them how to do a proper suture, how you handle certain instruments or how to pronounce various terms. Every medical scene has been written with a doctor and also is rehearsed with a doctor. We have real doctors on set. Everything you see is medically accurate. Some of the nurses you see in the background are real nurses as well. We, the crew, are all working in scrubs. The reason is because the set is full of reflections and glass doors.

Do you monitor the cameras from the DIT cart?

Chief Lighting Technician Keelan Carothers and Key Grip Maxwell Thorpe are watching at DIT station, but I am not.

We have our own little mini monitors on set with the Director, 1st AD and Writer. We come as close as possible to the action. Our 13-inch SmallHD monitors are on wheels. And we don't have director's chairs. We have rolling stools that are used in hospitals. There's also a video village off-set.

How did you plan the look of the show in advance?

I first interacted with Michael Hissrich and Michelle Lankwarden, the Executive Producer and Producer supervising the show. The look was discussed and approved by them as well as by Showrunner John Wells, by Scott Gemmill, and by our lead actor Noah Wyle. It was very clear from the beginning what they were looking for, not specifically how they wanted to shoot it, but what they wanted it to feel like. The scripts were written that way as well. When I read the scripts for the first time, it was clear on paper what it should look like. They always wanted the handheld approach. That's something they were asking for from the beginning. And when I read the script, it made sense too.

Furthermore, they wanted the set to be a specific shade of white —to feel clean and bright. When you walk into a hospital, pass the waiting room and go to surgery, that's what it feels like. Everything is white and bright. So that was very important for them. I think a reason they ended up choosing me for the show was that I did a pitch on how I wanted the camera to work within all of these ideas they already had. They knew they wanted it white and they knew they wanted it handheld, and I was able to define more precisely the style.

They wanted it to feel like a documentary as well, but obviously still feel like a narrative. So in my pitch, I brought up the idea that the camera should be in the middle of it all. The camera should be close to the actors. We should feel as if the camera is another staff member or one of the student doctors in the middle, following what's happening. The camera should keep going with them and see what they see, focus on what they focus on and feel what they feel.

The show is also about the looks and dialog between everyone. It's not so much about medical specifics, because few people really understand the terminology unless you're a doctor, but it's about what they feel and how they respond to their job and all of that. So it needed to feel busy because the hospital is so busy all the time. We play a lot with foreground and if there's no foreground, the camera is right there close with the characters we are following.

Would you call it cinéma verité?

That's true. I didn't actually mention it that way, but it's totally a reference to cinéma verité. Absolutely.

Your work reminded me of Raoul Coutard.

Oh. That's funny because I did many documentaries and that was part of the feeling I was trying to recreate.

How did you get started in film?

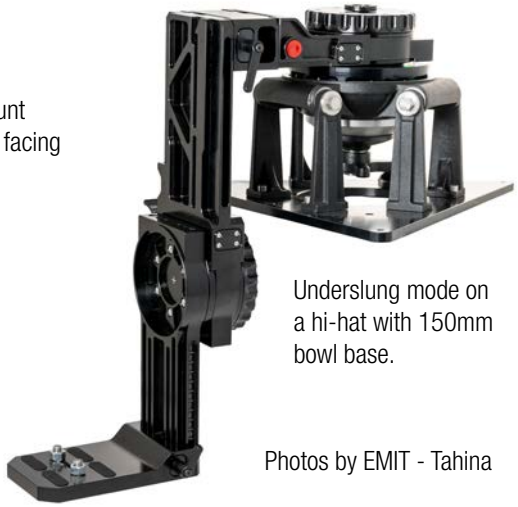
I graduated from AFI in 2013. Before that, I completed a 2-year technical program in cinematography at BTS Jacques Prévert in Boulogne-Billancourt [more than 7,000 applicants for 60 places] and then I graduated from the Bachelor of Arts program at the Sorbonne Nouvelle University.

When I was young, I wanted to do many things. I wanted to explore all the different jobs and crafts, all the different lives from being a doctor to making clothes and I couldn't make up my mind on picking one path. And one day I held a camera in my hands and started creating stories. The camera let me explore every other profession or situation. I loved that concept, I didn't have to chose anymore. I could explore it all. On every single job I did, I've learned something new. On *The Rookie*, I learned about the LAPD and the world police officers. Right now I'm learning about the medical world. You get to explore all these things and that's why I fell in love with cinematography.

Ronford-Baker Atlas Mini 7 Manual & Motorized

Atlas Mini 7 head on a 14" x 14" cheese plate as a Low Rocker.

360° Rollover mode: mount the camera with the lens facing away from the wheel



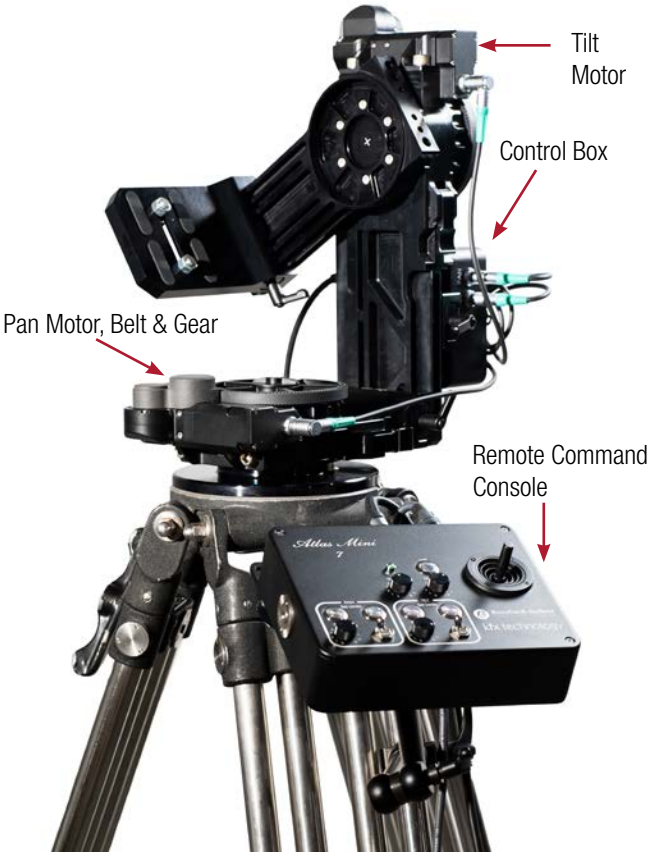
Underslung mode on a hi-hat with 150mm bowl base.

Photos by EMIT - Tahina

Ronford-Baker's Atlas Mini 7 is a mighty fluid head that quickly converts to a motorized remote head. It configures quickly for many different types of setups: from dolly to jib arm to platform or low mode with almost unlimited options for post rotation and adjustable riser positions.

Atlas Mini 7 has 2 axes (pan and tilt) with full 360 degrees of rotation and fluid control, and with "0" (fluid free) positions at both ends of the scale. It is environmentally sealed, has smooth positive braking, an illuminated bubble level, and comes with a choice of Mitchell base, 150 mm or 100 mm ball mounts.

Atlas Mini 7 Motorized



Fit the Atlas Mini 7 head onto a 14" x 14" cheese plate (above, left) and the head becomes a Low Rocker so you can get those smooth low mode shots with variable fluid/drag control. Replace the pan bar with a wheel, add counterbalance weights and you have 360° Rollover mode (above, center). It supports camera systems up to 25 kg / 55 lb.

Get the RF.73010 Atlas Mini 7 Motor Kit for remote head operating with independent pan and tilt axis control, speed, feathering and dampening adjustment.

Converting the Atlas Mini 7 from manual to motorized is quick and clever. Ronford's Ryan Glater explains:

1. Remove the pan bar if attached. Set both pan and tilt fluid units to zero drag setting. The motors can only be attached to the head when the drag settings are at zero.

2. The motors attach to the pan and tilt units using two ⅜-16 bolts. Screw the belt gears onto the rosettes, attach the belts around the gears and secure them with Allen key bolts. Attach the belt covers for protection.

3. Attach the motor control box to the back of the head and connect the pan and tilt motors via Lemo-connector cables. Finally, connect the control box to the remote command console where the camera operator can control the head with its joystick or optional hand wheels. The unit comes with a 25' command cable. Optional 75' cables are available, and you can even join two 75' cables together.

4. To go back to using the Atlas Mini 7 head manually, simply remove the motors via the two ⅜-16 bolts and motor belts, and reattach the pan bar.

Ronford-Baker Atlas Mini 7 comes with 2 Fluid Units, Standard Platform, Pan Bar and a choice of 100 mm, 150 mm Ball Base or Mitchell Base.

Optional Accessories include: RF.73010 Atlas Mini 7 Motor Kit; RF.73001 Wide Platform; RF.80080M 6" Dovetail Plate: RF.80003 Large Quick Release; RF.80001 Standard Quick Release.

ronfordbaker.co.uk

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ALEXA 35 Base Model with Flexible Licenses

ARRI introduces a new way to get into ALEXA 35.

The ALEXA 35 is now available from ARRI as one of two models. The existing ALEXA 35 (with the black jogwheel) has been renamed "ALEXA 35 with Premium License" and the new model (identified by a blue jogwheel) is called "ALEXA 35 with Base License." The new, lower-cost ALEXA 35 Base model has the same hardware and sensor as the Premium model, but has a reduced feature set that can be upgraded with several licenses.

The concept is about flexibility. You may already have worked with ARRI licenses—ALEXA Mini, AMIRA and ECS Devices (Hi-5, Hi-5 SX, etc) use them. Spoiler alert: charts, numbers, math and prices follow.

As with smartphones, streaming services, Spotify and SiriusXM, the ALEXA 35 Base model lets you add the things you want, when you want them. It's like making an in-app purchase on your iPhone or getting another streaming service for your TV. Add a feature, license for a week or forever, repeat, refresh.

Like the current ALEXA 35 Premium model, the new ALEXA 35 Base model comes with various accessory (hardware) sets. The least expensive camera set from ARRI comes in at € 49,800. For a few dollars more, you can license additional camera functions by the week, month, year or forever.

Let's start with the base model, and advance from there.

Who, What, Where, When, Why, How and How Much

Who

Who wants this?

Stephan Schenk, ARRI's Senior Vice President for Business Unit Camera Systems, explains: "We had many requests from customers who want to purchase the ALEXA 35 but could not afford it. These are owner/operators who want to upgrade from their current lower-cost cameras, existing AMIRA and Mini owners who want to switch to the ALEXA 35, and small production companies that want to up their game in terms of the image quality of their productions. These customers are also concerned about the cost of media drives. So, the ALEXA 35 Base model and the new Compact Drive Express 1TB are for those customers. And that is a large market: owner/operators, TV productions, corporate/industrial, educational, independents, film schools, documentary filmmakers, and more.

"While big rental houses will probably prefer the original ALEXA 35 to ensure compatibility within their rental fleet, they might also want to add a few of the ALEXA 35 Base models that can be offered at a lower price point."

What

So, what is different? The new ALEXA 35 Base model obviously has the blue jogwheel on its left side. This is a convenient way to identify what camera you are looking at. When you see both cameras on a shelf, you know that the one with the black jogwheel has all the licenses and features. The one with the blue jogwheel was originally purchased just with base license—but then you should start it up and check the menu to see which additional licenses have been installed.

A P-Touch label on the side of the camera would also be a quick way to identify the licenses inside.

The ALEXA 35 Base model has Apple ProRes recording up to 60 fps. The hardware is the same as in the existing ALEXA 35 Premium model: the same image quality, the same Super35 4K sensor with 17 stops of dynamic range, the same camera body, the same electronics and connectors. It has the same color science and the same image quality. It accepts existing Codex 1TB and 2TB Compact Drives, as well as the new Codex Compact Drive Express 1TB.

The ALEXA 35 Base model comes out of the box with the most commonly used 16:9 and 2:1 spherical recording formats—4K 16:9, 4K 2:1, 3.8K UHD 16:9, and 2K Super16 16:9. It has the same connectors as the ALEXA 35 Premium model, including 3

License Options for ALEXA 35 Base Model

License	ALEXA 35 with Base License	60 - 120 fps License	ARRI-RAW License	Open Gate/ Anamorphic License	Pre-Record License	Look License	Premium License (all combined)
7 Day License	Included with Camera	180 €	180 €	180 €	110 €	130 €	740 €
30 Day License		360 €	360 €	360 €	220 €	260 €	1480 €
1 Year License		1,800 €	1,800 €	1,800 €	1,120 €	1,280 €	7,440 €
Permanent License		4,500 €	4,500 €	4,500 €	2,800 €	3,200 €	18,600 €
0.75 - 60 fps							
ProRes Recording							
Enhanced Sensitivity							
ARRI Color Management (in-camera SDR & HDR DRTs)							
Basic 16:9 + 2:1 Spherical Recording Formats							
ARRI Look File (CDL & 3D LUTs)							
60 - 120 fps (for selected formats)							
ARRIRAW							
Open Gate Recording Formats							
Anamorphic Recording Formats							
Anamorphic Desqueeze in EVF + Monitors							
Pre-Recording							
ARRI Textures							
Look Library							
Custom Color Management							

I can imagine clever camera crews 3D printing their own jogwheels to identify which licenses are inside. Multiple licenses with rainbow (ROYGBV) colors could be fun.

independent 10-bit monitoring outputs (SDI 1, SDI 2, VF).

And it has the same ARRI Look File ALF4 support (CDL and 3D LUT) as well as a plethora of built-in SDR and HDR output color spaces (Log C4, Rec 709, Rec 2020, Rec 2100 PQ, Rec 2100 HLG).

Download and install any or all of 6 licenses from the online ARRI Shop to activate additional features: 120 fps, ARRIRAW, Open Gate/Anamorphic, Pre-Record, Look, and Premium. The Premium license includes the other 5 licenses, sort of like an Everything Bagel.

Where

The ALEXA 35 Base model will be available from ARRI and the usual network of dealers and resellers. As mentioned, the least expensive entry-level set lists for € 49,800. You can purchase weekly, monthly, yearly or permanent licenses for upgrades. (See chart above.) By way of comparison, the fully featured as-good-as-it-gets ALEXA 35 Premium model with Operator Set still comes in at € 74,500.

When

Announced on January 28, deliveries of the first ALEXA 35 Base model cameras are expected in February 2025.

Why

Once upon a time, not so very long ago in the analog era of film, there were ARRIFLEX cameras for different segments of the film-making community. Many of us first heard about ARRI when using a 16mm ARRIFLEX S in film school. We probably entered the professional world of documentaries, industrials or news with an ARRIFLEX 16SR or 416. Feature films beckoned and we worked with ARRIFLEX 35-3 and 435 cameras—affordably priced in the mid-level. And then there were the flagship cameras for high-end productions like the ARRICAM.

Now, in the digital age of ARRI, the tiered paradigm continues, from the ALEXA 35 Base model to the ALEXA 35 Premium model, on to the ALEXA Mini LF and the flagship ALEXA 265.

How

How does the ALEXA 35 Base model flex its upgradable muscles?

ARRI has set up an easy, efficient online portal for temporary or permanent licensing upgrades. This shop has been updated from the AMIRA/Mini days where it might have taken days to get registered. It is efficient, with quick registration and options to pay in local currencies, by credit card, PayPal, Google Pay or other methods. Also, you do not have to be the owner of the camera to

ALEXA 35 Base

ALEXA 35 Base Operator Set

purchase a license. As long as you have access to the camera, you can get a license. You can add what you need when you need it: 120 fps, ARRIRAW, Open Gate/Anamorphic, Look, Pre-Record or Premium.

ARRI Senior Product Manager Marc Shipman-Mueller explains: "Our goal was to make the ALEXA 35 available at a lower entry price to a wider market, but without preventing customers from using any of the great ALEXA 35 features if they need them. That is where the licenses come into play and the flexibility they add: you can buy the ALEXA 35 Base model and then get new licenses as you need them.

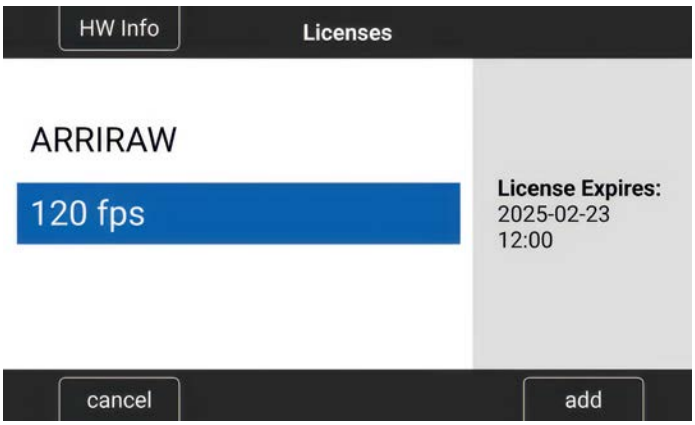
"Let's say you have the camera with the Base License and a producer books you on a commercial with anamorphic lenses. Then you can just buy the anamorphic license for a week. It costs you 180 Euros, that's it. If you have a longer job, you can buy the monthly license. And you might even be able to charge it to production. You do not have to commit to the anamorphic capability when you buy the camera, you just add it when and for however long you need it. It is a concept we have been working on for a while, and now we have the infrastructure in place to offer this more flexible way of owning an ALEXA 35."

How Much

The ALEXA 35 Base model is available in one of eight accessory sets. Walter Trauninger, arguably the man with the longest experience and the longest title in the company (ARRI Senior Vice President and Chief Operating Officer for the Business Unit Camera Systems) explains the motivation behind the sets:

ALEXA 35 Licensing

Download the license key from the updated ARRI Shop. It works with FastSpring for various payment options: credit card, PayPal, Google Pay, Alipay, Amazon Pay,etc. License purchases are no longer restricted to the camera owner, so productions can pay for them as well.



The ALEXA 35 menu screen for licenses looks like this. In the example above, the camera has a temporary license for ARRIRAW and 120 FPS, and the camera helpfully points out when the 120 fps license will expire.

ALEXA 35 Base

ALEXA 35 Base Production Set 19mm

"Looking back at the ALEXA 35 sales history, we found that the great majority of our customers purchased the camera in a set with accessories. I guess this means that our accessories are well-designed for use on set and that we had a lucky hand in putting together these sets. For the new model, we looked very carefully at the types of productions we expect this camera to be used on and designed the camera sets around those scenarios."

Chris Richter, ARRI's Senior Vice President for Sales & Rental, continues: "The ALEXA 35 Base model is available with a choice of 8 accessory sets that bring savings over just buying the individual parts. These sets are grouped within three categories: Base Entry Sets, Base Operator Sets, and Base Production Sets.

"The Entry Sets offer the most affordable way to acquire a lightweight, ready-to-roll camera package and puts the ALEXA 35 at a price comparable to the original ALEXA Mini. Owner-Operators and sports productions will be drawn to the Operator Sets, while the Production Sets are suited to high-end narrative productions and include accessories that would come standard from a rental house.

"It was also important to us that the new model does not create a financial advantage or disadvantage to those customers who have already bought the ALEXA 35 or to those who will buy the new model. For example, the ALEXA 35 Base Operator Set [shown on opposite page] costs € 55,900. Add the Premium license for € 18,600 and you get the same price as the original ALEXA 35 Premium Operator Set at € 74,500."

CODEX Compact Drive Express 1TB - ProRes

ARRI Codex Compact Drive Reader (USB-C) for transfer speeds up to 8 Gb/s.

from top: Codex Compact Drive Express 1TB, Codex Compact Drive 2TB, Codex Compact Drive 1TB—all compatible with ALEXA 35 Base model, Premium model and ALEXA 35 Live.

There are now three CODEX Compact Drives. The new CODEX Compact Drive Express 1TB has the same write speeds and frame rate range as the Compact Drive 1TB, but costs around 40% less. It only records Apple ProRes. You can identify it by its white ring. It is compatible with the ALEXA 35 Premium model, ALEXA 35 Base model and ALEXA 35 Live and requires ALEXA 35 SUP 4.0.0 or later (scheduled to be released in early February). It is not compatible with ALEXA Mini LF or ALEXA 265.

The new CODEX Compact Drive Express 1TB ProRes-only solid state storage media will cost € 850. It will be available individually, as part of a bundle (3x Compact Drive Express 1TB and 1x USB-C Reader) and as part of various ALEXA 35 with Base License sets.

Nanlux Evoke 5000B 5kW LED

Evoke 5000B is Nanlux's brightest COB lighting fixture yet—premiering at BSC Expo London on Feb 13.

You may have seen a sizzling beam of light on the ceiling above a whisper room at IBC last December. This was the prototype of what Nanlux now describes as the "world's first 5kW LED bi-color spotlight."

Consuming about 5,200 watts at 120 VAC (43 amps) and 5,000 watts at 220 VAC (22 amps), the Evoke 5000B illuminates with 20,190 lux (1875 fc) at 5 meters (16 feet) with a 45° reflector.

That compares to a 24kW tungsten Fresnel, 6kW or 9 kW HMI.

Additional Details

- CCT range 2700K-6500K with ±80 green/magenta adjustment.
- 0.0%-100.0% dimming, in 0.1% increments.
- All-in-one Design—power supply is inside the head.
- IP66 rating for protection against rain, spray and dust.
- Compatible with Nanlux NL Mounts Accessories: reflectors, projection lens attachment, Fresnel lens, etc.
- Control methods: on-board, Nanlink app, remote controller, DMX/RDM, LumenRadio CRMX, wired controller, Art-Net/sACN.

Nanlux/Nanlite booth 109 and 210 at BSC Expo.

nanlux.com

Standard Kit

includes:

- Evoke 5000B, Yoke, 45° Reflector
- Wired Controller with 8m Connection Cabl, AS-MB-1 Magnetic Base, Carrying Bag
- AC Cable: 2m long for 200V-240V countries/regions, 7.5m cable for 100V-125V countries/regions
- User Manuals for Evoke 5000B and Wired Controller
- USB Flash Drive

Flight Case Kit

includes everything in the Standard Kit AND a rolling case.

The Evoke 5000B fixture is heavy—it takes 2 people to comfortably lift.

So unless you get a custom case, this ready-to-roll truck/studio/location/flight case is important to have.

Nanlite Rapid 90 and 120 Parabolic Softboxes

Wouldn't it be nice to have a light modifier that sets up as quickly and easily as a mountaineering pop-up tent on a heinous Himalayan ledge—instead of our industry-traditional ritual of 4x4 frame, cut diffusion, tape it to frame, flag the spill, set up C-Stands, and attach floppies?

Now we can, with Nanlite's new Rapid 90 and Rapid 120 Parabolic Softboxes. They shape and diffuse LED light fixtures as smoothly and stylishly as anything seen in a still photographer's strobe studio.

Nanlite Rapid Softboxes attach almost instantly with their re-designed, industry-standard Bowens Mounts. Pull and press to lock the Softbox onto the LED fixture and attach diffusion in less than 5 seconds. Remove and fold in about 1 second—simply hold the handle and pull the lock.

The Rapid 90 and Rapid 120 Parabolic Softboxes do not pair with the new Evoke 5000B (on the previous page) but they do fit Nanlite Forza, FC and FS series LED COB lights, as well as almost any other Bowens mount fixture.

The Rapid 90 and Rapid 120 Parabolic Softboxes cost US $179 and $199 respectively (excluding tax). *nanlite.com*

A Complete Unknown - Phedon Papamichael, ASC, GSC, GCA

Phedon Papamichael, ASC, GSC, GCA at Sistina.
Sony FX3 with 24mm G Master at f/1.4.
Photo : Jon Fauer.

Phedon Papamichael, ASC, GSC, GCA and Sony's Tanya Lyon were in New York for a pre-release screening of *A Complete Unknown.* (It opened on Christmas day.)

We meet for lunch at a favorite restaurant—Sistina, across from the Met Museum in New York. Storaro likes the table in the back corner of the back room where the light is always beautiful. Skylights above make it just so. Begin with Beets and Burrata, Tuna Tartare and Bresaola with Artichokes. Next, try Nantucket Bay Scallops, Linguine with Clams and Mussels and Fettuccine Integrali with Black Truffles and Crab Meat.

But I digress. We're here to discus Phedon's latest great work as cinematographer on *A Complete Unknown*. Phedon is hardly unknown. Credits include *Ford v Ferrari, The Trial of the Chicago 7, Indiana Jones and the Dial of Destiny, The Monuments Men, W, 3:10 to Yuma, Sideways*...

Jon Fauer: Congratulations on "A Complete Unknown." It is one of my favorite films of the year.

Phedon Papamichael, ASC, GSC, GCA: Thanks. This is not your typical biopic. Director James Mangold had a series of meetings with Bob Dylan. He was in complete approval of everything we did. One day, they were in a café to discuss the script. At some point, apparently Dylan asked, "So what's this movie about?" Jim replied, "It's about this kid who grows up in a small community in Minnesota, and he feels suffocated and he moves to New York where he finds a new family and makes new friends and then he feels suffocated by them and he runs away from them. And Bob goes, "I like it."

It's important to remember that Dylan was about 20 years old when he came to New York. He was discovering things and being affected by the spirit and the vibe of the sixties, the village—reacting and inventing himself and changing as he did throughout his entire life, not just where this movie ends in 1965.

The five years we cover in our movie is about this kid, who is an incredibly gifted writer and poet, becoming so popular so quickly. People are trying to have him belong to the folk music movement but he just wants a band. He wants to be a rock star. There are some nice scenes in the movie where you see Johnny Cash on stage and Bob is checking it out: oh, he has a bassist, he has a guitarist and a drummer and there's that nice reaction shot where he is listening to Cash in the wings and he's taking it in. He wants a band. He doesn't want to be the guy with a harmonica and an acoustic guitar the whole time.

How did you get started on this job?

It's based on the book *Dylan Goes Electric! Newport, Seeger, Dylan, and the Night That Split the Sixties*, by Elijah Wald. The film originated a while back. We were talking about it five years ago, even before we did *Indiana Jones and the Dial of Destiny.* And then Covid hit. But Timothée Chalamet was committed and that was

R-L: James Mangold (Director), Phedon Papamichael (DP), P. Scott Sakamoto (Camera Operator). VENICE 2 camera, Panavision Anamorphic lens, Preston Light Ranger, Teradek Bolt, Sachtler 9+9 head. Photo: Macall Polay, SMPSP. Searchlight Pictures.

one of the reasons we were going to do it. He was already learning guitar, practicing and rehearsing songs for a long time. Then we came back in 2023 to scout the locations. They were starting to prerecord Monica for Joan Baez and Ed Norton for Pete Seeger. And so everything came together. Arianne Phillips was ready with warehouses full of wardrobe. We had stages ready to be built. And then the writers' strike came. So we shut down again. We returned in the spring of 2024.

There's a nice progression to the looks.

We wanted different looks for the film. For his first arrival in New York and the MacDougall Street exteriors, we embraced grayer, more muted tones as he comes in his shabby clothing, guitar case and backpack. The summer scenes and the Newport Folk Festival were done at the end June with hundreds of extras in T-shirts and summer clothing. We wanted to get a spectrum of seasons because the movie takes place over five years. But it's also something that happens visually, from where he's the young man who has just arrived from Minnesota and his journey to becoming Bob with the Ray-Bans, motorcycle and leather jacket, and then the orange shirt and polka dots. As we moved into the summer, everything becomes more saturated. The elements in the frame also changed as his character develops.

How does your lighting change?

The lighting inherently changes because it goes from dingier, darker, smaller clubs like the Gaslight with just a few very warm tungsten bulbs to bigger venues, Carnegie Hall, and then to Newport. As he performs in bigger venues, it's harder lighting and I used all period stage lighting. I wanted a very natural approach. I also wanted the streets not to look lit. And that's one of the reasons I chose to use the Sony VENICE 2 cameras. I had tested them at higher ISO ratings of 6,400 and even at 12,800. Jim Mangold really liked the idea because, in conjunction with minimal lighting, I said that I would like to shoot at a deeper stop.

When you have Large Format digital cameras, you can get beautiful bouquets [of bokehs] with out-of-focus lights. But on this film, I wanted to feel the textures of the city with depth of field that was not too shallow. Typically with Jim, we shoot our closeups on a wider lens. I would say 90% of *A Complete Unknown* is shot on a 40mm anamorphic that has very close focus abilities. Dan Sasaki at Panavision built us Full Frame custom lenses based on B Series and C Series front elements, with the mechanics of T Series. So they have the close focus of T Series anamorphic, but they have the specular flare characteristics of the older glass.

We liked to be in extreme closeups for the performances, not isolating the characters and feeling the environment, feeling the background. When he's walking down the streets of New York, I wanted to see the brownstones, I wanted to see the period cars, the extras, the fire escapes. I was able to use a lot of the existing

Phedon on VENICE 2, Panavision 75mm Anamorphic. Photo by Macall Polay, SMPSP.

urban ambient street lights. Often, I would just eliminate lights rather than adding them, wrapping lights we couldn't control. We also took advantage of wet downs and some steam.

We had tiny eyelights, which were Rosco DMG Lumiere DASH fixtures with small dome diffusers that attach magnetically. Electricians walked with them to just augment the natural light when necessary, and sometimes it was not necessary at all. They can be quite punchy if you want them to be, and I could control them with wireless DMX.

For example, on night exterior Steadicam shots, two electricians would be walking down the street with these DMG DASH fixtures on the left and right side of camera operator Scott Sakamoto. Battery powered, no cables. I had a DMX-it, which is a 12-channel mechanical slider control panel. Looking at the monitor, I could add a bit more augmentation when he is walking past a red neon storefront and then fade it out. I can switch keys.

I avoided tube fixtures and snap-on grids because he's wearing glasses all the time and you'd see the reflections of larger movie lights. But the DMG DASH fixtures don't really look like movie lights even if you catch them in his Ray-Bans at night.

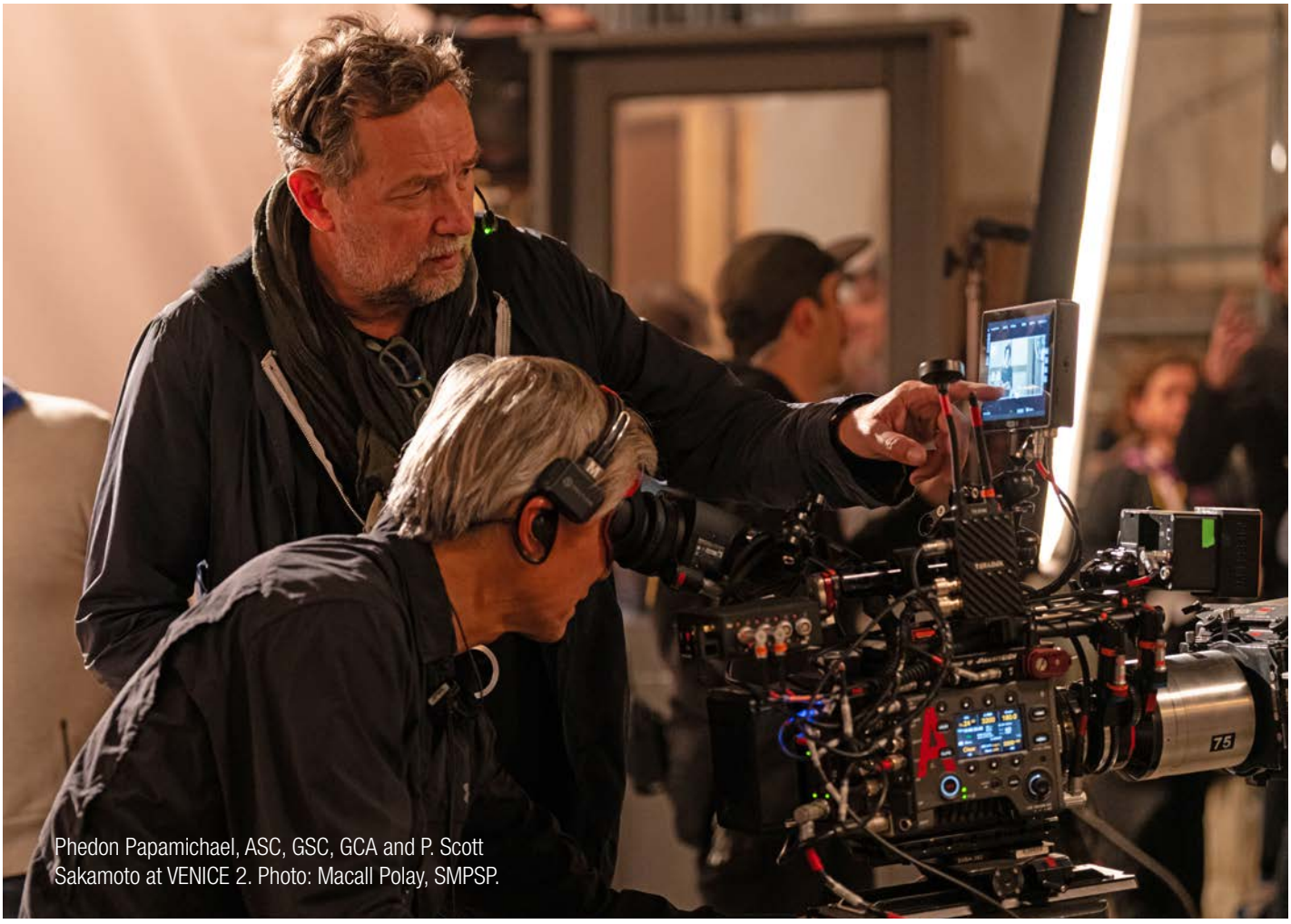
Do you also have a big dimmer board and operator?

The way I work in general is to be at the DIT cart with the monitor and our viewing LUTs and my DMX wireless dimmers there, but I also have a dimmer board operator nearby where I can see him and discuss things. He's also programming my small DMX-it board so I can have the freedom to pick it up, walk onto set, change levels even during the take, on the fly, sometimes actually shifting keys. It's almost like being a sound mixer going from one boom to another, except it's with lights.

Here's another example. Bob is coming up the stairs, looking left to the ground. I have a light there and kiss him a little bit with that. Then he turns, looks right and walks down the hallway. I get rid of that fixture and I bring up the other one. It looks very natural, because working at these high ISOs, it works. Night exteriors are at T8 ½ or T11 stop. Mangold asks, "What stop are you on?" I reply, T5.6 or 8." He's like, "What ISO?" I go "6,400." He says, "Why are we not 12,800? You told me it'll be fine." I go, "Yeah, it's fine, but I don't really need it. I'm okay with the T5.6 1/2." He says, "Go 8 ½."

Is he pretty technical?

When I sell him something, he picks that up pretty quick. He is an excellent still photographer and works on his photos. He has a very specific taste in terms of contrast and saturation, which is why our reference photographers were Eggleston and many street photographers of New York in the 1960s. That's part of how we



Phedon Papamichael, ASC, GSC, GCA and P. Scott Sakamoto at VENICE 2. Photo: Macall Polay, SMPSP.

built the LUTs with David Cole at Fotokem, basing the looks on still photography of the 60s.

It reminded me of Kodachrome from the 60s.

That was the intention: a certain shift in the blues and a little cyan. And the reds are really poppy. They walk past a Kodak sign and its very saturated red affects the skin tones. So that was the idea. But once you give Jim a reason why you're doing something, he'll embrace it.

Another example: when I suggested the VENICE 2, he asked, "Why are we shooting with a new camera?" I replied, "Because we can shoot it this fast. I've tested it. It's not noisy at 12,800." And, of course, I was still nervous at first. I projected footage in New York on a big screen just to make sure. But I was also reassured knowing that we'd be doing a SHIFTai at Fotokem. (SHIFTai is an analog intermediate: graded digital files "printed" to film with an ARRILASER film recorder onto Kodak 50D 5203 negative, and then scanned back to digital.)

We pick up natural film grain qualities, but we're not doing this just for the grain. As Ed Lachman has said, colors react differently once it goes onto negative film.

The workflow is traditional, as you would normally do a DI. You have all the tools of DaVinci Resolve, including power windows, and then you laser it out in an optimal way to the negative. We tested various film stocks and liked 5203 best. And then, when you bring it back into the DI, you still have some wiggle room to make some minor corrections before you make the DCP, but we had almost no corrections once it came back from film.

What about dailies?

We had a film emulation for editorial to work with. I always try to get as close as possible to my final look because the director and the editors live with this material. It becomes their norm and they get used to it. So it's very important to me that I get it as close as possible to the look that we've I spend a lot of time finding in pre-production. During the day, I make adjustments to the LUT and send instructions for the dailies colorist to match. And to ensure that everybody sees the same thing, we calibrate the monitors in editorial. These things accelerate the DI process.

Even though you were sometimes shooting at 12,800 ISO, I didn't notice any noise on the big screen.

There's no noise. That's why I shot with Sony VENICE 2 cameras. And, because I wanted to shoot with vintage lenses, I didn't want to use them wide open. I wanted to close down to at least T8. It's a picture with about 100 locations over 60 days, with multiple company moves at night in Hoboken. I wanted to keep the equipment minimal and treat it almost like a documentary. In the recording studio and on stage, there's really no additional lighting other than period practicals and some very small sources. Sometimes it was just a PAR can bouncing off the ground. I like using tungsten.

Tell us more about the lenses.

You might recall that on *Ford v Ferrari* I decided to go Large Format, and I didn't want to just do the 2.39:1 spherical aspect ratio. I wanted to shoot anamorphic. At the time, the traditional Panavision C and T Series didn't cover the ALEXA LF sensor. Dan Sasaki courageously offered to expand a set. I think this was first time it was done. We went into production on *Ford v Ferrari* using essentially prototype lenses with very specific characteristics like vignetting at the corners and focus fall off. They had interesting C Series flares and they looked great. This was my go-to package that I subsequently used on *The Trial of the Chicago 7*, on *Daddio* and other projects. These lenses became quite popular. Panavision then started converting and expanding a lot of their beautiful classic C Series, B Series, G Series and T Series anamorphic lenses for the larger format. For *A Complete Unknown*, Jim and I wanted to back away from the classic Hollywood Panavision anamorphic formula look and try for something a little bit rougher.

"It's going to be darker, less high-key, more moody, with different flares, warmer flares and a bit more character," I said.

Dan goes, "Okay, okay." He built us series one of a set he calls hybrids—Full Frame anamorphics with the mechanics, close focus and size of the T-series, but with the vintage front elements of the B or C series. Please don't ask me what he does because when you see his desk, there are glass elements everywhere.

He made us a 35, 40, 45, 50, 60, 70 and 100 mm. We mostly lived on the 35mm and the 40mm. Now, understand that when we say 40mm, it might be more like a 38mm. Once he expands them and does whatever he does, the focal length numbers can be different.

Does expanding the image circle degrade the image?

Perhaps. But, I didn't see any. Going to film negative also takes some sharpness away. It's not like he screws an extender onto the lens mount. Basically he changes the barrel, the rear elements and the calculations to cover the larger sensor. We were actually able to cover the entire Sony 8.6K sensor.

This is our seventh film together. Jim is very much in love with anamorphic lenses. Of course, I suggested trying something else, maybe a different aspect ratio or anamorphic squeeze factor. I even proposed black and white or handheld. We talk about these things. Ultimately, we do like our anamorphic frame. We like shooting closeups physically close with a wider lens. That's our language. When I said to him that it seemed we were repeating things we'd done before, he said, "Well, that's who we are." Which is true.

Our sense of composition is not over-stylized. I'm trying to be natural in my lighting. Our camera moves are mostly on a dolly, crane or very precisely executed Steadicam. We're not trying to distract with stylistic choices. I try to avoid anything that cries out "Filmmakers at Work." I try to hone in on the performances, I want to see Timothy's eyes. I want to be close. I want the audiences to be able to take in those incredible performances. I don't want to overpower or distract with a visual language that takes you out emotionally. I feel fortunate that the set design, wardrobe, hair, makeup and the performances provide an abundance of opportunities to light and frame and I don't need to force another layer of style onto that.

In her New York Times review, Manohla Dargis mentions "Chalamet's shivery, ice-pick gaze."

You feel it when you're physically close with a camera. It's not popping on a longer lens and it's not an audience perspective. You feel you're on stage with him and you feel the energy, but you're also not isolating him because we do these rotations and you tie in the crowd and you tie in the people in the side wings. It's very hard to fake performances like this. That's why Tim Chalamet insisted on playing live because you feel it.

And we film, running through two or three songs without cutting. Scott Sakamoto is a great, instinctive operator and we are all just reacting. He did *Maestro* and *A Star is Born*, so he is very fluid with the camera. You can't say to the actors, "Here's your mark and here's your mike." With Tim, you want to capture all the

physicality, all those emotions. You want to be close. You want to be wide to read the body language.

Were you mostly on Steadicam for the concerts?

It was multiple cameras for the audience. One was wide, one was on a 50-foot Technocrane that moved into a medium closeup or even a closeup. It would get in the frame of the other two cameras, but that was to shoot the crowd. Then we'd get on stage with a single camera—Scott on the Steadicam, and he would be doing 360 degree moves and I was live mixing, shifting key lights. When he was in back, I'd have a light down the center to make the rim lights glow more on Tim and Monica's hair.

Was everything on location?

The apartment, Chelsea Hotel interiors and the Viking Motel interiors were set builds in a studio. Everything else was on location—all in New Jersey with the exception of the Chelsea exteriors and the NY downtown courthouse. We recreated MacDougall Street and the West Village in Hoboken because was a little easier and also bit less gentrified, with fewer trees. They planted a lot of trees in the Village in the eighties and now it doesn't look anything like our 1960s reference photos. Francois Audouy, our production designer, did a lot of research and recreated the storefronts, the club interiors and also the apartment with the artwork, what's on the mantle, his record player, espresso machine. It's all very carefully researched.

How did you get into film?

I was born in Athens. My dad was a painter and also an art director and production designer. I grew up in Munich. I discovered film with a Super8 camera but was annoyed by its flimsiness. I bought a 35mm Nikon and became pretty serious about still photography. Then, I sent a bunch of photos to my dad who was working on *Love Streams* (1984), an American film directed by John Cassavetes. John wrote me a letter: "Your photography captures the spirit of a new generation in a classical form. Can't wait for you to come join us." I told my mom, "I'm not studying, let me just go to America for a year and check it out."

Liz Gazzara, who was apprentice editor on *Love Streams* in New York, wanted to do a short film and asked me to be the DP. I never had a chance to go to film school and believe me, there were lots of mistakes. But I had discovered cinematography. Raoul Coutard's work on the 1963 film *Contempt* (*Le mépris)* was the first time I really noted the name of the cinematographer. I wanted to do what that guy did. I wrote his name down even before I wrote down Godard's. Then I started shooting short films, including UCLA grad films and for Alexander Payne. My film school really was working for Roger Corman. Since I had no training and little experience, I didn't use a lot of lights or equipment and I was fast. So they liked me because we always got the day done.

These were 15-day features, using an ARRIFLEX 35BL-2 and Zeiss Super Speeds, with Fujifilm stock that he got off the gray market in Hong Kong. I had shot behind the scenes on *Barfly* (1987) and discovered Robby Müller and Frieder Hocheim using fluorescent tubes to light the scenes (this was before Kino Flo officially launched), Janusz Kamiński, Mauro Fiore and Wally Pfister were crewing for me on those early Corman films, so we were all inspired by those minimal lighting tools, building our own softboxes, using fluorescents and being very expressive with mixed colors.

Did Raoul Coutard's cinematography on *Z* (1969) influence *A Complete Unknown*" Natural light, documentary style?

All of the French New Wave had a strong influence of how I perceive cinematic storytelling. So no matter how big the film, I have a logical lighting approach. If someone's backlit, and then I do a reverse, that actor has to more or less be frontlit. I'm not going to do everybody backlit just because it looks good. I try to apply this logic to the lighting directions and I try to motivate off of practicals, or even if you can't see the practicals, it looks like it's coming from a practical. I like mixing colors. I don't need to correct every fluorescent tube or sodium vapor light. I'm fine with the dirty yellows and greens, like at the Chelsea Hotel, when Tim is silhouetted at the end of the hallway.

P. Scott Sakamoto, SOC


Photo: Sony Cine

P. Scott Sakamoto, SOC talked about operating on *A Complete Unknown:*

"I use a GPI PRO Rig that I've had since it first came out in the nineties and I still use the Pro Vest and Pro Arm. The only other addition lately is that I now use the Tiffen Volt. It mounts directly to the gimbal of the PRO Post and is a great benefit to stabilize the shot and helps aid in horizon level. [Steadicam Volt keeps the sled in neutral balance, maintains level horizon, holds tilt angle and has a button to switch from Volt assist to conventional mode.]

"I've worked on two movies with Jim Mangold and he loves having the Steadicam. Often, when we rehearse a scene and he sees me setting up a dance floor for the dolly, he says, 'I don't want you to be on the dolly. I want you to be on the Steadicam.' Because he often improvises the shot and doesn't want camera moves to be restricted, he just prefers the freedom of a Steadicam. Jim and Phedon Papamichael have made several exceptional movies together and have a good rapport with each other. They know how to dance and tell a compelling cinematic story. It is a pleasure to come up with shots to advance that narrative at the right time with the right equipment.

"In Bob Dylan's apartment, half was on Steadicam and half was on a conventional Chapman Hybrid dolly. The recording studio scenes were mostly Steadicam. The Newport Festival on stage was 90% Steadicam. For the wide crowd shots, I used the 50' Technocrane to achieve the sweeping moves that captured the full scope and energy of the performances. We also had a second camera on a


Frame: Searchlight Pictures

Photo: Sony Cine

dolly with a 3-foot slider on a few performance numbers operated by Ethan Borsuk. That helps when you're doing conventional dolly shot overs and you have to inch a little bit while hiding the move.

"I use a Sachtler Studio 9+9 fluid head. Everybody laughs at me, but I've had that head for probably 20 years. I love it like an old pair of shoes. It just feels good. It fits. When I'm on the dolly, I operate through the eyepiece, which is interesting. I come from the old school film days where you had to have your eye in the viewfinder. But, even with digital cameras, I can see focus better. I can concentrate on the image and stay fully connected to the action. There are times where I'll also look at the onboard monitor during a shot. I'll be in the eyepiece and go to the monitor if I have to spin around quickly. On *A Complete Unknown*, we had Sony VENICE cameras and onboard SmallHD Cine 7 monitors.

"I started my career as Haskell Wexler's assistant for 7 years and then I became his operator. He was a great mentor and his sensibilities influenced me a lot."


Photo: Sony Cine

Photo: Alan Roskyn. Netflix © 2024.

The 6-hour Netflix series *Senna* follows the life of legendary F1 driver Ayrton Senna with white knuckle racing scenes, action, drama and stunning cinematography by Azul Serra, ABC and Kauê Zilli, ABC (Association of Brazilian Cinematographers).

This story began with an email in May 2024 from my friend Ernesto Musitelli, head of Musitelli Film and Digital Rentals in Montevideo, Uruguay: "We supported *Senna*, a huge production for Netflix in Uruguay, Brazil and Argentina. We sent out 266 cases of cameras, lenses and equipment – 2500 kg of gear."

Azul Serra, ABC called in July, on location in Marrakesh, Morocco.

Thanks to Ashley Trudel at Netflix, who provided the BTS stills and framegrabs for this article, and to Musitelli for prep photos.

Jon: Please tell us about the series.

Azul Serra, ABC: It was impressive when we realized the size of the project. We divided the cinematography into different areas. One was where all the characters' drama happened. And the other part involved the car races: cart racing, Formula Ford, etc. We decided to shoot the drama with the new ARRI ALEXA 35 cameras. They were quite new when we got them. The director and showrunner, Vincent Amorim, really liked the look of the ALEXA 35. And it was a natural choice—a brand that has been there for so many years with such good results. So their new Super35 camera fit wonderfully with this story.

We shot the car racing sequences with RED RAPTOR and KOMODO cameras. One of the main reasons to shoot on RED was because we needed a lot of crash cameras like the KOMODOs, and we also had a lot of slow motion. Also, the RED's global shutter was important for the action scenes. RED cameras are extremely versatile, not just for frame rates, but also for their small size and how we could rig them in the cars. Also, in terms of visuals, we knew that RED would give us a little different look—a little bit more crispy, let's say—on the race courses which are really hostile environments.

Why is a Brazilian cinematographer renting all this equipment from Uruguay if you're shooting in Brazil?

Actually, we shot mostly in Argentina. There were two main reasons. One was because we tried to find a race track that could serve as a studio base and also could work for many different racetracks around the globe. This is a period film and we needed the race tracks to look as they did in the eighties and nineties. Buenos Aires has a famous race track that is quite old and still remains.

The second reason was the company that built all the replica cars for the series. Tulio Crespi and his family have a factory in Balcarce, a small city south of Buenos Aires. In addition to

Argentina, we also filmed in Uruguay, Brazil and the UK. It was a huge job with 9 months of prep and about 7 months of shooting.

So, if you were filming mostly in Argentina, why did you rent from Uruguay?

Because Musitelli is such an amazing company. Not only in terms of the equipment, but also the human treatment that Ernesto and everyone at the company brought to the whole process—from day one of pre-production until the end, they were totally close to us. We talking constantly. Ernesto came to see us all the time on location to see if everything was OK. Brazil has a very big film industry with great rental houses, but Musitelli is conveniently located close to Brazil, Argentina and, of course, Uruguay. Also, when you go to Musitelli, you see their great facilities and how they love what they do.

Tell us more about the equipment and what was inside the hundreds of cases you rented from Musitelli.

Cameras consisted of 6x ARRI ALEXA 35; 1x RED RAPTOR; 3x RED KOMODO; 4x GoPro 11 with C-Mounts for Bolex lenses. 8x TERADEK Bolt 6 XT (5,000 ft range); 24x TERADEK Bolt 6XT Receivers; 3x BRIGHT TANGERINE Prodigy Air Deflectors; ARRI Hi-5 Wireless Focus Controls; TILTA Nucleus M FIZ on Unit A and B with the ALEXA 35 cameras for iris, and on the Performance Unit with RED RAPTORs for iris, and on the RED KOMODOs for focus and iris. Also: SMALLHD monitors in all sizes; ANTON BAUER batteries and chargers; CARTONI Maxima Fluid Heads.

For the race sequences, we used vintage Canon FD [Full Frame still lenses introduced in 1971, rehoused by True Lens Services (TLS) with PL mounts].

Focal lengths were: 14mm T2.9, 18mm T1.6, 24mm T1.5, 28mm T2.1, 35mm T1.5, 45mm T1.5, 55mm T1.3, 85mm T1.3, 100mm F2.1, 135mm T2.1.

For the drama sequences, we used Canon K35 lenses, also rehoused by TLS with PL mounts, as well as some FD lenses to complete the K35 set: 18mm T1.5, 24mm T1.5, 35mm T1.5, 55mm T1.3, 85mm T1.3. And Canon TLS lenses: 45mm T1.5 (FD-X), 60mm T1.6 (Type SK), 100mm F2.1 (NFD), 135mm T2.1 (NFD), 300mm T2.8 (FD).

For specific emotional scenes, we used the Canon 50mm F0.95 "Dream Lens," rehoused by TLS with an LPL mount. [This lens was originally introduced in 1961 for the Canon 7 rangefinder camera.]

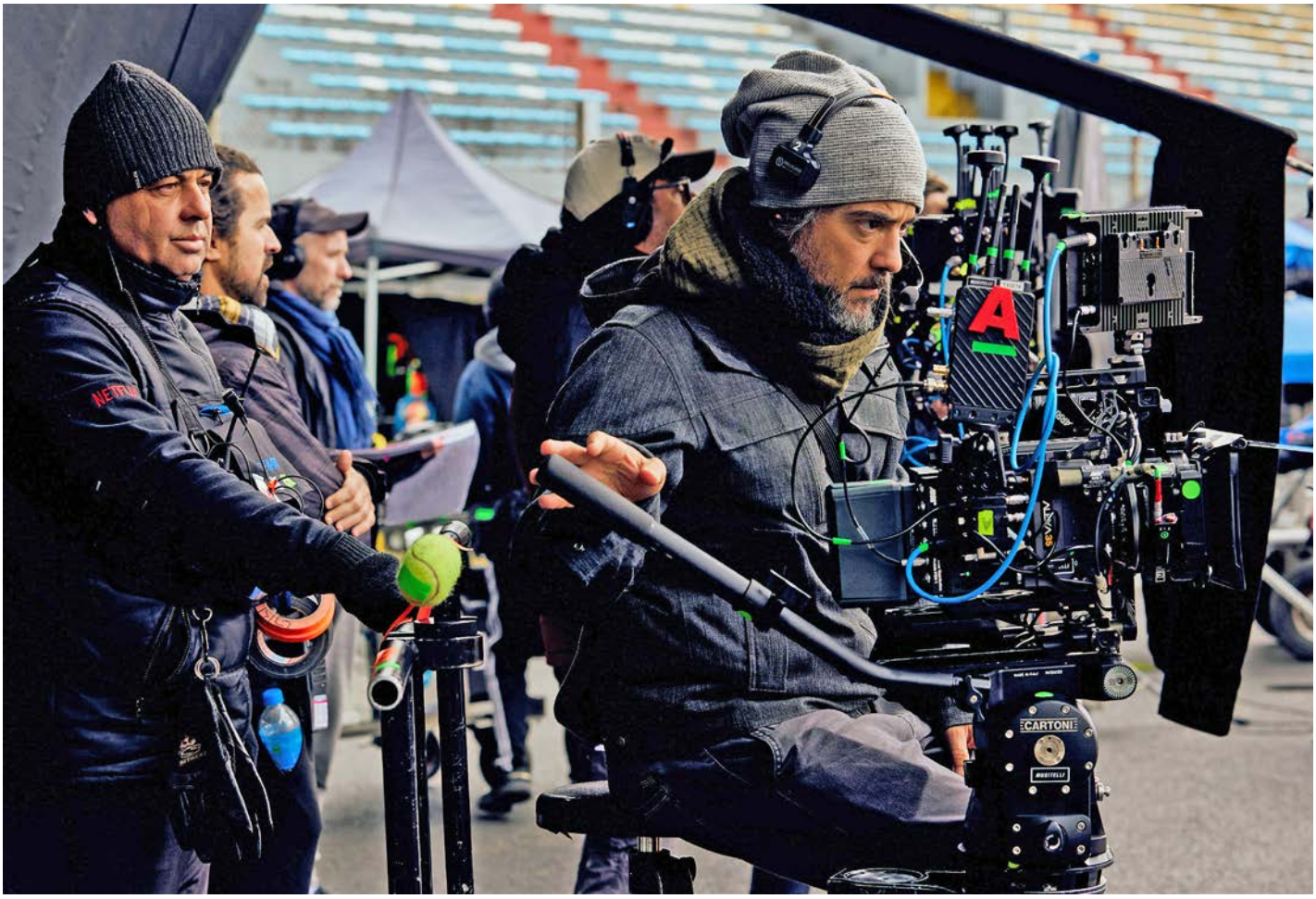
We also had zooms. The drama unit had: Angénieux Optimo 24-290mm - PL Mount and Canon K-35 25-120mm - PL Mount.

The racing/performance unit had: ARRI 65-300mm T2.8 Signature Zooms with 1.7x Extender (ARRI LPL Mount), Fujinon Premista 28-100mm T2.9 Lens Kit with Chrosziel Drive Unit (PL Mount), Fujinon Premista 19-45mm T2.9 (PL Mount) and Angénieux Optimo Zoom 24-290mm – (PL Mount).

You must have had an interesting job matching all those cameras and lenses and locations?

Grading was a very long process because there were a lot of visual effects. Apart from matching the cameras, many different visual effects houses were bringing the puzzle together. Grading was done on DaVinci Resolve. Our lead colorist was Luisa Cavanagh—she's Argentinian. The grading process was one of the most incredible that I ever had because we had so many sessions before

Signature Zoom (LPL) on RED Raptor with TILTA RF to LPL adapter.



we actually started to shoot. We did 10 or 11 sessions just to find out the look and the LUT that we would use along the way.

I had a Leica SL2 camera to take pictures during the creative scouting. It is a beautiful camera to have because it provides so much information. We started with those images, and I also got many references of Senna from the seventies, eighties, and nineties. Then we started to decide which look to have in each phase of his life. We ended up separating into four different phases. Phase one was his childhood in Brazil and the beginning of his career. Phase two involved Formula 3 and Ford in the UK, where he had arrived, alone, from Brazil trying to start his career. The third phase was when he went to Formula 1 and spent his time in Team McLaren. Most people, especially in Brazil, usually remember Senna with his red and white McLaren car. The fourth and last phase was when he was with Williams. The look changes because Formula 1 has also advanced, modernized with technology and pristine garages.

Contrast, colors, subtle changes in the shadows, a bit of warmth in the highlights all contributed to those different looks.

Essentially you had four different LUTs ?

Yes. We had four LUTs, with each one available at 100, 75, 50 and 25 percent for flexibility in balancing.

Do you operate the camera yourself?

Yes. I operate myself, usually with a Cartoni Maxima head and Panther dolly on tracks. Ariel Schvartzman was on Steadicam and as second operator. We mainly had two cameras in the main unit.

I understand you also filmed in a Virtual Production Studio.

It was very interesting. We shot in an LED studio in São Paulo. That was relatively new for most of us in the industry in South America. They had a very large, new facility for this show with almost 360 degrees of LED panels. Since the cars move so quickly around the race track, turning left and right, with the sun angle changing constantly, the camera tracking and the backgrounds had to adjust rapidly as well. The sense of movement depended on the sun direction which we had to track with Unreal Engine and quite an engineering structure.

I would also like to thank the wonderful work of our great crew and Kaue Zilli, the other DP who worked on this series. We actually had a special camera car built because traditional ones were not fast enough or low enough. It was pretty much based on a Formula 1 car, but it carried the precision driver, camera operator and focus puller.

How did you get started in filmmaking?

I went to film school in São Paulo. I graduated in 2006. Then, I went to London for seven years. I worked in many different jobs to learn English and to understand the culture there. Then, I met a journalist from Brazil who worked on breaking news around the world. I did four years shooting news: covering presidents, meetings and summits and traveling to war zones. And then, with time, I started working in fiction, drama, and narrative productions and I embraced that. And the rest is history.


MAGNETI MARELLI
Rothmans
elf
Rothmans
GOODYEAR


Jean
Pool
BRASIL
CHAMPION
Lucas
DUNLOP

Kinefinity HDMI e-Viewfinder

Kinefinity keeps impressing with great Electronic Viewfinders. They introduced their EAGLE SDI e-Viewfinder last July. Now there's a wonderful HDMI version. It works with most cinema cameras, DSLRs and mirrorless cameras that have HDMI video outputs, for example, the SIGMA fp L shown here as a Directors Finder and in cine style on the next page. Many cameras that will love this EVF include Sony FX3 and Alpha series, Fujifilm X series and GFX 100 II, Lumix, Leica, Canon, Nikon and many more, including cameras whose SDI outputs you don't want to tie up.

As with the SDI model, the new HDMI e-Viewfinder has a Micro OLED 1080P display. It is one of the most compact and lightweight EVFs on the market, starts up quickly, has low power consumption, and almost zero latency.

It connects to video via a full-size HDMI port and is powered by a USB-C port.

There are three user buttons, a selection knob (rotate to navigate / push to set) and a power switch. The Start/Stop button of the SDI model is now dedicated to a histogram display. You attach the e-Viewfinder using its clever combination Rosette + Quick-Lock and 15mm Rod Mount or 1/4-20 Mini Mount bracket.

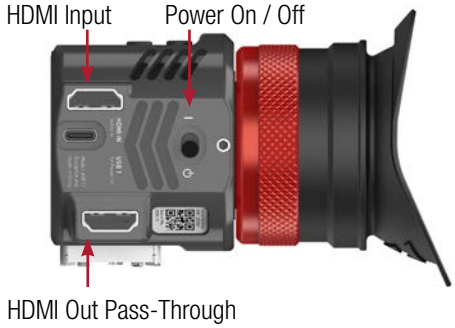
Display:	0.71" / 1.8 cm Micro-OLED Panel
Resolution:	1920 x 1080 (RGB x 3)
Contrast:	>10,000:1
Color depth:	10-bit Processing (8-bit Panel)
PPI:	3103 ppi
Diopter:	-6 to +2 (Optical)
Power:	+5V DC. 3W
Latency:	Zero Delay
Video Input:	HDMI Type-A , with video loop out
USB 1:	Type-C USB 5V Power input
USB 2:	Type-C USB for firmware updates
Dimensions:	105 x 54 x 59 mm 4.1 x 2.1 x 2.3 inches
Weight:	348 g / 12.2 oz
Quiet:	No Fan

Video:
1980x1080 @23.98p/24p/25p/29.97p/30p/47.95p/50p/59.94p/60p
@ 23.98psf/24psf/25psf/29.97psf/50i/59.94i/60i

Functions: Luma Waveform, Desqueeze / Scaling (Anamorphic), 2:1 / 4:1 Focus Magnification, Peaking, Luma / RGB Histogram, False Color, Zebra, Framelines, Center Marker, User Button Assignment, Overlay Clear, Image Rotation, Image Flip.

Top

Bottom



Mounts

15mm Rod Mount

Left Side

Right Side

1/4-20 Mini Mount

Kinefinity HDMI e-Viewfinder on SIGMA fp L

The SIGMA fp L Full Frame 60MP hybrid stills/video camera has a convenient USB-C port to power the Kinefinity e-Viewfinder. Attach it on the camera right side and you can view the camera's rear display and menus with your left eye, and also tap the screen for autofocus.

Here is the Kinefinity e-Viewfinder attached with its ¼-20 Mini Mount to the left side of the SIGMA fp L. For longer run-time, we attached the helpful Accsoon Toprig NP-F Battery Adapter Plate with its ¼-20 mount and USB-C power port. It accepts Sony L Series NP-F type 7.2V batteries.

By the way, SIGMA has a good accessory EVF-11 viewfinder for the fp L camera. But it only attaches to the camera left side.

I was delighted to connect 6 foot long HDMI and USB-C cables and successfully view the camera remotely with the e-Viewfinder.

We can't call it Rialto, but how about another Grand Canal bridge, perhaps Scalzi?

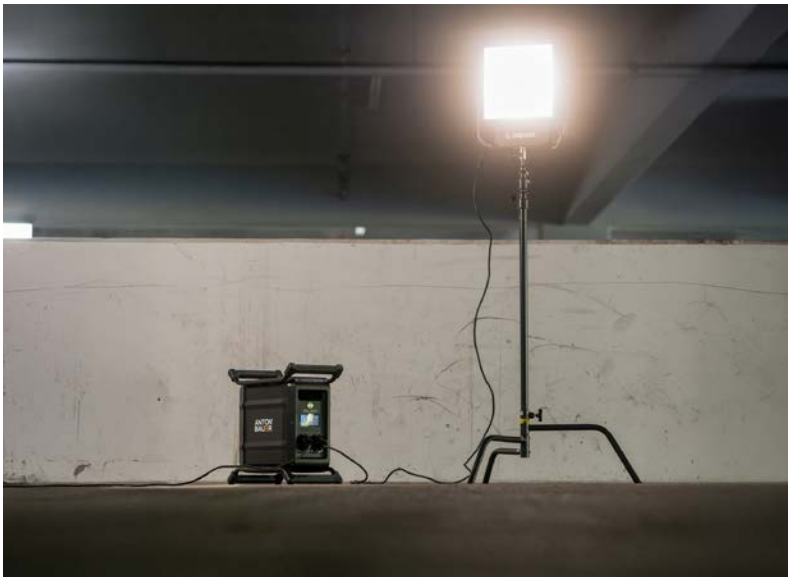
For downhill skiing or parapenting, you could try attaching the e-Viewfinder and its Mini Mount to your helmet for monocular view while keeping your other eye wide open for obstacles and obstructions.

Anton/Bauer EDEN 2.5kWh Mobile Power System

Anton/Bauer announced EDEN, a 2.5kWh mobile power station designed specifically for professional film crews. This is not an ordinary camping or emergency power station. EDEN is a rugged, portable, reliable, grid-quality battery power system. Whether on location, on a studio back lot or on set, EDEN delivers reliable AC and DC power in a dustproof, waterproof design.

Andrew Hutton, Head of Product Management at Anton/Bauer, said, "Until now, filmmakers had to rely on products designed for recreational use, which often fell short of powering professional-grade cinematography equipment."

- Power Options: 2.5kWh capacity, two AC outlets, and four USB-C ports. EDEN's Lithium-Ion batteries can power many devices on set and on location—DIT cart computers, lights, cameras, walkie-talkie charger, etc.
- Fast Recharging: Full recharge in under 4 hours using standard AC power, or use solar energy for sustainable, off-grid charging.
- Real-Time System Monitoring: A 3.3" color LCD screen provides instant access to performance data and diagnostics.
- Durable: The rugged aluminium construction and IP65 rating mean that EDEN is comfortable in hostile environments.
- Quiet: silent operation. Minimal on-set noise.
- Daisy Chaining: Expand power capacity by linking multiple EDEN units together. The units discharge sequentially ensuring continuous power to equipment without interruption.
- Uninterruptible Power Supply: EDEN works as a UPS to protect sensitive equipment and keep your DIT cart computer running even when the Producer's nephew, who is visiting the set, trips over the power cable. EDEN ensures seamless transitions from grid to battery power for companymoves.



EDEN is available now through authorized Anton/Bauer dealers. For additional details, visit *antonbauer.com*

Anton/Bauer EDEN 2.5kWh Mobile Power System

For example, one EDEN 2.5 kWh Unit can power one Anton/Bauer Gemini 1x1 Hard LED fixture (200W input) for about 12.5 hours, or 6 Geminis for 2.5 hours. No generator, no distro boxes, no heavy cables.

Happy 10th Birthday — Bright Tangerine Misfit Atom

Bright Tangerine launched the lightweight Misfit Atom Matte Box from their factory in Aldershot in 2015.

Versatile and modular, the Misfit Atom Matte Box weighs a mere 195 grams (6.9 ounces). That's about the weight of this FDTimes edition.

Misfit Atom is a two-stage clip-on matte box. It clips onto lenses up to 114 mm diameter and accepts one or two 4x4 or 4x5.650 filters.

This is a rugged, elegant, essential accessory—made of anodized aluminium, elasto-polymer and stainless steel. Originally intended for handheld, Steadicam and gimbals, the Misfit Atom has been in service for ten years on every imaginable production.

As the Misfit Atom grew in popularity worldwide, so did Bright Tangerine's modular additions to the system. Their carbon fiber eyebrow (top flag) adds only 150 grams. Attach a Bright Tangerine 15mm Lighweight Support or 19mm Studio bracket, and Misfit Atom slides elegantly onto rods. Of course, you are using Bright Tangerine's featherweight Drumstix Titanium Support Rods.

Additional step-down rings, Clamp-On Rings and threaded Donut Rings let you work with a Misfit Atom on a multitude of lenses. Add their Anti-Reflective Tilt Bracket to reduce glare and flare or those dreaded narcissistic double-images of car headlights.

Misfit Atom continues to be made in Bright Tangerine's factory in Church Crookham, Great Britain, along with the rest of their bright and brilliant products.

Happy 10th Birthday to a misfit that gained great success and acceptance by users everywhere.

brighttangerine.com

Photo by Josh Cooper

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lowel
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