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FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide

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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Contents: Sept 2018 Double Issue 89-90

As usual, the only logical order of placement in this edition is when stories and photos arrive. Cover photo by Maher Maleh.

Leitz Park III

In 2005, Leica photography aficionado, businessman and former professor Dr. Andreas Kaufmann became the majority shareholder of Leica AG through his company ACM Projektentwicklung GmbH, Salzburg, Austria.

Later in 2005, the idea for Leica Summilux-C lenses was hatched with Christian Skrein and Otto Nemenz.

Although Leica had long been synonymous with Wetzlar, actual manufacturing was done in the neighboring town of Solms since 1980. Dr. Kaufmann, AKA "AK," was determined to bring Leica back to Wetzlar. Land was acquired in a strategically well-placed location at the entrance to town. Construction on Leitz Park I began in 2007. It became the home of AK's other ACM companies: Uwe Weller Precision Machining and Viaoptik. CW Sonderoptic, the cine lens sister company, moved in shortly after.

Meanwhile, Gruber + Kleine-Kraneburg Architects were planning Leica's new headquarters, manufacturing facility, offices, café and store in the second phase of development. Leitz Park II was opened in 2014. AK's plan was only two-thirds complete. Leitz Park III was well underway in the designs of Prof. Helmut Kleine-Kraneburg's team. The concept was described as a campus, or more appropriately, a Tuscan village around a market square.

Leitz Park III opened in 2018. The festivities spanned three days, from June 14 to 16. The "village" includes a comfortable hotel, museum, archives, photo studio, bookstore, galleries, office building and additional manufacturing. It houses the new headquarters of the company formerly known as CW Sonderoptic, now named Ernst Leitz Wetzlar GmbH—Leitz for short. But we're getting ahead of the story.

Leica attracts a passionate group of users. They make pilgrimages to Wetzlar to stand on the plaque downtown where Oskar Barnack took the first pictures with his iconic Ur-Leica in 1914. Now, Leica lovers can visit Leitz Park I, II and III. In addition to being an industrial "park," it is essentially a fantastic destination theme park for Leica aficionados. It's like a Leica Land. And it is an easy hour's drive from Frankfurt airport.

The 129-room Arcona Living Ernst Leitz Hotel is clean, comfortable, cheerful, modern, air-conditioned. The walls are festooned with photographs by distinguished Leica camera photographers. For a Tuscan village set in the center of Germany, the restaurant is appropriately named *Weinwirtschaft*, loosely translated as Wine Restaurant. The open kitchen serves delicious Italian-modern. Try the fresh salad with white asparagus and pasta with porcini mushrooms. The wine list is vast: Primitivo, Nero d'Avola, Tempranillo, Montepulciano d'Abruzzo, California Cabernet. Many are served by the glass. Across the street, in the Leica shop, a different kind of glass is offered: Leica and Leitz lenses.

The Leica Museum next door presents the company's history from early microscopes through first cameras, from Ur-Leica to the latest models. The inaugural exhibition in the Leica Gallery opened with *Eyes Wide Open! 100 Years of Leica Photography.* A photo studio and lecture rooms are on the ground floor. The hallowed archives are one flight up. A five-story office building "towers" above the town square. It houses administration offices and a nice balcony with a view.

Leitz has moved into their new two-story building. The ground floor is mostly a clean room for assembly, testing and repair of Summilux-C, Summicron-C, Thalia and M 0.8 cine lenses.

The inaugural festivities began with speeches and presentations in a giant tent. Bruce Davidson was awarded the Leica Hall of Fame 2018 Award. An outdoor food "court" fed visitors who could then go off on guided tours, attend lectures, try cameras and lenses, and explore the archives. Hans-Michael Koetzle discussed *Eyes Wide Open*. Lars Netopil presented his latest lavish book, *Museum Leica*. Peter Karbe discussed lens design. Evenings were filled with concerts and nights were prolonged with conversation.

Leitz Park III

Leitz Park III. Above, from left: Ernst Leitz Hotel; Museum, Studio and Archives, Office Building, Leitz.

Lobby of Leitz cine lens building.

Leitz Park II across the street. Café in center, manufacturing on left.

Ernst Leitz Hotel

Marcel Koch-Mehrin and Prof. Helmut Kleine-Kraneburg, architects (L-R).

Dr. Andreas Kaufmann, Chairman of the Board

JON FAUER: Since we both have an interest in architecture, please tell us about the Leitz Park III project.

ANDREAS KAUFMANN: We're on budget and on time.

JF: Unheard of. How is that possible?

AK: It has to do with materials and construction. The components are prefabricated and thermally active, which means the building mass is used for heating and cooling. The pipes are pre-installed inside the walls. It's a very precise process because all the intricate parts have to fit. You might say that it just has to be glued together. That's an over-simplification, but everything truly had to be planned in advance.

JF: Sounds like building cameras and lenses. What was your initial concept for Leitz Park III?

AK: Basically, it's a follow-up, another episode in the continuing series of our development.

Leitz Park I was the starting point, with two buildings: Uwe Weller Precision Machining and Viatopic, and we then added CW Sonderoptic. For Leitz Park II, we originally considered building one huge, blockbuster structure. But, we realized it would have appeared too massive and intimidating. Working with Prof. Helmut Kleine-Kraneburg, Marcel Koch-Mehrin and the architectural team at Gruber + Kleine-Kraneburg, we began plans for Leitz Park II in 2007, broke ground in 2012 and opened in February 2014. It was a high-concept administration and manufacturing facility. Then, in June 2016, we broke ground for Leitz Park III. The idea was based on the modern interpretation of a marketplace. It all came together with four elements: a hotel and restaurant; Leica Academy and museum with archival storage; the Ernst Leitz Wetzlar building; and a "high-rise" 5-story administration building.

JF: Were there changes along the way?

AK: The original Leica factory and administration concept, Leitz Park II, has a curved facade with a glass front. I wanted to have an entrance where people would feel proud when they entered the structure. I think we achieved this.

For Leitz Park III, the architects again came up with a single multi-function structure. Certainly, one building is more cost-effective. But I thought it looked like one of those huge Miami Beach hotels. So, we broke it up into different structural elements.

JF: Leitz Park III reminds me of an Italian village or a square you'd see in Porto Cervo, Sardinia.

AK: That was the concept. I came back after Christmas with this idea and told the architects, "Try something reminiscent of Montalcino or Sienna." The buildings are related, but look different and surround a square or marketplace.

JF: Speaking of Montalcino, the hotel and bar fit your theme.

AK: The Arcona Living Ernst Leitz Wetzlar has 129 rooms and is managed by a family-run German hotel chain. It has a modern bistro style restaurant named *Weinwirtshaft* with an open kitchen and a nice selection of wines. And it also has a bar, because a hotel needs a bar.

JF: Would you comment on the client/architect relationship during the evolution of Leitz Park?

AK: We have been working with Gruber + Kleine-Kraneburg since 2007. I always liked working with them because they have always been receptive to new ideas. Sometimes we would propose an idea. They might not like it at first. But, they always tried to find a way to achieve it. A good example is the Leitz Café that is in the center of Leitz Park.

JF: The café is a centerpiece of your campus. It certainly gets a Moveable Feast Film and Delicious Times Award. The welcoming design, superb pastries and coffee attract people from all over the world.

I initially suggested looking at the Mies van der Rohe German Pavillion for the 1929 International Exposition in Barcelona and combine this with the modern interpretation of a Viennese coffee house. Two designs were proposed. We refined them, worked on the roof and other details, and then we had the Leitz café. We are all happy with it.

JF: Please tell us about the museum.

AK: The museum will open with the *100 Years of Leica Photography* exhibit. Afterwards, we will present additional major photography shows. One of these is currently being put together. This is a project I have wanted to do for a long time. It will be an exhibit about Paul Wolff. He was a pioneer in the art of 24x36 mm format photography. Because his oeuvre is scattered all over the world and not much has been written about him, we have been working for years to put this together. The theme is the Art of Paul Wolff as seen in his Leica Format black and white and color photographs. We will also publish a large book of 400 or 500 pages.

Paul Wolff initially studied medicine, became a physician, worked as a camera operator and then a free-lance photographer. He won a Leica camera around 1926 at a photography exhibition and then wrote books on how to use it. He was quite well-known in the U.S. and was considered to be a master, but the Second World War ended his influence. He was the first real professional who came from the 8x10 and Large Format photography world who embraced the 35mm Leica format in 1926. It was a time when most professionals scorned 35mm as an amateur format. Paul Wolff was influential in the success of the system and he conceived many of the methods for using the Leica camera and lens system.

JF: I had not heard of him, I'm embarrassed to say.

AK: Well, let's say there is a large gap between the history of photography as written in the Anglo-Saxon world and the rest of the world.

JF: The History of Photography is written by the curators?

AK: When you think of international photography, the comparison between America and the rest of the world might be like comparing the size of America to Montreal. That's an exaggeration, because there is certainly French, Czech, Russian and Japanese photography, et cetera. We demonstrate that in our *100 Years of Leica Photography* exhibition running from June 15th for three months. It shows the world of photography from a more European point of view and from the Leica point of view. It is the story of photography as "written" by Leica photography all over the world. Yes, we have Americans in it and we have Brazilians and Portuguese and Germans. So, that's why you might not have heard of Paul Wolff.

JF: Will the museum display the iconic Leica camera collection?

AK: No, those historic cameras stay in the lobby of our main Leitz Park II building. The museum will develop its own concepts in 2019 and will build upon the display shown in the main lobby of Leitz Park II.

The new facilities are spectacular. Tell us about renaming CW Sonderoptic to Leitz.

AK: Since 2004, I had been negotiating to get back the brand Ernst Leitz Wetzlar. And I was able to buy it this year. The first step was renaming CW Sonderoptic to Leitz.

The second step was renaming our company that develops Leica watches to Ernst Leitz Werkstätten. And, we will probably have a few other brands.

JF: I trust that Leica Camera will still be Leica?

AK: Yes.

JF: You acquired the Ernst Leitz name from the Leitz family?

AK: No, they lost the name when they lost Leica Microsystems and it was taken over by Danaher Corporation in 2005.

JF: Looking ahead, I can imagine that Leitz will design and develop many more new lenses. Have you planned ahead for future expansion of your just-completed cine lens manufacturing facility?

AK: Yes, we can add more space in the back and we can do this immediately. Also, at the moment, we are discussing the installation of a service department in Portugal, where it can be centrally located and provide speedy logistics to the whole world. It will be near Porto. We will work with the University's optics and physics departments to provide training for additional lens technicians.

JF: Do you see Full Format, or the Leica format as you would probably prefer it to be called, being the next standard for high-end cinema?

AK: I would definitely see Large Format as the standard for high-end production. It simply has to do with the cost of sensor production. For television and independent productions, Super35 will probably continue to be popular. I think the total demand for all cine lenses will continue to climb.

JF: This year, no sooner did we see new Large Format cameras from ARRI, Canon, RED and Sony than cinematographers were already asking for Full Format anamorphic lenses. So, I think your quest will never end. It's a good time to be in the lens business.

AK: We see a great future for Large Format and Full Format cine lenses. We see also a great future for Super35 as well, and in the future, we will create more lenses for both formats.

CW Sonderoptic renamed Leitz

April 2018. CW Sonderoptic logo on the new building.
Photographed with Leica M10 and Summilux-M 1.4/50mm ASPH.

Photographed with Leica M10 and Summilux-M 1.4/21mm ASPH.

In April 2018, the name and logo on the outside of CW Sonderoptic's new headquarters and factory in Wetzlar seemed permanent.

On June 15, a fabric banner covered the name before the inauguration of Leitz-Park III. At this event, attended by thousands of visitors, the banner came down and the new name was revealed. CW Sonderoptic is now Leitz Cine Wetzlar, or Leitz.

Gerhard Baier, Managing Director, explained, "Our rebranding to Leitz marks a natural evolution and renewed commitment to growth in this field as well as an homage to Ernst Leitz who created Leica over a century ago. Until the late 1980s, all Leica lenses carried the name 'Ernst Leitz Wetzlar.' Our new name carries the legacy and responsibility of this heritage."

Existing orders of lenses have been delivered with the Leica red dot, but all new orders will carry the new Leitz red dot logo. The new web address is *www.leitz-cine.com*

Let's go inside for a factory tour...

June 15, 2018. CW Sonderoptic logo covered by banner.

Managing Directors Gerhard Baier and Dr. Aurelian Dodoc speak.

The banner is lowered.

Leitz Cine Wetzlar is revealed.

Leitz Cine Wetzlar

Above: EXT. Leitz - DAY.
Below: INT. Leitz - DAY.

Leitz Cine Factory Tour

Automatic shoe cover machine for visitors to clean room.

Clean room Birkenstocks.

TRIOPTICS OptiCentric measures tilt and distances between individual elements—the air gaps between every lens element.

Centering and lens group adjustment on Star Test machine.

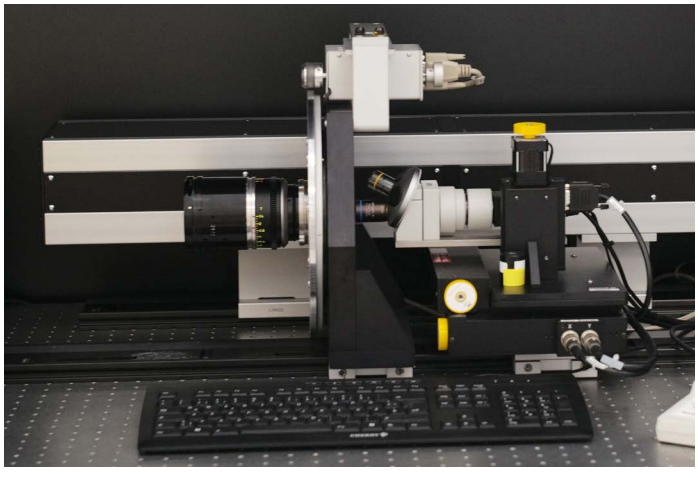
Air gap in a Summilux-C can be 1/10mm, with 1/100mm tolerance.

Adjusting air gaps.

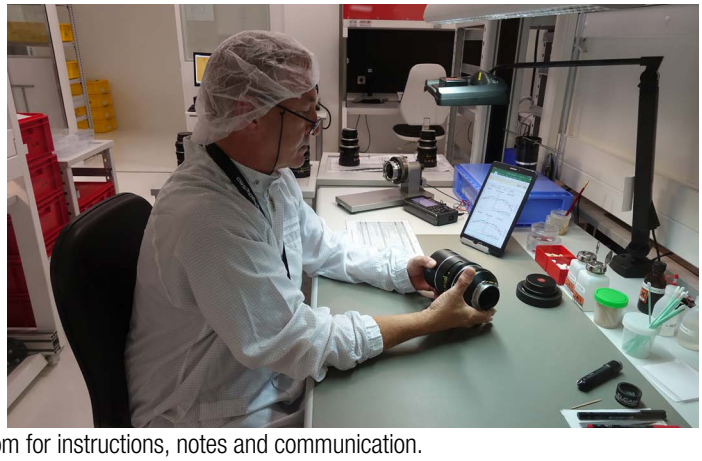
Leitz Cine Factory Tour

Checking aperture calibration.

MTF Master: tests MTF curves, resolution, symmetry and performance.

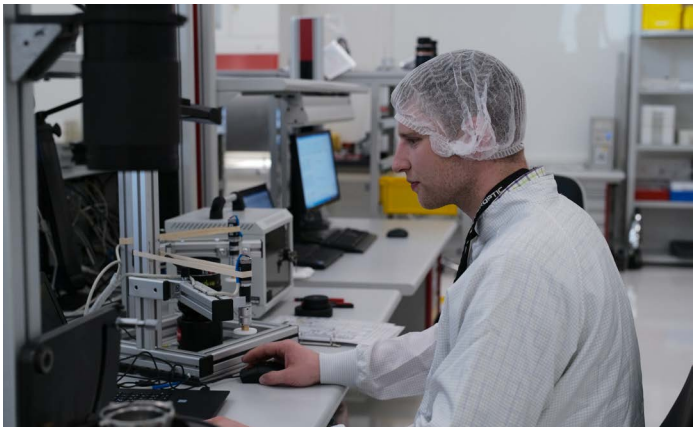


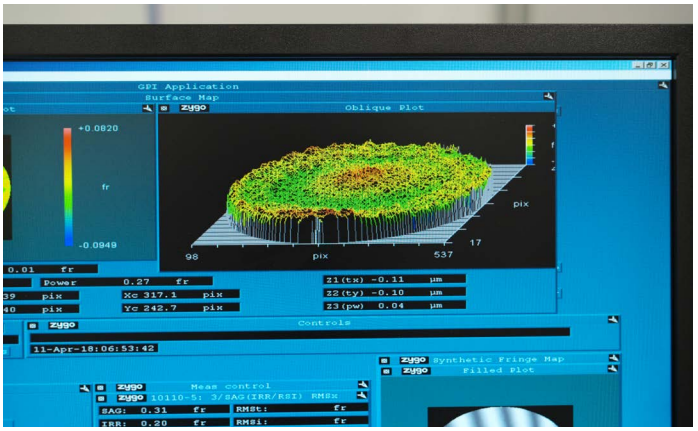
Uli Schroeder, Head of Assembly.



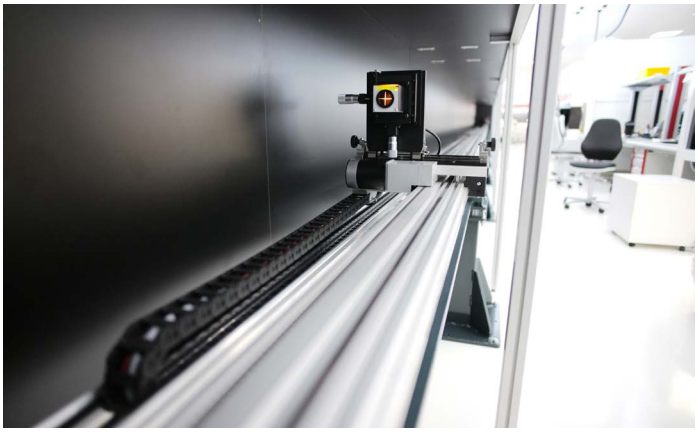
Paper creates dust as the fibers wear off. So tablets are used in the clean room for instructions, notes and communication.

Leitz Cine Factory Tour





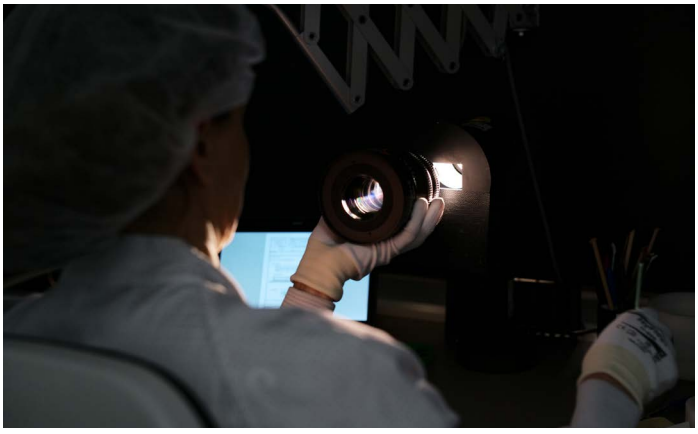
Zygo Surface Map to check lens surface.




22 meter long focus calibration unit. Individual calibration of each focus mark for every lens prior to engraving.


Painting the engraved focus barrel.


Lenses waiting for final cleaning, checking and QC.


Cleaning the outside surfaces of the lens and its elements.

Leitz Cine Factory Tour

Lens Projection Room.

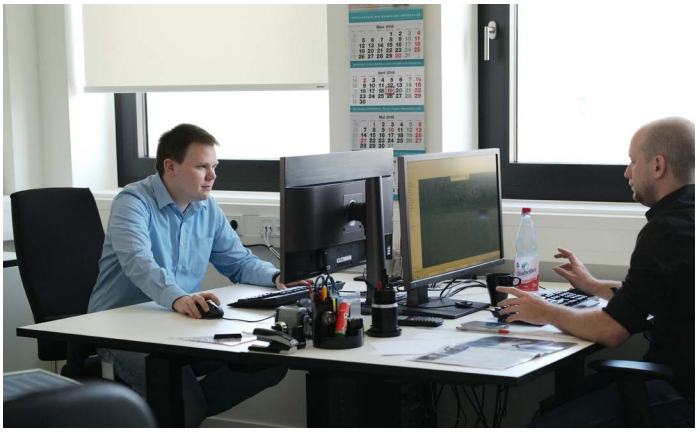
Babs Bokeh, the mannequin presiding over bokeh tests.

Measuring torque of lens barrels.

Quality control.

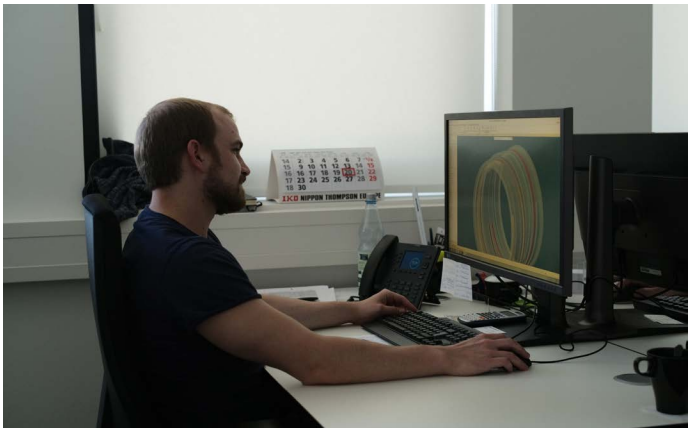
Thalia 65mm / Large Format cine lenses hot off the assembly line.

Optical and Mechanical Designers and Staff

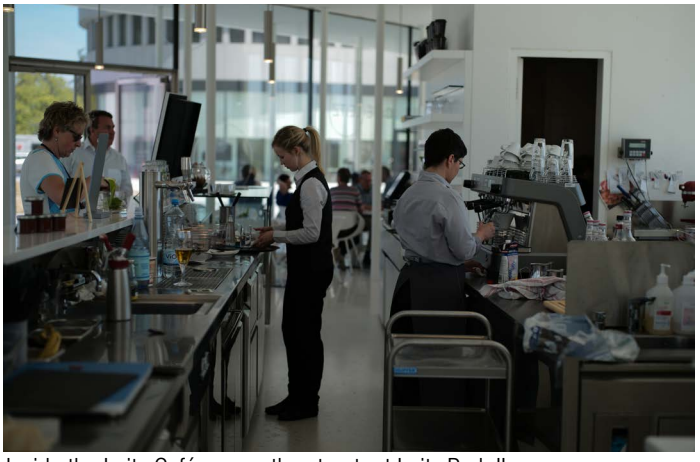


Dr. Aurelian Dodoc, Managing Director and chief designer of cine lenses with his team of optical and mechanical engineers.

Reading a good magazine...

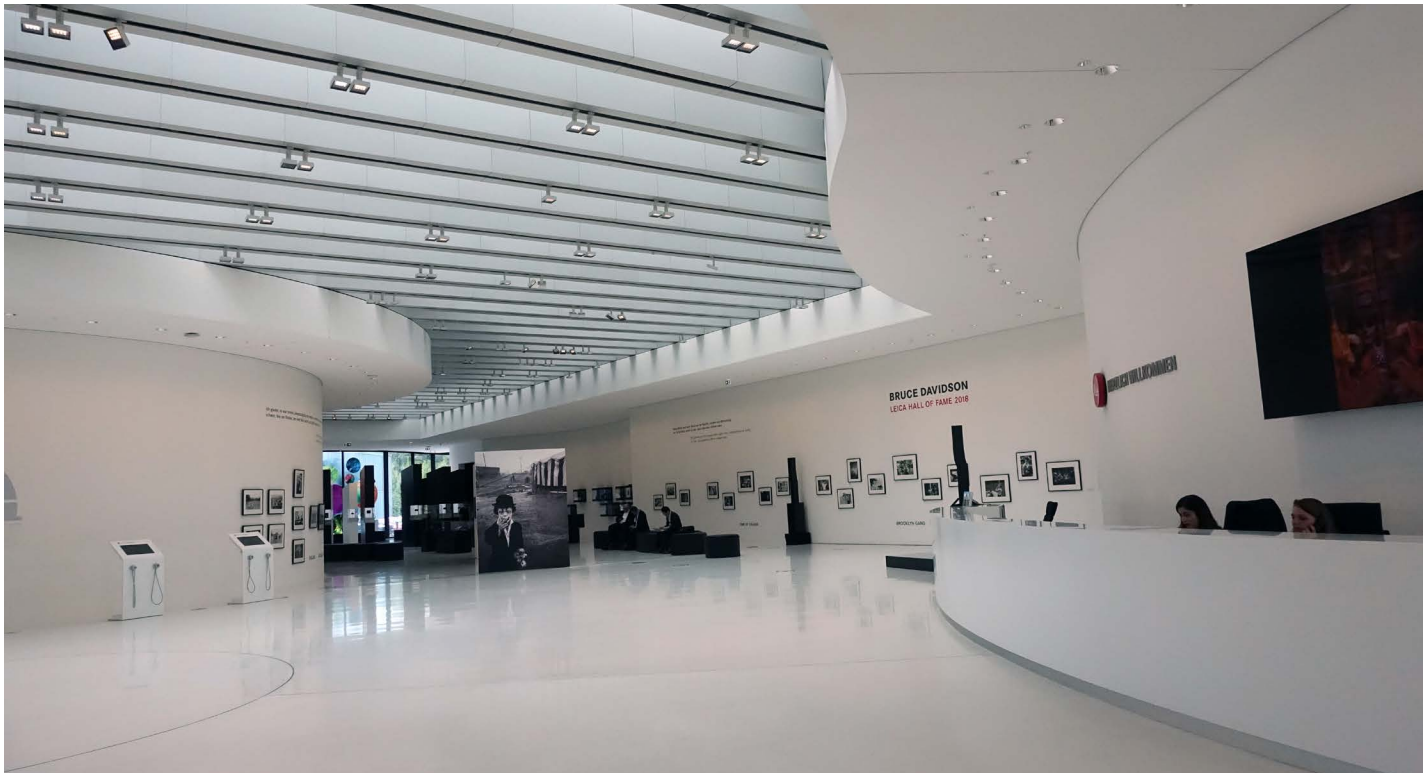


Customer care, marketing, accounting, and logistics team.

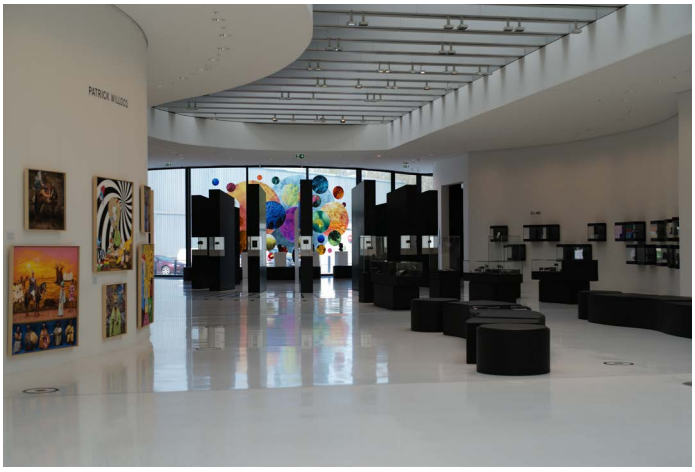


Inside the Leitz Café across the street, at Leitz Park II.

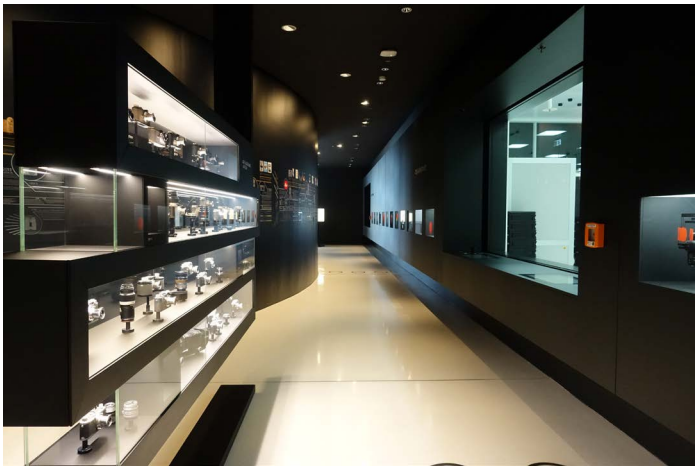
Leica Camera Factory



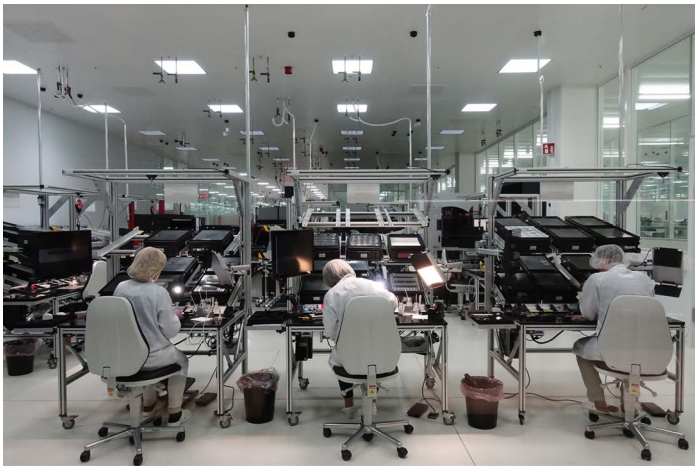
This is the main lobby of the Leica offices, repair, camera and lens manufacturing facility in Leitz Park II.



There's a gallery and display of milestones in the Leica journey.



A corridor outside the assembly area shows a timeline of Leica products.



The main assembly clean room.

This is what the Leica factory looked like in earlier times.

Leica Studio

Classic Alpha Romeo 2600 SZ (Sprint Zagato) introduced in 1965.

2018 IsoRivolta Zagato Vision Gran Turismo concept car.

Leica Gallery

Eyes Wide Open: 100 Years of Leica Photography

1914. Ur-Leica, named “Lilliput Camera” by Oskar Barnack.

This replica in the museum was built as an exam project by Leica trainees.

1923: 0 Series. This one is a replica.

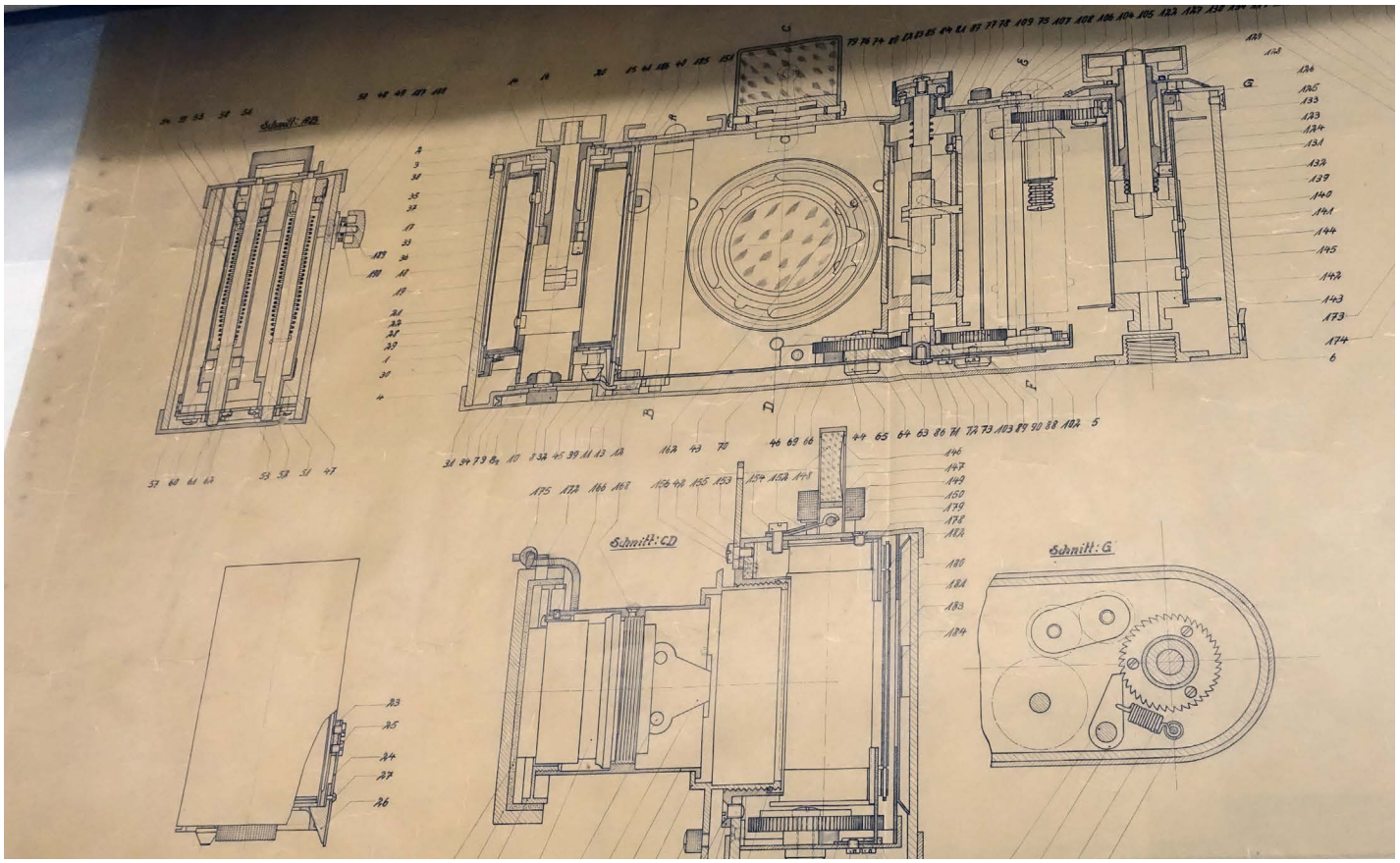
1925: First serial production Leica Camera, the Leica IA.

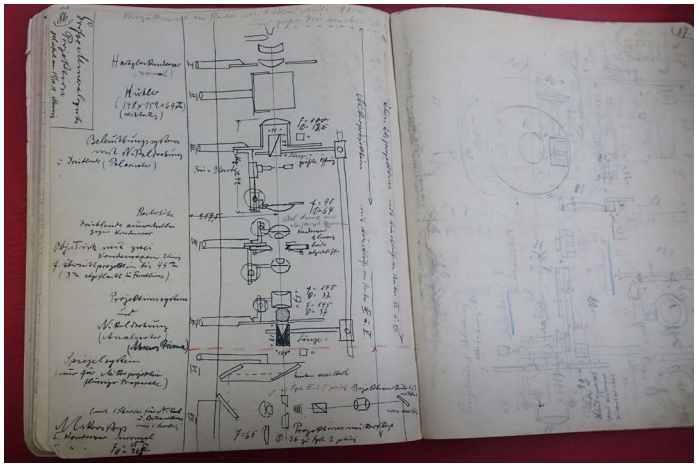
Leica 1A ca. 1927. Between 1925-1931, 58,000 units were made with an Elmar 3.5/50mm lens. For focus, you used a separate rangefinder.

1932: Leica II with Hector 2.5 50mm and integrated rangefinder.

1953: M3 with bayonet mount, framelines for 35, 90, 135mm. This one was built in 1958.

2006: M8. Leica’s first digital rangefinder camera. 27x18mm sensor. Replaced by M9 with Full Format sensor in 2009.





Oskar Barnack's notebook.

Oskar Barnack ca. 1935.

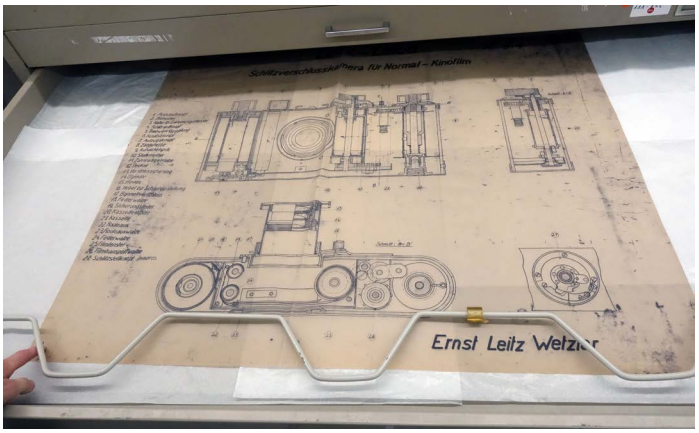
Barnack's original Leica photos.

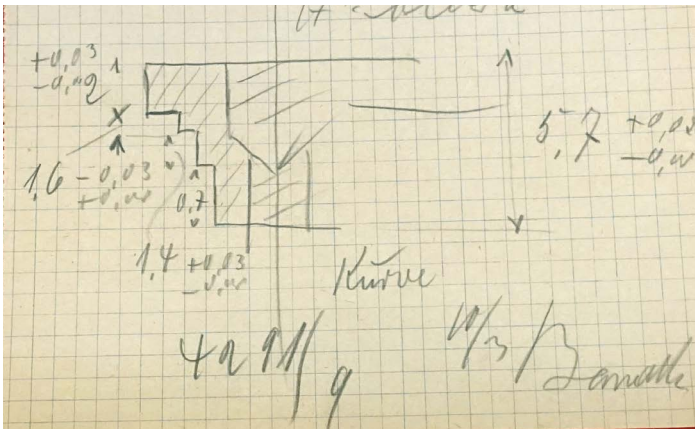
Queen Elizabeth's Leica and the engraved camera tops of notables.

Leica Archives, cont'd

Monika Bock, head of the Leica archives.

Shelves of documents, books, designs and original patents.





Leitz Park III Inauguration

Matthias Harsch, Leica Camera CEO.

Wolfgang Kisselbach.

Leitz Park III Inauguration

Karen Rehn-Kaufmann presenting the 2018 Leica Hall of Fame Award to Bruce Davidson.

Gerhard Baier; Marita Paasch, COO of Leica; Christian Skrein.

Frank Holzer.

Andreas Kaufmann introducing Dr. Andrea Zagato and the Leica M10 Edition Zagato.

Dr. Marita Paasch, Gerhard Baier, Dr. Aurelian Dodoc, Matthias Harsch.

Ed Lachman, ASC.

Leitz Park III Inauguration

Andreas and Christian Kaufmann at Haus Friedwart, Leitz family villa.

Andreas Kaufmann welcoming guests.

Uli Schroeder and Rainer Schnabel, retired Leica head of Production.

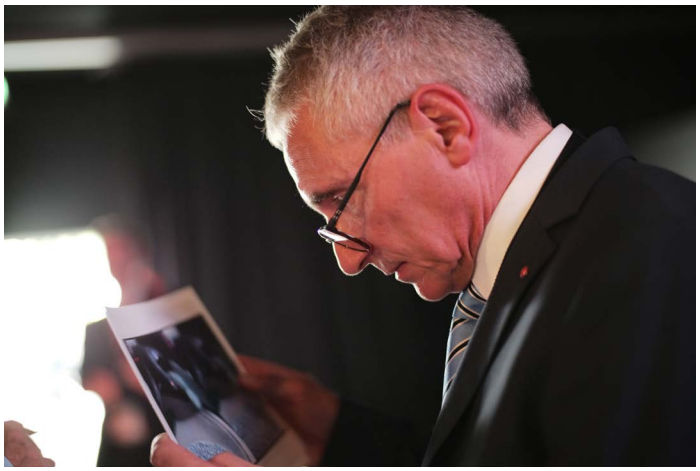
Maher Maleh, Cinematographer.

Charlotte Kaufmann, Mario Gamba, Laura Kaufmann. Photogapher/chef Gamba owns Acquarello, one of best restaurants in Munich (1 Michelin star).

Max Kaufmann.

Paul Engstrom, Founder of RAW Camera.

Leica and Leitz Cine Lens Designers



Peter Karbe, head of Leica optical systems development.
During his Leitz Park lecture, Peter advised:

"Don't stop down! Take pictures wide open."

Aurelian Dodoc, Managing Director for Development and Production, described lens design:

"It's like archeology—searching for something."

Thalia 55m T2.8
length 6.1" (154.5mm)

Summicron-M 50mm T2.0
4" long (101mm)

Leitz Cine M 0.8 Summicron-M
50mm f/1.4 3" long (75.3 mm)

Summilux-M 50mm f/1.4
2.1" long (53.5mm)

Summilux SL 50mm f/1.4
4.8" long (124mm)

Summilux-C 50mm T1.4
5.6" long (142mm)

Leitz Cine Thalia 65mm Format

Thalias cover 60 mm Ø

Leitz M 0.8 Full Format Lenses

Leitz adds 3 more Leica Format (Full Format) lenses to their M 0.8 sereis: 50mm f/1.4, 75mm f/2.0 and 90mm f/2.0.

These are iconic Leica M lenses—hand-selected for accuracy and quality. They receive three times more cleaning and polishing than regular M lenses. M 0.8 lenses have a click-less iris, 0.8M industry-standard gear rings for lens motors and 80mm diameter fronts with 77mm screw-in filter threads.

This brings the total to 9 iconic M-mount lenses. You can use them on RED, ARRI and Sony VENICE with M mounts.

Gerhard Baier, Managing Director, said, "The Leica Format that we know from 100 years of still photography, also known as Full Format, became a key-word a year ago. That is how we started with the M 0.8 lenses.

"They were a direct request from cinematographers.

"Cinematographers said, 'We like Leica M lenses, their look and heritage. And we would like to use these them on motion picture cameras.'

"You can't put PL or LPL mounts on M lenses, but you can put M mounts on ARRI Alexa Mini, Sony VENICE and RED. So, by popular demand, that was the start of the M 0.8 project."

M 0.8 lenses cover 43.3 mm Ø

Leica M mount for Sony VENICE camera is a simple swap using 6 captive 2.5mm hex screws.

L-R: Niko Mayer (Steadicam Operator), Juliana Gonzalez (Focus Puller), Nico Rocca (Steadicam Assistant).

Musitelli Film & Digital, based in Montevideo, Uruguay, has been supplying productions with Leitz M 0.8 lenses lately. The Leitz M 0.8 primes worked on multiple RED MONSTRO cameras at the Teatro Colón opera house in Buenos Aires, famous for acoustics that rank among the best in the world. The show, *Connected*, was the first time electronic music was played there. Hernan Cattaneo was the star. Milton Kremer: Director. Nacho Mazzini: Producer.

Musitelli is currently working on *ELIAS* (shooting in Argentina and Uruguay). It is the first feature film in South America shooting on Full Frame with Sony VENICE and a full set of Leitz M 0.8 lenses.

LPLx2 VV Optical Extender

IB/E Optics' LPLx2 VV Optical Extender doubles the focal length of Large Format LPL mount lenses. High-index, low-dispersion glass ensures high resolution and contrast with minimal optical degradation. As is typical of a 2x extender, there's a light loss of approximately 2 T-stops. Recommended maximum aperture setting on the lens being used is T1.9.

The LPLx2 VV attaches to the rear of an LPL mount lens, and then goes directly into the LPL mount of an Alexa LF or any other LPL mount camera. So, for example, if you attached the IB/E Optics LPLx2 VV to a Signature Prime 125mm, opened to T2.0, you would have the equivalent of a 250 mm at T4.0.

LPL – UMS Mount Adapter

The LPL-UMS Mount Adapter is the newest addition to the UMS Mount System used on many IB/E Optics products, including the Large Format Raptor Macro lenses, the Fujinon Zoom Conversion Kit, and the Canon Zoom Conversion Kit. The system makes it easy to quickly swap between PL, EF, E, F, FZ, MFT and now LPL mounts in the field without re-shimming or adjusting back focus.

PL-LPL Mechanical Adapter

IB/E Optics' PL-LPL Mechanical Adapter lets you attach almost any PL mount lens onto an LPL mount camera (e.g. Alexa LF). If you are shooting a film with a combination of LPL and PL lenses, attaching a PL-LPL Adapter to each PL lens will save lots of time.

The Future is Big at IB/E Optics

IB/E Optics has built a big, new building next to their current headquarters in Freyung, Bavaria, Germany.

Litepanels Gemini 2x1 Soft Panel

Litepanels Gemini 2'x1' LED soft panel fixtures, first launched at IBC last year, have many illuminating and endearing qualities:

- The quality of light is soft and beautiful.
- The fixtures are lightweight.
- The power supply is built in.
- Gemini has RGB+WW LEDs: Red, Green, Blue + White Tungsten and White Daylight. RGB LEDs let you dial in almost any imaginable color, including Plus and Minus Green, and almost anything in the Rosco and Lee swatch books.
- Runs up to 100% on dimmer with VCLX 28-30 V DC Battery.

There are 3 color modes:

- CCT (Correlated Color Temperature) is the familiar Bi-Color (Tungsten to Daylight) setting with the addition of Plus and Minus Green correction.
- HSI mode is for full control of Hue, Saturation and Intensity from the 360° color wheel.
- Gel mode is like having an electronic swatch book inside the fixture's control panel.

And there's an Effects mode that can be fully customized.

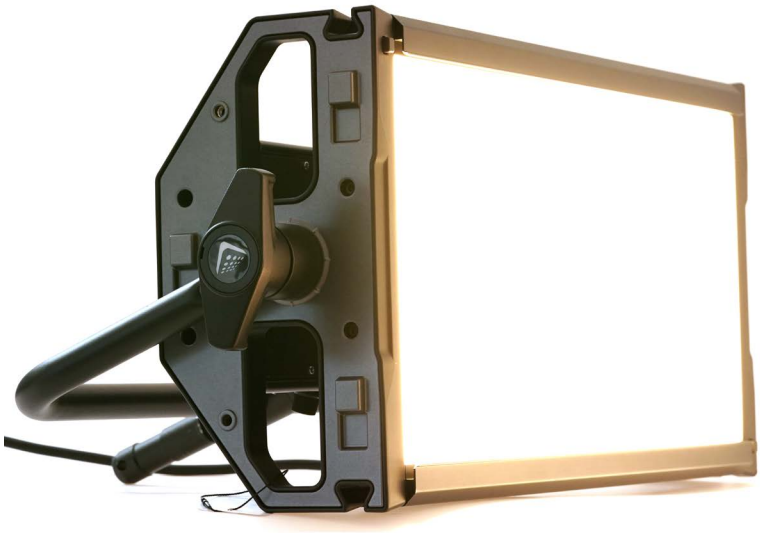
All effects can be saved as presets and recorded to a USB stick. If you're renting lights, presets can be loaded into the new lights.

Gemini 2x1 has 6 internal presets. The number of presets that you can saved to a USB stick are almost unlimited.

Litepanels Gemini just received new B2 firmware that includes new sodium gel colors and new delayed fan or silent fan control.

I took a Gemini for a spin. Spinning the three control wheels, pushing 6 preset buttons and navigating the intuitive menu resulted in a lighting lesson of instantly gratifying possibilities. No gel swatches or gel rolls needed. No instruction manual required to get started. Infinite permutations.

The pictures on the next page show a fraction of what's possible to dial in any color, anytime, anywhere.



Litepanels Gemini, cont'd

2700 K

2700K with Plus100 Green

2700K with Minus 100 Green

Emergency Flashers

4000K

Rosco Sun 1/2 CTO

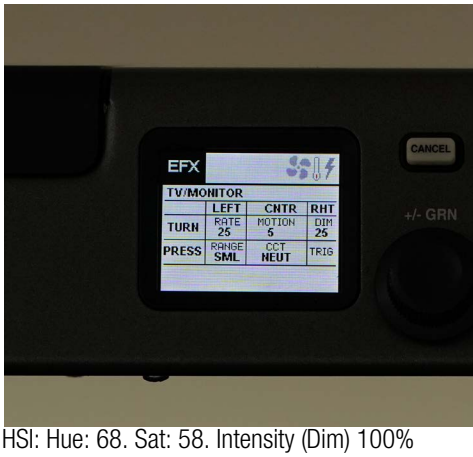
Tokyo Blue - Lee 71

Efx: TV Monitor

5600K

Apricot - Lee 147

Primary Blue - Rosco R80



HSI: Hue: 68. Sat: 58. Intensity (Dim) 100%

6000K

J. Winter Blue - Lee 713

Dark Yellow Green - Rosco R90

Chocolate - Rosco R99

Grant Petty, CEO of Blackmagic Design

It is always fascinating to catch up with Grant Petty, CEO of Blackmagic Design. After a bit of mischievous banter (jamming systems, cones of silence, wire cutters?) on how to foil a vexing public address system that insistently interrupted our conversation, we got down to serious stuff about Blackmagic Design's latest products, philosophy and aspirations.

JON FAUER: You mentioned that it has been a rather busy year.

GRANT PETTY: We have been working on our third generation product lines. The first generation, that we introduced years ago, was basically all about getting people to have our products. Consider a capture card, for example. People could now use a computer and software to work with video. It opened up a whole lot of capability. We introduced converters so people could use their HD monitors. We stripped things down to their essentials. We made a simple router so that people could actually use it—without all the fancy trappings. So, Generation 1 was really about stripping things back to the minimum, to allow people to actually buy something and be able to use it. It was about getting users into the space.

Generation 2 was a complete revamp. We were looking at improving industrial design. We worked on having beautiful front panels with buttons and controls and power supplies built in. Also, we wanted to embrace Ultra HD. We did it before anyone else. We were involved in making 6G and 12G a standard. We worked with chip vendors to increase the speed of SDI. Generation 2 was nice and successful.

But then we started to think, what's the third generation? Let's consider that. It is incredible attention to detail, design, ergonomics and usability. We really tried to couple the ergonomics and the usability with the industrial design, and got a whole new generation of products that are a leap ahead. And there are some new technologies in there as well.

What year was Generation 2 approximately?

Generation 2 was about 4 years ago with the first 6G and then 12G products.

In Generation 3, we focused more on design and features and applied the technology that really mattered. So you see examples of these things in our ATEM Camera Control Panel, some of the fiber products, the URSA Studio Viewfinder, some of the ATEM switchers, the DaVinci Resolve control panels, and the Fairlight consoles.

You've been busy. Where do you see the industry now, at this point in history? And where are we going?

Yes. It is exciting. I think what you're seeing now is what you will see up ahead. It's actually happening now. There are different ways of approaching content. Technology and the business models have shifted. Lately, you've got Netflix, YouTube, Apple, Amazon and others doing content.

Broadcasters are there as well. I do think the broadcasters have to come to terms with what's changing. I personally think there's a much higher role in broadcast for good editorial content. They should be taking a taller direction, not just hanging off a newspaper, which many do. They need to be taking more journalistic roles. They need to be less partisan. They need to be better at explaining the world to the customer base. Instead, many have just been monitoring the maximum ratings. I think broadcast has a role to introduce directions in where democracy is heading, what we believe in, what we do, what matters. You can't just take from the community; you've got to contribute ideas.

That is a very articulate and honest evaluation.

We need more people creating content based on actual experience and doing things that are exciting. Hopefully, with products like Fusion and its integration into DaVinci Resolve, they will get more involved in visual effects so that the entertainment value can go up. I think the industry needs to improve the quality of the content. We can't just have a string of reality shows, or a bunch of celebrities sitting around on panels. That's just weak.

I also think there's stagnation in broadcast. They need to start reinventing themselves and they haven't really done that. While the rest of the industry has completely changed, I think broadcast has not innovated. Radio reinvented itself when television came along.

But, you probably see a much broader user base now.

Yes. I always did.

You have said the younger generation is much more creative. Do you want to expand on that?

The younger generation is more willing to take creative risks. Older people tend to protect what they have. For example, an editor who has been around for a long time, when presented with Fusion, might sit there and say, "I'm an editor. I'm not a visual effects person. I'm not going to try that." Whereas a younger person will look at it and say, "That's an interesting toolbox to explore. What's in there?"

I think when people get to a certain age, they have settled on the job they learned and are proficiently doing now. They look good in that job. Trying something new might be similar to the feeling when you first get a job and you don't quite know what's going on. And that's a terrible feeling. I used to change schools a lot. We moved around a lot when I was young. So I used to walk into a new school, and I'd be thinking, "Oh no, another school and I don't know anyone."

So you learn, and you struggle to learn and work your way through. You try to master what you're doing, up to a certain level. And then, many people reach a plateau and they never want that feeling of insecurity to come back. But what they've inadvertently done is shut themselves down to new learning because they're so focused on looking good. And they go along for maybe another 10 years. But then they get to their mid-40s, 50, and that's when they start having problems. They still want to look good.

But to learn new things, you have to not care how you look. You have to open yourself up to that horrible feeling of admitting again that you're not sure, that you don't really knowing what you're doing.

If you spent most of your life looking good, at some point the ground shifts, and it shifts away from the things that you knew. So in the end you're just sitting there with obsolete knowledge. But if you're constantly learning or even driving that change, then you know it quite well because you helped it move forward. It's human nature. It's independent of any industry. Anyway, that's just my quick theory.

The circle of life in the technology era.

The way I look at it is we push ourselves daily to do some projects we actually don't know how to do. Now, in a business college, if you said, "I'm going to do something, but I don't know how to do it" — that's not going to get funding or approval.

They will say, "If you don't know how to do it, why are you trying to do it?"

That's the core of it. Wouldn't it be nice if people said, "Let's try and do something that would be amazing, but we don't know how to do it. So how do we do it?" And then we ask how much we can learn from it? That's enjoyable, but we've got to embrace the feeling that we don't quite know what we're doing. But it's okay. We begin by sitting around, and there's a bunch of smart people here, and we think we'll work it out. There's almost nothing we can't try.

I assume that's the philosophy at Blackmagic?

Yes, exactly. Our philosophy has always been to empower creativity and it's behind everything we do. Our tools are like the stage our customers perform on, and our role is to make our customers more creative. That's by getting true high end tools into the hands of anyone who wants to be creative, no matter their budget. Their only limitation is their creativity, and the good thing about that limitation is they can work to improve that as the tools no longer limit them to low end work unless they are incredibly wealthy.

However, we have recently updated our philosophy and feel what our role is now has shifted due to recent changes. We now are focused on empowering creative freedom. If you look at the software industry specifically, it's become very controlling. Cloud licenses, etc. where your tools shut down if you don't pay per month. It's virtually extortion. Then other products have strange user interfaces with features disappearing, there's big data where everything you do is tracked and your world is shaped by a simplistic assessment of who you are. That's a form of digital prejudice. The engineers are trying to control the customer and it's very authoritarian. It's not good and it does not help creativity. It's actually a very dark time right now in technology.

So we have to think about freedom in every product we build now. We're human and will make mistakes, plus there's always more to do than we have the time. However we have to have a strong understanding of what's important and why we exist. We have to try because it's so important and it's not just the television industry that has these problems, it's a much bigger worldwide issue.

Speaking of content, do you see a shift?

I definitely think the world's more open for more people. It's exciting to see more feature film actors, directors and high-end crew moving to TV shows and back. And I think we've had a hand in that.

How did you influence this move to TV and back?

We're making color correction affordable. The TV environment is looking more stylish. People are able to be more mobile. It's no longer a small number of people controlling everything anymore. If there are more outlets and more channels, you can make a choice. The system has been more democratized. Even within the feature film business, you're seeing a lot of fascinating stories. That's exciting.

What do you watch in Australia?

I pop up a Netflix movie or something on Apple TV. But I get so little time to watch. The viewing experience is changing rapidly. When the cable TV business came out, it changed the landscape. The online landscape has changed again. You see changes in the vendors and other areas. But, what you've essentially seen in the last few years is the addition of streaming distribution. It's happened, it's here. So you've got cable TV, home video, broadcast and distribution via streaming. Broadcast has been knocked about a bit by streaming. But it's still somewhat stable even if there will be variations in market share. The fundamental thing is the introduction of direct distribution. The business itself and all the companies in it will change. Companies will come and go. But the technology has been introduced. I guess that was a long answer to your question.

That's great. And it's a nice transition to telling us about your new Pocket Cinema Camera 4K.

It evolved from the original Pocket Cinema Camera. That was a nice little camera. It was popular. People started asking us about a 4K version of it. So we started the project. We wanted to improve on the original—to make something more professional, Generation 3. The first one felt more like a Generation 1 to 2 kind of product. We wanted the same Active MFT lens mount so you could use the same lenses and adapters. And we know that people have a lot of those.

At the same time, the design had to be able to handle extra heat. If you've got a 4K sensor, you need more power. And you need a big screen. Without a big screen, seeing critical focus is difficult. We also wanted really good ergonomics. Then we started to work on the handle design. It has a grippy, rubber surface with a nice feel. Then we wanted really good audio. So we put four microphones in it. They define the form factor in many ways. And being a Generation 3 product, you have good controls. There are high frame rate, shutter angle and iris adjustment controls.

Grant Petty, cont'd

You mentioned carbon fiber?

The body is carbon fiber polycarbonate composite. It's strong and light weight and protects the camera from bangs, drops and you'll be able to take it almost anywhere.

On the side, we put connectors for full-size HDMI, USB-C expansion port for external recording, XLR audio and 12 Volt external power. There are internal media slots for a CFast and SD card.

In fact, there's only one part on this camera that is the same as the original Pocket Cinema Camera—and it's just a small ring inside the lens mount. Everything else is different. It's quite funny.

Changing formats is easy. The maximum resolution is 4K: 4096 x 2160. You can record CinemaDNG RAW or Apple ProRes.

Another thing not many people know about is that you can input standard free-run or record-run timecode through the microphone connector.

Congratulations. Last question. Please tell us about the latest version of DaVinci Resolve.

The thing about DaVinci Resolve is to get as eclectic as possible so users can adapt quickly. There's part of it that is kind of like a Formula One, which is the LA industry and the studios. It's really fun to be part of that technology advance. But then, at the same time, it is approachable for almost anyone. My philosophy is, just because you don't have as much money to spend on it doesn't mean you have to accept a lower-end product. I don't want to make a simpler one for lower budget productions. What would we be saying? Keep people down? We want to bring them up. The much harder thing to do is make something that looks approachable, looks easy, but put a massive amount of latent power in there.

Remember when we had the original Pocket Cinema Camera, people were amazed that the quality looked so good? A great part of that was because they used it with the full version of DaVinci Resolve that came with the camera. You used the same debayer that was used on *Avatar*. The camera recorded a wide dynamic range. Users got their shots and started grading them. And then they were almost surprised by the results. But they were working with the same tools that professional graders used on big budget films. They had that: a full-fledged film industry tool. I think it's amazing to think that a newcomer can sit down and grade and edit with DaVinci Resolve and it's the same tool used on many high-end movies. An independent filmmaker can do a great job with it. The film might be discovered and wind up on Netflix or in a cinema.

It is an aspirational set of tools.

Absolutely. Encourage the users. Don't make a dumbed-down version. I wasn't dumb when I was 17. I didn't have any money. I wanted to become successful. Empower that journey. That's what we need to do. Create freedom. That's what we're really focused on. Everything we do is about that. Remember we were talking about someone who is 50, trying to break out and do their own thing? Or you're at a post house and you're trying to do a job that you haven't done before. Or you could be a 17-year-old. It doesn't matter. Everyone wants their future to be better. Our job is to try and help them get there, to try and help them make that future better. It's pretty logical. I mean, who doesn't want a better future?

Blackmagic eGPU for T3 Macs

Speaking of a better future, Blackmagic Design has introduced a new graphics accelerator and released new DaVinci Resolve 15.

The Blackmagic eGPU can run DaVinci Resolve on a MacBook Pro with blazing performance at whisper quiet sound levels.

The Blackmagic eGPU is a graphics accelerator for software applications such as DaVinci Resolve, 3D games and VR. It's about the size of a Mac Pro. Inside, there's a Radeon Pro 580 graphics card. You connect the Blackmagic eGPU with the included Thunderbolt 3 cable to a Thunderbolt 3 port of your MacBook Pro or iMac. Note: it needs Thunderbolt 3. A number of people have been asking—but no, it predictably doesn't seem to work on older iMacs using a T3 to T2 adapter.

The Blackmagic eGPU also supplies HDMI output up to 4K, an additional Thunderbolt 3 port with 85W of charging power, and four USB 3.1 connectors. Thunderbolt 3 displays are supported. So, in addition to graphics and computational acceleration, it is also a docking hub for keyboard, mouse, Thunderbolt monitors, large HDMI televisions, high speed storage and more. The two Thunderbolt 3 connections have a data rate of 40Gb/s.

So, if your 4K video timelines are playing back jittery, the graphics acceleration of the Blackmagic eGPU will give you smoother real-time playback. High-end desktop graphics processing comes to your laptop.

Testing the Blackmagic eGPU showed improved performance with DaVinci Resolve's editing, grading and VFX pages. It was especially helpful working in real time with 4K footage imported from several cameras.

This is the expansion chassis with graphics accelerator card that DITs will crave. Best of all, it's not a science project you have to assemble. It all comes in one nice, affordable, convenient, stylish and VERY QUIET system.

Certainly graphics acceleration will be a wonderful feature for DITs. But, I think the most appealing thing is the internal fan. It is so quiet, you have to put your ear to the elegant, extruded aluminum monobloc housing. The cooling fan runs at or below

18dB, which will elicit a smile even on the stern face of even the most exacting sound mixer. When the AD calls, "Quiet on the set," you can be sure the loudest noise near the DIT cart will be the sipping of stale craft service coffee.

We've been running DaVinci Resolve Studio on the latest MacPro, which hasn't been refreshed by Apple since December 2013. Running Resolve on our newer, smaller, lighter, portable MacBook Pro with the Blackmagic eGPU resulted in much better performance.

The Blackmagic eGPU will be a delight for editors, colorists and VFX artists who want to remain mobile, but want the power of a workstation GPU added to their MacBook Pro. The entire system fits into a backpack—perfect for the freelancer heading across town or across the oceans.

The Radeon Pro 580 graphics processor inside provides 8GB of GDDR5 RAM, 256-bit memory bandwidth and 36 discrete computational units for up to 5.5 Teraflops of processing power. Apple's Metal graphics technology is supported.

Blackmagic states, "Users running DaVinci Resolve 15 can expect increased performance for editing with more real time effects, color corrections with more nodes and spectacular ResolveFX such as film grain, light rays, blurs and more. DaVinci Resolve 15 also fully supports multiple GPUs, as well as Metal."

Download DaVinci Resolve 15 free of charge from the Blackmagic Design website for editing, color correction, audio post and visual effects: www.*blackmagicdesign.com/products/davinciresolve*

"The Blackmagic eGPU is designed specifically for accelerating professional video workflows with DaVinci Resolve," said Grant Petty. "Best of all, the Blackmagic eGPU gives you desktop class graphics performance on a laptop computer."

The Blackmagic eGPU is available now for US $699 exclusively from the Apple store and selected Apple retail outlets worldwide.

DaVinci Resolve 15 is a major update.

Color, Edit, Fairlight Audio, Fusion Effects and Finishing are together in one application. The new Fusion page has more than 250 tools for compositing, vector paint, particles, keying, rotoscoping, tracking, stabilization, animated titles, etc. Previously, Fusion was only a stand-alone application. Now it will be integrated into DaVinci Resolve and will also continue in its stand-alone version.

The Fairlight page provides ADR, audio retiming with pitch correction, 3D panners, audio and video scrollers, a fixed playhead with scrolling timeline, shared sound libraries, support for legacy Fairlight projects, and plugins for reverb, hum removal, and de-essing (sibilance).

The Color page gets a new LUT browser for quick previews and applying LUTs. Performance is improved by 5x for stabilization, improved noise reduction, and new Super Scale HD-to-8K uprezzing. DaVinci Resolve 15 also expands HDR support with GPU-accelerated Dolby Vision metadata analysis and native HDR 10+ grading controls. ResolveFX can patch blemishes or remove unwanted elements in a shot using smart fill technology. ResolveFX also can remove dust and scratches.

The Edit page has improved load times. New stacked timelines and timeline tabs let editors see multiple timelines at once so they can quickly cut, paste, copy and compare scenes between timelines. There are new markers with on-screen annotations, subtitle and closed captioning tools, auto-save with versioning, improved keyboard customization, new 2D and 3D Fusion title templates, image stabilization on the Edit page, a floating timecode window, improved organization and metadata tools, Netflix render presets with IMF (Interoperable Master Format) support and more.

DaVinci Resolve Micro Panel, DaVinci Resolve Mini Panel or DaVinci Resolve Advanced Panel add logical, tactile controls with smooth, high resolution, weighted trackballs and precise knobs and dials.

Ken Sirulnick, President of Glue Editing & Design in New York, grading *RBG* using DaVinci Resolve Studio and a DaVinci Resolve Mini Panel.

Claudia Raschke and crew filming RBG and her granddaughter.

Office scene from *RBG*. Photo courtesy of Magnolia Pictures.

Photo of the Supreme Court Justices, c. 1993, in *RBG*, a Magnolia Pictures release. Photo courtesy of Magnolia Pictures.

RBG is everywhere. Streaming, screening, in theaters, on DVD and devices. *RBG* opened in January 2018 at Sundance Film Festival.

The documentary about Ruth Bader Ginsburg was directed and produced by Betsy West and Julie Cohen. Claudia Raschke was the Cinematographer, working with ARRI Amira, Canon C300 Mark II and Sony F55 cameras—all shot in LOG. Ken Sirulnick, President of Glue Editing & Design in New York, graded the film using DaVinci Resolve Studio and a DaVinci Resolve Mini Panel.

Magnolia Pictures is the distributor. The summary: "At the age of 85, U.S. Supreme Court Justice Ruth Bader Ginsburg has developed a lengthy legal legacy while becoming an unexpected pop culture icon (T-shirts, exercise videos). But the unique personal journey of her rise to the nation's highest court has been largely unknown, even to some of her biggest fans—until now. *RBG* explores Ginsburg's life and career."

A.O. Scott wrote, in the New York Times, "Ruth Bader Ginsburg was the second woman appointed to the United States Supreme Court, but she's probably the first justice to become a full-fledged pop-cultural phenomenon. RBG, a loving and informative documentary portrait of Justice Ginsburg during her 85th year on earth and her 25th on the bench, is both evidence of this status and a partial explanation of how it came about."

Ken Sirulnick was involved early on. He explained, "I wish this happened more often. The filmmakers contacted me during preproduction. I was on board throughout the whole process, helping with decisions about prep, transcoding, storage choices, and the entire post process. So, when the footage came to me, there were no surprises.

"As with many documentaries, there was a lot of archive footage with a variety of frame rates. Before the grading process, everything was converted to 1080p 23.98 using our Alchemist XF at Glue Editing & Design. There was a mix of video and news archive footage ranging from 29.97, 25, 24 and a few other odd frame rates. The converted footage was cut back into the Premiere timeline and then an XML was imported to DaVinci Resolve Studio.

"As with most documentaries, we started by grouping all the interviews together in DaVinci Resolve Studio and graded those first. The entire film was finished in DaVinci Resolve Studio with graphics provided as .png files as well as Apple ProRes4444 animation. Any required image stabilization was done in both DaVinci Resolve Studio and Fusion Studio as necessary.

"The final film was exported to 12-bit DNxHR HQX OP1a MXF. The DCP was created with easyDCP on another DaVinci Resolve Studio system with a final QC done in a DI theater.

"We work on many festival films and it is very rewarding when one is as successful as RBG."

Tristan Boxford has a great job. He is founder and CEO of the Waterman League, a worldwide organization that represents all kinds of Ocean sports. Tristan was a professional World Champion windsurfer in the 1990s and early 2000s. His latest endeavor is the Association of Paddlesurf Professionals (APP) World Tour and Stand Up Paddling (SUP).

It just so happens that APP uses Blackmagic Design products on all their productions. Distributed in more than 100 countries, they are covering the 2018 championships in London, New York, San Francisco, Paris and the Canary Islands.

The production crew shoots with an inventory of Blackmagic Micro Studio Camera 4K and URSA Mini 4K cameras.

Tristan commented, "We stumbled across Blackmagic as we were developing our production office in Hawaii. It is the center of our media operations. The Blackmagic cameras are really interesting and versatile products. We started to use them and when we saw the quality, it was really amazing.

"We saw the benefits of having the same kind of uniform images by staying with all Blackmagic cameras. From a Producer's standpoint, it makes logistics much easier. From the camera crew and post production point of view, having the same look and feel across all the cameras is great. So, that's how it evolved.

"At SUP (Stand Up Paddling) events, typically we have a 16 person crew in all. Certainly 4K is a good match. We capture 4K images all over the globe, going to extremely beautiful places. We want to make sure we have iconic images that are stored in 4K so that we have a full body of work that can be used for years to come.

Post-production is a big part of our story. We don't just want to be an event company that puts out the news of who crossed the finish line first and then the story is over. We definitely are looking at it more from a documentary point of view, telling compelling human interest stories. We're looking to build storylines permanently as we go across the globe shooting these events. The sport has a lot of interesting personalities. And the locations are these beautiful, iconic places. So we really try to capitalize on that and tell some meaningful stories that can translate well to television.

ARRI OCU-1 Operator Control Unit

OCU-1 is the override that Camera Operator's have been dreaming about for as long as wireless lens control units have been around.

Even with the world's best Focus Puller at the WCU-4 wireless lens control wheel, Camera Operators may sometimes feel like a driving instructor itching for dual steering wheels.

Once upon a time, the Camera Operator could simply tweak focus, iris or zoom by grabbing the mechanical focus knob or lens barrel. Those days ended when wireless lens control units revolutionized the first AC's job.

Camera Operators, however, could no longer eye focus on the eyelashes of the lead actress. The lens motor gears were unyielding.

Now, ARRI has come up with a brilliant focus override knob. They call it OCU-1 for Operator Control Unit. It launches at IBC.

Actually, it's a single channel unit that lets the pilot...er...camera operator temporarily retake control of any wireless lens control function from the camera assistant. One OCU-1 can take over focus, iris or zoom control. For really type-A operators, presumably you could mount three of these things on the lens rods. That could truly be called fool control if only the name were not already taken by Mikael Lubtchansky.

The Operator Control Unit works together with ARRI's Wireless Control Unit WCU-4 lens control system on ALEXA Mini cameras. It could be possible to enable it on other Alexas with future firmware updates.

"This is a simple device that does exactly what the name implies," said Christine Ajayi, Product Management, PCA Electronic Control System. "It gives Camera Operators full control of their lenses when they want it and enables them to override and return focus, zoom, and iris controls at the touch of a button."

That's an important point about returning control. It's like the pilot returning control of the airplane to the co-pilot. After you finish checking eye focus, you can return wireless control back to the Camera Assistant.

The OCU-1 can also help a Camera Operator take control over the zoom motor—for example on a critical, close-up, dramatic moment where an ever-so-gentle push-in on the actor's performance will bring tears to the eyes of everyone on set, and hopefully the audience as well. You can also use the OCU-1 to adjust the lens aperture when, perhaps, the sun pops out of a cloud.

The OCU-1 can even control EF lenses mounted on ALEXA Mini and AMIRA cameras without any additional external motors.

The OCU-1 is small, lightweight, and easy to use. It has the same control knob, display and LBUS protocol as the ARRI Master Grips. The OCU-1 mounts onto 15mm or 19mm rods, ARRI Rosettes, or 3/8-16 threads. The knob can also control the roll axis of an ARRI Stabilized Remote Head SRH-3. The OCU-1 should ship later this year.

ARRI OCU-1 Operator Control Unit

Some practical scenarios:

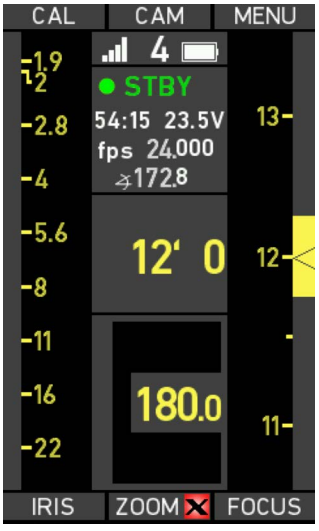
1. Let's say the focus puller is slightly off. The operator sees this and adjusts with the OCU-1. Can the focus puller see this and adjust?

Yes, ARRI's Wireless Compact Unit WCU-4 gets an update at IBC that supports the OCU-1.

With this software update installed, the WCU-4 alerts the Focus Puller that override mode has been engaged by the Camera Operator. The OCU-1 informs the focus puller about the new lens motor position.

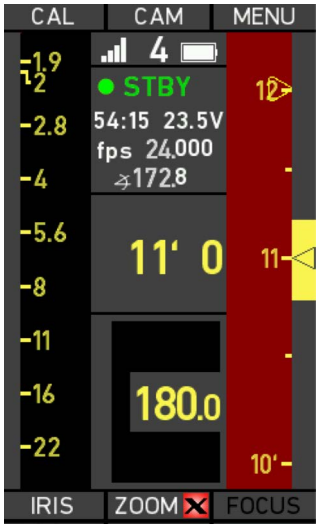
2. The Camera Operator notices a focus buzz. Let's say it's focused 1 foot behind the actor's eyes—at 12'. The Operator corrects the focus with the OCU-1 to 11'. What happens next when the Operator returns wireless control from the OCU-1 to the Focus Puller's WCU-4? Will the focus jump back to the buzzed position?

No, the focus on the WCU-4 won't jump back. The Focus Puller gets an indication on the WCU-4. The Focus Puller can turn the focus knob to the override position mark and then can regain control of focus without a jump.



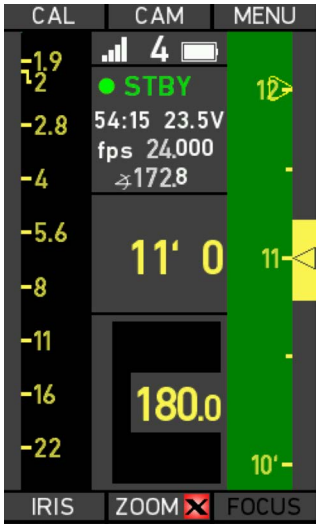
1. Focus Puller focuses Wireless Control Unit (WCU-4) at 12'.

Uh-oh! The Camera Operator sees the focus buzz.



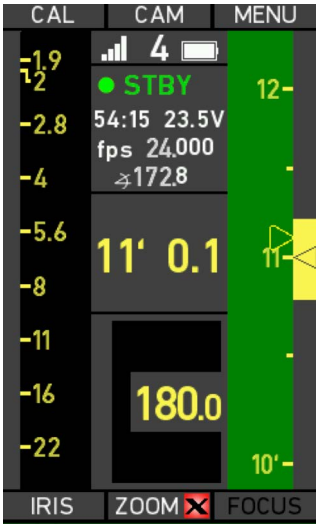
2. Camera Operator takes control by activating Override function on OCU-1 and focuses to 11'.

The WCU-4 screen turns red to alert the Focus Puller and the 12' mark is now a hollow triangle.



3. Operator returns control to Focus Puller by de-activating the Override functions on the OCU-1.

But the focus is still offset (solid and hollow triangles).



4. The Focus Puller turns the WCU-4 focus knob to move the hollow triangle back to the 11' index mark and then can re-engage lens motor control without a jump.

ARRI ALEXA LF Hardware and Software Update 3.0

ARRI ALEXA LF gets SUP 3.0 software and hardware update.

Hardware

This latest software update, LF SUP 3.0, requires a new ACDA4 circuit board inside the camera. New ALEXA LF cameras will have the new board and SUP 3.0 installed. Existing cameras can be updated with the new hardware and software by ARRI Service Centers, free of charge. That is why LF SUP 3.0 is not shown in the downloads section of the ARRI website.

EVF-2

The big, bright news is the new ALEXA LF Electronic Viewfinder EVF-2. It replaces EVF-1, which has been discontinued.

EVF-2 is sharper, cleaner, brighter, better. It has HD resolution. You can check focus much more clearly. The optics are based on the beloved eyepiece of the ARRICAM, providing a cleaner image, free of distortion. It has a wider exit pupil (wider aperture, brighter image) and gives the operator a more comfortable view of the image.

EVF-2 uses the latest color science for more accurate color rendition and a better match to on-set monitors. Color is stable at all brightness levels over the entire range of operating temperatures from -20ºC to +45ºC (-4º F to +113º F).

If you're mixing EVF-1 and EVF-2 finders on the same set, an EVF-1 gamma setting helps matching.

The EVF-2 requires ALEXA LF Software Update Packet LF SUP 3.0. ALEXA LF cameras from now on will come with the EVF-2. ALEXA LF cameras with LF SUP 3.0 are compatible with EVF-1 and EVF-2. If you want to upgrade from EVF-1 to EVF-2, you can trade up to EVF-2 at half price.

LF SUP 3.0 Software

- Support for Electronic Viewfinder EVF-2
- Support for SxS PRO+ 256 GB cards
- Support for battery adapters Bebob BAB-HG & BAB-HV
- Magnification for EVF-1/2 and MON OUT
- Six Zoom positions for EVF-1/2 and MON OUT
- Simplified global anamorphic de-squeeze
- Monitor identification

Magnification

As with the ALEXA 65, the Magnification feature enlarges the image on each of the 4 monitor outputs (EVF and MON OUT 1, 2 and 3). This helps when frameline/sensor mode combinations result in a smaller image on the viewfinder or MON OUT. For example, you may be windowing a Super35 frame within the Large Format sensor area—and want to see the entire image fill the screen of your monitors. It is possible to set Magnification from 100% to 200%.

Zoom

The existing Zoom function lets you momentarily zoom in to quickly check focus. The update provide 6 user-settable target areas. They can be accessed with new ZOOM user buttons. So, this lets you zoom into 6 zones within the frame, e.g.: center, top center, top left, top right, bottom left, bottom right.

Anamorphic De-squeeze

Setting the anamorphic de-squeeze ratio has been simplified. It is now possible to globally set one de-squeeze ratio in the Project Settings. This de-squeeze ratio can be activated or deactivated individually on each of the four monitor outputs (EVF, MON OUT 1, 2, 3). This de-squeeze ratio will be recorded in the camera metadata. It can automatically de-squeeze the image in the ARRIRAW Converter and other postproduction tools.

De-squeeze ratios are currently 1.25x (Ultra Panavision 70), 1.3x (Hawk), 1.5x (Technovision Classic) and 2.0x (Scorpio FFA and traditional anamorphics). 1.65x (Panavision Ultra Vista) and 1.8x (Cooke) are in beta and planned for the next SUP.

Image Processing

The ARRI Noise Reduction (ANR) algorithm has been improved and results in lower black levels than before.

ARRI ALEXA LF Update 3.0, cont'd

Monitor identification

You can now quickly identify which MON OUT a given monitor is connected to. This simplifies cable wrangling on set. The MON status icon that belongs to the connected monitor is as bright as the rest of the status info, while the icons of the other paths are dimmed.

Additional Update Notes

While updating the camera, ARRI Service will also install the latest version of the ARRI Wireless Video System (WVS) software, which improves the reliability and signal strength of the integrated wireless video transmitter. The stand-alone Wireless Video Transmitter WVT-1 and Wireless Video Receiver WVR-1 are not affected by this, and their latest software (4.3.23) remains compatible with the new WVS software. However, since the new WVS software also contains a bug fix that makes the ARRI WVS compatible with more monitors, ARRI also recommend updating those units to the new WVS software.

As part of the ALEXA LF 3.0 SW & HW Upgrade, a number of hardware patches will be installed to improve sensor cooling, wireless video range and general system stability. The upgrade also includes shimming of FSND filter frames.

ALEXA LF 3.0 SW & HW Upgrade provides a lot of useful new features and performance improvements. It is a pre-requisite for using the EVF-2 and SxS PRO+ cards.

Questions? Email ARRI Service at *service@arri.de*

ALEXA LF Recording Formats, Maximum Frame Rates, and Maximum Recording Capacity

Recording Format				Max fps (media duration in hr:min at max fps/at 24 fps)		
Sensor Mode	Recording File Type	Recording Resolution	Recording File Setting	SxS PRO+ 256 GB (SBP-256D, SBP-256E)	SXR Capture Drive 1 TB	SXR Capture Drive 2 TB
LF Open Gate	ProRes	4.5K	422	-	60 (00:28/01:11)	60 (00:57/02:22)
			422 HQ	-	60 (00:18/00:47)	60 (00:37/01:34)
			4444	-	60 (00:12/00:31)	60 (00:24/01:02)
			4444 XQ	-	40 (00:12/00:20)	40 (00:24/00:40)
	ARRIRAW	4.5K		-	90 (00:08/00:32)	90 (00:17/01:04)
LF 16:9	ProRes	HD	422	60 (01:45/04:23)	60 (03:12/08:02)	60 (06:25/16:04)
			422 HQ	60 (01:10/02:55)	60 (02:08/05:21)	60 (04:16/10:42)
			4444	60 (00:46/01:56)	60 (01:25/03:33)	60 (02:50/07:07)
			4444 XQ	60 (00:31/01:17)	60 (00:56/02:22)	60 (01:53/04:44)
		2K	422	60 (01:32/03:50)	60 (02:48/07:01)	60 (05:37/14:03)
			422 HQ	60 (01:01/02:33)	60 (01:52/04:40)	60 (03:44/09:21)
			4444	60 (00:40/01:42)	60 (01:14/03:06)	60 (02:29/06:13)
			4444 XQ	60 (00:27/01:07)	60 (00:49/02:04)	60 (01:39/04:08)
		UHD	422	60 (00:26/01:05)	60 (00:47/01:59)	60 (01:35/03:59)
			422 HQ	60 (00:17/00:43)	60 (00:31/01:19)	60 (01:03/02:28)
			4444	40 (00:17/00:28)	60 (00:20/00:52)	60 (00:41/01:44)
			4444 XQ	30 (00:15/00:18)	60 (00:13/00:34)	60 (00:27/01:09)
	ARRIRAW	UHD		-	90 (00:14/00:53)	90 (00:28/01:47)
LF 2.39:1	ProRes	4.5K	422	90 (00:17/01:05)	100 (00:28/01:59)	100 (00:57/03:59)
			422 HQ	60 (00:17/00:43)	100 (00:19/01:19	100 (00:38/02:38)
			4444	40 (00:17/00:28)	100 (00:12/00:52)	100 (00:25/01:45)
			4444 XQ	30 (00:15/00:18)	60 (00:13/00:34)	60 (00:27/01:09)
	ARRIRAW	4.5K		-	150 (00:08/00:53)	150 (00:17/01:47)

Recording Media not Supported:
XR Capture Drives 512 GB (CDX-3730), all SxS PRO and SxS PRO+ cards except SxS PRO+ 256 GB (SBP-256D, SBP-256E) and all CFast 2.0 cards

Lunch with Ed and Todd

On May 18, 2018, the Angenieux team at Cannes organized a lunch with Director Todd Haynes and Cinematographer Ed Lachman, ASC. The setting was appropriately majestic: the penthouse of the Majestic Barrière Hotel overlooking the Croisette and the Cannes Festival Hall. In a few hours, Ed would receive the coveted Pierre Angenieux ExcelLens in Cinematography Lifetime Achievement Award.

Conversation was like Louis Malle's My Dinner with André *in a lovelier location, with much better food: fresh grilled vegetables and melon with prosciutto, raspberries and shaved parmesan. It was a lively dialog with two talented artists about their roles as the Director and Cinematographer on a remarkable body of work.*

JON FAUER: How did you two meet?

ED LACHMAN: I found Todd.

TODD HAYNES: I think I found you, Ed. I loved *Desperately Seeking Susan*. That made a huge impression. But then, watching *Light Sleeper* made an indelible impression. I thought, "This guy's work is incredible—those scenes of Dafoe in the back seat of a car with the shadows creeping across his face." I realized I had to find this cinematographer. It was around the time I was planning to do the Sirk-inspired movie that I thought it might be an opportunity to meet Ed. We got together. Had you read the script at that point, Ed?

ED: When you met me, no.

TODD: We just talked.

JON: In the beginning, working together, did you have a lot of discussions? How did your work together develop?

TODD: I do image books. They're my first communication with Ed. It's a way to start talking about what I'm imagining on a purely visual level. But it also has a narrative progression because it's in a book. That becomes a way for me to show Ed where I'm coming from and we go through them very closely. They become tools of conversation and we have something to look at. It's not abstract; it's very specific. It's a way for me to start organizing my ideas. I also do frame grabs from movies I'm watching. That process starts to focus us on specific frames and moments in those films.

JON: These days, is it a more intuitive process because you've worked together quite often? Or is it still the same?

TODD: It's the same because every film is completely different, with a new set of languages and rules.

JON: What happens when you arrive on set or location—do things change?

ED: Todd does extensive notes and shot lists. More than any Director I've ever worked with. His image books contain information in which he's gone over every scene. But he adapts to the situation on the day. He knows, he has an idea, but then he's open to change based on what he sees. Isn't that true?

TODD: I think so. We have to. Sometimes I wish I did that better. I wish I could be more flexible.

ED: No, I think you do that more each film. I think originally you had to have it shot the way you originally imagined it. But now I find you're more and more open about adapting things to what you're seeing on the set. For example, if the Operator whom we always work with, Craig Haagenson, has an idea, Todd listens. It doesn't have to go through me. He can talk directly to the Gaffer. He can talk to the Grip. He's very democratic about it.

TODD: Sometimes, on the set, we've had intense conversations. We know what we're trying to do. Ed and John DeBlau are focusing on the lighting. Craig and I are focusing on the framing.

ED: We work so fast, it's the only way it can be done. That's the incredible thing. All these films have limited budgets. Even *Wonderstruck*.

JON: But they don't look it.

TODD: *Wonderstruck* was difficult because we had a little more money but we had less time because we were working with kids. We were working in the Museum of Natural History. We had to load in and load out every day that we shot there. And we'd have to shoot the '70s and the '20s every day because any one kid has a time limit after a certain number of hours. So we had to build our day by going to the other kid.

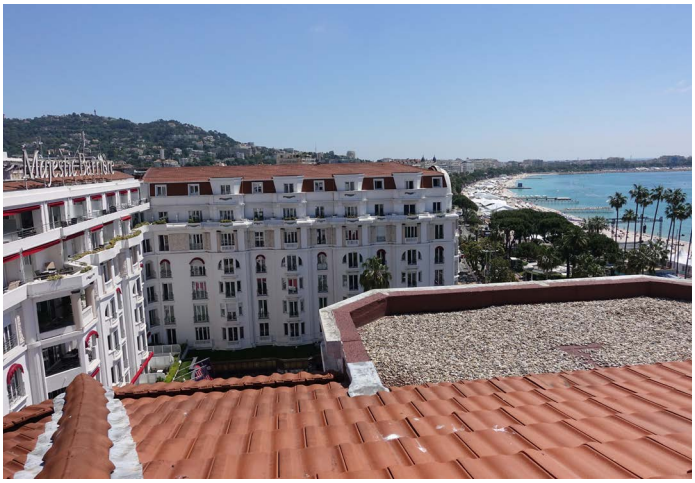
JON: Who sets the shots and picks the lens?

ED: Todd uses his iPhone...

JON: No kidding?

TODD: I use the Artemis Director's Viewfinder app. It's a great tool. I find the frame.

Lunch with Ed and Todd



Todd Haynes and Ed Lachman. Photos: Pauline Maillet.

ED: The Artemis is perfect now. You can also take frame grabs.

TODD: We go to the locations and try to get as much of an idea of what the frames are in advance. We print these out into our books. During the actual shoot, each day gets reference images that often come from the rough image books.

ED: Preparation allows good accidents to happen. Todd is prepared to let these accidents happen. For example, on *Carol*, we're tilting down and the sun's coming out, and there's no way you could plan that.

TODD: Right. Or Craig tilts down just to get Abby and Carol's hands clasping behind Carol's back as they're going down the steps. He just felt it at the moment.

ED: That's why I say a Cinematographer or Camera Operator is like another actor, because they have to act and react and respond. So Todd puts us in the situations to allow us to do that.

TODD: When people feel that they're on a solid foundation, that ideas are in place, then everybody can do their work. Then they can try things out in their own departments. I try to offer a foundation. For example, casting of the background extras on "Wonderstruck" became more interesting when thinking about costume design.

JON: For example, the Port Authority scene?

TODD: Yes, exactly. Every extra has a back story. They have to fit the clothes but you have to believe that they're living in those clothes and they're doing all the things they would do appropriately to the period they're in.

JON: Do you plan camera moves in advance?

TODD: The location, setting and the blocking informs the movement. In *Mildred Pierce*, there were longer scenes and a lot of physical movement within scenes, like that fight with Kate Winslet and Guy Pearce in the attic. They're moving all around the room and the camera angles evolve in measure with the blocking and the actors. We have to find the momentum and movement of the scene.

JON: You are more prepared than most Directors.

TODD: I think it comes from having ambitious concepts and ideas with limited time and money. I feel if I'm not prepared, if I don't know exactly what I want to get out of the day, I won't get it. It's practical. But also, by preparing, I guess I'm checking my instincts and ideas. I'm refining them, committing to them and then I feel confident about them.

ED: It helps all of us to know where we're going.

TODD: And Ed appears to be the calmest person on set.

ED: You never give the impression that you're lost. I've never seen you, Todd, at a loss on set either.

TODD: I work with great actors. But I'm the best actor at looking calm. The anxiety is inside.

JON: Despite all the preparation?

TODD: Oh, absolutely.

ED: I get very anxious on the outside when I'm losing the light.

TODD: He hides his inner calm. And John DeBlau, our gaffer, is our balance, our Buddha.

ED: He's worked with Nestor Almendros, Vittorio Storaro, Bruno Delbonel, Darius Khondji. He is a real maestro.

TODD: When the Beatles exited their Pan Am plane in New York in 1964, John DeBlau was holding a sun gun on them. He's like Zelig.

ED: I think I have to go.

TODD: Yes, we probably should get ready for Ed's award tonight.

VENICE Version 2 and Version 3 Updates

Sony VENICE Prototype Extension System (Tether).

Peter Crithary, Jon Landau, Kimio Maki with VENICE Tether at Cine Gear.

Sony VENICE Version 2.0 firmware update was announced on June 27, 2018. Version 3.0 details are shown at IBC in September.

Version 2.0 was a major update that enabled the VENICE to do most of the things users had been asking for. Sony's engineering team worked long hours for many months. They scrambled and came through with the new updates ahead of schedule. Version 2.0 makes VENICE fully functional.

The download link for VENICE software and firmware is at: *pro.sony/ue_US/support/software*

What's new in Version 2.00:

- Dual Base ISO 500 and 2500 (adjustable from 100 - 10,000).
- Variable frame rates 1 - 60 fps.
- More imager (sensor) modes, including 6K 17:9 and 1.85:1.
- User uploadable LUTs.
- E-mount enabled with Sony lens protocol and metadata.

Higher frame rates will arrive by Spring 2019 as an optional upgrade—using the existing sensor—up to 60 fps in 6K, to 90 fps in 4K and to 120 fps in 2K.

Sony also introduced a prototype of the VENICE Extension System (Tether). The extremely light-weight sensor block / lens mount assembly separates from the camera body. It connects to the body with a 9' or 18' cable. Both lengths are included in the tether cable kit. The tether works with the same VENICE camera you already have (or plan to get). The head and camera body separate in under two minutes. Attach the covers, connect the cable and you're ready to roll. Software Version 3.0 will enable VENICE tethering.

The tether was requested by James Cameron and Lightstorm producer Jon Landau for use on the current *Avatar* production with their 3D rigs.

The native E-mount is now enabled in V 2.0. The E-mount was always there, lurking under the PL mount after removing 6 (non-captive) 2.5mm screws. Until now, you physically could attach an E-mount lens in the solid breech lock, but the picture was curiously absent unless you performed some "don not attempt" mischief with the pogo pins. The E-mount is now fully functional.

This opens up the universe of E-mount lenses: Sony's great G-Masters, SIGMA FF and ZEISS. It also lets you use all kinds of other lenses by using E-mount adapters. By the way, when you attach SIGMA FF Cine lenses fitted with E-mounts, you can see the lens metadata in the VENICE viewfinder: T-stop and focus distance. The data connection is through the Sony lens mount pins.

Leitz sells a Leica M to E-mount adapter with a solid Leica breech lock. Leica and Ernst Leitz Wetzlar M lenses are among the smallest, lightest, fastest and most iconic Full Frame lenses and they work nicely on VENICE in tether or regular mode.

E-mount is now functional after removing the VENICE PL mount.

VENICE Version 2 Update

1. VENICE E-mount enabled.

Sony E-mounts have an 18 mm flange focal depth.

Leica M lens mounts have a 27.80 mm flange focal depth. Here is the Leitz-Cine Leica M (M0.8) mount for Sony VENICE.

2. New imager modes (sensor modes) have been added:

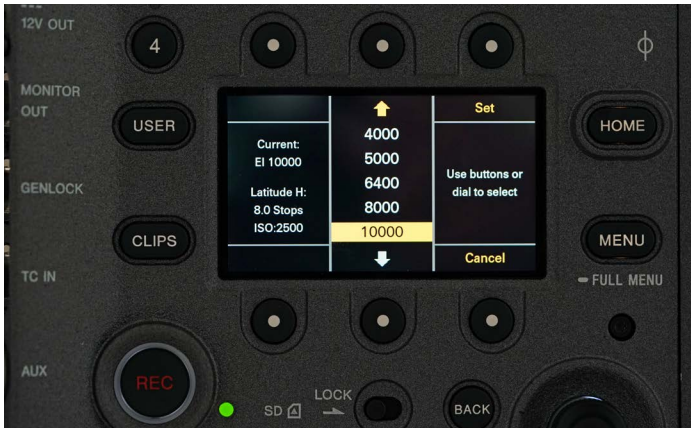
- 4K 6:5 Anamorphic (when Anamorphic License is installed).
- 6K 1.85:1 (when Full Frame License is installed).
- 6K 17:9 (when Full Frame License is installed).
- 6K Full Frame simultaneous AXS-R7 and SxS recording.
- Playback in all imager modes is now supported.

Previously, in Version 1, VENICE offered:

- 4K 17:9, 4K 16:9, 4K 4:3 Anamorphic, and 6K 3:2 Full-Frame recording (without in-camera playback and without SxS recording).

3. Variable frame rates in 1 fps increments have been added.

4. Dual Base ISO: 2500 High Sensitivity mode has been added to the original Base ISO of 500.



5. Toggle between Base and High ISO, and then adjust from 100 to 10,000 ISO.

6. Surround View has been added to 4K 17:9, 3.8K 16:9, and 4K 4:3 imager modes. The "look around" shows picture area 5% larger than what is recorded—so you can catch wayward C-stands and microphone booms before they creep into the shot.

7. Additional recording formats: Apple HD ProRes 422, HD ProRes 422 HQ and HD ProRes 422 Proxy can be recorded to SxS media cards.

8. Simultaneous ProRes recording: You can record Apple ProRes simultaneously, internally, to SxS cards at the same time as you're recording RAW or X-OCN to the AXS-R7 onboard recorder. Also XAVC 4K and HD ProRes 422 Proxy in one SxS media cards is supported

9. Network support enables VENICE to be controlled from a Windows, Mac or other web browser over a wired LAN network. The FPS, EI, Shutter, ND, WB, Lens (E mount lens), REC, and ASSIGN 1/2/3/4 functions can be controlled over the network.

10. Auto White Balance function is now supported.

11. High/Low Key function has been added to check for blown-out highlights (High Key) and deep-dark shadows in low luminance areas (Low Key).

12. False color output in the viewfinder is supported using the DVF-EL200 viewfinder.

13. The **CLIPS** button on camera left side is now enabled. It has the same function as the CLIPS button on the camera right side.

Sensor / Lens Mount Head | Sensor Block Rear Cover | Camera Body Cavity Cover | VENICE Body / Recording Unit

VENICE Extension System: remove front lens mount/sensor—attach extension module to rear of sensor block—attach cover plate to camera body. Connect tether cable. You can do this in under 2 minutes.

At IBC this September, Sony announces Version 3.0 firmware updates and refinements to the Tether prototype shown in June.

VENICE Version 3.0 free firmware upgrade will be ready in Winter 2019. Version 3.0 will add X-OCN XT recording mode (16-bit Original Camera Negative, Extended Tonal Range). It will be the highest X-OCN recording quality while maintaining very economical file sizes. Producers will love it because post production is affordable and efficient. The other X-OCN varieties are X-OCN LT and X-OCN ST. And, of course, there's still Sony RAW.

VENICE Version 3.00 updates

- New imager modes, including 6K 2.39:1 and 5.7K 16:9.
- Additional anamorphic de-squeeze ratios for viewfinder and monitors: 1.25x, 1.3x, 1.5x, and 1.8x. This is in addition to the existing 2x desqueeze.
- Cache RECORD up to a maximum of 30 seconds in X-OCN 4K 17:9 / HD MPEG 50 SxS memory.
- X-OCN XT for high quality recording using the AXS-R7 and offering comparable file sizes to Sony RAW.
- 6G / 12G-SDI switchable output enabling 4K SDI output during RAW and HD recording.
- Wireless Remote Control with CBK-WA02 to control and change important operations and menu settings.

VENICE Tether Extension System

As discussed earlier, the VENICE tether extension system lets you separate the camera body from the image sensor / mount module. A 9 or 18 foot cable connects them together. This lets you get the lens into tight quarters, inside cars, in small underwater housings, on lightweight remote heads and other places where the already-compact VENICE might have difficulty.

The tether is helpful on VR and 3D rigs, gimbals and drones where balance is critical. Aerial crews will appreciate having the camera body inside the helicopter, with easy access to the recording media and other controls. No need to land just to change batteries or media cards.

The tether system works with existing VENICE cameras when Firmware Version 3.0 is installed. You can configure the camera to tether mode in about two minutes. The VENICE Tether System (CBK-3610XS) consists of a front camera cavity cover, a sensor/lens mount cover, a 9-foot cable and a 9-foot extension cable.

To set it up, separate the sensor / lens mount head from the body by unscrewing the four 3mm shiny hex screws in front. Attach the sensor / lens mount rear protective cover. Attach the body / recorder cavity cover. Connect the tether cable. Voilà.

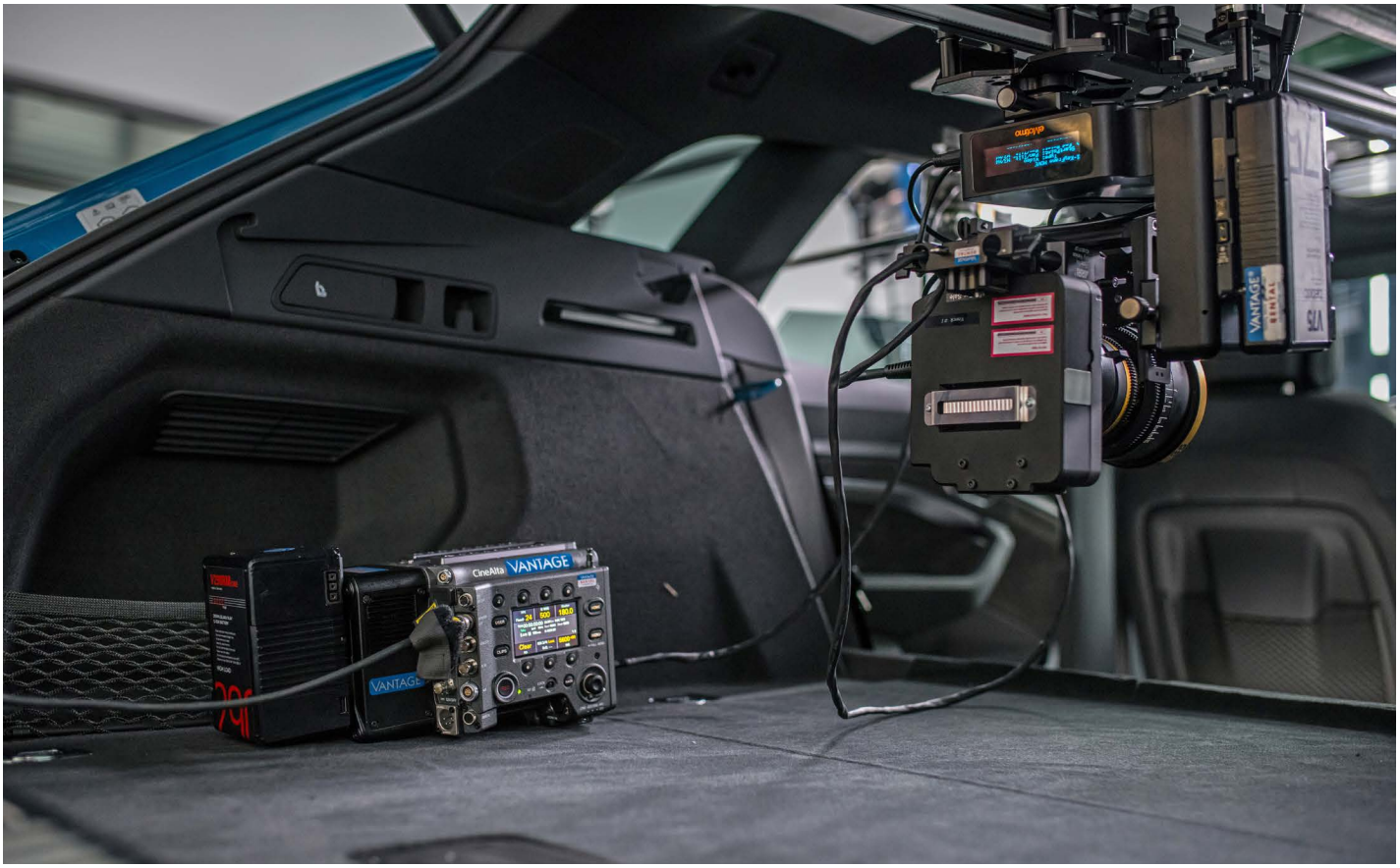
The Extension System adds a 24 VDC power connector for accessories like lens motors. It also adds an HD-SDI output to attach a monitor. VENICE Tethering is planned for Winter 2019.

Director Nicholas Kleczewski and DP Todd Bell used a prototype VENICE Tether system on an Audi e-tron production in Germany and the Czech Republic. Nicholas said, "A big challenge shooting cars is mounting the camera to get beautiful and controlled shots. The tether on the Venice got us to these setups in a fraction of the usual time. Mounting a motion control rig in a car interior is a much simpler beast when weight, balance, and dimensions become almost a non-issue. Body mounts, POV, handheld, the possibilities for the Venice with the tether system are near limitless and I can't wait to explore them all.

"Oh, and VENICE matched or exceeded our expectations. The smart ergonomics, brilliant ND choices, simple wireless control, a RAW format that's smaller than ProRes 4444 while still giving proxies... they say there's no perfect camera for every situation, but we might be getting close."

For further details: *pro.sony/VENICE*

VENICE Tether



VENICE in prototype tether mode with Hawk65 Large Format Anamorphics, supplied by Vantage Film.

VENICE Roadmap as of September 2018

	V1.0	V2.0 (July 2018)	V3.0 (Early 2019)	V4.0 (Q2 2019)
Imager modes	4K 17:9 4K 16:9 4K 4:3 Anamorphic 6K 3:2 Full-Frame recording (without in-camera playback) When VENICE is set to 6K Full-Frame, SxS recording is not available	4K 6:5 Anamorphic 6K 1.85:1 6K 17:9 6K 3:2 (In-camera playback) When VENICE is set to 6K Full-Frame, SxS recording modes are supported	5.7K 16:9 6K 2.39:1	
Lens mount support	PL lens mount (with ARRI® LDS and Cooke® /i™ technology)	E-Mount (lever lock type)	–	
Recording formats	16-bit RAW with AXS-R7 16-bit X-OCN with AXS-R7 XAVC® 4K/QFHD* MPEG50* *When camera is set to 4K mode	Apple ProRes	X-OCN XT	HFR (High Frame Rate) in Selected FPS
Simultaneous Recording combinations	RAW/X-OCN & MPEG50* XAVC 4K/QFHD & MPEG50* *When camera is set to 4K mode	RAW or X-OCN & ProRes	XAVC 4K/QFHD & Apple ProRes (Proxy only) RAW/X-OCN & XAVC 4K/QFHD	
Shooting functions	Variable White Balance (100K increments) Tint color correction control Relay rec. (SxS)	Select FPS (Off Speed) Dual Base ISO mode: 500 and High Base ISO 2500	Cache Rec. (AXS, SxS) Paint Menu (Custom mode)	Paint Menu (Custom mode)
Monitor Out functions	OSD on Black MLUT on Playback Independent MLUT On/Off (one preset) Double speed VF Two OSDs and two Markers selection 4K-SDI output in RAW / X-OCN recording	Independent MLUT select (several presets) MLUT in Off-speed shooting User 3D LUTs (install user-generated 16 or 33 cube files) Preset LUTs for S-Gamut3.cine/S-Log3 and S-Gamut3/S-Log3 with EI applied	Anamorphic De-squeeze ratios: 1.25x, 1.3x, 1.5x, 1.8x in addition to current 2x 6G / 12G-SDI .cdl file import 4K SDI output during RAW & HD Video simultaneous recording	
Shooting Assist functions	Digital Magnification in viewfinder Highlight Clip Indicator	Look Around (Surround View) High Resolution Magnification Auto White Balance High-Low Key False Color (use B button on DVF-EL200 viewfinder)	VENICE VF function control in EL200 SxS XDROOT Folder and Volume name changing to CamID+Reel#	
Hardware	Go to: www.sony.com/VENICE	Inside Clips Button	12-pin lens remote	S700 Protocol
Network functions	–	Wired LAN control (basic functionality)	Wireless LAN control (CBK-WA02) Wired LAN control (full functionality)	

Sony VENICE V2.0 firmware was announced in June 2018, and has:
Dual base ISO 2500 and 500 — and E-mount capability.

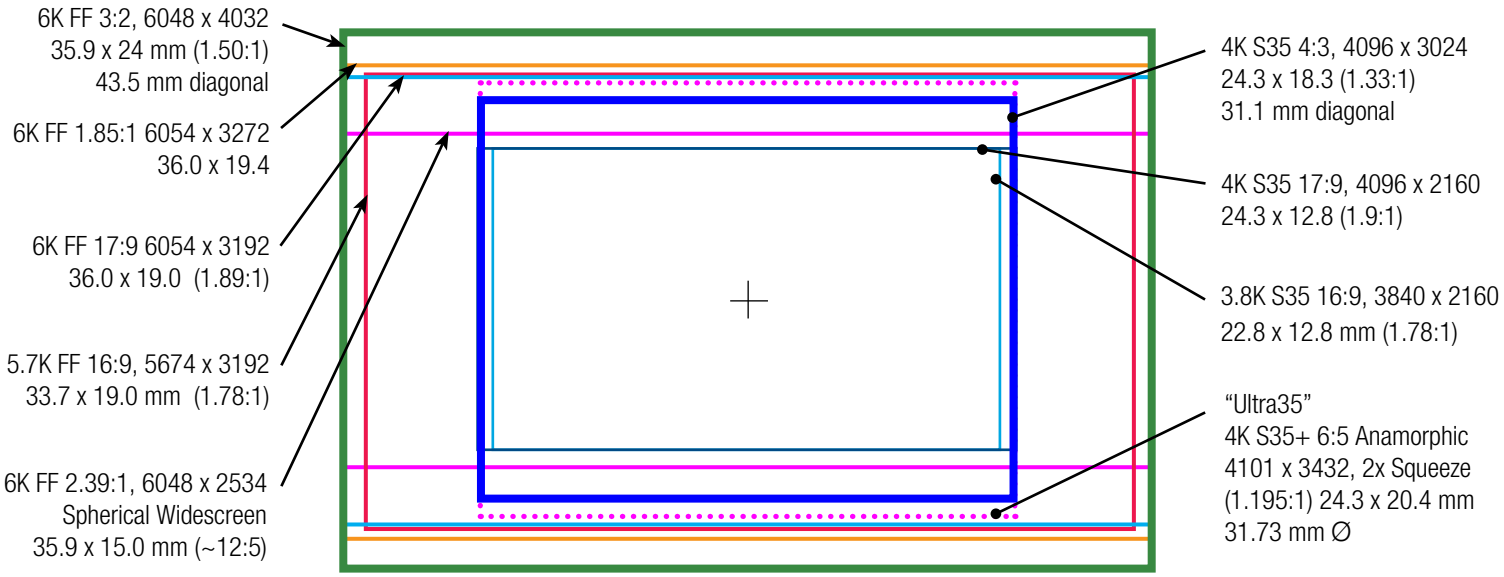
VENICE V. 3.0 firmware includes: X-OCN XT, AXS Relay Record, Desqueeze ratios of 1.25x, 1.3x, 1.5x, 1.8x (in addition to existing 2x), Import of .cdl files, 4K SDI output during RAW and HD simultaneous recording, and more.

Coming around Spring 2019: Optional upgrade for variable frame rates:
1 – 60 fps using the existing sensor.

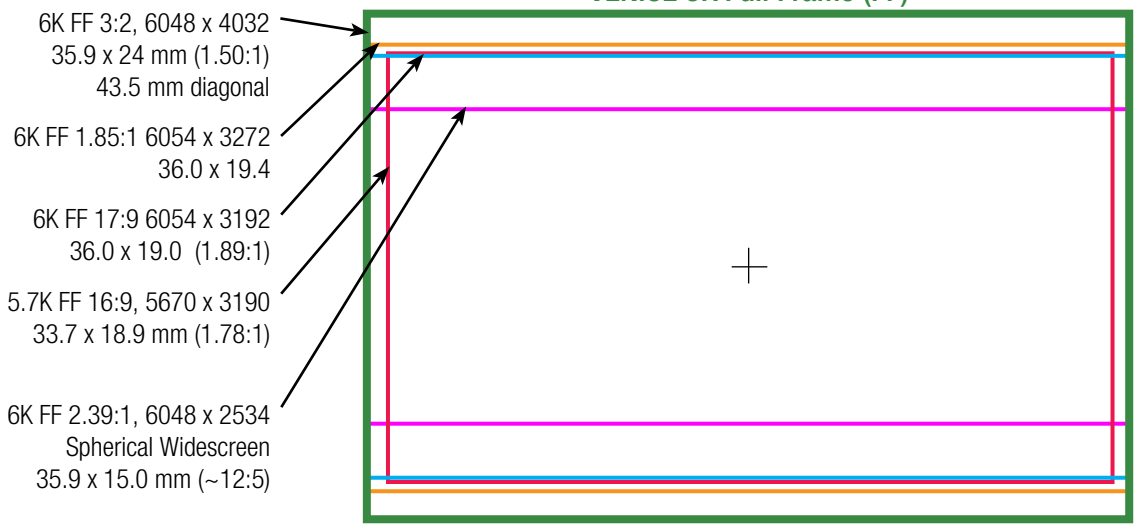
This roadmap, its features and timing may change.
New functions may pop up at any time. Roadmap courtesy of Sony

At a future time:
Up to 60 fps in 6K
Up to 90 fps in 4K
Up to 120 fps in 2K
Additional imaging modes
User uploadable 3D LUTs
Sony Teradek Wireless Video

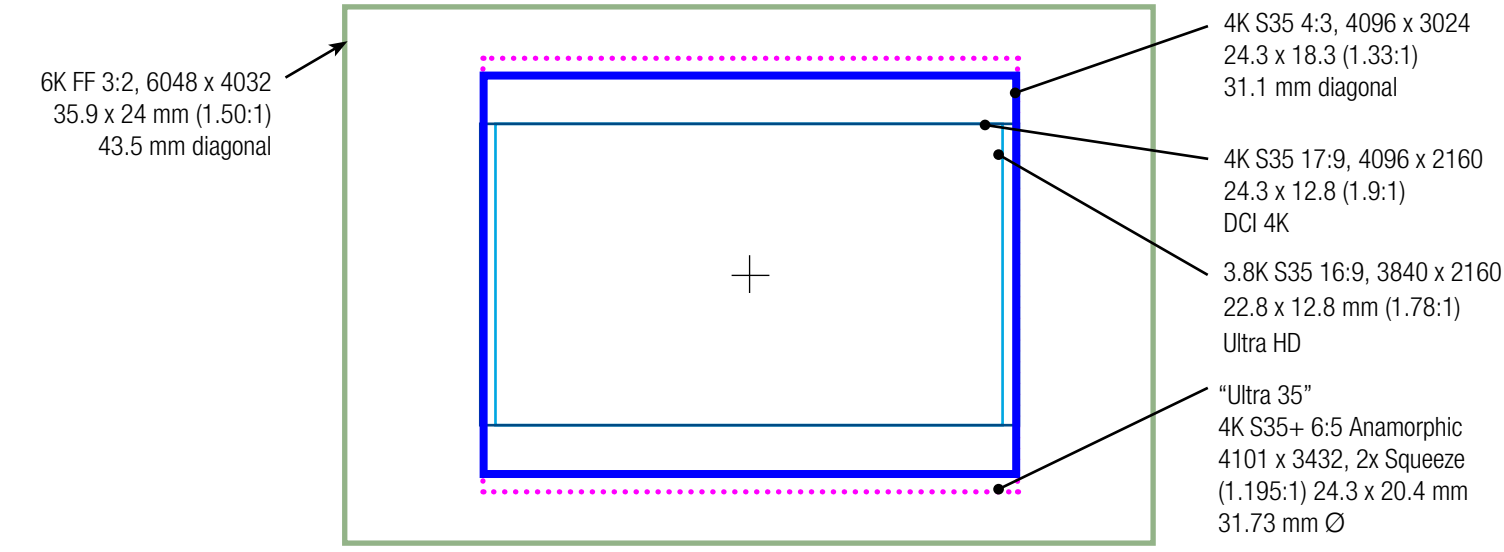
VENICE 6K Full Frame (FF) and 4K Super35 Modes



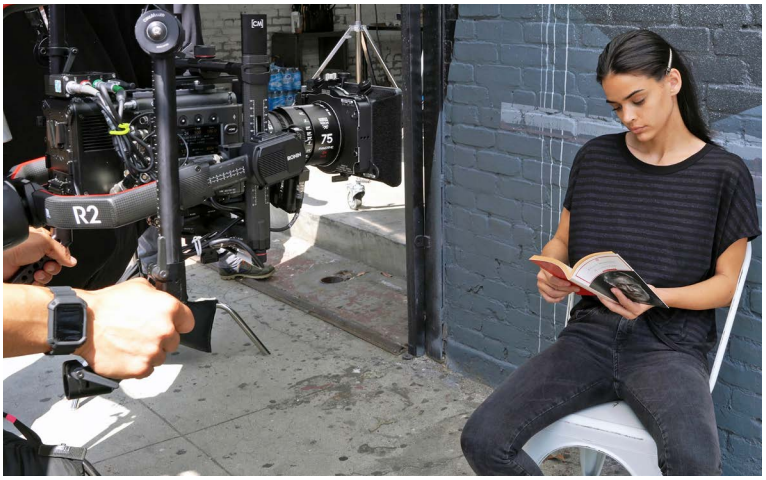
VENICE 6K Full Frame (FF)



VENICE 4K Super35 and "Ultra35"



Jeff Berlin and Scorpio FFA Full Frame 2x Anamorphics



Sony Artisan of Imagery Jeff Berlin recently shot *The Shoot*, a short, in Full Frame with Sony VENICE and Scorpio Full Frame 2x Anamorphic lenses. It opened on the big Sony Crystal Display screen at NAB.

Jeff said, "*The Shoot* was shot 16-bit linear in X-OCN ST. We used Servicevision Scorpio Full Frame Anamorphic 2x lenses, taking advantage of the full 24mm height of the VENICE sensor, resulting in really beautiful images.

"We came up with the idea to shoot a fashion video. Proper casting was critical, so I called the owner of a model agency I knew from the days when I lived in Milan, and I booked models with different skin tones.

"We did our color grade at Technicolor in 8K HDR and 4K SDR using Sony BVM-X300 reference monitors. Output was DPX and ProRes. We also did a DCI-P3 grade in SDR at Technicolor for theatrical projection at Cine Gear.

"My roots shooting fashion, beauty and celebrity portraits heavily inform my sensibilities as a cinematographer. As such, I'm particularly critical of how models and actors look on camera, so naturally, skin tone, texture and lens characteristics are crucial to me. The Servicevision Scorpio FFA lenses, supplied by Keslow Camera, were the perfect choice for this short. They were sharp but creamy, even painterly, and shot wide open for very shallow depth of field, looked beautiful paired with the Full Frame Sony VENICE."

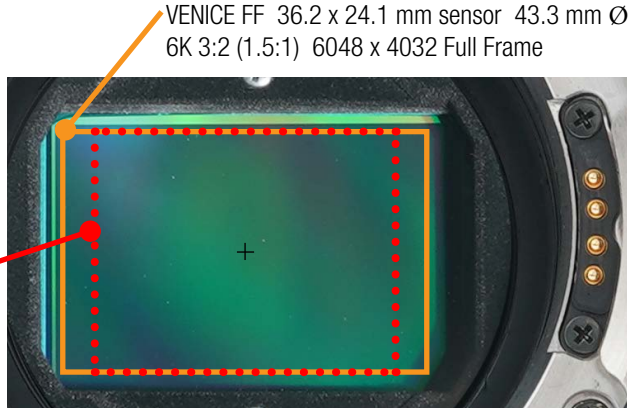
Jeff Berlin at left.

How Full Frame 2x Squeeze works:

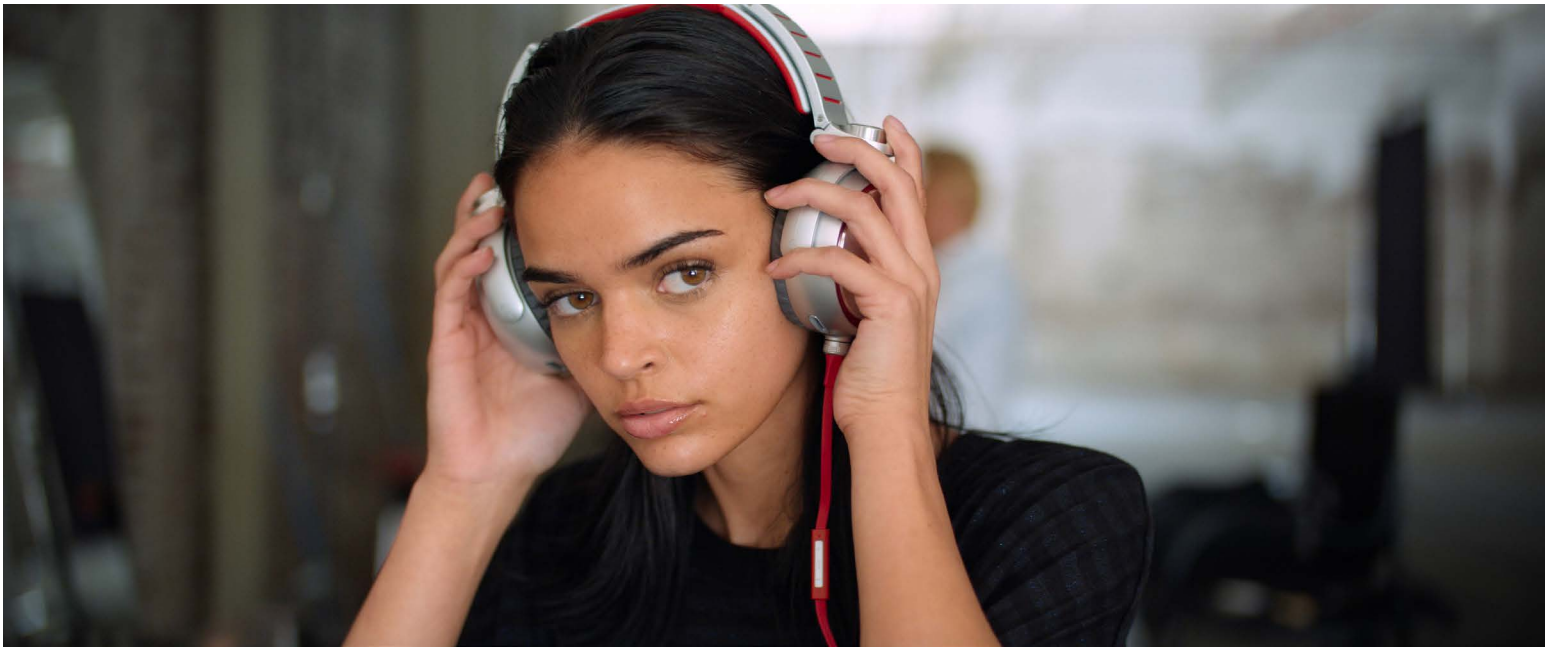
The Full Frame 6K 3:2 (1.5:1) 6048 x 4032 Imager Mode of Sony VENICE covers the entire sensor area of 36.2 x 24 mm.

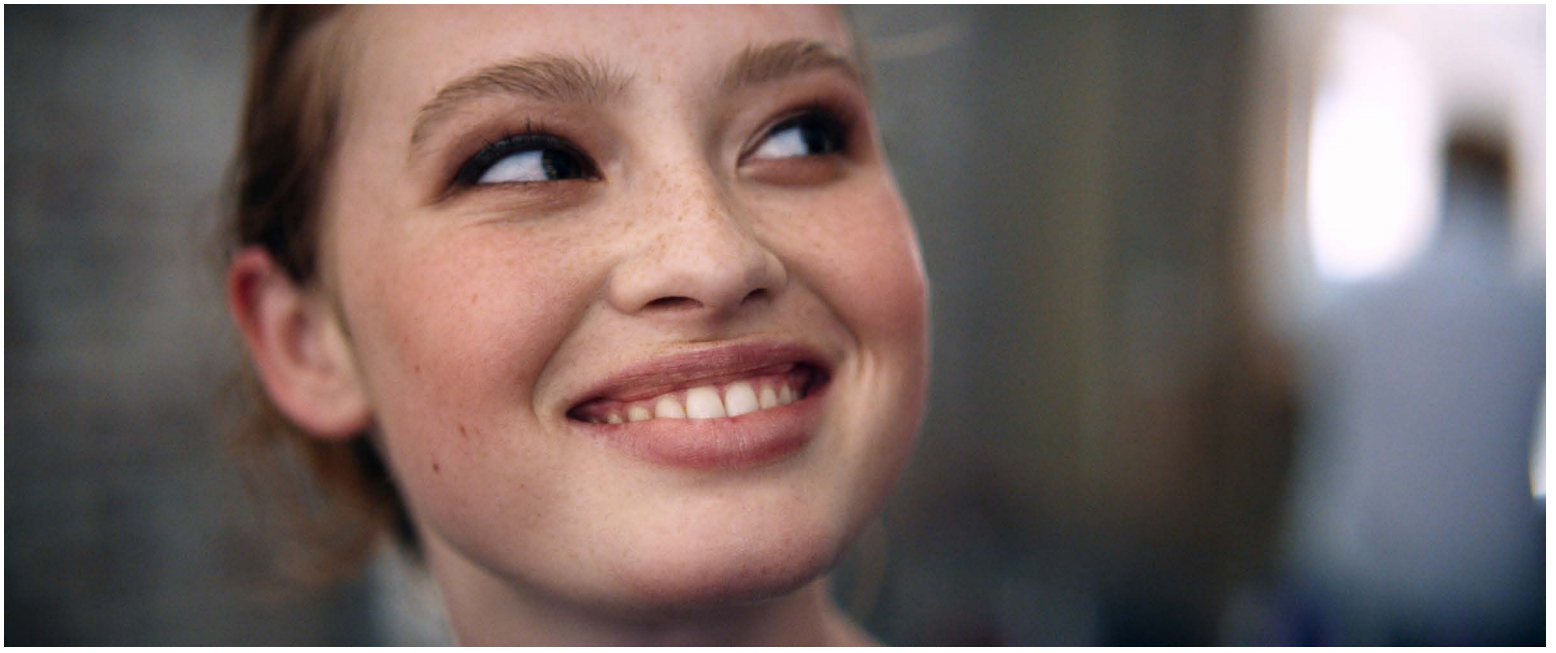
The Scorpio FFA 2x Anamorphic lens squeezes the 2.39:1 projection image to a 1.195:1 aspect ratio on the image sensor. (2.39 ÷ 2 = 1.195) The squeezed image is full height, 24mm. But the active image area does not have to be as wide as the Full Frame sensor, 37.4. It is actually 28.68mm wide. The additional picture width is cropped in post.

But, stay tuned. ScorpioUltra 70 T1.4 anamorphics are coming soon and are being introduced at IBC.



Scorpio FFA 2x Framegrabs from *The Shoot*





CineTape2 and Wireless AIR Mobile2

CineTape2 System
on Canon C700 FF

New
CineTape2

Original CineTape behind new CineTape 2.

Thousands of CineTapes are at work on productions worldwide.

Cinematography Electronics introduces a new model: the CineTape2. With all of the familiar features and controls of the original CineTape, it adds more than 50 new features and innovations. CineTape2 now has long range 2-way radios, Bluetooth, faster processing—all bundled into a smaller, lighter enclosure.

Also new is the companion AIR Mobile2, a wireless remote for the CineTape2. It is a small, battery-powered wireless display that mounts onto FIZ hand units or assistant monitors. Its long-range radio receives wireless measurements instantly. They are displayed on a large LED readout. The radio also has 2-way communication that keeps the AIR Mobile2 settings synchronized with the CineTape2. In addition, you can connect to an iPhone via Bluetooth.

CineTape2

CineTape2 uses the same horns and cables as the original CineTape. It also has the same large, easy-to-read distance display.

The new, built-in 2-way radio instantly sends the measured distance to the remote AIR Mobile2. The radio has a strong 500-foot range with 40 selectable channels for clear communication. An LED indicator glows green when connected to the AIR Mobile2.

Bluetooth compatibility connects the CineTape2 with the updated CineTape AIR App for iPhone and iPad. The App has a NEAR and FAR distance limit setting, Sensitivity and Brightness adjustments, and Synchronization. Newer iPhones and other Apple iOS devices are all compatible with this App.

Both of the radio antennas are internal and, therefore, protected. Other enhancements include a simplified power-up menu, brighter digital readout, and reverse voltage protection. The solid aluminum case has multiple threaded attachment holes along with a standard dovetail-mounting slot. These mounting options and the included Mini Dogbone bracket provide simple and secure mounting to cameras, matteboxes or cheese plates.

AIR Mobile2 Wireless Remote

Rear of AIR Mobile2

CineTape AIR App. iPhone at right shows NEAR limit ON.

CineTape2 uses the same horns and cables as the original CineTape.

AIR Mobile2 (Wireless Remote)

The AIR Mobile2 is a wireless remote readout and constant companion to the CineTape2. It's a small, lightweight, battery operated unit that attaches to any wireless FIZ or monitor. The large display lets focus pullers clearly see the distance as they move around the set.

The AIR Mobile2 is linked to the CineTape2 by a 2.4 GHz radio with a 500-foot range that is not limited to line-of-sight. Choose from 40 channels for clear connections. In addition, connecting to an iPhone with CineTape AIR App expands the features even more. Both of the integrated antennas are internal and protected.

The removable, rechargeable, small Sony 3.6V NP-BX1 battery is held in place by a sliding door and lasts 8 hours. It's the same nice battery used in the Sony RX1 and RX100 pocket cameras. Machined from solid aluminum, the AIR Mobile2 weighs a scant 5.5 ounces with the battery.

Mounting the AIR Mobile2 to a handheld FIZ unit is easy. Use one of its 8 mounting holes and a Mini Dogbone bracket. All of the ¼-20 threaded holes are on a removable plate that is flush with the back surface of the AIR Mobile2. This mounting plate can be changed for specific situations.

CineTape AIR App

The CineTape AIR App, available from the iTunes store, connects the CineTape2 or the AIR Mobile2 with Apple devices via Bluetooth. Read the measured distance and adjust the CineTape2 settings directly on your iPhone or iPad.

The measured distance from the CineTape2 is clearly displayed in large red characters that mimic the CineTape2.

Adjust the Distance Limits, Sensitivity and Brightness levels from your Apple device. The NEAR and FAR limits, shown in medium size yellow numerals, can be preset—and activated or deactivated during a shot.

Great Redesign

The CineTape2 is a great redesign of Larry Barton's famous, industry-standard measuring device.

Because CineTape2 has many updated features but uses the same familiar displays and controls as its predecessor, it is very intuitive and there's no daunting learning curve.

The ability to connect the CineTape2 wirelessly to the AIR Mobile2 or an Apple iOS device simplifies camera setup by reducing the number of necessary cables. It also allows focus pullers to have a bright, legible, cable-free distance readout as they move anywhere on the set. No longer are they tethered to a small display.

The CineTape2 system works with all cameras and all lens combinations.

With updated features and cable-free capability, every focus puller will want to upgrade to these latest focus tools from Cinematography Electronics.

cinemaelec.com

AJA FS-HDR for DPs and DITs

Bryce Button, AJA's Director of Product Marketing, explains the FS-HDR and how it helps in cinema production.

JON FAUER: What can the AJA FS-HDR do for motion picture production?

BRYCE BUTTON: When it comes to cinema production, there are a number of demands that suggest the ability to correctly monitor HDR on set or location would be of great benefit for production teams. About two years ago, there was discussion at an event at the Dolby Theatre in London about Netflix productions using HDR for much of their delivery. In talking to production teams, we heard that they were struggling a bit on-set. One reason was that they couldn't view HDR with the standard monitoring systems they had. And, they couldn't clearly see how much detail was actually coming out in the background of scenes as they were working with SDR displays.

In HDR, everything feels more defined because of the deeper color space and the extended dynamic range. Without a clear idea of how the background components competed with the foreground focus, they felt that they would have benefited from rebalancing light sources and potentially recomposing shots to maintain the dramatic intent and the viewer's interest. Post companies, of course, were happy. It meant that when post-production began, they had to do a lot of work to adjust.

The second challenge was that a lot of detail that might have gone unnoticed before—especially around make-up and set design—was now clearly visible. So, they had to factor in a number of aspects on the shoot: especially composition, lighting and make-up. The question they had at that point was the need for a better way to monitor on-set. They said, "We can't quite tell, with our standard SDR feed, how much is going to be affected by the time we get into the post process. And we may actually want to alter our lighting set-ups, and so on, to compensate."

So that was an initial need we saw when it came to production. We talked about it internally at AJA and how to address these challenges. Right from the beginning with the FS-HDR, we had the ability to take a straight 4K signal off a single camera. But FS-HDR also supports four-channel mode and you can run four HD signals which could help with matching cameras. In either case, you can run transformations that either show you SDR or HDR.

How can the AJA FS-HDR help Cinematographers and DITs?

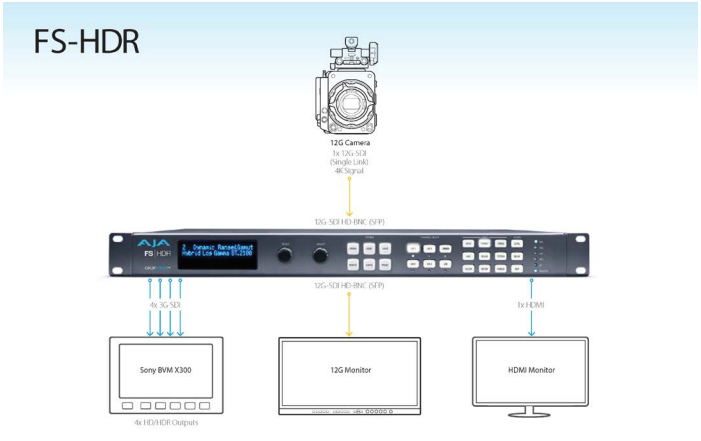
Cinematographers were intrigued for a number of reasons: they could get a better representation of how their work would look in HDR early on. And, with multiple camera setups, they could view up to four camera feeds on a 4K/UHD display with HDR while also down-converting to HD with SDR on another for comparison.

In our conversations with cinematographers prior to launching FS-HDR, a number of them didn't feel they were getting an accurate representation of lighting, look and color straight off the camera. One of these cinematographers is Claudio Miranda, ASC. He desired a feed and a signal that would give him a bit more of an accurate display of what he was trying to achieve aesthetically, which made the FS-HDR appealing on two fronts.

Above all, the Colorfront Engine, which is the standard FS-HDR operational mode used for color transformations, is highly pertinent for digital cinema because it benefits from the years of work Colorfront has spent on digital cinema productions. By the way, Colorfront transformations are also valid for broadcast and offer parameter controls for that purpose.

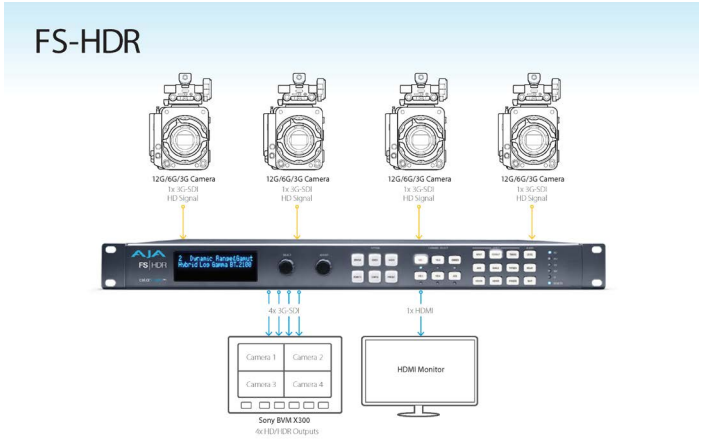
FS-HDR additionally offers BBC HLG LUT transformations to

FS-HDR with Single Camera



FS-HDR Single Camera Workflow
FS-HDR Must be in Single-Channel Mode

FS-HDR with Multiple Cameras



FS-HDR Multi-Camera Workflow
FS-HDR Must be in Four-Channel Mode

meet broadcast needs if that is your final destination for your project. (A BBC description: "High Dynamic Range...means water can glisten, stars can twinkle, and sunlight can be golden, all whilst maintaining detail in the shadows. Hybrid Log-Gamma (HLG) is an HDR system that was specifically developed for television by the BBC and Japanese broadcaster NHK.")

For cinema, however, Claudio was very impressed by the fact that the Colorfront Engine transformations aren't just simply mathematical but rendered as a true representation of the desired aesthetic. Intrigued, he said, "OK, but on-set we don't always need to show 4K for monitoring. It would be wonderful if I could see multiple cameras, especially when trying to match their looks."

So here we have lower resolution HD-HDR transformations. And, FS-HDR will indeed do that. In terms of getting the feeds from the camera into the box itself, if you're going to bring four separate cameras together, another concern is cabling. Cameras may be great distances apart, so the fact that the FS-HDR also supports SFP cages for fiber was appealing for his needs. It supports very long cable runs from each camera to the unit, including from cranes and remote heads. All four incoming camera signals can be adjusted separately as needed. In other words, you can set separate transformations or tweak parameters when the demand arises.

To be clear, with the Colorfront Engine, you might choose the same preset transformations, and all is well. Let's say you're transforming to PQ (Perceptual Quantizer system developed by Dolby). But you also want to slightly adjust luminance or color settings, as the cameras might be from different manufacturers or their physical on-set location might dictate slight tweaks due to lighting and so on.

FS-HDR offers those abilities. Coming out the back of the box, you can go into a single monitor that accepts four 3G-SDI inputs (e.g. SONY BVM-X300). Or, with 12G-SDI becoming more prevalent, you could use a 12G-SDI monitor. Either way, you're effectively able to look at all four HD signals with HDR color transformations applied.

The advantage is that it becomes much, much quicker for the Cinematographer, the DIT and the Director to quickly decide how to make things match better and to deal with any background issues in frame that HDR makes apparent. FS-HDR provides a very pragmatic approach that ultimately saves time in post and helps prevent costly post fixes down the line because the on-set images more closely mirror the final look they're trying to achieve.

Talking about the camera inputs, the FS-HDR is extremely flexible in that it allows you to bring in Log formats from many different cameras for real time transformation. It's not uncommon to be working with a range of cameras on-set: RED, Sony, ARRI, Canon, Panavision, Panasonic, etc. FS-HDR supports separate real-time conversions for each source, bringing them all into the PQ space, for instance. This makes it a lot easier and faster to spot issues that require immediate attention on-set.

On a four camera set-up, how do you connect the HD-SDI outputs of each camera to FS-HDR inputs?

A straightforward run would include four 3G-SDI inputs, one from each camera. If taking the HD outputs from these cameras, they would be 3G-SDI. You could also choose to be coming in from 4K or UltraHD cameras as well, running at 12G or 6G-SDI. FS-HDR offers SFP+ connection cages (Small Form-Factor Pluggable) for either 12G-SDI coax (HD-BNC) or fiber inputs, which is excellent for some of the latest cameras to hit the market.

Claudio, for instance, ordered the SFPs on his FS-HDR because he wanted to use fiber, and this gives him a couple of choices. He could go 12G-SDI off a single Sony VENICE camera doing 4K. Or he could be using four 3G-SDI fiber connections for long runs from multiple camera inputs.

And the monitor output is SDI?

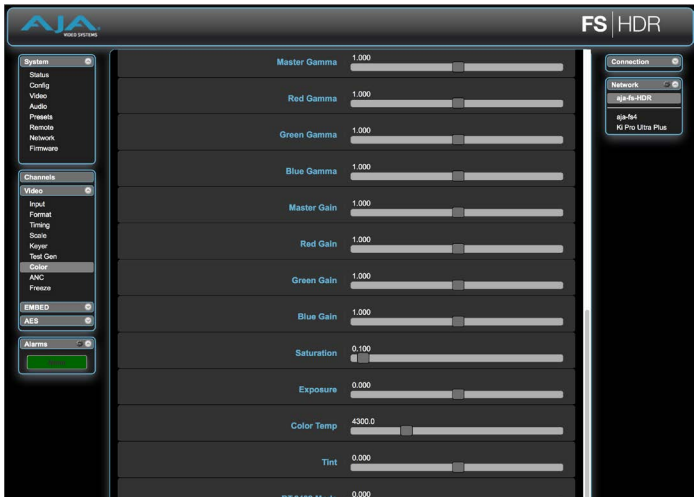
One of our latest firmware upgrades allows you to monitor over HDMI with HDR metadata and 4K-SDI, or up to 4 signals of HD-SDI and HDMI. This allows you to do simultaneous outputs. You could use the four 3G-SDI outputs or even the fiber outputs from their SFP ports and simultaneously send an SDR version to a standard HD monitor. That way, you can see how your production might look in both HDR and SDR. This approach has been extremely popular with broadcasters, but is also a good application for cine production because it gives you a great view of how your HDR production will look on a standard set as well.

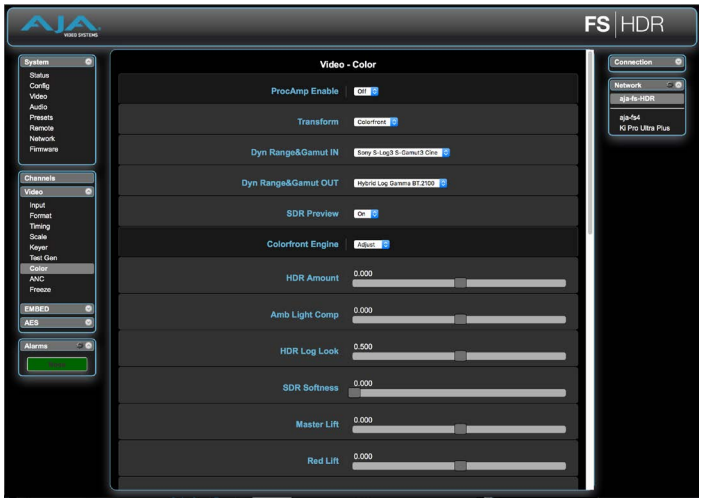
Just to play devil's advocate, let's assume that we have the latest HDR OLED monitor on set. Would we still use the FS-HDR?

Absolutely, because you'll use the FS-HDR outputs to drive the monitor. The key reason you might not just go straight into the monitor is that the monitor is not necessarily capable of doing all the transformations from the various Log formats. So, the key function of the FS-HDR in this instance is compiling those various camera inputs and transforming them for HDR viewing.

On top of that, Colorfront has made great strides with their transformation work, focusing on the retention of artistic intent, and not just a straight mathematical transformation. We heard this throughout early testing with beta sites for instance. They believed that even feeding the best cameras into the best HDR monitors, our transformations from S-Log to HLG or PQ look better than what the cameras and monitors might be doing themselves, because of the FS-HDR's retention of artistic intent.

I have also heard this from a number of Cinematographers and Colorists whom I respect. They say that the FS-HDR provides images that are more pleasing to the eye than they get with a straightforward camera to monitor setup.





FS-HDR web GUI provides numerous adjustments to with the internal Colorfront engine.

With the FS-HDR, can you tweak how the image looks?

Yes, you can tweak through various parameters. But even straightforward "select and forget" built-in Colorfront transformations certainly look better.

What adjustments are available?

There are 21 parameters for making adjustments. (see the FS-HDR manual: aja.com/products/fs-hdr). You can affect dynamic range, gamma, HDR amount (color volume expansion), etc. This is all done within the Colorfront Engine, either by FS-HDR's built-in web browser GUI or using the free FS-HDR Control Link software to plug in a Tangent Kb panel, which can be quicker because it's a dynamic, physical, tactile device.

There's also Master Lift, Gamma, and Gain—both universal and by color—all the basic color controls. The Exposure control is interesting. It's an equivalent to adjusting the amount of photons landing on the camera sensor.

At IBC, we will introduce version 2.6 firmware. It includes a few updates that will appeal to DPs and DITs. We're going to add a new S-Log 3/BT.2020 output, which basically extends the support for S-Log coming from the Sony side, and ARRI Log C output for ARRI. They are especially interested in this for working with multiple AMIRAs to get consistency from the various cameras into the switchers before finally going HLG for HDR output. That's a pretty big request from ARRI Rental and others.

We've also expanded our BBC HLG LUT support, which is important for certain broadcasters. In sports productions over the summer, broadcasters found that SDR could become overly saturated in the some competing HLG processes. The new LUTs from the BBC assist in consistent round-tripping between HDR and SDR as materials rotate round from one to the other.

Additionally, the new firmware update integrates PQ4000 to HLG conversion, which speaks to the industry's embrace of HDR. With HDR now taking off, high-end high Nit-level counts are coming into play, and a lot of settings for digital cinema production in particular have been mastered for PQ4000. This is going to allow a recognized transfer of PQ materials at 4000 Nits to HLG when you get the finished cinema product going out on television.

Another exciting development is the addition of custom LUT uploads, including 3D LUTs in 33 point .cube formats, which will be an incredible benefit on-set. Some productions like to set a LUT because they have a particular look in mind. They'll be able to upload it and see how it will look on-set and in a final view for PQ, HLG and SDR, as needed.

Finally, we're also rolling out gang operations. FS-HDR Control Link software will link a Tangent 12-knob Kb panel to an FS-HDR for control of the Colorfront Engine, so that you can gang-control multiple FS-HDRs in the same network.

Why is this important? It enables real-time 8K workflows. It lets you set parameters for multiple FS-HDR units attached to different sources simultaneously. For example, you'll be able to gang four FS-HDRs together for 8K (4x 4K) and use a single parameter control to adjust any or all of those ganged units at the same time. This will be of interest to NHK and others on the leading edge of 8K.

Would you be able to do a 4K quad split?

Yes, you're coming out of four FS-HDR units and you could drive them to four 12G-SDIs going into a single display.

What flavor of HDR is coming out of the FS-HDR?

On the output side, you have a number of options. We're supporting PQ, which is the same thing as HDR10 for HDMI. HDR10 is just a designation in terms of HDMI output. You can output to SDR Rec.709 at 100 Nits, which is normal television. You can do PQ BT.2020 at 1,000 Nits. You can do HLG BT.2100 and also output with Sony S-Log S-Gamma3. And then two new ones that will be coming. So that's six different types of HDR output.

So the FS-HDR is an essential box to have on set if you're working with HDR, no matter what.

Yes, we think so. We're seeing a lot of excitement from cinematographers because they trust the transformations and like the flexibility of connectivity options—3G, 6G, 12G-SDI—over coax or fiber. Cinematographers and DITs like the ability to tweak them as needed either with the front panel, a hardware control panel, or the web-browser UI. Supporting LUT uploads in v2.6 will likely be yet another addition to FS-HDR's continued popularity on set and on location.

cmotion lens controls

cPRO is cmotion's latest Lens Control System for focus, iris and zoom control.

cPRO hand unit

The cPRO hand unit is beautifully balanced, has an ergonomic design and intuitive controls. A thumb wheel below the touch screen display provides quick and easy access to the system's extensive menu settings even while wearing gloves. The thumb wheel can also be assigned as a fully functional 4th axis controller.

The newly designed focus knob has a concave, finger-friendly shape, mechanical hard stops and an anti-slip grip. The cPRO's illuminated marker ring, marker strip, user buttons and zoom position LED display provide clear information to the focus puller. Additional accessories include a cstrap mount for cmotion's neck/shoulder strap and a new monitor mount.

cPRO motors

The cPRO motor is mechanically similar to the cforce mini motor—but adds a built-in RF module and improved motor and motor gearing. By putting the wireless module into the motor, cmotion has eliminated the need for an extra motor driver unit being mounted on the camera. This reduces both weight and setup time.

Using the LBUS connectors, the system can be expanded with up to 2 additional cforce motors. The new CAM connector handles power supply, run/stop control and camera feedback for cameras including ARRI, RED, Sony, Canon, Blackmagic and Panavision.

cPRO camin

If you're not using cPRO motors, the cPRO camin is cmotion's smallest motor driver box. It has an LBUS connector to attach up to 3 additional cforce motors. It also has a CAM connector to connect to the camera. Using RED's open protocol, cPRO offers wireless control over internal focus and iris scales on EF lenses.

cmotion cvision focus assist

The new cvision focus assist is a distance measurement tool that blankets the entire scene with hundreds of thousands of points per second. It can be used as a simple distance measurement tool or enhanced as a full auto focus system.

The measurement system includes a stereoscopic measurement unit and a touch screen monitor on which a real-time depth map is generated as an overlay of the image.

The touch screen allows active focus tracking on any subject in the image. It also can show distance information for multiple subjects at the same time. The cvision measurement unit does not need to be aligned or adjusted to a subject. It measures continuously with a wide-angle field of view, working even before a subject comes into the shot.

cvision uses advanced stereo matching technology in a small housing. The system offers everything from basic distance output on a hand unit to advanced auto focus, which includes a tracking function for moving subjects and a point-to-track function by simply tracking the subject with your fingertips on the touch display. Two subjects can be tracked simultaneously with a controllable and predefined focus shift from one point to the other at the push of a button.

cmotion cinefade

The cmotion cinefade varies depth of field while maintaining correct exposure throughout the entire shot. This is done by pairing cinefade's motorized variable ND filter with an iris motor on the lens. It maintains constant exposure over a range of up to 5 stops.

The in-camera effect is a change in sharpness of the background. It's something like a rack focus of the iris. Picture a close-up on the hero actor, lens wide open at T1.4, the background very soft, the rotating filter at maximum ND. You engage the cinefade for a duration of 3 seconds. The iris closes down 5 stops (T8) and the ND filter wheel rotates to its clear position. Because we are now at T8, the background is now sharper—revealing Ninjas creeping up on the hero.

The cinefade filter is compatible with most ARRI matte boxes (LMB5/15/25, 4x5) and via LBUS. It works with most film and digital cameras and cine lenses. It's small, lightweight and very easy to use.

Jarred Land

Brent Carter

Jarred Land, President of RED Digital Cinema and Brent Carter, COO of RED, patiently endured another episode of FDT questions about Full Format, Lenses, Motors and other matters.

JON FAUER: Do you see a change in how we work with traditional aspect ratios--made possible by the growing enthusiasm for VV / Full Format?

JARRED LAND: That's one of the reasons we chose the 2:1 format for most of our sensors. You can crop to 16:9 or 17:9, which are close. You can crop further to 2:39:1. You can choose what you want within those goalposts. You can even do a square Instagram style format or a vertical smartphone format. There are many new, creative aspect ratios that people can choose. I hope somebody builds modular displays that would fit any size of walls in the home. Walls aren't usually 16:9. A square display would be interesting, not just for watching movies or TV. You could show art works. Put two square displays side-by-side and you have 2:1 again.

JON: Many places are turning monitors vertically in boutiques and exhibitions to show fashion models on runways. They are cropping the sides of 8K images or turning the camera on its side, and the monitors are in portrait mode.

BRENT CARTER: Absolutely. We came up with our R90 Dutch Head a long time ago. It turns the camera 90 degrees on its side. The main customers were fashion photographers.

JON: Why did it take longer than I expected for VV / Large Format to catch on in a major way?

JARRED: When we released the 8K VV DRAGON, which was, of course, our first Full Format camera, it was the scarcity of Full Format lenses that was making people hesitate at first.

Then the lens companies got on board. By now, almost every lens company supports Full Format. The broadcast guys may still like the smaller sensor. I think a few people who have invested in expensive S35 lenses may hesitate at first to go Full Format. They want to use S35 to pay off their investment. But, if you have to make the decision today, Full Format is the way to go. We are supporting it in a big way.

JON: Just a year ago, you were surprised that no one else was doing Full Format. Now we have Sony, ARRI, Panavision and Canon joining you, RED, in Full Format. What happened?

JARRED: That's a good question. Look at everything we have done, beginning with 4K. People said, "Don't need it. Worst, biggest mistake ever. 4K's stupid. You guys are crazy. Compressed RAW? Nobody needs that." Then, when we introduced a little camera, people complained, "Cameras are supposed to be big. This is too small." And more recently, "VistaVision, Full Format, you guys are crazy. No lens support."

BRENT: We've basically become like a market research experiment lab [laugh] for the industry. There's the latency of time you need to work on it until you actually develop something and come out. And then, all of a sudden, three years have passed by.

JARRED: We take it as a compliment. It doesn't upset us when others do it.

JON: Is it harder for you to build Full Format than Super35?

JARRED: In the beginning, the 8K VV DRAGON sensor was an almost impossible sensor to make. The yield was very low. And dealing with a sensor that size with a yield so low, every single one of those sensors became very expensive.

BRENT: It's similar to the asking if it is easier to get a five carat diamond that's flawless or a one carat diamond that's flawless? We were trying to mine those five carat diamonds that were flawless, which are exponentially more expensive.

JARRED: So, we were dealing with a Full Format sensor, 8K resolution, high dynamic range, a 2:1 aspect ratio—but there were few lenses. The camera was expensive. But we persevered and kept working on it and that led us to MONSTRO and the DXL. Luckily, those were the right decisions because suddenly, this year, everybody's embracing Full Format. Sure, there's competition, but it's better for the customers, the filmmakers.

JON: I see Full Format as the biggest change in our business since movies went from silent to talkies.

RED MONSTRO 8K VV
35.4 MP CMOS Sensor
40.96 x 21.60 mm (Ø 46.31 mm)
60 fps at 8K (8192 × 4320)

RED HELIUM 8K S35
35.4 MP CMOS Sensor
29.90 x 15.77 mm (Ø 33.80 mm)
60 fps at 8K (8192 × 4320)

RED GEMINI 5K S35
15.4 MP Dual Sensitivity CMOS Sensor
30.72 x 18 mm (Ø 35.61 mm)
96 fps at 5K (5120 × 2700)
75 fps at 5K full height (5120 × 3000)

JARRED: Absolutely. And it's definitely easier to do a Full Format motion picture sensor now than it was four or five years ago when we went down this path.

JON: And you're getting better yields on MONSTRO sensors?

BRENT: Yes. We learned a lot. We invested in the technology. We do our sensor designs in-house. And MONSTRO was a complete re-design from the ground up.

JARRED: We made this investment in the industry, not just for ourselves. It was part of our vision for this larger format. The a7 helped pave the way. It's Full Format and it also does S35/APS-C. It wasn't rocket science to understand this ability to do both formats. If nobody else embraced it, to support Full Format, we would have made Full Format lenses ourselves.

JON: What would those lenses have looked like?

JARRED: I would have motors inside the lenses. It's maddening to me that a lens company will rehouse a still lens with motors inside, remove the motors, put a metal around it, charge three times the price and here is your lens. I know it's more complicated than that, but that is why I love the Panavision Primo 70 motorized lenses.

JON: Motors inside the lenses? I'm going to play Devil's Advocate about that. Some assistants say that internal motors are not fast enough, not quiet enough, or maybe they just want to use their own external motors. What if, instead of having the motors built inside the lens, there were some kind of external modular attachment? It could be like the one you made for Fincher. It is piggybacked on the outside and only the wires are internal. You could quickly swap it out if it breaks down or needs an update.

JARRED: That's why I did that with the Fincher lens control. It was an option. I've heard the same complaints about noise, speed and service with motors on the outside as well. Unfortunately, when you have motors on the outside of the lens, the interface, gears and cabling add to the complexity, weight and size. You need more torque because you are moving large element groups around. But look how lightweight and small motorized still photo lenses are. If you put the motors inside, you can even have an inexpensive little lens in a plastic housing that autofocuses 100 times faster than a high-end wireless lens control system with external motors can even think about doing.

BRENT: Remember, with the Primo 70 lenses, this is a first iteration of internal cine lens motors.

JON: Do you feel vindicated about gently compressed RAW now that Apple has come out with ProRes RAW?

JARRED: I actually asked them to do it many years ago. It's fantastic for people to be working in RAW. It's great for post-production. It's what made REDCODE so popular. We do license other forms of compressed RAW to other camera companies. It's the right thing for the industry. Why wouldn't we?

You've known Jim and me long enough to know that we're just making stuff that we think is the right thing. It a win for the cinematographer and a win for the customer in the end. I think it's important because there are some really competitive companies that won't share anything. They need to own everything. That hurts the industry because times are changing. We saw this happen in the still photography world. Time Magazine, Sports Illustrated and other magazines saw their huge photo staffs dwindle. Some are just licensing iPhone pictures.

BRENT: It became easier for an average person to take pictures. There's more video shot on an iPhone than all of the cameras and every other cine camera can make, multiplied by probably a million.

JARRED: Times a bazillion. It's easy to see that we must all work together to compete with smartphones and embrace Full Format together. It's important. Not just for us, but for the industry going forward.

BRENT: A unique thing is that Jarred, Jim and many people at RED are also shooters. We're approaching it from the user point of view.

JARRED: If the product makes us happy, it's probably going to make a lot of cinematographers happy at the same time. This is a business plus a passion project at the same exact time.

8K, RED and Turing

Just when 4K is becoming mainstream, visionaries are already onto 8K. As Stargate CEO Sam Nicholson, ASC once said, "The goal is to present images that are seamless between displays and real life."

8K approaches a level of clarity where pixels and artifacts are not visible on big screens in theaters or on tablets a few inches away.

To power computers for 8K, NVIDIA CEO Jensen Huang presented powerful new Turing GPU (Graphics Processing Unit) technology and Quadro RTX GPUs on August 14 at Siggraph 2018 in Vancouver.

Turing is named after Alan Mathison Turing OBE FRS, the British mathematician who broke the "Enigma" code. (See Benedict Cumberbatch as Turing in *The Imitation Game*).

NVIDIA's Turing Quadro RTX family of video and graphics cards will fit into the PCI-E slot of a computer or expansion chassis. So far, Dell, HP and Lenovo are part of the program.

And so is RED. RED MONSTRO 8K VV and HELIUM 8K S35 cameras easily shoot and record 8K video, which has 4 times more pixels than 4K.

NVIDIA provided some fun math: "All those pixels can cause a computer bottleneck in the editing room. 8192×4320 is more than 35 million pixels per processed frame. 5 minutes at 24 fps is 250 billion pixels. So, your average 8K production could get past 100 trillion pixels.

"To handle all that data, post-production people use powerful, expensive workstations, high-end hardware and time-consuming pre-processing. But that's all about to change with Turing and Quadro RTX graphics cards."

NVIDIA worked with RED to make it possible for post houses, editors and colorists to work with 8K footage at full 8K resolution in real time, even at speeds greater than 24 fps, using just a single-processor PC with one Quadro RTX GPU graphics card.

At less than half the price of current workstations, this makes 8K post production affordable, easy and practical.

Jarred Land, President of RED Digital Cinema, said, "RED is passionate about getting high-performance tools in the hands of as many content creators as possible. Our work with NVIDIA to massively accelerate decode times has made working with 8K files in real time a reality for all."

Uh-oh. The FDTimes phone is ringing. "Mr. Starr on the line." Monty Starr, studio chieftain, latest tycoon, begins barking, "Whaddaya, whaddaya doin'? You've been writing how *we* should welcome 4K and Full Format. Who's *we*? You got a mouse in your pocket? I was just beginning to like 2K because it became cheaper than film. Then you pushed 4K. Now you want 8K. You got stock in Western Digital? Or Seagate Drives? The only drives I like are Rodeo Drive and Mulholland Drive."

Moore's Law did not impress Monty, nor did mention that there weren't enough hard drives in all of Hollywood for his first digital show a few years ago. Monty muttered it was the fault of his profligate Kazakhstani director who had never learned the word "Cut."

We moved on to the history of data storage costs. In 1967, a 1 MB hard drive cost $1 million. In 1981, hard drive prices were about $500,000 per Gigabyte. Today, the cost is less than 3 cents per GB. Monty slammed the phone down before I could quote Andrew Page at NVIDIA:

"Though the markets for 8K displays and TVs are around the corner, productions can benefit *now* by shooting and finishing in 8K and distributing in 4K. The extra pixels from an 8K camera give the cinematographer more creative choices in post-production."

For example, 8K provides more picture information for image stabilization, repo, blowup or reframing without losing image quality in the final delivery format. For VFX, 8K can provide more detail for tracking or keying. Downsampling 8K video to 4K can help reduce noise.

A quick technical detour. GPUs help with the heavy computational work for 8K, freeing CPUs in the computer do other work. Watching Jensen Huang's keynote speech at Siggraph *(blogs.nvidia.com)*, it's clear that filmmakers are just one part of the Turing user group. The entire market is valued at hundreds of billions of dollars: video, gaming, VFX, animation, architecture, design, medical, automotive and manufacturing.

Adobe Premiere Pro, Blackmagic DaVinci Resolve and Autodesk Flame already work with 8K and REDCODE RAW file format. But, have you ever played back the footage and it looked stuttery or even choked? Depending on the processing power of your computer, you often have to view 8K files at lower resolutions.

Another workaround is to transcode the files into a more manageable format. But, that takes time and loads up the hard drives.

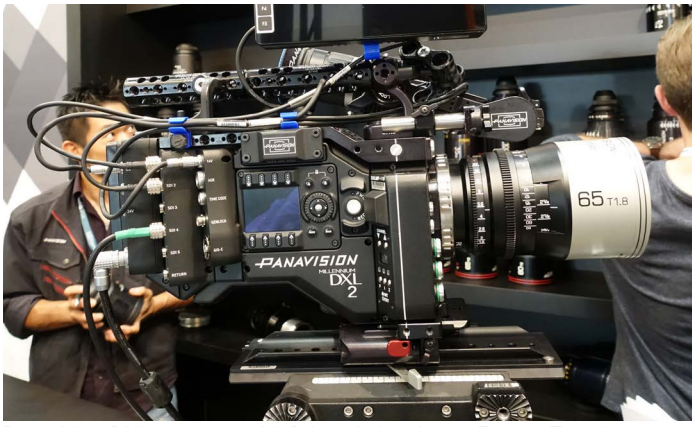
NVIDIA's Andrew Page continues, "Artists working with 8K footage will no longer have to disrupt the creative process waiting for their editing tools to catch up. And it's not just for Turing — this acceleration will also substantially increase REDCODE processing performance on other NVIDIA GPUs.

"New capabilities will also be possible with the NVIDIA RTX Tensor Cores and RT Cores available with Turing. Editors will gain from new functionality like AI-enabled upscaling, which will let them intermix archival footage or zoom in beyond 8K resolution with the best possible results. And those incorporating high-resolution 3D graphics and titling will get more time back to focus on the creative parts of their production."

Brent summed it up, "By moving the portions of REDCODE processing that need a lot of computer power to a Turing GPU, NVIDIA and RED are making it a lot easier for users to work with 8K footage at full resolution in real time."

Panavision DXL2, DXL-M, Large Format Lenses, LCND

Ultra Vista 1.6x anamorphic Large Format lens.



Panavision DXL2 camera with Primo Artiste Large Format T1.8 lens.


Panavision LCND filter.

Panavision Primo X.

Panavision DXL-M accessory kit for RED DSMC2 cameras.

At Cine Gear in June, Panavision previewed the latest firmware for the new Millennium DXL2 8K camera, four new Large Format lens sets, Modular DXL-style accessories for RED DSMC2 cameras, and an innovative LCND filter.

The Panavision Millennium DXL2 8K camera has improved dynamic range and shadow detail, a native ISO of 1600, and 12-bit ProRes XQ recording up to 120fps. A Direct-to-Edit (D2E) workflow was also announced. D2E gives DITs wireless LUT and CDL look control and records all color metadata into camera-generated proxy files for instant and render-free dailies. DXL2 has an updated color profile, Light Iron Color 2 (LiColor2).

Primo X lenses are Large Format lenses designed for use on drones and gimbals. They are fully sealed, weather proof, counterbalanced, aerodynamic, and easy to maintain a proper center of gravity. Primo X lenses are, so far: 14mm (T3.1) and 24mm (T1.6) – and one 24-70mm zoom (T2.8). Available in 2019.

Panavision H Series is a traditionally designed, Large Format spherical lens set with a smooth focus roll-off, and pleasing skin tones. Created with vintage glass and coatings, these lenses offer slightly elevated blacks for softer contrast. Available now.

Panavision Ultra Vista is a series of Large Format anamorphic optics with a 1.6x squeeze. Ultra Vista covers the full height of the 8K sensor in the DXL and presents an ultra-widescreen 2.76:1 aspect ratio along with a classic elliptical bokeh and Panavision horizontal flare. Available in 2019. Can be cropped in post to 2.39:1, of course.

PanaSpeed is a Large Format update of the classic Primo look. At T1.4, PanaSpeed will be the one of the fastest large-format lens options available. Available in Q3 2018.

Panavision also showed an adjustable liquid crystal Neutral Density (LCND) filter. The LCND instantly adjusts up to six T-stops with a single click or ramp. LCND starts at ND.3 and goes through 0.6, 0.9, 1.2, 1.5, to ND1.8. Available in 2019.

The new DXL-M accessory kit is designed to work with RED DSMC2 cameras. DXL-M brings popular features of DXL to RED MONSTRO, GEMINI, and HELIUM cameras. These features include the DXL menu system (via an app for the iPhone), LiColor2, wireless lens control, wireless timecode (ACN), and the Primo HDR viewfinder. Available in Q4 2018.

◄ Rembrandt. *Self-portrait as the Apostle Paul.* Oil on canvas. 1661. 91 cm high × w 77 cm wide. Rijksmuseum, Amsterdam.

Vincent. ► *Self-portrait.* Oil paint. 1887. 42 cm high × w 34 cm wide. Rijksmuseum, Amsterdam.

Note: Rembrandt van Rijn and Vincent van Gogh signed by using only their first names. You can see both these paintings at the Rijksmuseum. It's a refreshing walk or quick tram escape from IBC and the RAI.

Michael Cioni is Senior Vice President of Innovation at Panavision & Light Iron.

Jon Fauer: Let's talk about 8K.

Michael Cioni: 8K is the next evolutionary step for images in cinematography, editorial and exhibition. RED MONSTRO VV and Panavision DXL cameras have already been embracing 8K in acquisition.

Is it a chicken and egg kind of riddle?

Prior to having proper motives to distribute 8K pictures to consumers, we must first have the infrastructure in place to easily acquire, edit, and polish 8K. For the past 3 years, we have been trying to make 8K acquisition possible using limited tools and technology. People are beginning to recognize the advantages of Large Format 8K image capture and are commonly shooting in 8K every day. The next step is to begin the discussion about 8K editing, 8K delivery, and 8K exhibition so that everyone can benefit from this new look.

Is an 8K roadmap going to be a reality beside NHK and the 2020 Olympics?

Remember the transition to digital Standard Definition? How about the transition to HD? It makes sense people are nervous, but when we talk about 4K, it's important to remember we've been here before and most would agree the quality of our work has improved. It makes sense we to begin the migration to 4K and beyond.

I often find myself in conversations with people asking, "When is this resolution evolution going to stop?" The most likely answer is the increase in resolution in still cameras, motion picture cameras, and displays will never, ever, stop. Many people think resolution will stop growing, or plateau, based on the physiological limits of human vision; that is your eyes can only discern so much resolution and that will be the end of the resolution race. The reason this theory is flawed is because resolution is not motivated by human physiology, rather it's fueled by technologically predictable exponential growth. Exponential growth not only goes way beyond the limits of what your eye can see, it doesn't really care.

The good news is that ultra high resolution doesn't mean you're suddenly going to see atoms on people's faces. In fact, the next massive increase in resolution means even more smoothness and roundness as pixels become small enough that they can render perfect circles.

Resolution follows the typical path of exponential growth. Some cinematographers may say that exponentially higher resolution doesn't help an aging actress's face. In truth, an increase in resolution actually reduces contrast and better replicates light and shadow as it exists in nature.

What are the advantages of 8K capture?

Supersampling is the process of taking a large number of pixels and scaling them down to a smaller number, also known as a downscale or downconversion. Since all signals have noise, supersampling in 8K and scaling down to 4K or even 2K means there is a reduction in overall noise. With each 50% scale, noise reduces approximately 1 stop (-3db) which gives cinematographers even more control in low light situations.

Together with a Large Format sensor, 8K cameras can give you higher dynamic range, a more natural perspective, shallower depth of field, access to new lenses, increased visual effects precision, and opportunities for stabilization or reframing.

What about 8K Exhibition?

I'm reminded of a recent meeting with a prominent industry

Michael Cioni on 8K, cont'd

person who said, "Nobody asked for 8K." He didn't seem to want it, but then again, nobody asked for the iPad. Nobody asked for Uber. These are tools and technologies initiated by visionary people who identified new opportunities and yes, unidentified needs.

To me, it's okay if you didn't ask for it or don't think you need it. But I certainly encourage you to try it and stretch yourself within this new expanded photographic boundary. Chances are you've been here before, at every iteration of the resolution and technology game. There's a cadence to every industry; fashion, music, architecture, and certainly technology. And in the end, you may find yourself loving it.

What are the objections to 8K?

The most common objections to 8K: resolutions are too high, downloads are too slow, storage is too expensive and render times are too long. If you are told (or say) any of these things, you are being mislead because none of these are actually real problems.

We've all heard of Moore's Law, a 24 month cycle for an exponential event. SD to 2K started in 2001 and took 8 years, which was 4 Moore cycles. In 2009, doing 2K was easy and felt and cost the same as SD had in 2001. HD to 4K began in 2009 and 8K in 2015. Now, three years on, we're seeing 8K consumer televisions in the market. Each of these examples demonstrate that Moore's Law is still in effect and we're right on schedule with current digital cinema trends.

What about 8K downloads being too slow?

In 2000, we had Firewire 400 at 400 Mbps. In 2016, Thunderbolt 3 offered 40 Gbps data rates. Desktop data transfers are within 1 Moore Cycle of being right on schedule.

Storage costs?

In 2000, the cost of hard drive storage was $18.40 per GB. Today, it's about $0.04 per GB. So we are ahead of Moore's Law here.

Render times?

Rendering SD video in 2000 was pretty much done in real time. In 2018, transfer times are about 300 times faster, so we are ahead of Moore cycles here are well.

What does this mean for DPs, DITs, Directors, Producers?

We always need a higher standard of acquisition than exhibition. People who say that 4K is sufficient now are being short-sighted because exhibition will continue to improve. None of us should want to compromise the images we capture, and knowing that exhibition will improve is a great reason to drive acquisition improvements as well.

Have you seen Sony's Crystal Vision tile-based system? This is the future of exhibition.

And for home viewing? Tablets? Laptops?

Similar among any technological developments, there is a bell curve in which some people fancy themselves as early adopters, others are late adopters, with most of us living somewhere in the middle. The key to changes like these is not in resisting the change, but rather in finding out what speed of adoption you are most comfortable with. By the year 2022, 8K will not just be everywhere, it will be easy enough for your children to shoot, edit, and view, completely in the cloud.

Sprayoff Tera

If you've been down to the sea in ships and weathered a storm, chances are you navigated through crashing waves and blinding spray by looking through a Clear View Screen. It's a motor-driven glass disk mounted in the window and it spins to clear rain, snow and spray. The Clear View Screen was invented by Captain Edgar Joseph de Normanville while still in school around the 1900s.

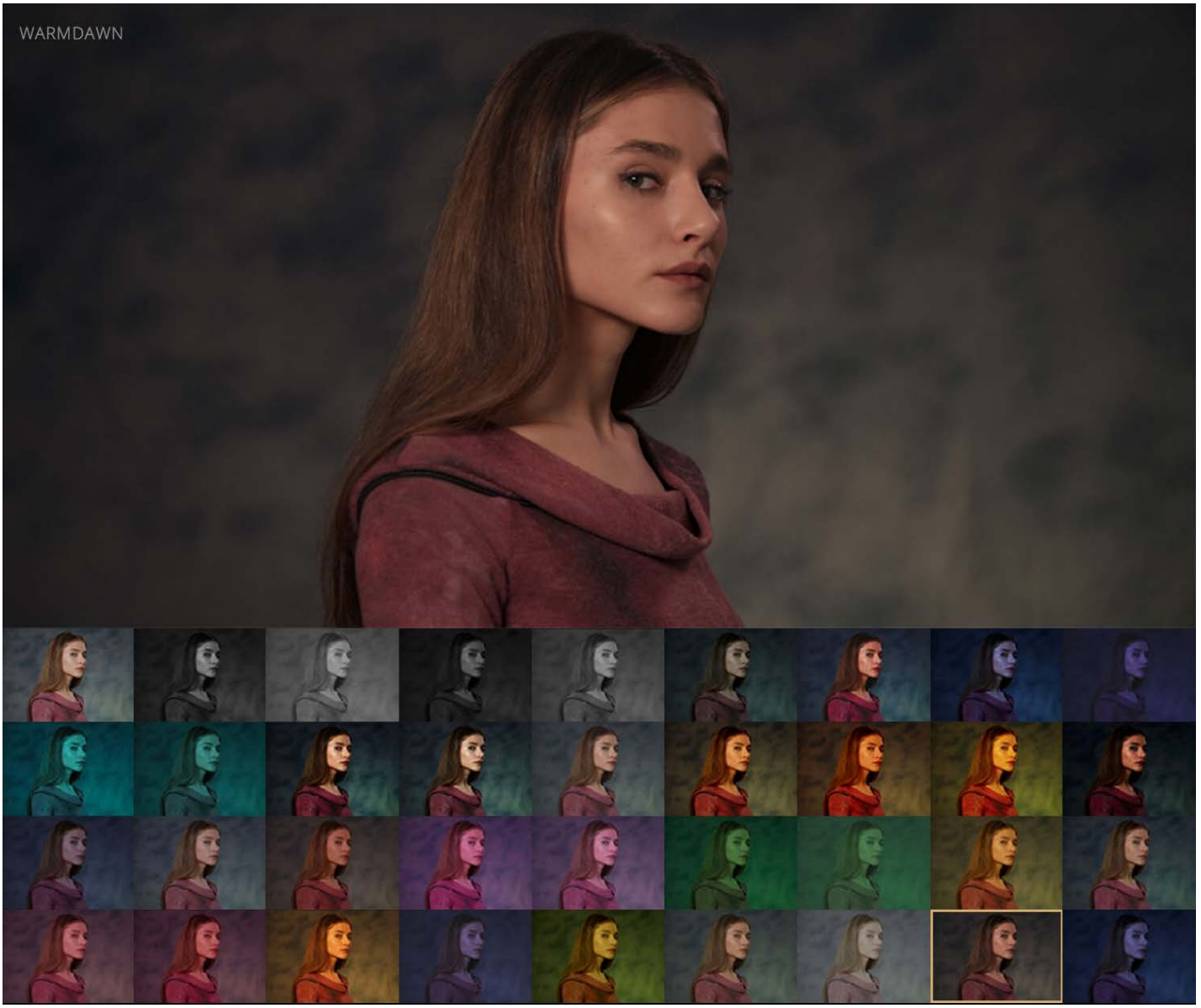
This spinning disk idea has been used to great effect by Schulz Camera Support with their Sprayoffs (micro, milli, mini, giga) that slide into a mattebox.

The advantages of a Sprayoff over compressed air blowing (noisily) on the front of the lens are many. It's also much more effective than constantly wiping with a towel or microfiber cloth.

Now there's a new model—the Sprayoff Tera. The Tera is a rain, snow and mud deflector to be used with any lens up to 250mm / 10" front diameter in really hostile environments.

- Weight: approx. 4 kg.
- Disc diameter: 250 mm.
- Disc speed: variable from 0 to 5000 rpm.
- Requires external power (battery) supply: 12 – 35 VDC.
- Mounts in front of the lens on 15 or 19mm camera rods.
- The Sprayoff tera can be operated with the Schulz Camera Support remote control system.
- Delivery will begin before or by the end of this year.
- Price approx. 15 000 Euros.
- *schulz-camerasupport.com*

Panasonic VariCam LUT Library



Panasonic has a new, free VariCam LUT Library online.

You can preview, view, create and load 35 Look-Up Tables for VariCam and EVA1 cinema cameras. They were created by Panasonic with the help of Local 600 DITs.

The LUT Library includes looks for high-contrast black-and-white, warm golden magic hour, saturated high fashion, faded vintage and many others. The LUT names range from practical to poetic: Agressive 709, Nicest 709, Hangover, Matrix 1, Vintage, Golden 2, Warm Dawn, and the list goes on.

"The VariCams and the EVA1 can capture a huge range of exposure as well as color," explained Mitch Gross, Panasonic Cinema Product Manager. "The VariCam LUT Library is a great communication tool. An enormous variety of looks are possible, and it's far easier for a Producer or director to understand and appreciate the look the Cinematographer is trying to achieve by seeing it right on the screen. Having a LUT on set also allows Cinematographers to light and expose precisely to the look they are trying to capture. With the matching LUT available for post, the colorist knows what the Cinematographer was working toward."

The VariCam LUT Library comes in three formats:

- .VLT for loading into VariCam cameras
- E-E.CUBE for post color grading
- E-L.CUBE for monitoring LUT box devices

Because Panasonic's EVA1 Compact Cinema Camera can record in a matching V-Log/V-Gamut format, the VariCam LUT Library can also be applied to EVA1 footage in post color grading and on-set LUT boxes.

When acquiring in native V-Log/V-Gamut, the VariCam and EVA1 lineup of cinema cameras capture more than 14 stops of Dynamic Range and a wide color spectrum.

The VariCam LUT Library web page has a preview tool (shown above) to view the LUTs on three sample images: an actress, an exposure-challenging urban interior with window setup, and an exterior winter scene.

To explore the VariCam LUT Library and download the free LUT files, go to *info.panasonic.com/varicam-LUT-library.html*

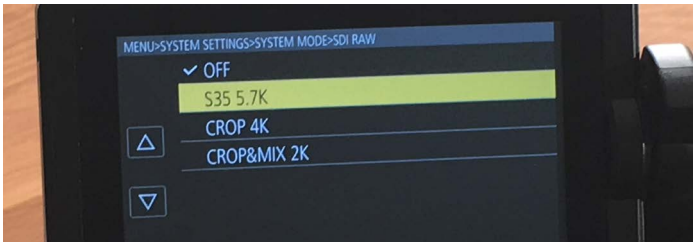
Panasonic EVA1 and ProRes RAW

AbelCine Tutorial:
EVA1 with Atomos Shogun Inferno Recording Apple ProRes RAW

Shown on the monitors: AbelCine's new Industry City headquarters in Brooklyn, NY.

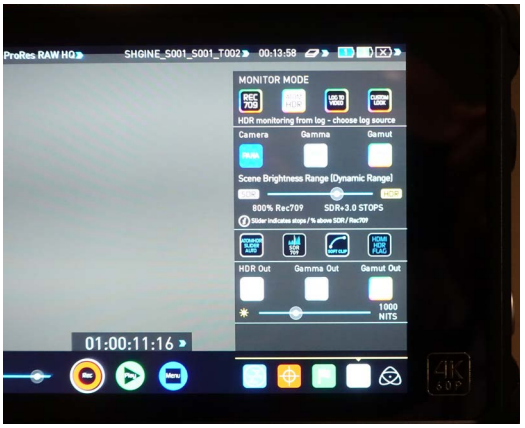
1. Panasonic EVA1 can output 10-bit Log-encoded RAW data in 5.7K up to 30 fps, 4K up to 60 fps, and 2K up to 240 fps. Atomos Shogun Inferno can record these formats in Apple ProRes RAW HQ or ProRes RAW.

2. AbelCine's Cameo Swivel Mount (CAM-076-200) is a compact, solid way to attach Shogun Inferno RAW Recorder/Monitor to Panasonic EVA1.

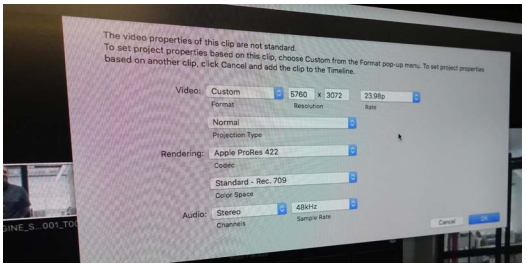


3. On the EVA1, select: MENU > SYSTEM SETTINGS > SYSTEM MODE > SDI RAW. We chose S35 5.7K. The EVA1 is now outputting 5.7K RAW data out of the SDI port.

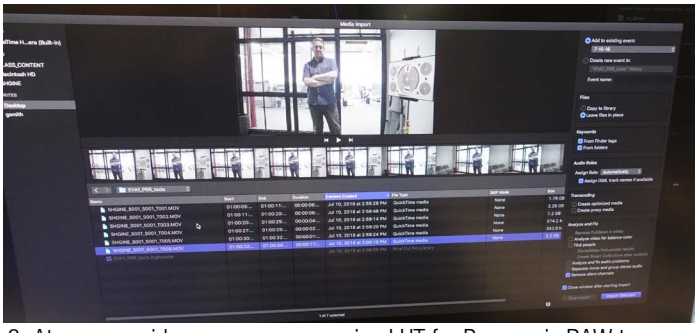
4. On the Atomos Shogun Inferno, we see ProRes RAW HQ as our recording format, and we have 14:05 remaining. ProRes RAW comes two variants, ProRes RAW and ProRes RAW HQ. They are variable compression rates, so run times are approximate.



6. Shogun Monitor settings, dynamic range, HDR, etc.
Set TRIGGER ON to record when you start camera.



7. Importing ProRes RAW media into Apple Final Cut Pro X.



8. Atomos provides a proper conversion LUT for Panasonic RAW to V-Log for use in FCPX: *atomos.com/firmware/shogun-inferno*
The VariCam Library LUTs can also be used in FCPX.

Thanks to Geoff Smith at AbelCine and Mitch Gross at Panasonic.

New 28, 40 and 105mm T1.5 SIGMA Full Frame Cine Primes

The family of SIGMA Cine FF High Speed Primes continues to grow.

SIGMA Corporation adds three new SIGMA CINE lenses to their FF High Speed Prime Line: 28, 40 and 105 mm—all T1.5. This brings the Sigma Full Frame Cine lens total to 10 high speed primes, from 14mm to 135mm and a fast 24-35mm T2.2 zoom.

There are also two SIGMA Super35 format zooms: 18-35mm T2 and 50-100mm T2.

For brevity in this article, let's call them FFF — for Fast Full Frame. All 10 FFF focal lengths, from 14mm to 135mm, have 9-bladed irises with curved edges that render beautiful, rounded bokehs. The lenses are light, compact and have a front diameter of 95mm. Most of them accept 82mm threaded front filters.

They cover Full Format 36x24mm (43.3mm image diagonal). Focus barrel rotation is 180°. The iris ring is linear—with constant click-less distances between T-stop marks. It rotates 60°.

The EF and E-mount have electronic contacts to communicate with the camera body (focal length, focus distance, and aperture). This data can be displayed in the viewfinder and on monitors.

The 105mm is expected to ship in October 2018; the 40mm at the end of 2018 and the 28mm in early 2019. Prices TBD.

The lens support foot and lens cap is included. Available mounts and Imperial or Metric focus scales can be interchanged by SIGMA or an authorized service facility: PL, EF and E-mount. (The 24-35mm T2.2 FF Zoom comes in EF and E-mount, not PL).

SIGMA FFF Cine Lenses worked on major movies this year. Eric Dumont used three 50-100mm T2.0 zooms on three Alexa Mini cameras for the Cannes official selection *En Guerre (At War)*.

SIGMA FFF primes are also shooting this summer on several blockbuster productions that cannot yet be named.

sigma-global.com/en/cine-lenses/

LPL mount

The Sigma Cine Lens series will soon include the option of having LPL mounts. This is the new lens mount released by ARRI in February 2018 with the Alexa LF. The LPL mount has a flange focal depth of 44mm and a 62 mm Ø diameter.

The planned release date for SIGMA CINE LENSES in LPL mount is 2019 or later. As with the rest of the Sigma Cine Lens set, the LPL mount can be swapped with EF, E or PL mount by an authorized service technician.

SIGMA FF Fast and S35 Cine Lens Family

14mm T2 FF

20mm T1.5 FF

24mm T1.5 FF

28mm T1.5 FF

35mm T1.5 FF

40mm T1.5 FF

50mm T1.5 FF

85mm T1.5 FF

105mm T1.5 FF

135mm T1.5 FF

24-35 T2.2 Full Frame Zoom

18-35 T2 Super35 Zoom

50-100 T2 Super35 Zoom

Lens	Aperture	Close Focus [1]	Image Circle mm	Front Diam.	Filter Size	Length			Weight [5]		
						EF mount[2]	E-mount[3]	PL[4]	EF mount	E-mount	PL
14mm T2 FF	T2 - 16	0.27m / 11”	FF Ø 43.3	95mm	-	119.5mm	145.5mm	111.5mm	1430g	1485g	1345g
20mm T1.5 FF	T1.5 - 16	0.27m / 11”	FF Ø 43.3	95mm	-	118mm	144mm	110mm	1335g	1395g	1240g
24mm T1.5 FF	T1.5 - 16	0.25m / 10”	FF Ø 43.3	95mm	82mm	95mm	121mm	87mm	1125g	1185g	1030g
28mm T1.5 FF	T1.5 - 16	0.30m / 1’	FF Ø 43.3	95mm	82mm	107.7mm	133.7mm	99.7mm	1,300g	1,360g	1,210g
35mm T1.5 FF	T1.5 - 16	0.30m / 1’	FF Ø 43.3	95mm	82mm	95mm	121mm	87mm	1135g	1165g	1035g
40mm T1.5 FF	T1.5 - 16	0.40m / 1’4”	FF Ø 43.3	95mm	82mm	131mm	157mm	123mm	1560g	1620g	1470g
50mm T1.5 FF	T1.5 - 16	0.40m / 1’4”	FF Ø 43.3	95mm	82mm	102mm	128mm	94mm	1295g	1355g	1210g
85mm T1.5 FF	T1.5 - 16	0.85m / 2’10”	FF Ø 43.3	95mm	86mm	134.5mm	160.5mm	126.5mm	1475g	1535g	1380g
105mm T1.5 FF	T1.5 - 16	1.00m / 3’4”	FF Ø 43.3	95mm	-	134.2mm	160.2mm	126.2mm	1775g	1835g	1705g
135mm T2 FF	T2 - 16	0.875m 2’11”	FF Ø 43.3	95mm	82mm	126.4mm	152.4mm	118.4mm	1565g	1630g	1495g
Full Frame Zoom											
24-35mm T2.2 FF	T2.2 - 16	0.28 m / 11”	FF Ø 43.3	95mm	82mm	122.7mm	148.7mm	N/A	1440g	1500g	-
Super35 Zooms											
18-35mm T2 S35	T2.0 - 16	0.28 m / 11”	S35 Ø 28.4	95mm	82mm	129.5mm	155.5mm	121.5mm	1445g	1505g	1410g
50-100mm T2 S35	T2.0 - 16	0.95 m / 3’2”	S35 Ø 28.4	95mm	82mm	175.2mm	201.2mm	167.2mm	1885g	1945g	1830g

Sigma CIne Lenses are available in EF (Canon), E-mount (Sony), and PL (all except 24-35mm T2.2 Full Frame Zoom). LPL coming soon.

1. Close focus distance is measured from the image plane
2. Front to EF mount flange
3. Front to E-mount flange
4. Front to PL mount flange
5. Without lens support foot

Number of iris blades: 9 (rounded diaphragm)

Specifications are subject to change

Look! Cooke 1.8x Anamorphic/i Full Frame Plus

Cooke 1.8x Anamorphic/i Full Frame Plus lenses take off at IBC.

Les Zellan, Cooke Chairman, calling from the far side of the world, explained, "As soon as we introduced S7/i Full Frame Plus spherical primes, users asked for Full Frame anamorphics."

It's always been this way—ever since Richard Burton marched into *The Robe* (1953) in what the ads proclaimed as "The Tremendous Spectacle that Launched Cinemascope. With a mighty cast of thousands! You see more because there is more on the film to see!"

Not content with a mere 35mm negative whose 1.33:1 silent aperture anamorphically stretched to 2.66:1 — MGM released Ben-Hur (1959) in big MGM Camera 65 format (65mm Ultra Panavision). Its 1.25x squeezed anamorphic image on 65mm negative desqueezed to a spectacular 2.76:1 aspect ratio on 70mm projection film (the extra 5 millimeters were for the sound track).

The circle of life in formats and aspect ratios continues.

Cooke Optics presents a 50mm T2.3 Full Frame Plus 1.8x Anamorphic/i lens at IBC. The core set will be 40, 50, 75 and 100 mm, all T2.3. Front diameters will be 110 mm. They will be similar in size to the Cooke S7/i Full Frame Plus lenses.

These will be followed by 32, 135 and 180 mm.

All these lenses will cover the Full Frame image area of 36 mm wide x 24mm high (image diagonal of 43.27 mm).

The anamorphic squeeze ratio is 1.8x. Why?

Les explained, "If you do the math, to get 2.39:1 desqueezed from a 1.5:1 Full Frame image, you'd have a 1.6x ratio. But to us, that's not a very interesting anamorphic look. It's like being half pregnant. The classic oval bokehs are missing.

"If we did a traditional 2x squeeze, there would be a lot of wasted space and pixels lost in cropping (1.5:1 x 2 = 3:1). So we arrived at 1.8x, which keeps the classic look and oval bokehs. Also, a 2.39:1 image squeezed to 1.8x benefits from covering over 90% of the Full Frame sensor area."

The math is also good. 1.5:1 x 1.8 = 2.7:1. This is close to the classic, original anamorphic ratios. In this era of streaming and aspect ratio independence, we are no longer limited by projection lenses and 2.39:1 screens. These words may send various companies and committees into paroxysms of parrying prose, but I believe creative freedom and aspect ratio agnosticism will prevail.

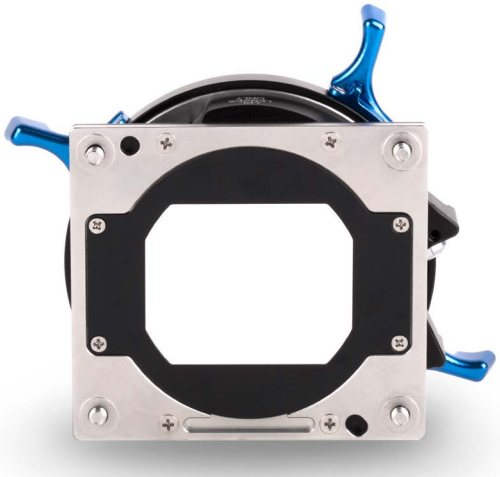
Another advantage of the 1.8x anamorphic squeeze is that it benefits from the full resolution of the camera's full picture height.

The new Cooke 1.8x Anamorphic/i Full Frame lenses will have the familiar Cooke look of their Super35 cousins: horizontal streaks when flared with a light source, beautiful bokeh and smooth skin tones.

Wooden Camera LPL for RED DSMC2

Wooden Camera introduces a DSMC2 LPL mount at IBC. So, if you'd like to shoot with Large Format Signature Primes on a RED MONSTRO 8K VV Camera, simply attach this mount with its 4 captive screws. 44 mm FFD, 62 mm Ø.

The LPL mount has LDS-2 pogo contacts that connect to a 00 Lemo connector on the side. Future products that use LDS-2 lens metadata externally can plug in here.



Sharkfin Battery Bracket for Alexa LF

Photo by The Camera Dept.

It looks more like an aircraft tail fin, but Wooden Camera's "Sharkfin" name is catchier. Wooden Camera's ARRI Alexa LF 24V Sharkfin Battery Bracket (Gold Mount or V-Mount) powers the Alexa LF with two standard 14.4 VDC batteries. That's because Alexa LF requires 19.5 - 34 VDC. Key features include hot swapping between batteries and DC input, four D-Tap connectors that remain powered when at least one battery is attached, percentage information transmitted to the camera when smart batteries are used, knobs for tool-less installation with a hidden hex wrench for additional tightening, and a protective cover plate when battery bracket is not in use.

Since the Alexa LF requires high current for normal operation, two batteries capable of 10A sustained draw should be installed at all times. At camera idle, when no lens motors are moving, batteries can be swapped one at a time while the camera and accessories remain powered. It is also possible to hot swap between block battery and onboard batteries.

The Sharkfin module will read Anton/Bauer battery information, combine the data, and provide a summarized information stream to the camera. This data is displayed on the main display of the camera body, LCD, EVF, etc.

The system has four M3 thumbscrews and two locating points that attach directly to the back of the camera. The hex wrench can be used to complete the installation and stored neatly on the plate for future use. The included cover plate protects the pogo pin electrical connectors during transit.

woodencamera.com

CARTONI E-Cube 7

Camera Operators like to choose their controls depending on the situation or their personal style. Sometimes wheels, sometimes the organic feel of a good fluid head.

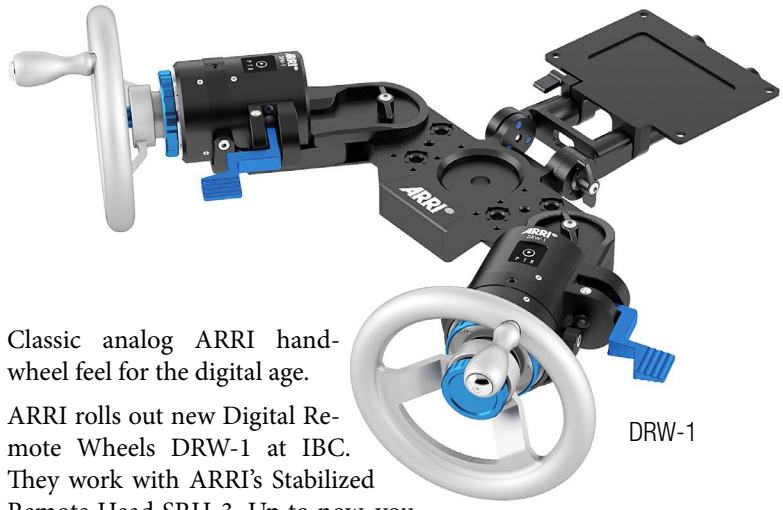
The CARTONI E-Cube 7 is a smooth fluid head to pan and tilt cameras on remote heads, gimbals and drones. It's an alternative to hand-wheels or joysticks. The E-Cube 7 provides the same intuitive control that you'd feel as if you were operating a traditional pan and tilt head. The moves you make with the E-Cube 7 are mirrored by the remote-controlled head.

The E-Cube 7 is an encoded pan and tilt fluid head with 7 steps of drag in both axes. It acts as a sophisticated pan bar when connected to a remote head like the ARRI SRH-3 (at right) and many other heads. It provides smooth moves for remote control of cameras on cranes, jibs, gimbals and drones. E-Cube 7 uses high resolution encoders with accuracy of 40,000 Pulses Per Revolution. E-Cube comes with a flat Mitchell base and optional 150mm adapter.

A standard E-Cube (with 100mm base and continuous pan and tilt drag) can be supplied in 3 different versions: with the CARTONI electronics to operate the CARTONI E-Rem 25 Remote Head; with encoders only (transmitting position data to any OEM electronics or bare-bones Fluid Head accepting different encoders); and electronics in total OEM configuration.

CARTONI will show their new E-CUBE 7 at IBC booth 12.E30.
cartoni.com

ARRI DRW-1 Digital Remote Wheels



DRW-1

Classic analog ARRI hand-wheel feel for the digital age.

ARRI rolls out new Digital Remote Wheels DRW-1 at IBC. They work with ARRI's Stabilized Remote Head SRH-3. Up to now, you had to "drive" the Remote Head with a joystick (e.g. RCP) or other device. But, a number of Camera Operators missed the muscle memory, hand-eye fine control (even in a bouncing chase car) and the accurate repeatability of wheels.

The DRW-1 combines digital technology with components inspired by earlier generations of the Arrihead 2. The solid, hand-polished, precision-engineered hand wheels are the same as the ones on the mechanical Arrihead 2.

The brake levers are also familiar. It looks and feels just like the ones on the analog Arrihead 2. "Everything here is a classic design. Within minutes, the operator will feel at home with the DRW-1," said Curt Schaller, Product Manager, ARRI Camera Stabilizer Systems.

The DRW-1 has assignable controls and interchangeable components. The angles of the wheels are adjustable. An additional third wheel can easily be added to the system. Threaded mounting holes on the bottom allow for quick attachment of all kinds of accessories like Mitchell or Euro Mounts and longer camera dovetail plates.

The DRW-1 can also be mounted on any tripod or stand. The LBUS protocol lets you daisy-chain the wheels other LBUS compatible controllers like the new OCU-1. This keeps cable clutter to a minimum.

The DRW-1 is backed by ARRI's global network of service centers. Working together with the SRH-3, shown below, this is an efficient, adaptable and cost-efficient remote-head system.

SRH-3

ARRI Large Format Signature Primes

Takao Hasuike (L) and Aquiles Sande (R) from Cinoptix leaving ARRI Australia with their first four Signature Primes: 35, 47, 75 and 125mm. They recently received their 25mm. Photo by Sean Dooley.

Alexa LF and Large Format Signature Primes were announced in February and are working on productions worldwide.

Here are a few updates.

1. ARRI Signature Primes come from the factory in nice aluminum cases that you can actually use on location.

No more flimsy factory-issue cardboard boxes.

2. The core set of ARRI Signature Prime Large Format lenses have shipped and are working now.

They include ARRI Signature Prime 18, 25, 35, 47, 75 and 125 mm lenses.

3. The chart below shows the planned delivery schedule—a new focal length almost every month.

The core set is highlighted in yellow. New lenses pretty much arrive every month from now until April 2019.

Signature Prime 18mm T1.8 in its aluminum shipping case.

Lens	T-Stop	Delivery
ARRI Signature Prime 12	T1.8-22	July 2019
ARRI Signature Prime 15	T1.8-22	April 2019
ARRI Signature Prime 18	T1.8-22	August 2018
ARRI Signature Prime 21	T1.8-22	October 2018
ARRI Signature Prime 25	T1.8-22	July 2018
ARRI Signature Prime 29	T1.8-22	February 2019
ARRI Signature Prime 35	T1.8-22	June 2018
ARRI Signature Prime 40	T1.8-22	November 2018
ARRI Signature Prime 47	T1.8-22	June 2018
ARRI Signature Prime 58	T1.8-22	February 2019
ARRI Signature Prime 75	T1.8-22	June 2018
ARRI Signature Prime 95	T1.8-22	March 2019
ARRI Signature Prime 125	T1.8-22	June 2018
ARRI Signature Prime 150	T1.8-22	December 2018
ARRI Signature Prime 200	T2.5-22	March 2019
ARRI Signature Prime 280	T2.8-22	June 2019

DENZ MFC65 Large Format Lens Projector

Pull a credit card out of your wallet. The shorter side is about 52mm long. That is roughly the same as the flange focal distance (FFD) from a PL mount lens to the image plane of your camera.

So, what would happen if your lens FFD were off by 1/100mm (10 microns)? Let's go to a movie theater to find out. If the screen is 10m wide x 4m high, then the projected image has to be magnified 278x.

And so, a 10 micron error in your lens shimming would result in the equivalent of a 30cm (more than an inch) error in the projector's calibration.

That's why rental houses and repair facilities need lens projectors—and especially the new DENZ MFC65. It tests all photo and cine lenses with image circles up to Ø60mm — from 8mm, 16mm, Super 35, Full Frame 35 up to Alexa 65 format.

The MFC65 has been designed from the ground up for speed, accuracy and avoidance of mistakes while working — one of the main reasons why ARRI Rental has selected it as the test projector for their facilities worldwide.

The lens projector's universal mount has an 87mm Ø diameter and an extremely short flange depth of 10mm. This makes it compatible with almost any lens mount now in existence, and ready for some of the new mirrorless mounts just announced. Currently, DENZ supplies PL, LPL, PV, Canon EF and Sony E-mounts, as well as unique rotating mounts and camera intermediate mounts.

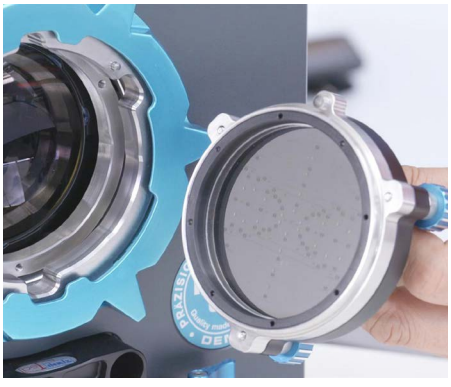
The reticle mount is built to last, in a massive frame that is hard-mounted with no springs or clips to break or wear. For setup and alignment, the MFC65 has an integrated distance finder and bubble level.

There is also an extra proprietary set of rods to add extra support to the ARRI standard rods. Supporting those very big lenses is no longer a headache requiring wedges and precious time.

LPL mount with 180° rotation capability.

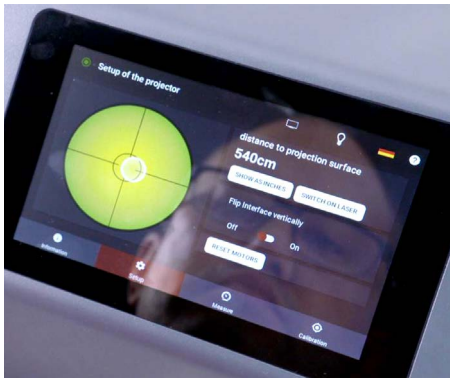
Intermediate mount for RED DSMC.

Reticle with spherical and anamorphic Siemens stars, line pairs blocks, frame lines and image circles.



Reticle removal tool.

Extra bridge supports heavy lenses.

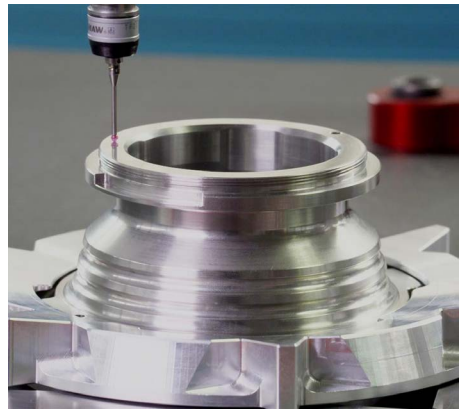


Accurate setup built in.

DENZ MFC65, cont'd

One of the biggest time-wasters with lens projectors is manually measuring and re-calibrating after switching mounts. This wasn't a big deal in the days when pretty much everything was PL-mount, but with other mounts now coming into the mix, being able to switch mounts quickly can make a big difference during the work day.

DENZ has a new way to do this. In the factory, they measure all the mounts for you, in advance, and engrave them with an offset code. Simply enter the code when changing mounts and the MFC65 compensates automatically without your having to do any manual calibrating at all.



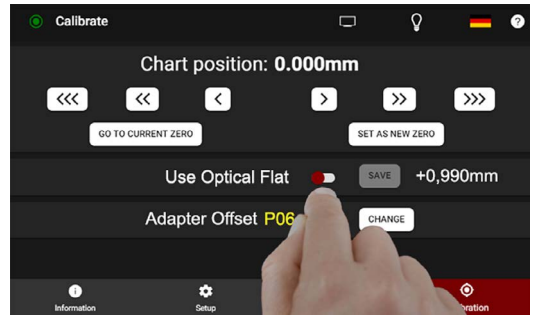
Micron-accurate measuring of mount adapter.

Offset code for tolerance compensation.

OLPF Simulator

Using a behind-the-lens glass to simulate OLPF or other such filters is now often desired for image evaluation. The Denz mount system lets you nest the simulation filter into the mount so that the benefits of the short flange depth can be maintained under all conditions.

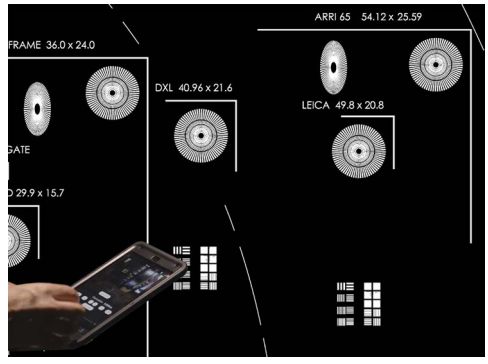
OLPF simulation with screw-in filter.



Quick compensation for adapter offsets and OLPF.

Remote Tablet

It's often good to stand close to the projection surface to check critical focus and analyze details about the lens. The MFC65 has wireless remote control and an optional tablet. The MFC65 has a controller for two lens motors. A built-in witness mark camera allows for real-time viewing of the lens rings on the tablet.

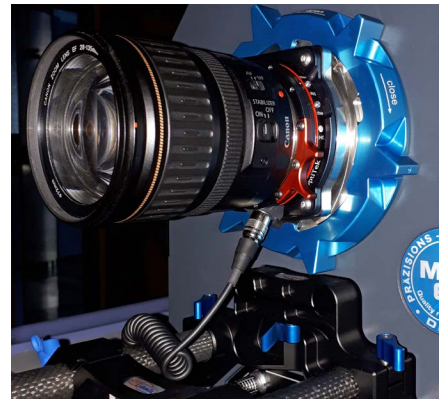


Stand wherever you want with the remote tablet.

View the lens rings from anywhere in the room.

The MFC65 has a fully-integrated motor controller for use with both traditional external lens motors and electronic lens mounts. Just plug in and go. No extra motor driver box is necessary. (Shown at left).

Canon EF electronic mount for focus, iris and image stabilization activation (at right).



The MFC65 is shipping. ARRI Rental has taken delivery of projectors in Germany, the UK and the USA with more installations to come. You can see the MFC65 video at: *tiny.cc/denz-projector*

Oh, and remember when we started this article talking about the dimensions of a credit card. If you still have your credit card out, you can order an MFC65 directly from Denz: Präzisions-Entwicklung Denz Fertigungs-GMBH. *denz-deniz.com*

DJI Mavic 2

Mavic 2 Pro — with Hasselblad camera and lens

Mavic 2 Zoom — does dolly-zooms

Redesigned remote controller

Dolly-Zoom

Ever since Joseph Losey screened his 1967 film *Accident* in film class at Dartmouth, I have been tormented by imperfect dolly-zooms. Now, finally, DJI's new Mavic 2 Zoom makes it smooth and simple. But first some film history.

Accident is Losey's steamy love quadrangle of Oxford students and professors, punctuated by the inevitable pregnant pauses of Pinter's screenplay, filmed in saturated wood-panelled interiors and humid green exteriors by Gerry Fisher, BSC. It was one of Fisher's first jobs as DP.

EXT. WOOD FENCE OVERLOOKING FIELD - DAY

Dirk Bogard and Jacqueline Sassard stand at a fence. Close on their hands, almost touching. The camera dollies back and zooms in. The foreground stays pretty much the same size. The background appears to move toward us. Dolly-zoom. It was 1967, so Fisher probably used an Angenieux zoom lens.

It's a really difficult shot to do well. The dolly move has to be precisely coordinated with the zoom move.

Now you can perform this kind of dolly-zoom simply, seamlessly, nimbly and in the air with DJI's new Mavic 2 Zoom.

It's one of two new DJI camera drones that landed this August. Mavic 2 Zoom is a foldable consumer drone with optical zoom. Mavic 2 Pro is a drone with a built-in Hasselblad camera and fixed 28mm f/2.8 lens.

Mavic 2 Pro and Mavic 2 Zoom

The two Mavic 2 models are the new flagships of the DJI camera drone line—with technically advanced, professional designs.

They fold like the popular Mavic Pro and Mavic Air. Flight time can be up to 31 minutes and video transmission has been improved. The gimbal-stabilized onboard cameras have advanced capabilities like Hyperlapse and ActiveTrack. Hyperlapse is gimbal-stabilized aerial timelapse. Mavic 2 Zoom has Dolly-Zoom. ActiveTrack 2.0 lets you follow and keep an object in frame. It uses a combination of autonomous tracking and obstacle sensing using the main camera and the dual front vision cameras. A 3D map of the area in front is created and trajectory algorithms analyze motion to predict the subject's path up to three seconds in advance. The Mavic 2 can recognize and avoid obstacles and stays on track even if the subject momentarily goes behind an obstacle—all at speeds up to 44 mph (72 km/h).

Dolly-Zoom: foreground size stays the same, background appears to get closer. This is done as the Mavic 2 Zoom flies away from the foreground while zooming in—and it's calculated automatically.

Mavic 2 Pro with Hasselblad

Designed in partnership with Hasselblad, the Mavic 2 Pro has a 1-inch CMOS sensor with Hasselblad's iconic color science. The Mavic 2 Pro captures 4K Dlog-M 10-bit video or 20-megapixel aerial stills. The camera's aperture can adjust from f/2.8 to f/11. The 4K video is 10-bit HDR HLG with 14 stops of dynamic range. 10-bit onboard recording is impressive for a camera drone this size.

Mavic 2 Zoom

The Mavic 2 Zoom has a 1/2.3-inch CMOS sensor. It is DJI's first foldable consumer drone with an optical zoom lens (24-48mm). It records 4K 8-bit video and 12-megapixel still photos. For landscape photography, the new Super Resolution feature automatically captures and stitches nine photos together for a hi-rez 48-megapixel picture.

And, of course, the Mavic 2 Zoom's new Dolly-Zoom QuickShot mode would let you do the sequel to Jospeh Losey's and Gerry Fisher's famous shot in *Accident* even more smoothly.

Mavic 2 Pro and Mavic 2 Zoom Details

Mavic 2 models have three-axis mechanical gimbals to stabilize the camera. Photos and videos are saved to 8 GB onboard storage.

Retail price of Mavic 2 Pro, including the drone, battery, remote controller, charger, and four pairs of propellers, is $1,499 USD. Mavic 2 Zoom, including the drone, battery, charger, remote controller and four pairs of propellers, is $1,199 USD.

As they say on the news, watch this space. With cameras so advanced, it will be interesting to see what DJI does next.

dji.com/mavic-2

Metadata's Missing Link: Transvideo StarliteHD-m

This is the electronic toolbox that could be the missing link for cine lens and camera metadata.

So far, we have several standards for cine lens data. These include iterations of Cooke /i, ARRI LDS, ZEISS XD and still photo protocols from Canon, Sony, Leica, Nikon, Panasonic, etc.

Why do you need lens metadata? If you're the second AC, recorded metadata means you no longer have to keep a handwritten log of every shot's focal length, focus distance, aperture and serial number. Same goes for the script supervisor: no more shouting across the soundstage for lens information. If you're the DP, you can instantly see all the lens settings on a monitor. Best of all, the focus puller also gets real-time data on a monitor with focus distance, T-stop, instant depth of field calculations, and more.

Camera metadata is increasingly important. In this new world of free-form formats, windowed pictures and aspect ratio independence, it's essential to know the active image area. Editors, Colorists and VFX teams benefit from knowing active image area, frame rate and shutter angle for every frame. The latest versions of metadata can also identify camera position, tilt, height, direction and velocity.

But, a big question pops up. How do we record all these different data streams, coming from diverse protocols from various manufacturers, when few cameras seem able to deal with all these different streams? Camera and lens metadata is one of those esoteric electronic topics that seems to be pushed aside by manufacturers and users alike—sort of like a college student's dread of cleaning up the dorm room. But metadata is important.

Camera and lens manufacturers have a certain amount of resources and a determined number of engineers. They are hard at work putting cameras together and assembling lenses. Could it be that there just aren't enough resources to record this metadata?

Now there's a Missing Link: Transvideo's StarliteHD-m.

The StarliteHD-m is an advanced electronic toolbox. It's a compact monitor/recorder that attaches neatly to almost any camera. It has an intuitive touchscreen video display and control. It is small and lightweight. If you're shooting a multiple camera setup, put one StarliteHD-m on each camera.

StarliteHD-m provides essential tools:

- For focus pullers: lens information, depth of field, focus magnification, focus peaking, camera status and data.
- For script supervisors: record/playback, data, PDF report.
- For camera operators: virtual horizon, data, shot playback.

The StarliteHD-m is like the office coffee machine where news and gossip about the entire camera and lens system is gathered. StarliteHD-m records information connected directly by cable from the camera and lens:

- Metadata from the camera's SDI output.
- Camera information via a direct Ethernet connection.
- Lens metadata from the serial connector of the lens or mount.

Basic lens data (T-stop, focus, zoom position) is often available through the camera mount and transferred to the camera's HD-SDI output. The latest lenses also give us access to critical information via direct serial connection about shading, distortion mapping, illumination, etc. This advanced data, so helpful for post production and VFX, must be collected directly from the lens.

The StarliteHD-m is the missing link that aggregates all this data. Files are recorded onto an SD card in the unit. These metadata files can then be added automatically to the video files. They are synced together with timecode.

A set of cables is all you need to get lens data onto StarliteHD-m:

HD-SDI BNC cable

- Basic lens data provided by Cooke /i, ARRI LDS, ZEISS eXtended Data, and more to follow.
- Camera information via RDD18 (Sony protocol) or ARRI protocol. More to come.

Lens Data cable

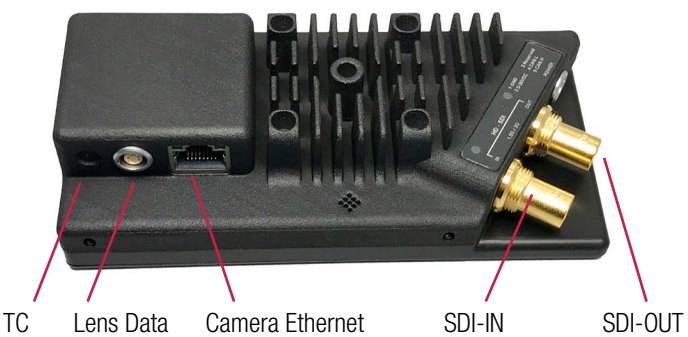
- Cooke /i (all iterations), ZEISS eXtended metadata, etc.

Ethernet cable

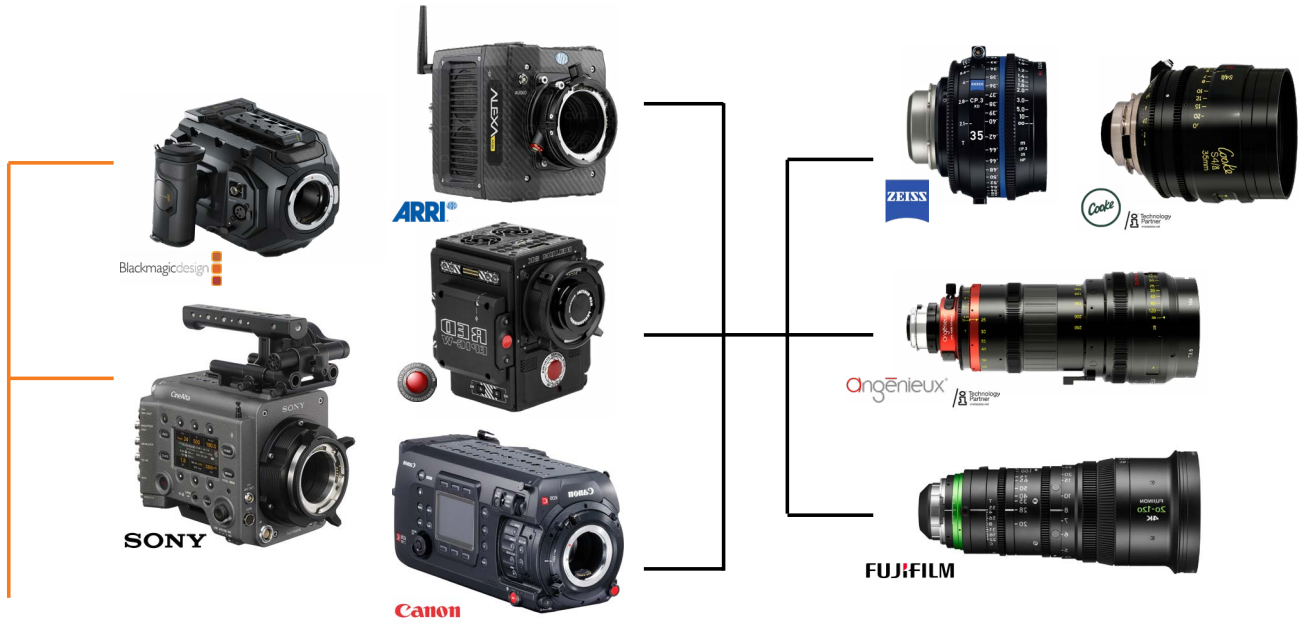
- Additional camera info gathered in to the metadata file.

Timecode cable (mini jack 2.5mm)

- Gathers precise Time Code (LTC type) from the camera.
- Jam sync input.



How StarliteHD-m Works with Camera and Lens Data



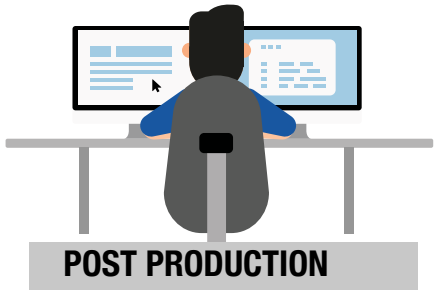
HD-SDI Timecode Ethernet Lens Metadata

eXtended Data Plug-in

- for Blackmagic Design DaVinci Resolve
- for Adobe After Effects and Premiere Pro
- for Nuke

Pomfort Plug-in

- Silverstack / Silverstack XT
- Silverstack Lab
- LiveGrade Pro



Technovision Classic 1.5x Anamorphic LF Lenses by P+S Technik

Technovision Classic LF 1.5x Anamorphics by P+S Technik.

"Technovision Anamorphic lenses were reborn" by P+S Technik at Cine Gear 2018. The new lenses are named Technovision Classics and are 1.5x squeeze Full Frame anamorphics. The series consists of 5 primes: 40mm T2.2 , 50mm T2.2, 75mm T2.5, 100mm T3.0 and 135 T3.0 mm. There are 2 zoom lenses: 40-70mm T3.2 (previously 35-70) and 70-200mm T3.0. They all have cylindrical front anamorphic elements.

Technovision is a legendary name. Since the 1970s, hundreds of motion pictures were shot with Technovision 35mm format 2x squeeze anamorphic lenses. The list is impressive. Vittorio Storaro, ASC, AIC shot *Apocalypse Now, Ladyhawk* and *The Last Emperor* with Techovision lenses. Luc Besson and Thierry Arbogast used them on *La Femme Nikita*. The list goes on.

Alfred Piffl (company founder and product manager) and Anna Piffl (Managing Director) described the origins of this new endeavor: "Harald Buggenig, Owner of Technovision Rome, asked us if we would like to build a new series of Technovision optics. It was an honor."

There are two parts to this story. Let's start with Alfred's remembrance of things past.

"Henryk Chroscicki was born in 1919 in Poland. The family fled to Australia to escape the Nazis. He then settled in Italy and graduated from the famous Centro Sperimentale Cinematografico as a Director and Cinematographer in the 1950s. He founded Technovision in 1976 in Rome. Henryk was a fascinating personality—Director, Cinematographer, Producer, Rental House Owner. He worked with many famous people and spoke at least 6 languages fluently.

"Henryk had a keen sense for the trends in the industry. He had already experimented with anamorphic optics in the early sixties. In the 70s and 80s, he was competing with Bob Gottschalk's Panavision as a leading rental house that could supply productions with equipment for widescreen anamorphic 2.35:1 film production. He had Technovision rental houses in London, Rome and later in Paris, which his daughter Natasza managed.

"Henryk's big secret was who provided his anamorphic cylinders and glass. It is now known that the anamorphics came from Japan and were known as Shiga fronts or NipponScope. Technovision combined the Shiga fronts with different base lenses."

In the beginning, Kinoptik lenses were used as the base lenses; later he used Cooke Speed Panchros and ZEISS Super Speeds. The core set was 25mm, 32mm, 35mmm, 40mm,50mm, 75mm, 85mm, 100mm, 135mm 180mm and 250mm. The zooms were built around 5:1 and 10:1 Cookes, with anamorphic rear cylindrical elements. So the 20-100 was a 40-200 and the 25-250 became a 50-500mm. The only disadvantage was losing 1.5 to 2 stops.

Alfred Piffl recalls his first trip to Rome to meet with Henryk, "The optics in the projection room, compared to what I knew from my time as a photographer, looked horrifying to me. It had pincushion distortion and color fringing several millimeters wide. It seemed useless! But those lenses were used to make great movies. What did I know? I was just a young engineer who had worked at ARRI on the 35BL4s and 535...

"Technovision's Rental division in Rome was run by Harald Buggenig, a young man from Austria. Harald seemed very trustworthy, but the business meetings were always conducted in the café next door. In 1996, Harald took over the Technovision brand."

A few days later, Harald Buggenig was on the phone from Rome.

Harald Buggenig studied economics in Vienna. Henryk, it turned out, was a partner of Harald's uncle who was a film producer. They produced about 36 films together. It also turned out that the versatile Henryk Chroscicki was also the agent of the actor Lee van Cleef. Because Henryk was one of the few producers in Italy who could speak English, a lot of doors opened.

Technovision Classic LF 1.5x Anamorphics by P+S Technik

Original Technovision Anamorphic zooms and primes at Technovision Rome.

Harald explained, "Henryk was not just a cameraman. He was a manufacturer and a skilled producer, and very tied into the industry. He convinced Vittorio Storaro to shoot anamorphic, to make it look more amazing, not so clean, more emotional. Storaro shot Technovision 2.35:1 anamorphic up to *Little Buddha*.

"So, I have about 42 years of anamorphic lens experience. I started at Technovision when Coppola first started on *Apocalypse Now.* In our research, we liked the Cooke cine lenses created by Rank Taylor Hobson. Henryk had a very good eye. He tried Nikon, Leica and others, but settled on Cooke and ZEISS. He was always fond of Cooke and built a system around it.

"As mentioned before, the Cooke Speed Panchro anamorphics had Shiga Nippon front cylinders. They were designed by Giusseppe Magni, Technovision's optical and mechanical designer. He was a very astonishing person.

"The real breakthrough was *Apocalypse Now.* They kept asking for more lenses. David Pringle, Henryk's brother-in-law, who worked with us at the time, was constantly flying from Rome to location in the Philippines to Shiga in Tokyo. It was very frenetic."

"When we were building and selling the original Technovision 35mm format anamorphic lenses, the Russian film industry was the largest customer. They had a 5 year plan, ordered 5 years in advance, and paid in advance. It helped that Henryk also spoke Russian. India was also a huge market."

And about the Technovision-P+S Technik collaboration today?

Harald continued, "When I look through a viewfinder, I know from experience. I'm involved in the esthetics and exterior styling of these new lenses. I have a say in how it looks, trying different coatings, ideas on performance—but not the actual construction.

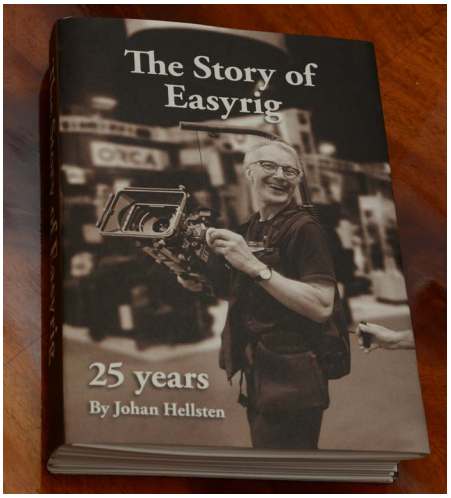
"We came to the same results. At first I worked around the idea of 2x Full Frame anamorphics, but then agreed that 1.5x or 1.6x squeeze for the 3:2 36x24mm format is better. I also pushed for more primes because the real pros like primes. It could be interesting to do long range zooms. Certainly we will do more focal lengths. This is a trend. Every lens company provides a set with more than 5 or 6 focal lengths."

And what about 35mm format anamorphic today?

Harald said, "We still maintain a large inventory of anamorphic Super35 lenses at Technovision Rome. We just finished a TV series that will be popular in the United States as well: an HBO-RAI production of *My Brilliant Friend (l'Amica Geniale)* from the novel by Elena Ferrante. It's a woman's story growing up in Naples with her friend in the 1950s. The crew is Italian. The camera is Alexa Mini and Alexa XT shooting Arriraw. The world premiere will be November 18 after a screening at the Venice Film Festival."

Meanwhile, back to the new Technovision Classic LF 1.5x Anamorphics by P+S Technik, Harald concluded, "What is driving the P+S Technik primes is that they are built in-house. They are not a rehousing. They are brand new, build from scratch. This is the reason we can create a new look, with new lenses. We can influence the coating, the focal length, the glass quality, the look. If you create your own lenses, you can set your own basic standards."

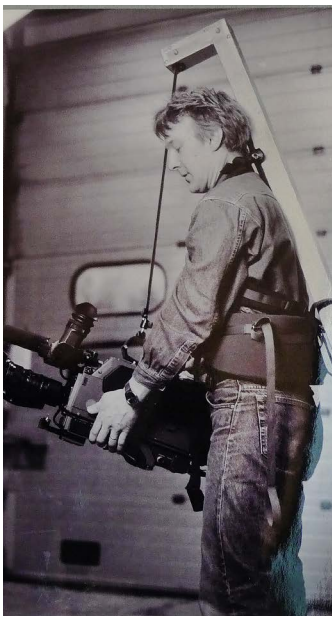
The Story of Easyrig: 25 Years



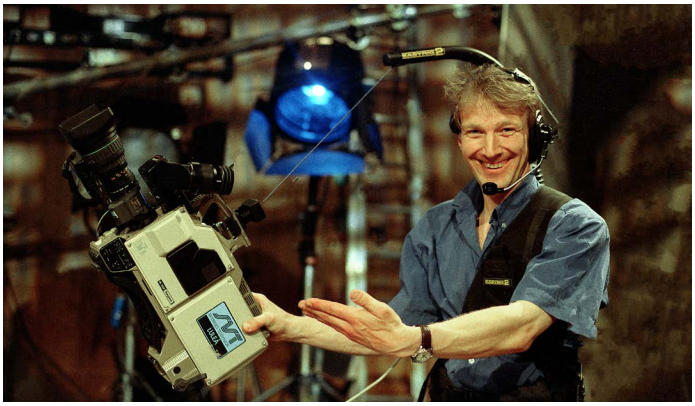
Johan Hellsten, inventor of Easrig, will release his new book at IBC. *The Story of Easyrig, 25 Years* is the story of his fascinating journey from an idea to a final product. Johan has been working on the book for the past two years. It is not only about Easyrig but also about his interesting life.

The basic idea of the Easyrig is to relieve the strain from your shoulders when holding a camera. The book reads like an exciting adventure story—with drama, conflict, action, overcoming obstacles, and a happy ending. It's about a talented cameraman who turned his passion into a revolutionary invention.

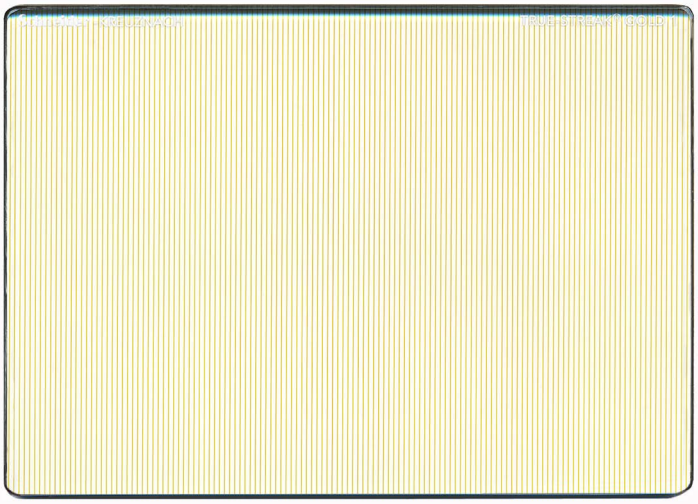
You can buy *The Story of Easyrig* at IBC, NAB and from Easyrig agents. *easyrig.com/agents*



The Story of Easyrig, 25 Years is illustrated with many historic photos, like the prototypes above and a young Johan below.



Schneider Streak Filters



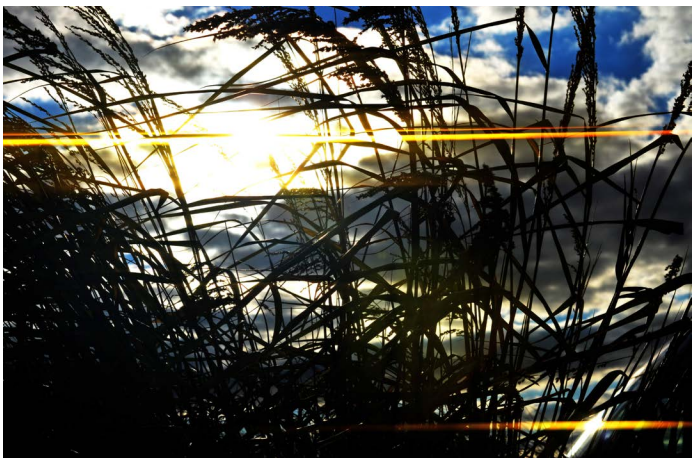


Photo by Jude Baunach

Schneider-Kreuznach expands its line of effects filters with their new True-Streak Gold. It comes in intensities of 1mm, 2mm, 3mm and 4mm. The effect is to simulate the ever-popular streak in a vivid deep yellow tone. It works with any lens, spherical or anamorphic. Depending on the strength chosen and the lighting, True-Streaks can create an effect from subtle to dramatic.

The new Gold joins the Schneider-Kreuznach family of True-Streaks that come in Blue, Red, Yellow, Orange, Green, Violet, Pink, Clear, Rainbow and Confetti filters.

True-Streak filters are consistent and durable. They are manufactured at Schneider's factory in New York, using a special technique in which a colored interlayer is sandwiched and sealed between two sheets of crystal-clear water-white glass.

The True-Streak Gold comes in 4×5.65. Other sizes are available by special order.

schneideroptics.com

Band Pro 16x9inc Accessories

Band Pro and 16x9inc have a large line of lenses, Orca Bags, Noga Arms, Easyrigs, Flowcine products and Movcam accessories at IBC. *bandpro.com*

Above: Sony VENICE with Angenieux Type EZ zoom and Movcam shoulder mount, multi-function expansion unit, top plate with accessory power distribution, handle, wireless lens control, mattebox.

The Flowcine xARM is a 2- section articulated stabilization arm. It has a payload capacity up to 29 kg / 64 lb.

The xARM is made of aircraft grade aluminium, solid carbon fiber, titanium shafts and large stainless steel precision ball bearings. The design enables frictionless and noiseless arm movement with a minimum of push/pull force (down to 100g for the entire range). All socket blocks are industry-standard dimensions and made of stainless steel.

The xARM uses polymer spring cores with an outer shell of Neoprene. Each spring core has a smooth and linear lifting capacity. When used near their maximum, they perform best. Because of this, each spring core has a weight range of about 5 kg / 11 lb. The xARM ships with 3 different spring cores. The spring cores are pre-extended and can be changed quickly.

Gottfried Pflugbeil and Preston Light Ranger 2

Here's the latest episode in the continuing series, Season Two, of "The Superstars of Focus." Gottfried Pflugbeil has been as Camera Assistant since 1994 and a 1st AC since January 1999. Recently he's been working on the TV Series "Condor" for MGM and "The Handmaid's Tale" for MGM/Hulu.

by Gottfried Pflugbeil, Focus Puller / First AC

I was very excited when my Light Ranger 2 arrived. I was told that it was the third one to be sent to Canada. I had been following the development of the LR2 for a number of years, even contacting Howard Preston about the original Light Ranger and asking if it could be rented (it could not).

When the Preston Light Ranger 2 came out, focus tools came to a new level. The LR2 also uses infrared light to calculate the distance, but it takes the idea of a focus tool to two additional levels. First, it has a visual representation of focus, set up on a bar graph that is placed over the image on your monitor. You can identify right away if a subject is closer or farther than where the focus wheel currently sits. Also, when the subject falls within the depth of field, the bar turns green so that you know that the subject is in focus. The second level that sets the LR2 apart is the Autofocus mode. You are given a red box on your monitor that you can move right and left, as well as making the field larger or smaller, in order to pick the exact spot where you want the autofocus to perform. After choosing your red box placement, you can press the Autofocus button on your Preston Hand Unit HU3 and the LR2 takes over, autofocusing your lens completely independently, following your subject closer and farther, as well as adjusting for any camera movement both toward your subject or away.

To make the tool even more usable, you can set limits on the range of the autofocus, from say 5 to 12 feet, so that if an actor sits forward or ducks, the focus does not shift to the background but stops in the exact spot in which the subject exited frame, to readjust the moment the subject re-enters frame. On top of that, there is a "silver-button" trick: when an actor exits the frame, you can press the silver button on the HU3 Hand Unit and the focus stops, which is another extremely beneficial tool.

The first project that I got to use the LR2 on was the Television Series "Condor" with the DP Steve Cosens. We were shooting with ARRI Minis and ZEISS Master Prime lenses.

There was a shot where in a large abandoned factory. Mira Sorvino was just out of frame on a 50mm lens, hand-held. Mira ran into frame towards us as the hand-held camera barrelled backward at a quick pace. The shot held Mira in a close-up for the entire run (about 10 to 15 seconds) before she came upon another actor who was passed out on a couch. The shot went wider at this point as Mira woke up the other actor. There was dialogue and then both actors ran at the hand-held camera, which again ran backwards for about 10 to 15 seconds, and finally with both actors exited the shot at the end. That was a continuous take.

After a rehearsal, I saw that this shot was a perfect opportunity to use the LR2. After action was called, the moment the actors entered the frame I pressed the Auto button on the HU3 to turn on the LR2 Auto Focus. The shot continued with Mira in a close-up frame running straight toward the lens as the camera operator ran backward. When the camera pivoted and the shot got wider I turned off the Auto Focus and controlled the focus manually. This was until close to the end of the shot when Mira and her co-actor started running toward the camera as the camera operator ran backwards again. As soon as Mira filled the red focus box of the LR2, I pressed the Auto button for control by the Preston system. At the very end ,as soon as they were about to leave frame, I took the system off of Auto in order for the Autofocus to stop, to have the ending of the shot finish as it should, with the focus stopped as soon as the actors were out of frame.

There was another shot of an intimate dinner in a high-end restaurant. The scene only involved two actors. But, with the nature of a dinner conversation, the swaying back and forth of the actors in their chairs, as well as their leaning forward toward the end of the scene, the scene lent itself well to using the LR2. When we got to the 50mm and 75mm close-ups, I started using the Auto feature on the Light Ranger 2. I set up the Autofocus calibration of the LR2 with my 2nd AC sitting in for the the actor. After it was calibrated, we started shooting the scene, and I turned on Auto and the focus tracked perfectly with the actor—including shifting back and forth, as well as a big lean forward close to the end of the scene.

There was another shot of the actor Max pacing back and forth towards the lens and then away. I used the LR2 for this shot as well. During one of the takes, Max raised his arm right before turning away from the camera and then walked a few feet away. The LR2 was on Autofocus at this point, and as Max's arm came up, the focus shifted from his face perfectly and back to his face when he lowered his arm. The whole event took only a second, but due to the focus shifting perfectly, I was approached by the operator after the shot to tell me that I had made an amazing shift in focus, perfectly shifting from the actors face, to his raised arm, and then back again. The operator was extremely impressed with the focus move. And I had the Light Ranger 2 to thank for it.

Handmaid's Tale:

I have a few very interesting shots that I utilized the LR2 on the TV Series "The Handmaid's Tale – Season 2." One was a unique

shot where we rigged a pulley system that lowered and raised the camera within a small closet. The camera was facing straight down and the actress, Elizabeth Moss, was lying on the floor. The shot started on her face, and very slowly started raising up until she was in a mid-shot, and then the camera lowered again, moving right into her face. Due to the nature of the small closet's 4 walls all around, there was no way for me to see either the camera or the actress. As the slate exited frame, I turned on the Autofocus of the LR2 and Lizzie's face snapped into focus, the director called for the camera to be brought up, incrementally, and the focus stayed locked as the camera was brought up, and then down, over and over. The shot looks amazing.

Another example was a high-speed shot. We were framing on a large group of Handmaids rushing the camera and then at the end of the shot exiting. The idea was for the focus to start on the actress closest to the lens and as soon as she exited the focus would need to shift right away to the face of the next actress. This was to be shot at high speed (96 fps) and therefore any subtle tweaks of focus, or focus corrections, would be four times as long because of the nature of high speed.

We slated and I pressed the Auto button and the frenetic shot began. The Handmaids rushed toward us as the camera ran backwards, all at 96 frames per second. As the closest Handmaid's face exited the shot, the focus seamlessly adjusted perfectly to the next face racing towards the lens. The shot lasted about 15 seconds in real time, but watching playback, it lasted a solid minute, all perfectly in focus. In my opinion, it is the high speed nature of this type of shot that shows the ability of the Lightranger2 to outperform the ability of a focus puller.

Another shot on "The Handmaid's Tale" was a rainy exterior involving Elizabeth Moss running from a shed to a truck, around the truck, stopping for dialogue, and then running into the back of the truck. We were shooting nights, and this shot was at around 3:00 am. It was decided to do the shot hand-held, with an 85mm lens at T1.3. The depth of field was razor thin. We would shoot the rehearsal. Having no idea where Elizabeth would run, let alone stop, as well having no idea where the camera would stop, or if it would move in for a close-up, I decided that I would put the LR2 to the test and put it on Auto and see what happened while filming the rehearsal. The shot was magical. With the razor thin-depth of field, Elizabeth's face was captured perfectly as she entered frame, the camera moved closer for dramatic effect, the Preston motors turned perfectly in sync getting their adjustments from the LR2. At the end, Elizabeth ran to the side of the truck, and we continued the shot though the front windshield as she climbed in. It was when she ran past the side of the truck that I turned off the Autofocus and finished the shot manually.

On "Condor," we shot on the ARRI Alexa Mini cameras and used ZEISS Master Primes (no zooms). "The Handmaid's Tale" was also shot on ARRI Alexa Mini cameras, with Canon K35 lenses primarily and some ZEISS Super Speeds.

In conclusion, I have found the Preston Light Ranger 2 to be the premium focus tool available. The Lightranger2 gives a visual display of focus on the monitor, showing both depth of field as well as if the focus is in front or behind. And then, as an additional level to that, it has the Auto focusing option that really excels. I would highly recommend the Preston Lightranger2 for all 1st Camera Assistants (Focus Pullers) out there.

"A Child's Smile" by Jérôme Dolbert

Jérôme Dolbert was born and raised in Paris, France. He worked as a director and producer at TF1 (the largest private television network in Europe) and Eurosport. He moved to California and attended UCLA. With more than 20 years as a filmmaker, "A Child's Smile" is his latest documentary, now in production, with a planned worldwide release in August 2019.

Cambodia, a country where half the population is under 18 years old, was ruled by Pol Pot from 1975 to 1979, killing approximately 2 to 3 million citizens. The land of smiles and kindness had disappeared after the genocide of the Khmer Rouge. People who survived had a fierce will to live.

Poverty in Cambodia remains a major issue, with 37 percent of Cambodian children under the age of five living in a constant state of malnutrition. 90 percent of Cambodia's 4.8 million poor live in rural areas. At least 12 percent of these people are landless.

Though Cambodia exports a surplus of rice, many rural families remain short on food for themselves. Many families live in very precarious conditions of unhealthy accommodation and very low incomes. This leads to food deficiency, addiction and abuse.

The current situation in Cambodia particularly discriminates against girls who are sometimes even sold from the age of six onwards, provided they are not first destined for prostitution, which has developed at an alarming rate in recent years.

Educating Cambodian youth is saving them from an often bleak fate. In the world, out of 900 million adults who cannot read or write, two thirds are women. This means millions of women don't have the means to fight against forced marriages, sexual or domestic exploitation, honor crimes, prostitution.

Numbers that speak for themselves. In 70 countries around the world, most girls are placed in the labor market from childhood. A girl who has not received an education has 80% more risk of being forced into marriage, being sexually exploited, suffering from domestic violence, or raising malnourished and illiterate children.

International experts are unanimous: girls' education is one of the biggest issues today. In countries where girls' education progresses, infant mortality and high birth rates go down and the pandemics are controlled better. An educated woman can, in turn, educate her children.

With the lack of healthcare education, many preventable diseases go untreated. In the case of eye disease, this can lead to unnecessary blindness. The leading causes of blindness in Cambodia are cataracts, uncorrected refractive error, glaucoma and corneal scarring, all of which can be corrected with treatment or surgery. However, the cost is often prohibitive.

"Toutes à l'école" has developed a high-level schooling system for under-privileged girls to help them become free women and educated mothers.

Happy Chandara School, founded by "Toutes à l'école" in 2006, has an objective of training young girls to be able to have decision-making jobs in the future. Some will be doctors, teachers, judges, and entrepreneurs.

Concurrently, "Pour les Yeux du Monde" was established by a man with an extraordinary career: Dr. Phat-Eam Lim. He was born in 1961 in Phnom Penh and had to flee the genocide in Cam in April 1975. He was accepted as a refugee in France and learned a new language, a new culture. He attended public school in Amiens, boarding school in Paris, and received a medical degree in ophthalmology.

He returned to Cambodia in 2002 after 27 years of exile. He saw the ravages of a civil war and genocide that eliminated one-third of the population, including all health professionals. He understood the importance of the Mekong River and bought a cattle transport boat in 2005. He transformed it into a floating ophthalmology clinic, complete with examining rooms and an operating unit. It has been a great success.

toutes-a-l-ecole.org
pourlesyeuxdumonde.org

How much luggage did you have and how did you carry it?

I am a one-man crew, alone with 100 kg (220 lb) of equipment (Camera, Lenses, Tripod, Slider, Drone, Lighting, Batteries). The flights from LA to Shanghai to Phnom Pen are 23 hours.

How did you travel inside Cambodia?

Bus, Taxi, Boat, Tuk-Tuk.

What has been the biggest challenge?

It feels like more logistics than filming, with all that equipment and temperatures of 40 degrees Celsius (104 degrees Fahrenheit) and 80% humidity day and night. But after shooting in the tropical forest in Peru for 2 months for the documentary "The Rainforests Are Under Threat", I was ready and I knew how to tackle and prepare for the unexpected.

I am working with a team of Cambodians who know how to overcome all problems by always keeping a smile. With this precious help from the Cambodians, it has been easier for me Communicating with villagers, teachers, students, and doctors was in English or French. We did not have language barriers.

What has been most impressive for you?

Every morning, when I arrived at the Happy Chandara School – Toutes à l'Ecole" at 6:30am, the little girls always had smiles.

I assume you have to travel light. Please describe your equipment package.

- Red HELIUM 8K S35 camera.
- Angenieux 48-130mm T3 Optimo Style Zoom
- Sigma 14mm T2 FF High-Speed Prime (EF Mount)
- Sigma 50mm T1.5 FF High-Speed Prime (EF Mount)

Why did you choose these lenses?

The Angenieux 48-130mm T3 Optimo Style and the Sigma High Speed Primes were ideal partners.

The Angenieux Optimo Style 48-130 is an ideal lens for a wide range of applications including documentaries, wildlife, interviews and features. With exceptional optical performances, great image coverage, minimal breathing and a fast aperture of T3 with no ramping, the 48-130 is a great companion for shooting high end digital productions. This lens covers Super 35 and

Ultra35 formats up to 34.6mm diagonal, including the RED Helium 8K (35.4 Megapixel CMOS Sensor).

It has superb image quality from T3 wide open. It is compact and very light (1.9 kg / 4.3 lb).. Impressive color, contrast and resolution. Low distortion. No ramping, minimal breathing, and very fast for 2.7x zoom.

The new 48-130 is the longest zoom in the lightweight series: excellent for close-ups, portraits, and tighter angles.

The Sigma 14mm T2 FF and Sigma 50mm T1.5 FF High-Speed Primes combine, like the entire line of SIGMA Cine Lenses, three valuable qualities rarely found together: outstanding image quality, high speed, and amazing compactness. The 14mm T2 full frame lens effectively minimizes distortion and offers excellent peripheral brightness. It delivers outstanding image quality from the center to the edges.

These are well built and solid lenses. The images that I obtained with the Sigmas are often breathtakingly beautiful. The feel, the build quality, the smoothness are all features that are important to me. These lenses are designed to achieve truly notable optical performance and have an artistic look.

If you're into landscapes, the 14mm lens is great to work with. It is amazing when taking interior shots at T2. Almost everything is straight and in focus.

My intention was to use these lenses for wide shots and scenic close-ups. I used them on different locations. For instance, on the Mekong River, in the boat and operating theatre, slums. They are very sharp across the frame with great clarity and color accuracy. The image quality is superb. Great lens. Very crispy and clear. Love it!

The luminous text identifying focal length and speed and tfocus marks are a great help at night.

Capinera Evolution Dolly

by Armando Grottesi, President of Cinetech Italiana

I am delighted to announce our newest model, the Capinera Evolution Dolly from Cinetech Italiana. It is the latest generation of the original Capinera, introduced in 2015.

The Capinera Evolution can position the camera lower than any other Cinetech dolly—both on the ground or on tracks. Capinera Evolution is light, maneuverable, reliable and sensitive.

The Capinera Evolution project was realized thanks to the efforts of my esteemed co-workers: Dorokhina Ekaterina, Luigi Farotto, Sandro Ripa and Prokopios Kantas. They helped design and build the Capinera Evolution and many other Cinetech Italiana models. As a result, we at Cinetech are proud to have a big and varied family.

The Cintech family has received major upgrades. The Super Falcon II and Albatross dollies have new and improved bi-component wheels. The inner rim has a 90 Shore hardness for better movement, high stability and smoothness on tracks. The outer rim of the wheel has a 70 Shore hardness for improved steering and traction on any surface.

(Shore Hardness is measurement of a material's resistance to indentation, on a scale of 0 to 100, where 100 is the hardest. It's named after Albert F. Shore who built a durometer in the 1920s.)

Therefore, the new Cinetech wheels have greater elasticity and resistance to crushing. Since they have solid (not pneumatic) wheels, you do not have to worry about maintaining proper inflation pressure.

Additional improvements include steel-reinforced Teflon belts that enhance the steering transmission system and deliver increased performance. The new transmission also eliminates frequent chain maintenance. A new flow regulating valve allows the arm to operate faster and smoother. The new steering lock lets the dolly grip make precise straight moves without any extraneous movement of the wheels, even without using tracks. Vertical moves are smooth and repeatable with nice starts and stops.

All dollies are designed, manufactured and sold directly from our Cinetech Italiana factory based in Rome, close to the famous Cinecittà Studios. All metal parts of the dollies are stainless steel or light aluminum alloy. All dollies are extremely rugged. They are high-tech and beautifully built.

We are always proud to introduce technical advancements to our dollies and are always very attentive to all the suggestions or demands from our end-users. Innovation, research and evolution is the name of the game.

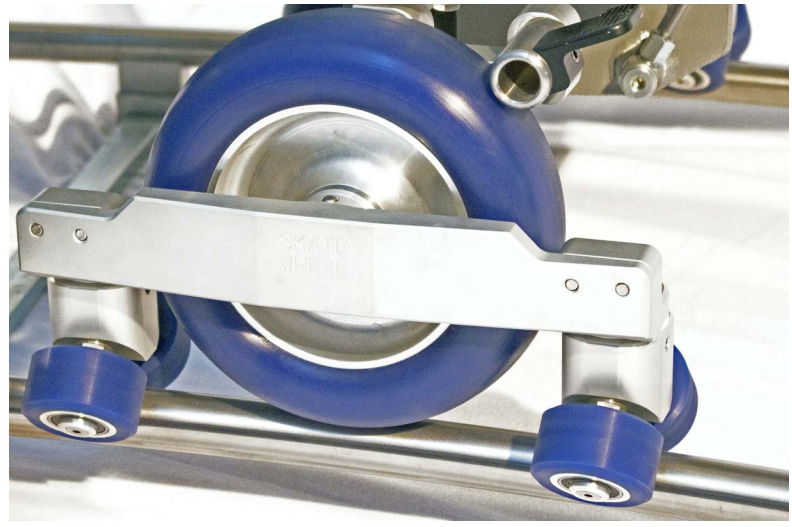
Cinetech Italiana dollies are sold to rental houses and are at work as part of grip packages in 38 countries around the world.

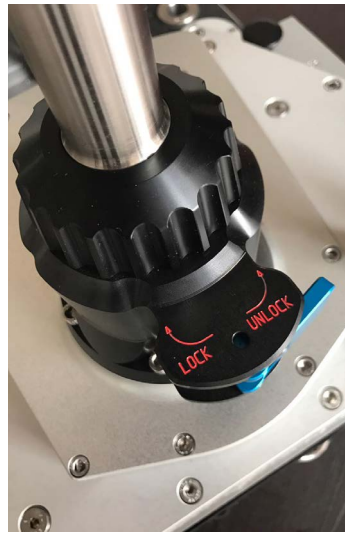
During Cinec 2018 (booth 3-D35) all dolly models will be shown.

cinetech.it

Distribution in the Americas: The Concept Company, Cary C. Clayton, email: carycclayton@gmail.com

New Capinera Evolution Dolly from Cinetech Italiana





Above: detail of skate wheel on track.

Left: Steering lock.

Below: Capinera Evolution on location in the desert of Morocco.

Here and below:
Photographed with Canon EOS-R with 24-105 f/4 L IS USM by Jon Fauer

Aloha. Stop the Presses. It's 9 pm in Kapalua on the island of Maui, Hawaii. 4 pm Tokyo. 9 am in Amsterdam. At synchronized events around the world, coordinated so major markets would be awake, Canon launched their new EOS R Mirrorless Camera System.

Marc van Riet from Partnion and the printers in Amsterdam are texting persistently: "Hi Jon. We really need your FDTimes IBC edition to go to press now. Can you please approve ASAP?"

Jon: "Marc. Stop the Presses. Urgent. I'm in Maui at the Canon EOS R Mirrorless Full Frame Camera System launch. It is a radically revolutionary, evolutionary, game-changing Canon still and video camera. I need to add pages."

Marc (texting more rapidly): "OK. But you can only add 2 more pages to this edition. Please hurry."

I hurry. I add. There are three Canon EOS R pages. Let's see if they make it into the FDT (Frenzied Deadline Times) September IBC, Cinec and Worldwide print editions.

Canon EOS R Mirrorless Full Frame Camera System

This feels like Canon history repeating itself, when the EOS 5D Mark II still camera astonished with its video capabilities. That was September 2008.

Now, 10 years later, the EOS R mirrorless system elevates Canon camera and lens technology to a new level.

- The new Canon mirrorless FF camera has a new RF mount: 54mm inside diameter and 20mm Flange Focal Depth.
- Four new RF lenses were also introduced.: RF 24-105mm f/4 L IS USM; RF 28-70mm f/2 L USM, RF 50mm f/1.2 L USM; RF 35mm f/1.8 Macro IS STM.
- Using Canon's EF to RF adapter, you can use also any existing EOS EF lens.
- The OLED EVF is sharp and clear enough to see critical focus.

At the product launch in Maui, the new EOS R system was introduced by Kevin Ogawa, President and COO of Canon USA; Eliott Peck, Canon Executive Vice President and GM; Drew MacCallum, Canon USA Senior Tech Specialist; and a team of product managers, optical and mechanical designers, field reps and staff.

The big news was how the new EOS R system supports Canon's existing universe of more than 130 million EF lenses in the world with 3 unique EF (44mm FFD) to R (20mm FFD) adapters.

Furthermore, the R system's shallow 20mm Flange Focal Depth and wide 54mm lens mount diameter allowed the optical designers to come up with a new series of lenses that were described as being better than anything they had done before. Image quality from center to edges of the lens is exceptional. The larger mount enables a larger diameter rear element. Therefore, the front element can be smaller in diameter. This helps prevent flare. Additional benefits are faster apertures, higher performance and small size. The new RF lenses have 12 electrical pogo pin contracts for faster autofocus and Optical Image Stabilization.

Interesting Features

- RF Mount Compatible with RF Lenses and EF/EF-S Lenses
- Built-in EVF with 3.69 Million Dots
- Vari-angle Touchscreen LCD and Dot-matrix LCD Panel
- ISO range of 100-40,000, expandable to 102,400
- Built-in Bluetooth and Wi-Fi
- Single UHS-II SD card slot
- CR3 (RAW/C-RAW) and Dual Pixel RAW Support
- USB-C connector and WiFi for tethering
- 422 10-bit output via HDMI to external recorder
- 4K UHD video up to 30fps onto SD card inside.
- Availability of Canon Log

Tech Specs

- Sensor: 30.3MP Full-frame CMOS (36.0 x 24.0mm).
- Lens Mount: Canon RF mount (20mm FFD. 54mm Ø.
- Optional EF-EOS R Mount Adapter for EF and EF-S lenses.
- Dual Pixel CMOS Auto Focus
- Max. fps high-speed continuous still shooting: approx. 8 fps
- With Servo AF: Approx. 5.0 fps (shooting speed priority)
- Video File Format: MP4 (MPEG4 AVC/H.264 compression)
- Compression: All-I (Intraframe: each frame compressed, larger files but easier to edit) or IPB (interframe bidirectional).
- Video Audio Format: ALL-I uses Linear PCM, IPB uses AAC through built-in stereo microphone or optional external microphone.
- Video Recording: 4K 3840 x 2160: 29.97fps/24.00fps/23.98fps
- Full HD 1920 x 1080: 59.94fps/29.97fps/24.00fps/23.98fps
- HD 1280 x 720: 119.9fps/59.94fps/29.97fps
- Canon Log Dynamic Range: Approx. 800%
- Canon Log Recording 4K/Full HD/HD YCbCr 4:2:0 BT.709 8-bit (Internal Memory)
- 4K/Full HD/HD YCbCr 4:2:2 BT.709 8-bit (HDMI Output)
- 4K YCbCr 4:2:2 BT.709/BT.2020 10-bit (HDMI Output)
- ISO: 100 to 40000 (in 1/3-stop or whole-stop increments)
- ISO Expansion: L: 50, H1: 51200, H2: 102,400
- Recording Media: SD/SDHC/SDXC Memory Cards
- Shutter: Electronically controlled focal-plane shutter (electronic first curtain, mechanical second curtain)
- Shutter Speed 1/8000–30 sec., bulb.
- Maximum Strobe Sync: Speed X-sync at 1/200 sec.
- Viewfinder: OLED EVF
  - Screen Size 0.5-inch (approx. 1.27cm diagonal)
  - Magnification: Approx. 0.76 magnification (with 50mm lens at infinity, -1m-1)
  - Angle of View Approx. 35.2° angle of view
  - Resolution Approx. 3.69 million dots
- LCD Monitor Type TFT LCD Touch Screen
  - Screen Size 3.15-inch (approx. 3.15-inch diagonal)
  - Resolution Approx. 2.10 million dots
- Wi-Fi 802.11b/g/n Compatible
- Bluetooth Version 4.1 compliant
- Exterior Dimensions: (W x H x D) Approx. 5.35 x 3.87 x 3.32 in. / 135.8 x 98.3 x 84.4mm
- Approx. 5.35 x 3.87 x 2.67 in. / 135.8 x 98.3 x 67.7mm (from grip to monitor)
- Weight 23.28 oz. / 660g (including battery pack and card)

The Canon EOS R full frame mirrorless camera is planned to ship in October 2018 for an estimated retail price of $2299 for the body only. It will also be sold as a body-and-lens kit with the new RF 24-105mm F4 L IS USM lens for $3399.

More details and White Paper by Larry Thorpe: *tiny.cc/eos-r*

What happens next?

Canon executives said this was just the beginning. Expect more camera bodies and lenses at various price/performance levels.

And if we dream...what about Canon Cinema EOS cameras and lenses with the new RF mount — using a ruggedized Canon Cinema Lock similar to the one on the C700, C700 FF and C300 Mark II? The RF mount's 20mm FFD and 54mm diameter enable all kinds of interesting new optical designs. The RF mount also simplifies mechanical adapters from RF to PL, LPL, PV, SP 70, etc.

Canon EOS R Mirrorless Full Frame Camera System

EF-to-R lens mount adapters

This model has drop-in variable ND or Circular Pola filter

RF 50mm f/1.2 USM

RF 28-70mm f/2.0 L_USM

Matthew Libatique, ASC on “A Different Beyond.”
Photo by Michael Bulbenko.

Fujifilm X-T3

Remember when someone said, around 2009, that a digital motion picture camera was just a still camera that shoots at 24 fps? Now we've come to the point where those digital still cameras are shooting remarkable video for major motion pictures. The convergence continues.

Fujifilm is introducing their latest APS-C mirrorless digital still/video camera. Michael Bulbenko, Professional Markets Training Manager at Fujifilm North America calls the new X-T3, "A camera with beautiful 4K 60p 422 10-bit video that's helpful for high end productions."

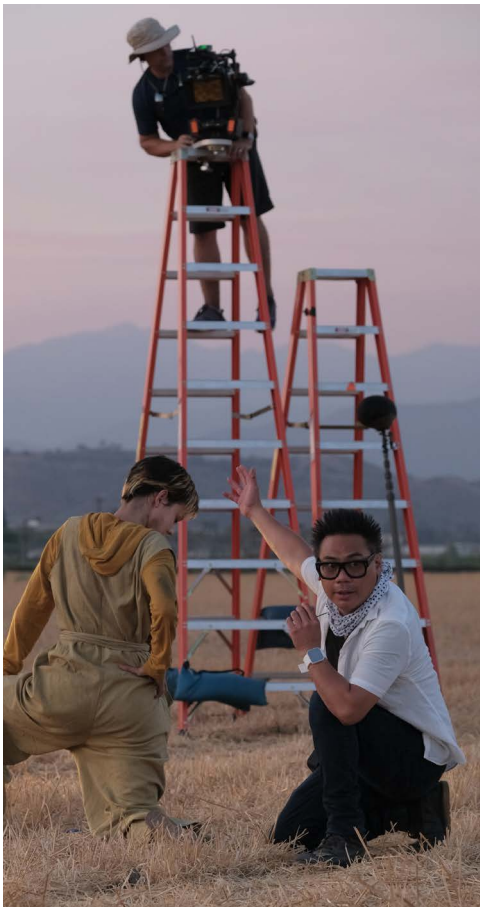
This summer, Matthew Libatique, ASC shot "A Different Beyond" using early models of the new Fujifilm X-T3 camera system. Matty was Cinematographer and Director of the short. It was produced by Chromista.

Matty is known for trying different formats, cameras and lenses. He shot *Black Swan* in Super16 film. *Straight Outta Compton* used a riot of anamorphic and spherical lenses. *Money Monster* mixed Alexa, RED and Panavision cameras with C-, E-, G-series and other lenses.

Matty explained, "I wanted to put the Fujifilm X-T3 camera to the test—to see how it acts in low light, bright light, as to color and saturation and put it through the same process I do to test any camera. I think that F-Log is one of the camera's greatest achievements. Having this kind of dynamic range and latitude is something we need to make films. I like the X-T3's film simulation and the choices of Eterna look, Velvia, Chrome, and so on. This is especially good for a filmmakers because that's how we see things—like film."

On "A Different Beyond," the X-T3 worked on all kinds of setups: camera car with arm and stabilized remote head, tripod, dolly, gimbal, ladderpod, slider, handheld and mounted on a MoVi Pro.

Production stills on this and previous page by Michael Bulbenko, of course with an X-T3.



Fujifilm X-T3

A pre-production X-T3 system landed at FDTimes just in time for this edition and a couple of NDA days before Fujifilm's major launch event on September 6.

This is the latest, top of the line APS-C mirrorless X Series Fujifilm digital still and video camera. The sensor measures 23.6 x 15.6mm. The X Mount has a 17.7mm flange focal depth (FFD). You can also use an X Mount to PL adapter.

There are more than 25 Fujifilm X Series X Mount prime and zoom lenses that fit the X-T3. If you buy one lens, please try the XF35mmF1.4 R (shown at left). The Fujifilm lens designers call it the "God lens" because it is so good.

For video as well as stills, the all-manual, extremely lightweight, compact Fujifilm MKX 18-55 T2.9 lens is a wonderful way to go. It is an affordable, par-focal lens (stays in focus throughout the zoom range) with an X Mount.

Many cinematographers have seen this lens before as an MK lens with a Sony E-mount (18mm FFD).

Pair the X-T3 and MKX 18-55 with an MKX 50-135mm T2.9 Zoom Lens and you pretty much have an entire camera truck that fits into your backpack. The experience is unique—an ergonomic joy. These cine lenses are lighter and better balanced than many still photography zooms. And the images are gorgeous.

The X-T3 can record simultaneously to the internal SD card and an external recorder via the HDMI connector. Internal 4K/UHD 60p and 30p recording to the SD card is 4:2:0 10-bit. External 4K 60p recording via HDMI is 4:2:2 10-bit. Video compression choices are H.264, H.265 and All-Intra Frame (up to 4K/30p).

The outstanding 0.5" OLED viewfinder has 3.69 millions dots.

Size: (W) 132.5mm × (H) 92.8mm × (D) 58.8mm. Weight: 489g (body only).

Nikon Z 7 and Z6

Nikon launched two new mirrorless Full Frame cameras in Tokyo and New York on August 24.

Several things are remarkable about the new Nikon Z 7 and Z 6:

As with some other cameras recently, the electronic viewfinder approaches the sharpness and focus-friendliness of a ground glass. The 3.69 million dot OLED panel of the electronic viewfinder has 100% frame coverage and 0.8x magnification.

The new Z mount has an incredibly short 16mm Flange Focal Depth. And, the new Z mount is wide, with a 55mm diagonal.

Video output from the HDMI port is 10-bit, 4:2:2.

The camera bodies are the same size and shape. The differences are inside. The Z 7 has a 45.7 megapixel sensor. The Z 6 has a 24.5 megapixel sensor and is less expensive.

In-body 5-axis VR image stabilization is applied to whatever NIKKOR Z lens you're using. Up to five stops of image stabilization in up to five directions—yaw, pitch, roll, X and Y.

Nikon lent me a Z 7 for a few hours. The images are beautiful. The camera is wonderfully ergonomic. The layout is intuitive. It feels and acts like the Nikon cameras many photographers are familiar with. Nikon photographers will love the fact that an FTZ adapter on the Z 7 and Z 6 camera lets them use any one of 360 different models of existing Nikon F SLR lenses that they may already own. Nikon also introduced a new line of 16mm FFD mirrorless lenses for the Z 7 and Z 6.

Like the Canon EOS R and Fujifilm X-T3, the Z 7 and Z 6 cameras have 3.69 million dot OLED Viewfinders. Leica SL cameras have 4.4 million dot viewfinders. Welcome to the mirrorless world of electronic viewfinders that often surpass optical groundglass finder systems.

Z 7

- Effective Pixels: 45.7 million
- Sensor Size: 35.9 mm x 23.9 mm Nikon FX Format
- Storage Media: XQD memory cards
- ISO 64 - 25,600
- Video: 4K UHD 3,840 x 2,160 / 24, 25, 30 fps
- 3.69 million dot OLED Viewfinder
- Size: 5.3 x 4 x 2.7 in. / 134 x 100.5 x 67.5 mm
- Weight of camera body: 20.7 oz. (585 g)
- Tilting TFT 2.1 million dot touch-screen 3.2" LCD monitor
- Weight of camera body: 20.7 oz. (585 g)
- Approx. $3,399.95

FTZ Adapter lets you use about 360 F-mount NIKKOR lenses on the Z series camera

Z 6

- Effective Pixels: 24.5 million
- Sensor Size: 35.9 mm x 23.9 mm Nikon FX Format
- Storage Media: XQD memory cards
- ISO 100 - 51,200
- Video: 4K UHD 3,840x2,160 / 24, 25, 30 fps
- 3.69 million dot OLED Viewfinder
- Size: 5.3 x 4 x 2.7 in. / 134 x 100.5 x 67.5 mm
- Weight of camera body: 20.7 oz. (585 g)
- Tilting TFT 2.1 million dot touch-screen 3.2" LCD monitor
- Approx. $1,999.95

Leica M10-P

Don't startle the wildlife or wake up the decisively sleeping subject.

If you're a unit still photographer on a sound stage or a Grammy Award-nominated photographer like Mathieu Bitton, you will love the stealthily silent new Leica M10-P.

"Never before have I shot with a more discreet camera," Mathieu Bitton said. "The M10-P feels like stealth version of my beloved M film cameras. It fully retains that signature M nature, while being so quiet and unobtrusive that my subjects barely realize I'm photographing them. That's such an important thing in the type of photography I do. The less I distract my subjects, the more genuine moments I'm able to capture."

The Leica M10-P is the latest addition to the Leica M family. It feels and acts like a regular M10. But the mechanical shutter mechanism is almost inaudible. And lest the classic Leica red-dot logo attract attention, it is absent from the front of the camera.

The new shutter makes the M10-P the quietest of all digital and analog Leica M cameras ever made. The design of the Leica M10-P is classically minimalist, featuring only subtle Leica lettering on its top plate.

With the M10-P, Leica introduces a touch-function for faster focus checks in Live-View and Playback modes. Convenient touch-screen controls, such as swiping and pinch-to-zoom, are also added. There's also an electronic Level Gauge. All other features, functions, build quality and finish of the Leica M10-P match its sibling model, the Leica M10.

Leica M cameras have always been mirrorless. The first M3 came in 1954. "M" meant "Messsucher," rangefinder. Their provenance was Oskar Barnack's Lilliput Camera, the Ur-Leica, designed in 1914. So, the idea of a lightweight, small, shallow flange focal depth, Leica Format...er...Full Frame camera has been around for quite some time.

- Camera: Leica M10-P.
- Lens mount: Leica M bayonet, 27.80 mm Flange Focal Depth.
- Sensor: CMOS, active surface approx. 24 x 36.
- Media: SD cards 1-2 GB; SDHC cards up to 32 GB; SDXC cards up to 2 TB.
- Viewfinder: Bright-line rangefinder with parallax compensation.
- LCD panel: 3" TFT LCD, 1.04 MP, touch control.
- Housing: Full metal housing, magnesium die-cast, synthetic leather covering; Brass, black or silver chrome-plated top / bottom cover.
- Dimensions: 139 x 38.5 x 80 mm (W x H x D).
- Weight: approx. 675 g (with battery).

7995.00 USD in black chrome or silver chrome

Mathieu Bitton

Leica M10-P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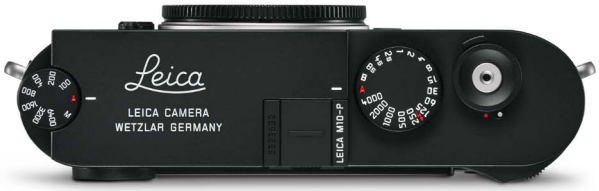
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Sony RX100 VI

All generations of Sony RX100 cameras have been constant FDTimes companions since the original introduction in June 2012. Many miles and meals and models later, we're now up the RX100 VI.

The new RX100 VI camera has a longer zoom ratio (8.3x) than its predessors (2.9x and 3.6x). The ZEISS Vario-Sonnar 24-200mm f/2.8–4.5 lens nicely retracts into the tiny camera body just like the RX100 ancestors.

The RX100 VI has a 20.1 MP CMOS sensor with an upgraded image processor. Everything seems faster, especially focus.

The Fast Hybrid AF system has 315-point phase-detection points on the sensor that can lock onto focus in as little as 0.03 seconds. The camera can shoot up to 24 fps at full resolution with continuous AF/AE tracking. You can shoot 4K video with full pixel readout and no pixel binning.

Neal Manowitz, Vice President of Digital Imaging for Sony Electronics, summed it up, "The new RX100 VI slips easily into your pocket. It's the ultimate pocket travel camera."

The ZEISS 24-200mm lens has 15 elements in 12 groups: two ED (extra-low dispersion) aspherical glass elements and eight aspherical lens elements including four AA (advanced aspherical) lenses. That's a lot of aspherics.

Built-in Optical SteadyShot image stabilization gives you the equivalent of a 4-stop faster shutter speed.

The camera has LCD touch focusing, tap to shoot, and focus point control if you prefer finger point-and-drag focus control.

4K HDR

Amazingly, this tiny pocket camera shoots 4K video. Itn fact, it's 4K HDR with an HLG (Hybrid Log-Gamma) picture profile. Also, there's S-Log3/S-Gamut3, 120p Full HD mode and proxy recording. You can also shoot slow motion video at 240, 480 or 960 fps. Fast hybrid focal-plane phase-detection AF points maintain focus and tracking throughout video sequences.

Additional Details

The RX100 VI has a 2.35 million dot OLED Viewfinder with ZEISS T* anti-reflective coatings. This is also the first RX100 model where the EVF totally pops out, ready to view, at the push of a button. Previously, you pushed the button and then had to manually pull the retractable eyepiece out. Closing the EVF is equally well-designed. You just push down on the top and it all folds together into the camera body like a collapsible origami.

- Pixels: 21.0 MP Actual. 20.1 MP Effective 5472 x 3648
- Sensor: 1" (13.2 x 8.8 mm) CMOS
- File Formats, Still Images: JPEG, RAW
- File Formats, Video: AVCHD Ver. 2.0, MP4, XAVC S
- Audio: AAC LC, AC3, Dolby Digital 2ch, Linear PCM (Stereo)
- Aspect Ratios: 1:1, 3:2, 4:3, 16:9
- Image Stabilization: Optical
- Color Spaces: sRGB, Adobe RGB
- Focus: Wide: 3.15" (8 cm) to Infinity. Tele: 3.28' (1 m) to Infinity
- ISO Sensitivity: Auto, 125-12800
- Shutter: Mechanical 4 - 1/2000 sec. Electronic 30 - 1/32000 sec
- Video: 3840 x 2160p at 30 fps, 25 fps, 24 fps
- Price: About $1,200 US

Sony α7 III and α7/α9 Series

α7 III

On Feb 26 this year, Sony introduced their latest Full Frame mirrorless camera, the α7 III. It combines many of greatest hits from Sony's α9 and α7R III models with a new 24.2 MP back-illuminated sensor. It can shoot stills up to 10 fps using its electronic or mechanical shutter, and can shoot video in 4K HLG, S-Log 2 or 3. There are more than 26 Sony Full Frame E-mount lenses to accompany these cameras.

α7/α9 Series

Camera	α7	α7R	α7S	α7 II	α7R II	α7S II	α9	α7R III	α7 III
Sensor Resolution	24.3 MP 6000×4000	36.4 MP 7360×4912	2.2 MP 4240×2832	24.3 MP 6 000×4000	42.4 MP 7952×5304	12.2 MP 4240×2832	24.2 MP 6000 x 4000	42.4 MP 7 7952×5304	24.2 MP 6000 x 4000
Introduced	Oct 2013	Oct 2013	Apr 2014	Nov 2014	June 2015	Sept 2015	Apr 2017	Oct 2017	Feb 2018
HDMI video Output	1080p	1080p	4K/UHD	1080p	4K/UHD	4K/UHD	4K/UHD	4K/UHD	4K/UHD
Video formats	MPEG-4, AVCHD (28 Mbps) 1080p		MPEG-4, AVCHD (28 Mbps), XAVC S (50 Mbps) 1080p		MPEG-4, AVCHD (28 Mbps), XAVC S (100 Mbps) 4K/UHD video				

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C&L Studio: camarasyluces.com
transvideo.eu

Co-Producers

aatondigital.com
BandH.com
chrosziel.com
manfrotto.us
mole.com
msegrip.com
orcabags.com
pstechnik.de
steadicam.com
teradek.com/collections/teradek-rt

Associate Producers

16x9inc.com
bertonevisuals.com
cinetech.it
cmotion.eu
dmglumiere.com
denz-deniz.com
easyfocus.at
easyrig.se
gecko-cam.com
hd-systems.biz
jlfisher.com
K5600lighting.com
kinoflo.com
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oppenheimercameraproducts.com
ronfordbaker.co.uk
rosco.com
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sekonic.com
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vocas.com
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Rental Houses

abelcine.com
arri-rental.com
camalot.com
camarasyluces.com
cinediving.com
www.hd-systems.biz
jpfcine.cl
keslowcamera.com
koernercamera.com
lemac.com.au
lites.be
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panalight.it
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rvz.fr
sanwa-group.com
servicevision.es
storyline.no
vantagefilm.com

Media Partners

afcinema.com
airstar-light.us/film
bscexpo.com
camerimage.com
cinec.de
cinegearexpo.com
ibc.org
icgmagazine.com
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