

Jon Fauer ASC

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FILM AND DIGITAL TIMES

Art, Technique and Technology in Motion Picture Production Worldwide



John Brawley

The Great

Huzzah!

Blackmagic URSA Mini Pro 12K

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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John Brawley with Blackmagic URSA Mini 12K.

By the way, "Huzzah" is a frequently spoken expression of approval in the series *The Great*.
Cover and photo at right by Jessica Clarke-Nash.



Introduction: Getting Back to Work

You probably tried to read various guidelines on going back to work on set or location.

Your skepticism increased with each “it is highly recommended.”

And you plowed through additional palaverous proposals of precautions for picking up production. Now, I’m no more qualified to give advice on getting back to work or working safely than some of the “experts” and magical thinkers expounding on TV, despite my few years in pre-med studies and a healthy skepticism of sheltering in place in a stunt coordinator’s “designated safe zone.” That’s too often the place where debris unexpectedly lands from an exploding car in a movie stunt, despite assurances to the contrary.

In preparation for getting back to work, lengthy documents have been drafted by producers, unions and trade groups. Many of these white papers and guidelines are very long and vague. Dr. Roger Cicala, Medical Doctor and founder of Lensrentals says, “Too many of these guidelines read like a medical document written by attorneys, which is what they are. I would assume they were paid by the word, or at least by the hour, given the verbosity and the number of things that are uselessly repeated in every section.

“My new formula states: length of document is inversely proportional to useful information. $L = 1/UI$. Given the many pages of drivel some of these reports entail, I’d love to do a snarky Cliff notes, basically the common sense version.” Here it is:

Snarky Summary by Dr. Roger Cicala, MD

1. Keep your guys away from their guys. Separate into smaller teams as much as possible and minimize personnel swapping. If one person tests positive, that team is down for up to 10 days. If you mix people all day long, the entire crew could be quarantined.
2. If there isn’t a protocol for taking temperatures, who gets tested when and where, and a protocol for when someone gets sick, this might not be a good place to work.
3. Teams should stay separate not just on set, but at lunch, etc.
4. When your guys and their guys have to be in the same room, use PPE. (Personal Protective Equipment.)
5. Wear a mask. A mask that covers your nose and mouth.
6. Wash your hands. Then wash everything else with 70% alcohol or something similar. Then wash your hands again.
7. When possible, avoid using eyepiece viewfinders and other maneuvers that require “face near equipment.” When it is necessary for someone to put their face close to a camera, that’s their camera until it’s disinfected. No director or art department or non-camera operator DP taking a look and “see what they think.”
8. This is simple, but rarely done: an HVAC technician should map out air flow patterns in each indoor set or room: which ducts blow in (and in what direction) and which are returns. The (rather arbitrary) 6 foot distance rule assumes still air. If you’re downwind you aren’t distanced.
9. When in doubt, ethyl alcohol is usually safer on equipment than isopropyl. Dilute bleach is great for tables, doorknobs, and other touched surfaces.
10. Don’t get a false sense of security from UV light “disinfect-

tant” wands that don’t have much power and might take 30 minutes to disinfect a little space. If you don’t have to wear eye protection around it, it’s probably not effective.

11. Be considerate. Your mask isn’t just to protect you. It’s to protect the other people from you. Wearing it around your chin basically is saying “I don’t give a damn about anyone I’m working with.”

12. In particular, HINAP—Hope Is Not A Plan. If the plan doesn’t include “what we will do when a person tests positive,” it’s not a plan.

Read Roger’s two pages of additional expert, concise advice on pages 30-31 of this edition.

You are Requested and Required

I have a few more suggestions.

As the British Admiralty of Horatio Hornblower famously wrote in their orders, “You are requested and required to..”

1. Wear a good mask. At all times. Everyone on set, near set, to and from set.
2. Stay in your own department. DPs: Don’t prop the props or tweak the 10K.
3. ACs: Encourage the DP and Director to consider the 135mm lens for actors’ close-ups. A 40mm close-up at 18 inches is a breath away from danger. And you are certainly not re-shooting *The Revenant* or *Birdman* up close and personal with a 12mm prime.
4. Crafty and Catering: Let them serve the food. No grazing or self service. Ideally what you eat has been sealed or wrapped.
5. Location Scouts: Look for large interiors. A crowded New York apartment is like a small Petri dish.
6. Locations: Get used to less travel to location and more virtual backgrounds. Super-sized LED walls like Sony Crystal Vision will become standard in more studios.
7. Studios: Make sure they are ventilated very well and very often. HEPA filters in the HVAC help. I think it was the LA Times that pointed out how filthy many studios have been in the past and we never really took notice. Mop often and clean everything and everywhere. Electrostatic disinfectant spraying like they do before each Delta Airline flight is a good idea.
8. Use common sense and listen to the scientists. Just because you read or heard something from a politician or committee doesn’t make it so.
9. Don’t believe everything they say about production having to be more expensive. It could be but doesn’t have to. It will be all about finding new and nimble ways to get the job done while still staying safe.
10. Claim your own applebox to sit on. Write your name on it. Do not share. Better yet, don’t sit.

Remember when this thing started? The CDC and WHO scoffed at the need for masks, while all our Asian colleagues were jumping up and down telling us to do so? The CDC now writes “An N95 FFR (Filtering Facepiece Respirator) ... filters out at least 95% of very small (0.3 micron) particles, including bacteria and viruses.”

It continues, “The CDC does not recommend that the general

Introduction: Getting Back to Work, cont'd

public wear N95 respirators (masks) to protect themselves from respiratory diseases, including Coronavirus (COVID-19). Those are critical supplies that must continue to be reserved for health care workers and other medical first responders, as recommended by current CDC guidance.”

Doesn't that suggest that what you really, really want is a mask like those doctors and healthcare workers are using, not a cloth or surgical mask that the CDC at first ridiculed and later recommended? But there is a big problem with our supply chain. The USA sadly gave away manufacturing of N95 masks quite some time ago. Healthcare workers definitely need those masks before any of us. And yet, supply chain is something our industry is very good at. So, let's hope that some enterprising companies will supply the supply chain of proper PPE and safety equipment.

Innovative Companies

Some of these enterprising companies are already at work. Nicol Verheem of Creative Solutions and Teradek talks about masks, hooks and working remotely. Andy Bellamy of AJA discusses distancing (pages 38-42). Inovativ, known for equipping ACs, DITs and Video Villages with equipment carts and monitor stands, now makes on-set health accessories (pages 56-57). Cartoni is building a UV-C light box, called BOXER, to disinfect equipment (pg. 55). It is awaiting Italian Health certification.

Meanwhile, how is all of this affecting the equipment we rent, buy and use? Fritz Heinzle and Otto Nemenz report that zooms are going out on their most current shows because crews don't want to handle lenses too often and zooms don't have to be changed.

Michel Suissa, General Manager, The Studio - B&H, discusses the dynamic between choosing zooms or primes in this new production paradigm. “Zooms are still prevalent. If you want to be more nimble and have a small crew, rather than changing your prime lenses all the time, a zoom lens is valid. But a zoom might be inherently larger, heavier and slower. We see two parameters that play into the selection of prime lenses. One is the look. Users are often very attached to what a lens is going to look like. Number two is price.” See pages 52-54.

Place Your Bets

Yevgeny Subbotin, Account Director at CVP, writes, “We definitely sell more zooms than we used to in the last couple of years but primes are still very much top sellers. All the action at the moment is in pre-owned glass. We do sell few new Supremes and Signatures. Hopefully big changes are coming up in September and October.

Aaron George, Account Manager at CVP, comments, “Very interesting times and for the first time in my life I have to agree with Yev. Primes are still the go-to! You would think that zooms would be key at this time, but perhaps due to lack of Full Frame zooms available in the market and the abundance of Super35 zooms, this hasn't been reflected in sales.

I certainly know that Tribe7 lenses have been requested left, right and centre, but due to demand, they seem to be the unicorn that everyone wants to ride but only few can. I think the next few months will divulge the details about the current market as bigger productions start to head back into principal photography. On a side note, remote wheels have come out of the woodwork.”

Jon Fry, Sales Director at CVP says, “I think the rationale for zooms makes a lot of sense. As you pointed out, I predicted that there would be a resurgence for zooms this year and COVID-19 only made that seem more likely. But, it is fair to say that sales haven't recognized that yet.

“Maybe the requirement for zooms hasn't yet rippled through to sales and there is enough existing glass in the hire facilities to meet demand today. But, as more and more production returns, it is possible that will result in increased sales of zooms in the coming months. It is taking a while for higher-end production to return in anger and I think this is why we're still not recognising significant sales of new primes or zooms yet.

“As Yev has already indicated, we are getting a feeling that is going to be short lived as kit is now in reasonable demand again. It is fair to say that a lot of companies and individuals who had no intention of purchasing any new kit this year are already placing orders for new gear to meet increasing demand.

“I agree with Yev: this is now the time for pre-owned lenses. As with any market (not just the film industry), used assets always become popular during difficult times as money is moved around. Some customers want to reduce their overhead. By removing an asset finance agreement, it reduces monthly outgoings. Others may see it as a time to invest, so we have put a few little schemes in place to facilitate this requirement (through selling on consignment or trading in equipment and reselling with warranties and finance where required). I would imagine there will be plenty more of this to come and our hope is that CVP can be a “safe pair of hands” for these transactions.

“Let's take some bets and predictions now for next year, Jon.”

The other JF on the line, Jon Fauer, takes the bait to bet, “OK, bets are on. And what better place to bet than with you CVP characters rather than going broke at Ladbrokes.”

FDTimes wagers with CVP:

- Full Frame zooms will prevail (when more appear.)
- Primes will remain a holy unicorn. (I'd like to ride a unicorn, Aaron.)
- You will sell more long prime lenses than wide.
- Remote heads and wheels will fly off your shelves. DJI, ARRI, Servicevision, Loumasystems, A&C and others should ramp up and make many more affordable systems to remote control the camera not only on set but also from far away.
- I guess winner buys and drinks drinks. Cheers.

Jon Fry answers, “That's a strong betting list, Jon. I'm struggling to find an argument. You might have to get that credit card out.

Speaking of CVP, the next edition of FDTimes will publish a history of the company and a look at the business of their business.

New Equipment Keeps Coming

Meanwhile, new cameras, lenses and things arrived at an amazing pace. Many were planned in product cycles five or more years ago. If there's a common theme, it's higher resolution, improved image quality, lighter, smaller, faster, and sometimes cheaper. Some of those products are presented here along with lots of good discussion of how to work safely in the coming days. Stay safe.



The Great is a bawdy farce streaming on Hulu, with Elle Fanning as the Empress of Russia and Nicholas Hoult as the Emperor. John Brawley was the cinematographer on 5 of the 10 episodes.

Jon Fauer: *The Great* looked great. “Huzzah,” as they often exclaim in the show. Would you please give us some background.

John Brawley: I appreciate that. We wanted to say to the audience, “This is not your normal costume drama, this is something else.”

Tony McNamara, the creator, writer and producer, would often say, “It’s not a historical drama. It’s punk history, it’s anti-history.”

It even says at the beginning, “An occasionally true story.” And that’s really to take away your expectation that what we’re doing is telling anything close to a historical version of the truth.

Tony McNamara was also writer and producer of *The Favorite*. *The Great* might be pitched as *The Favorite* meets *Animal House*?

Tony described *The Great* as being about a woman who wakes up and realizes that she’s in a really bad marriage. And she’s living in something like an apartment block, which is what the palace is, with all the neighbors knowing her business and getting involved in it. That was the metaphor.

The idea is that this is like a frat house or a share house. It’s in bad condition. He told the set dressers, “There should be more broken stuff on the floor. There’s got to be more graffiti on the walls.” Yes it was a royal palace, but it was run poorly, it wasn’t kept well. There were food scraps in the corner.

He wanted it to be truthful even though it wasn’t factually correct. It was an attempt at an honest approach on what it was, not glamorizing it. Many of these period shows have perfect costumes and perfect staging. We wanted the imperfections, the rawness, rough looking, a bit haphazard and unplanned. That was some of the logic to it.

As an example of those imperfections, if you look at Count Orlo’s glasses, they’re crooked on his face; they’re not perfect frames.

We tried to be contemporary in the way we shot it, and the way we covered it. We wanted it to feel like you’re watching a contemporary show, but it just so happens that they’re wearing all these big, flowy dresses and they’re in a grand palace.

One of our unofficial rules was very few crane shots. There aren’t many big, swoopy moves compared to most costume dramas. We did not fill the sets up with smoke. In fact, we decided not to have hazy interiors. Admittedly, there’s a bit of natural atmosphere that happens because we’ve got 150 candles in the room, but we didn’t add any atmosphere to whatever was there naturally.

We’ll get to candles in a few minutes. But first, what camera and lenses did you use?

We shot with ARRI ALEXA SXT and Blackmagic URSA Mini Pro 4.6K G2 cameras, with Cooke S5/i and ZEISS Super Speed lenses.

The Great is a satirical piece. It’s kind of anti-history. Tony McNamara, the show runner, wanted something light in treatment. Not just in terms of visuals, but overall tone, which is really important. This is the fourth show I’ve done with Tony. He’s Australian, as well.

We talked about exploring options, cameras and lenses. Cooke S5/i are interesting lenses. It took me a while to get a grip on where they worked really well. For the first two weeks, I was shooting at about T2.8. But then, I realized that I was shooting wide open at T1.4 with the actor about six feet away from the lens. All of a sudden, something magical happened. Unfortunately for my focus pullers, I was now mostly shooting wide open, no matter which focal length. The Cooke S5/i looked fantastic at that sweet spot.

Were you shooting RAW on the ALEXA SXT and the URSA Mini Pro 4.6K G2?

Yes. We shot ALEXA SXT 3.4K ARRIRAW, framing 2:1 aspect ratio. On the URSA Mini Pro 4.6K G2, we shot Blackmagic RAW. But it was shot full sensor 4.6K, 2:1 aspect ratio, at 3:1 Constant



Bitrate, which is their highest quality encoding. I would say that about 70% of the show is ALEXA SXT and 30% was the URSA Mini Pro 4.6K G2, or the G2 as I would call it.

When did you shoot with which camera?

The ALEXA SXT was for what I'd call our regular, vanilla coverage where we shot the scene as blocked and staged. While the SXT takes were going down, I was observing the action, what the actors were doing, and I made a checklist of the action.

Then, we would shoot what I called our seasoning or condiments pass with the G2. It was for the less conventional coverage because the camera is so small. Essentially, we shot free-form, for want of a better word. It was like visual jazz or improvised operating.

If you do it at the end of the ALEXA SXT takes, when the actors have already expended themselves, they tend to throw it away a little bit more and you can get very loose. Interesting things can happen. We'd run a couple of takes and I would jokingly say to the actors, "I'll go to whatever's good. If you're interesting in this take, I'll be on you." I tried to make it a bit competitive with them. They actually started performing to camera. It gives you a very hyper-subjective style of coverage. It's very effective when you want to try and show if a character's going through some internal process. It gives you great transparency and insight into what the character's thinking. There are several charged moments. It's a great way for the editor to cut to a shot that will give you that energy.

Sometimes I'd stop and start within the take to get 14 different shots in a very short amount of time. They do not look like regular TV coverage. They're very unconventional shots that you'd never have time to set up specially, but I can find them very quickly in the moment by being able to move the camera around. Because the G2 camera is so small and light, I can use the built-in monitor screen and flip or tilt it up and down and move it around. I can get a huge variety of shots.

When I was in the United States on previous shows, the American crew nicknamed it "the Football" because it's almost shaped that

way and I carry it under my arm as you would carry a football. The actors enjoy doing a "Football" pass because they know that they can play to the camera. It's a lot like having an audience. They're aware of where the camera is. The camera operator becomes part of the performance. It's an interesting way to get unique coverage. What I love is it's very quick. It doesn't cost you any extra time and it gives you extra shot variety. Some of the most important shots in the whole show are shot with the G2. The camera is inexpensive but it does produce amazing results.

In short, the idea is to provide overlapping coverage. We would shoot the scene in a regular way with the SXT, and then we'd go back and overlap the coverage with the G2. Then the editor could choose to use it or not. It often works and has great energy about it when you use it. We had no issues inter-cutting. It's pretty seamless. Most people can't tell how many and which shots are which.

Can you give us some examples?

Certainly in the episodes I shot (*The Beard*, *War and Vomit*, *Parachute*, *Love Hurts* and *The Beaver's Nose*), most handheld close-ups were probably shot with the "Football" pass using the G2. Many of the very important hero close ups on Elle were shot that way. At the end of *Parachute*, Episode 6, there is a good example where Peter says, "Science," and throws the dog off the balcony with a parachute.

It's actually the last shot of the show and that is a "Football" shot. When the dog and parachute land safely, Elle yells, "The future is bright. Huzzah!"

Huzzah! What lenses did you use with the "Football" G2?

I have some old ZEISS T1.3 Super Speeds, which I like because they're so physically small.

The matching seems seamless between cameras and lenses.

John Brawley:

I'm amazed as well. There are some scenes that were entirely shot with the "Football" G2. Early in Episode 2, where the Empress is



Photo © John Brawley / MRC Television

trying to seduce Count Orlo with oysters and she gets sick, almost all of that is shot with the “Football” G2. We had a lot to do that day and it ended up being faster to keep working handheld with quick resets.

How did you light the interior scenes with all those candles?

This was the first HDR show that I have done. I spent a lot of time with our colorist, Paul Staples at Encore in London. He graded with DaVinci Resolve Studio, by the way.

I was trying to work out how to monitor on set. I’m not a big fan of the big DIT tent. And HDR monitoring is tricky in the field because I have not seen small, onboard HDR monitors. There are high brightness monitors, but I find they’re not giving me a true sense of the image precision that you get with the HDR image. One thing I realized quickly was that, although you’re seeing a lot of candles in the show, trying to keep them looking good and looking bright in HDR was actually quite tricky.

I ended up using a top-down approach. I’d use the candle flames to set my base exposure. As long as those candles in shot weren’t clipping, or near clipping, everything else fell into place below that. So, the candle flames had a nice orange glow most of the time as opposed to burning out to white. They still retained subtle skin tones and shadow detail. What’s great about HDR is all the complexity in the mid tones as well.

Did you light with lights or candles?

I knew there would be many candles in shot, so we ended up using a lot of candles as practical lighting. We had double and triple wick candles. I think we went through 100,000 candles over the course of the show, would you believe?

I guess because the UK produces many period shows, I didn’t even have to ask for double and triple wick candles. The British art department simply presented their choices, “Here are the single wick candles, the double wick candles, and the triple wicks.” I

tested them, but they knew from experience that I’d want a mix. We ended up using the doubles most of the time in shot. They were more realistic.

The triple wick candles tended to appear crazy on camera. They looked like you had a giant bonfire going. I saved the triples for off-camera lighting. But they sometimes flickered weirdly.

Production even had a candle stick maker. The lead-time was about eight weeks and we definitely went through a lot of candles. A lot of candle power was going on in these candle-lit sets.

I also used candles even out of shot because some of the characters have glasses and you see the reflections.

Tell us more about the candles that you were using as lighting sources, not in the shot.

We had some film-friendly candles with double and triple wicks that we could place near camera. It felt to me very authentic as a way of lighting. And sometimes I put silver reflectors behind them to project a bit more and increase the light level. An example of where candle reflectors were needed was in one of our location interiors. Four British Heritage people were watching every move we made. We were only allowed to have six candles lit at any one time.

Sometimes we had a few Astera tubes with a candle flame effect cycling on them. But they don’t quite look the same, especially if you look in someone’s eyes and you can see the reflection of the tube’s clean vertical line. It’s much nicer to see candle flames in the reflection.

I also used a lot of tungsten lighting. Most of the show, other than the pilot, from episode 2 to 10, was shot in sets on stage. Although we traveled to Italy for exteriors in Caserta, a giant palace south of Naples, even those interiors were shot on stage at Three Mills, in London. We used a lot of tungsten lighting fixtures because they look so beautiful for skin tones. LED lights are great, but when it



Photo: Ollie Upton © Hulu

comes to skin tones and beauty, I find they can have a kind of pallidness. I generally prefer to use straight tungsten. You might call it vintage or primitive lighting: T12s and 20Ks, and Maxi Brute 9-lights and 12-lights with 1K tungsten bulbs in there.

My favorite LED light is the DMG Lumiere from ROSCO. They've got a very good spectral emission, are light weight and versatile. Jean de Montgrand at DMG explained that they have six types of LEDs inside: Red, Lime, Green, Blue, Amber and White. That's why their color is so nice and I find them to be really good.

Between the candles and tungsten, it felt very old fashioned. Maybe for season two, I should try and drag out some brute arcs and use them as well.

So far, my excellent gaffer Lee Knight has gone with me on my predilection for tungsten over LED and HMI but I'm pretty sure he might draw the line at arcs!

Your lighting was elegant and dramatic. It complemented the story beautifully. It did not look like comedy, or should I say, satire lighting.

Thank you. Traditionally, comedy lighting tends to be brighter and higher key and not as dramatic. Tony didn't want that. While he didn't want *Game of Thrones* dark lighting, he didn't want it to be tennis court lighting either. We still wanted to treat it like a drama. I had never thought of it as a comedy show. I knew that absurd things happened but it was never written for laughs in terms of slapstick, punch line or rim-shot gags. It was written as drama that has absurd moments of insanity that are funny in retrospect.

But really, we never tried to make it a funny show. Tony is a brilliant writer. There's a great rhythm. It's almost Shakespearean.

Tell us more about matching ALEXA with G2.

The looks, colors and dynamic range of both cameras were quite similar. They matched very easily, with not much tweaking required. In pre-production, we worked up a whole lot of tests to

create the look of the show with the showrunner and the producers. We talked about what it should look like and we distilled that into a look, as embodied by a LUT. There is a daytime version and a night version of that look.

Then we made a LUT for each camera: one for the ALEXA and another for the G2 so they both matched. When it went into the edit, everything looked seamless.

Certainly there were visual differences because of the way the cameras were operated: one was handheld and the other usually was not. In the final grading, we tried as much as possible to match to the dailies. We got very close in the final grade, and usually I could only tell by looking at the style of shot it was. Sometimes you could see slight differences in resolution, but that was the only difference.

Filters on the lens?

I used some very light Schneider Black Frost filters, $\frac{1}{8}$ and $\frac{1}{4}$ depending on focal length. This minimal amount of diffusion on both cameras was just to take a little bit of the edge off. As you know, Elle is amazing, she used barely any makeup, which again was a very brave choice that she made. Most of the cast also had very little makeup. Of course, they have big wigs and hair pieces.

Were you viewing on set with HDR monitors?

At one point, we looked into getting some consumer HDR televisions and turn those into a village. But it seemed clumsy and not very agile. In the end, the village didn't need to watch in HDR. It felt like shooting film.

The on-set monitor was like the workprint. You understood what it would look like in the final grade as long as you were careful in terms of exposure. You didn't have to see it in dailies to understand that it would be transformed and more beautiful than what you saw on set, because that was the process. I didn't fret about it. I knew that as long as I didn't over-expose, I was pretty safe. As mentioned earlier, I was often exposing to the candle flame il-



L-R, above: Director Geeta V. Patel, Writer/Producer Tony McNamara; and DP John Brawley. Photos: Andrea Pirrello © Hulu

lumination levels. With HDR, I tended to protect the highlights more, letting everything else fall below that, and trusting that the dynamic range of the camera, whether ALEXA or G2, would be able to lift those areas back up. And they did. I thought it worked well as an approach.

Did you operate yourself?

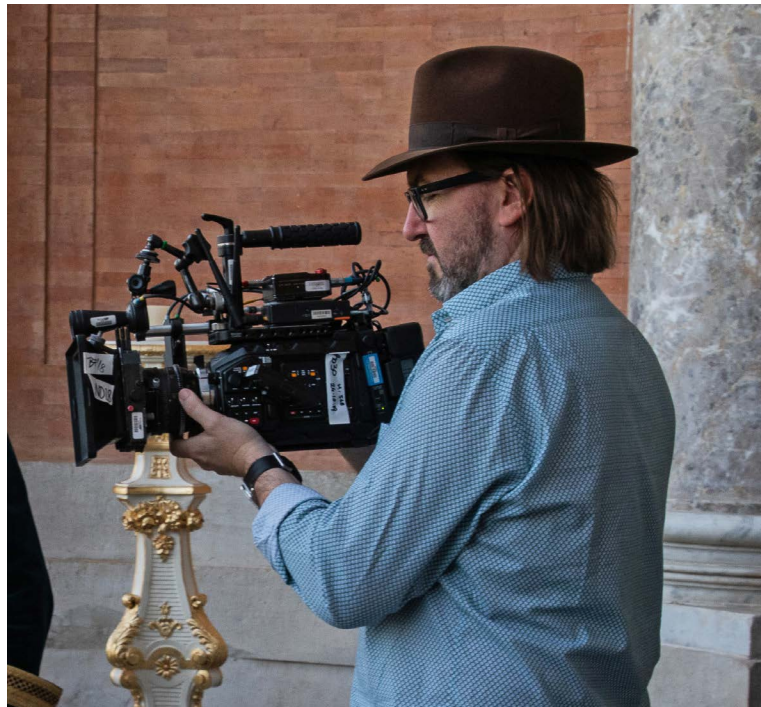
Usually only the “Football” shots with the G2. We had two wonderful operators, Jessica Clarke-Nash as our B-camera Operator, and James Layton on A-camera and Steadicam. So, I would sometimes come in at the end with the G2, but only because it’s very improvisational and driven by performance, with the cues and timing coming off the actors. The other operators could do it but it was something I enjoyed doing myself to dip my hand in it, so to speak.

I was using the built-in monitor of the G2 camera. That’s what makes it so cool, because the camera’s really tiny and, like a Handy cam, you can hold the camera with one hand. It’s light enough that, for example, I could look straight down on a table and if I held the monitor with the other hand, I could pivot the camera and look straight up. That could happen in shot, which was a very flexible way of shooting.

If you add in the fact that I could swing my arms around, or crouch down low and then hold it high above my head, you got a lot of shot and lensing variety by being able to move around so freely. The camera is not stuck on your shoulder. That is why this style of coverage was kind of unique.

I vaguely remember you were born in New York.

The backstory is my mum was a hippy. She was in New York in the late '60s and the early '70s, and went to Woodstock. I was of product of that era and I was born there. Then my mum ended up going back to New Zealand when I was about 12 months old, so I grew up in New Zealand until I was about five, and then we moved to Australia after that. So, I identify as Australian but technically I’m an American.



A child of Woodstock. Far out.

Haha, definitely she would say that. I’ve got great pictures of my mum sitting in trees at Woodstock and hanging out. She was the real deal.

And how did you get into film?

Photography was always something that was very interesting to me as a kid growing up. It was the first hobby I found where I didn’t get bored because it was a great way to combine other interests as well.

I started doing photography when I was very young, I had a great art teacher in primary school. He taught me to take stills, how to print and process black and white film.

I grew up mostly in Melbourne. I did a lot of photography when I was a kid and I loved what a camera could do. At that time, the first Gulf War was happening. There were a lot of protests and I could use my camera to get access. I was also doing live music photography. I was in pubs, shooting bands. I was underage. I wasn’t even meant to be in there because I was 15 years old, taking photos of bands late at night and during the day when I was supposed to be at school. Half the time, the bands were my music teachers.

At university, I started in media and photography. But, it had a cinematography component and I was hooked at that point. I shot some film on an ARRI ST and became addicted to the moving image at that point. So, that’s where it began.

Cinematography is a great combination of science and technical knowledge in the service of a creative outcomes. It is endlessly fascinating to me and continues to give me great joy.

This has been a fascinating talk. Great work. Huzzah.

Huzzah. That’s right. We were all hoping that we’d get some vodka glasses at the wrap party so we could smash them and all say, “Huzzah.”

Paul Staples on Grading *The Great*



Photo © John Brawley
/ MRC Television

Paul Staples, colorist at *Encore in London*, comments:

John and I worked on setting LUTs during prep. I loaded the ARRI and G2 Raw test files into a DaVinci Colour Managed project, took stills, then repeated the process into a non DaVinci Colour Managed project timeline and matched them to the DaVinci Colour Managed project stills. The show project was UHD Dolby Vision HDR P3 at 23.98 fps.

We used DaVinci Colour Managed colour science which is within the DaVinci Resolve Studio software. I then produced LUTs for both cameras that would be used on set and in editorial. When it came to the grade, we worked in a DaVinci Colour Managed project and I pasted a saved correction node which contained all the

parameters to match. This worked extremely well, and brought the two cameras within a hair's breadth, giving me continuity across the timeline. With the help of DaVinci Resolve Studio's collaboration mode, this could be looked after in pre-grade, which really helped as the shows had a very tight turnaround schedule.

In the grade, we used a pared-down HDR show LUT. This was only a base to get continuity across the timeline. I wanted maximum flexibility to bring the nuances of the work out and not suffocate it with a heavy aggressive look straight out the box, and also to still maintain a look continuity conducive to the showrunner's brief and, of course, the look that series DP John Brawley sought.



Photo © Hulu /
MRC Television

John Brawley and The Great New 12K Camera



Photo by Jessica Clarke-Nash.

July 16, 2020. Melbourne, Australia. Grant Petty introduced the latest Blackmagic Design URSA Mini Pro 12K. It has a 12,288 x 6,480 12K Super35 image sensor, 14 stops of dynamic range, and shoots up to 60 fps in 12K at 80 megapixels per frame as well as 8K up to 110 fps, and 4K DCI full sensor up to 110 fps.

Grant said that Blackmagic Design was aiming for the high end with this affordable camera. “It’s not just the 12K sensor, but so many other innovations...Generation 5 Color Science, in-sensor scaling, new symmetrical color pattern and 12K resolution. It’s going to be exciting to see what cinematographers do creatively with this technology.”

One of the first cinematographers to try it was *The Great John Brawley*. His demo footage showed silky smooth skin tones, gorgeous color and low to no noise. (vimeo.com/436209544). Brawley said, “The picture quality is fantastic. And the 12K Blackmagic RAW footage that I showed you was cut on my 2017 MacBook Pro with a standard drive.”

12K Super35

The sensor is 27.033 mm wide x 14.246 mm high. The pixel pitch is not published yet, but if you divide 27.03 by 12,288, you get approximately 2.2 microns. That’s tiny, and yet the URSA Mini Pro 12K has 14 stops of dynamic range and a native ISO of 800. How do they do this?

The sensor does not have a typical Bayer pattern. Grant called it a symmetrical sensor pattern. John Brawley writes, in his *Ramblings of a Cinematographer* blog, “Blackmagic’s 12K sensor uses a brand new custom filter array that has an equal number of red green and blue photosites as well as the addition of clear or ‘white’

photosites. It’s like HDR images can be created by combining two brightness values, so we can now combine the brightness and extra sensitivity of the W photosites along with the color pixels to get an extended dynamic range, helping to overcome the issue of making these new better pixels so much smaller.

“Normally reducing the pixel size to be so small means the light sensitivity is sacrificed, but this is more than compensated for by using the unfiltered W pixels. By combining the brightness values of those W photosites with the colored photosites, it also greatly increases the dynamic range compared to a standard Bayer array.” (johnbrawley.wordpress.com)

Brawley clearly has a Melbourne origin home-team advantage and impunity when he continues, “The 12K camera is a result of three years of work on a custom sensor design. Think about that for a moment. BMD threw millions of dollars at developing their own 12K sensor three years ago, from scratch, when you would struggle to even get 8K. Somehow they managed to keep this a secret for all that time. While BMD have highly customized and adapted other sensors previously, this is the first sensor that BMD have designed completely from scratch with their own IP and design... and I think shows their ongoing maturation as an imaging company.”

So, Blackmagic Design designs the 12K sensor, builds the camera, implements Blackmagic 12-bit RAW and drives DaVinci Resolve. That’s pretty much the entire imaging food chain within their grasp. That’s compelling.

Another nice thing about the sensor is that you can scale the image from 12K to 8K or 4K without cropping or binning. You can shoot the same scene with the same lens and field of view.

URSA Mini Pro 12K



composite rendering



If it's windowing one wants, dust off those cherished Super16 lenses and shoot in Super16 format at 6K up to 120 fps or 4K up to 220 fps.

The camera comes with a PL mount. You can swap it with optional EF or F mounts. There are built-in ND filters, CFast and UHS-II SD media slots. The USB-C connector, with 10 Gb/s data rate, lets you attach an SSD or NVMe drive. The BNC connector at the front camera right side provides HD SDI (up to 3G) and the rear BNC provides 4K SDI (up to 12G) output.

Bob Caniglia, Blackmagic Design Director of Sales Operations, North America, explained efficiencies of 12K: "On its own, 12K is obviously a huge number. In order to shoot 12K or 8K or any of these larger formats, you truly need to be able to use it. One of the challenges set out from the start of this project was to be able to have hardware over-sampling to make 8K files or 4K files from the 12K files, but to be able to do it without requiring a supercomputer.

"It was a combination of our managing the color science, having Blackmagic RAW, developing the sensor and having DaVinci Resolve Studio (included with the camera) on the back end to deal with the files. For example, this camera enables you to shoot 12K plates for VFX. For 8K or 4K, the camera does in-camera hardware scaling. And, if you're shooting vertical video, you get a 6K vertical format.

"The UI is familiar to users of our other cameras. There's constant quality and constant bit rate.

"**Constant bit rate** is a defined compression of 5:1, 8:1, 12:1 or 18:1. The bit rates vary. 12K 5:1 at 24 fps is close to 600 megabits

per second. 18:1 in 12K at 24 fps gets it down to 160 megabits per second.

"**Constant quality** choices are Q0, Q1, Q3 and Q5. It means shooting with the best quality and varying the compression depending on the scene. If I'm filming you in front of a blank wall, it can use a lot more compression to compress those areas because there's nothing else going on in the background. Whereas, if you were running down a street, it would require less compression to get that quality because there's a lot more fine detail.

"In Q0, the highest quality, your bit-rate could be anywhere from 241 megabits per second to 578 which is compression of anywhere from about 5:1 to 12:1, depending on the scene. When you get to Q5, that's constant quality with the most compression, anywhere from 72 to 180 megabits per second."

BLACKMAGIC URSA Mini Pro 12K Summary

- 12,288 x 6480 12K Super35 sensor.
- 14 stops of dynamic range and native 800 ISO.
- Real-time Blackmagic RAW 12K editing.
- Up to 60 fps in 12K, 110 fps in 8K, and 220 fps in 4K.
- Dual card CFast recording at up to 900MB/s.
- PL mount included; EF and F mounts available.
- USB-C for recording up to 10 Gb/s to external disks.
- Includes DaVinci Resolve Studio for post production.
- Compatible with new Blackmagic URSA Mini Recorder.
- 5.92" W x 9.2" L x 5.78" H; 5.62 lb.
- Blackmagic URSA Mini Pro 12K will be available soon for around US \$9,995, excluding duties or tax, from Blackmagic Design resellers worldwide.



Nicol Verheem with Teradek Mask and new SmallHD 4K Monitor.

This conversation was conducted via Zoom with Nicol Verheem, Founder & CEO of Teradek and CEO of Creative Solutions. My questions have been cut out and what follows is a monologue by Nicol Verheem.

Getting back to work

I'd like to make the case that getting back to work in the media industry, and maybe in Hollywood specifically, is very important for all of us to prevent a landslide change that could permanently damage the industry that we know and love and are part of.

Certainly, you have to walk a fine line and balance human lives. It's not just economic interests. I do see a few outcomes in which we can make a difference as a group. We may even become stronger as a result and play a larger role in society. I also see some outcomes where, if we don't act appropriately, 2019 will be remembered as having been the heyday of content and it will never come back. It's not a pessimistic message. It's actually a message of hope. I think we can do it.

Let's look at how we see life changing. There is less travel. You and I often meet at trade shows in various places around the world. Ask yourself, what is the likelihood that you'll go to NAB 2021? Even though it's a long way off, it's very unlikely even seasoned travelers like you and I will feel comfortable sitting in a tin can at 30,000 feet with 200 other people, half of whom might refuse to wear masks. I think travel will be affected for quite a while for the same reasons as big sports and live events. Probably dining indoors, another one of our favorite things, will have to wait.

Entertainment Methods will Change

Our entertainment methods will change. They might be impacted for quite a while. These are some of our escape mechanisms or

coping devices. If all of those mechanisms of entertainment are not attractive anymore or not even possible, I think people will rely heavily on television, home media entertainment, online movies and streaming shows. This is going to be one of the few things that we can escape to.

If we can't travel, can't eat out, can't watch sports, how are we going to cope with life? If we have to work from home every day for the rest of our lives, just sitting and looking at Zoom meetings, we'll all go nuts. We might think the entertainment industry is a luxury but it's actually a very important part of humanity. It's an escape but it's also a way for us to relate to each other, to have hope, to tell stories and share moments, whether it's sadness or happiness. It's an important part of what humanity is about: to keep perspective and hope and still relate to life through some entertainment.

Theaters

Second point, related but different: theaters are also important. I want to highlight the difference between theaters and TV. A theater still allows you to get out and escape your reality. You sit in a darkened room and once everybody's popcorn is finished, you become immersed in the movie. It's not just IMAX or 3D. Even a normal movie is very different than watching in your living room with the kids walking by, the dog barking or the neighbor's leaf blower blasting. It's a more efficient escape from reality. That's why people love it.

What's important to note is that the theatrical release window has been highly optimized economically over many decades to provide the maximum return on investment that a media company can get. If you make a \$100 million movie, you need many hundreds of theaters globally to show it over and over again so that

Nicol Verheem, cont'd

you can get a good return on investment or even just to break even. If you have a \$100 million production budget, then you probably have an additional \$100 million promotion and distribution budget. That means you have to make more than \$500 million just to break even. A lot of that revenue is dependent on the theatrical release, the first pay window. It's subsidized to some degree by \$20 popcorn sales. That \$20 popcorn in reality has paid for a lot of jobs in Hollywood over the years.

To me, it's important that theaters prevail and thrive. But I can also see, by the same arguments we made earlier about travel and dining, that theaters will have a very hard time.

One of my recent favorite memories was watching *Ford v Ferrari* with my 12-year-old son. I can remember walking out and he said, "First off, that was a really good movie. And second, when can we come back and see it again?" I had already ordered it for home viewing but he wanted to see it in the theater again. It is a different experience.

Hollywood and the media industry are dependent on theaters. I want to see them survive and thrive, because the danger is that we are now consuming almost all of our content on the streaming platforms or normal television. I don't want to talk too much about cable cutters but it's clear that trend is not going to go away.

Streaming: Everybody gets a medal

Cable cutting will increase, linear television will continue its demise and advertising on television will decrease. "Streaming wars" is a misnomer. It's more like an AYSO soccer game or a Little League baseball game where everybody gets a medal. Anyone who shows up wins because all you need is a server in the cloud and some original content and then you get to make \$10 a month per person. There is an insatiable appetite for more content. You'll benefit as long as you crank out content, get subscriptions and all you have to do is show up on the internet, not via a cable or satellite box.

However, the economics of a subscription model do not quite add up to the economics of a theatrical release. Maybe there will be a hybrid model of a \$20 on-demand premiere release in addition to the regular subscription. But that hasn't been fully realized.

Right now, we are happy that Netflix, Amazon, Disney, Hulu and a few others have achieved what they did. But the problem is that people are consuming more content than ever. I have data that says people are watching 40 to 50% more content than before COVID-19, which makes sense. There's almost no sports and many are fed up with news and even politics. And so we're watching more entertainment.

My concern is that if the catalog of original content is completely consumed, if there's just nothing left that's worth watching or watching twice, what will people do at that point? They're either going to watch TikTok, YouTube, Quibi or Instagram.

Who knows, reading might make a comeback. Lego is certainly having a moment with kids.

More stories to be told

But for all of that to happen, we must get productions to reopen again. And this is where the message becomes one not of doom

Teradek BOLT 4K MAX Transmitter (l) and Receiver (r).



Teradek SERV PRO front and rear views.



and gloom but one of hope. I believe there are more stories to tell and there is a more receptive audience than ever. We must figure out how to reopen studios, sets and locations and to produce more content while staying safe.

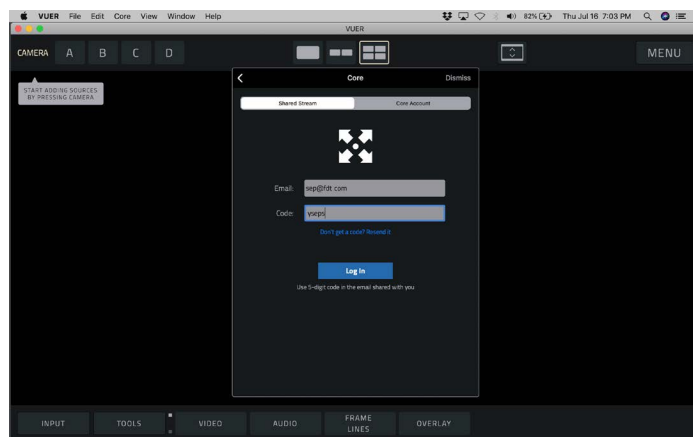
I'm sure there will be some changes in how content is made. I've seen some media companies say it was fun making Zoom calls into an episode on Saturday Night Live or to shoot a movie on an iPhone. It was a fun experiment but we don't really want to watch those forever. We don't want that to be the new normal. We want to revert back to the way we used to make content. It was beautiful and long-lasting.

Wireless Video

So how can we all achieve that? One of the things, and I don't want to sound self-serving, is wireless video. It is going to play an important role in this reopening. Certainly, if you were a drone operator on a major production, you used some form of wireless video and that was a necessity. But, in many cases on many sets, wireless video was a convenience, maybe even a luxury. Now it's going to become a necessity because we're going to have to minimize the number of crew in proximity to the cast. Because if the star of a movie gets sick, they're not going to shoot that movie. So, you must limit the amount of risk by limiting the exposure.

Teradek BOLT

You have to remove the crew physically. You also have to change the vectors between crew members on set. It's not only about protecting the cast, it's also about protecting the crew. We must disperse the crew over a larger area. Very simply, it's all about social distancing. A lot of our Teradek BOLT products have been used on movies with A and B cameras. There was a wireless transmitter



Log in to Core from the VUER app, shown here on a MacBook Pro.

on each camera. The video was streamed to two monitors, each connected to a BOLT receiver. A large number of crew would congregate in video village to watch those monitors: Director, Producers, DP, script supervisor, and so on.

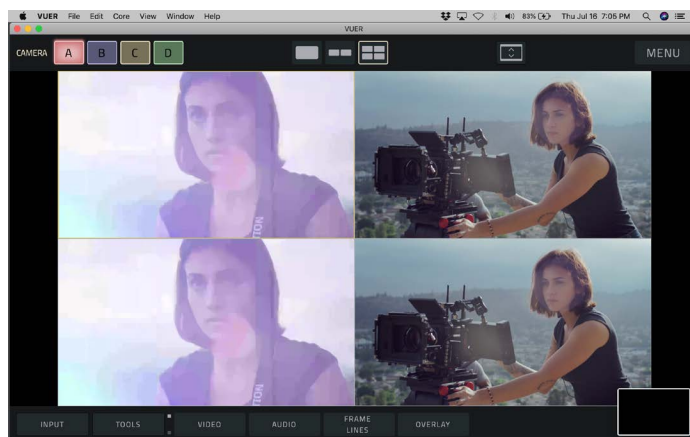
Video village is now pretty much a no-go. But it's not a problem that cannot be solved. We can have multiple mini-video villages spread across a much larger area. The wireless technology these days allows for that. We can send video from one BOLT transmitter to up to six BOLT receivers. Our latest BOLT 4K not only transmits 4K HDR but also allows you to have more receivers, with higher reliability, greater signal strength, and higher security.

Teradek Serv Pro

Many people use our little blue box, the Teradek Serv Pro. It was originally intended for users who do not need to see a zero-delay uncompressed feed on their monitor. Serv Pro is quite different than BOLT. It's not a proprietary point-to-point system. It's a standards-based WiFi transmitter system. We can stream to any iOS or Android device. For example, a boom operator who just wants to see that the microphone is not in frame, makeup, hair, props, art department, wardrobe, continuity and production departments all can watch the shot on an iPad, tablet or phone rather than on the monitor in video village.

There are many Serv Pros out there; it's a pretty popular product. We made an important addition because of COVID-19. We added remote monitoring capability. You connect the Serv Pro (with a free firmware update) to the internet using our CORE cloud-based streaming management service. Again, it's standards-based. That means it has H.264 compression and we're sending the video over a standard TCP/IP interface. It could be wired internet or it could be WiFi. Because it's on a network, we can connect Serv Pro to the cloud and then reach customers remotely via that cloud. Users watch the stream on VUER, which is the name of our free app for iOS or Android. As long as you can connect your iPad to the cloud, no matter where you are, and the camera's HDMI or SDI output is connected to the Serv Pro on set and that is connected to the internet, you can remotely view from one to four cameras on your iPad's VUER screen in very high quality.

VUER has all the tools that a typical SmallHD monitor has: frame lines, crosshairs, aspect ratio choices and all the tools necessary to compose, expose and focus.



VUER shows 1, 2 or 4 streams from 1 to 4 cameras, seen here on Mac Pro.

Since it is web-based, we handle security with two-factor authentication. I send the person who wants to see my stream an email with a unique authentication code. Those streams remain completely under my control. I can see who's actually dialed in to watch the stream and I can revoke that privilege at any given time. For example, I can send the A camera stream to a lot of people but send B camera to only to a few, such as the Director and DP. Or I can stream to 10 people starting exactly at 10 o'clock and I'm going to turn the stream off at 10:30.

This is all part of the Serv Pro (hardware), Core (service) and VUER (app) ecosystem now. And it has now created a completely new paradigm for remote monitoring.

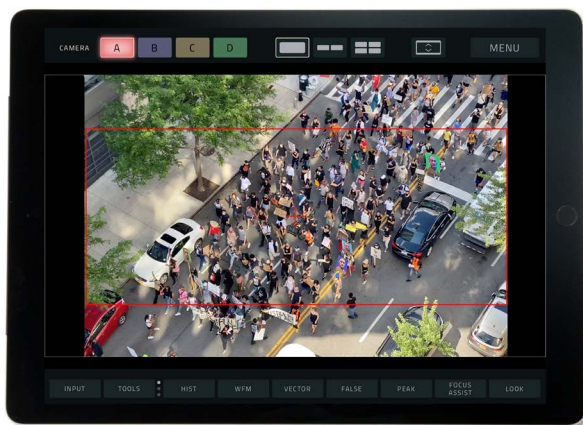
BOLT and Serv Pro Hybrid System

You can also have a nice hybrid for near-set monitoring. Everybody knows Teradek for on-set monitoring using a BOLT Tx (transmitter) and Rx (receiver) on the same soundstage or studio. Because crew may now be separated, we might have Stage 17 reserved for the cast and camera operator. The focus puller and director might be immediately next door on smaller Stage 18, all with remote control capability. They are near the set, but not in the same building. Because they want zero latency, no delay video, they will be using BOLT systems with the longest range.

The rest of the crew could be on the larger Stage 19, nearby. They would be viewing the video with the Serv Pro, Core and VUER system. The delay is about 120 milliseconds, which is 2 to 3 frames if you're shooting at 24 fps.

If you already have a Serv Pro and VUER, you just need to do a firmware update on Serv Pro and then download the newest version of VUER. We also have the VUER app available for free on the Apple App Store for Mac OS on your Mac Pro, iMac, Mac Mini or MacBook. If you're a DIT, now you can actually run the decoding while viewing on a large monitor eg your iMac rather than only on an iPad.

Even cooler is that the app now runs on Apple TV. So, if you have someone viewing remotely—for example, a producer or client who doesn't necessarily need a super bright, robust reference display like one of our new SmallHD 4K Monitors—they can use their home OLED TV connected to an Apple TV device and get a much higher quality viewing experience than Zoom, Skype or other web video conferencing platforms.



Single camera view on iPad with VUER app.



Teradek Hook, Teradek Mask and SmallHD 4K Monitor.

We are working on full support for HDR in the next generation of products, so keep watching this space.

Captain Hook and Masks

In the low-tech-but-useful hardware department, we provide a touchless hook. It's quite strong. I can open a door, lift 100 pounds, carry a case with it. It is made of brass and copper which is antimicrobial. Nothing grows on it. Even if you touch a contaminated surface with the hook, you're very unlikely to pick up any contaminate from touching it afterwards. It is attached to a cool, little lanyard. It comes with a little welcome back card that says we're back in. It's now shipping free with every product that you buy from Creative Solutions—whether it's SmallHD, Teradek or Wooden Camera.

My point is that I think it's necessary for all of us to find the way in which we are going to get back to work. We all strive to develop ways that will enable us to get back to creating great content safely. It could be something really small like a little hook, or Teradek masks or our hardware or software.

My wife started making masks because we couldn't find enough for our teams. She started making hundreds and hundreds at home. They are multi-layer. There's a specific guideline from the CDC on thread count and fabric. Even finding the fabric and the elastic straps was a challenge in these supply chain deficient times.

If we all work together, there's going to be a way that we can get back to creating great content. Great content must prevail and we'll do what we can to facilitate it. I hope that all of our colleagues in the industry feel the same way, recognize the need and the important contribution that everyone can make to open up production wherever it may be. And get back to work.

I'm very thankful that our company managed to survive through this crisis. We kept the factories open and everybody employed. We had an absolute minimum number of people on furlough or part-time work. Most worked from home. Some were in the factories because of products being used in news, which was considered essential.

Post Production

We also see that there's a big opportunity for us to now contribute to post, especially where the client is working from home while

the editor is working elsewhere or the colorist is working in a grading suite. The products that we're working on now will allow you to do HDR compliant content. It's a new product that we have announced, called Prism. It's a 2RU rack mount 4K HEVC video encoder / decoder. We think it will be used by post houses and grading suites for remote collaboration. It would be as if you took your Avid output and connected it to a SmallHD 4K or a Sony or an LG monitor right there. Or, for example, the colorist is grading in the suite, with the director and DP at home or on location. We can basically give you the same experience anywhere at home.

Initially our target market was broadcasters or webcasters. One of our most prominent users is SpaceX. Every single pixel of video of the SpaceX launch was through our Teradek encoders. Teradek Prism will do 10-bit HDR video through Core to an iPad or Apple TV. We worked with several post houses to develop HDR-compliant workflows. We also worked with Technicolor and Netflix.

Content must prevail

Content must prevail. In the past, we had an internal slogan, "We help tell stories."

This has changed by one word and it's an important distinction. It's no longer that we help to tell stories, it's that we make it possible to tell stories in this new environment. In this pandemic, all of us should figure out what can we do. How can we pivot? How can we adopt?"

You shouldn't measure yourself by your product. You should define yourself by this cause. We're all in this together. I'm not a chemist or virologist; I can't cure the disease, but I can help people stay sane by telling stories, by allowing storytellers to tell their stories.

What I hope for our industry is to come back together, to be productive and produce great stories.

I see a role for us and I'm very motivated to do it. I hope everybody else in the industry can pivot and be even stronger so that we can continue to strive forward.

Thanks to Greg Smokler for streaming and explaining 4 camera feeds live via Serv Pro and CORE from Creative Solutions in Burbank to FDTimes in New York. Latency was less than 2 seconds.

SmallHD 4K Monitors



SmallHD OLED 22 in CSLA Studio

Maybe you saw prototypes at IBC or BSC Expo. Now they're here.

SmallHD has a new series of production monitors that address screaming needs: Affordable, 4K, HDR or High Brightness or OLED, Rugged and Lightweight.

Lighting and shooting 4K HDR shows while viewing on HD standard monitors seems sadly comparable to the old days of watching flickering, grainy black & white video tap images at night and the director asks whether you are shooting in color and if the actor will actually be visible in dailies. For focus pullers pulling on a 4K Full Frame show, larger 4K monitors are applauded.

These four new SmallHD 4K monitors can confidently refute a producer's refrain of "Oh, we cannot afford HDR monitors." They raise the bar of confidence on set: what you're shooting in HDR is not an imaginary extrapolation that won't be seen until grading. And they pierce the pushed envelope of increasingly shallow depth of field for focus pullers who can now migrate happily to larger, sharper, higher resolution displays. There are 4 new SmallHD Production Monitors:

- Vision 24 (24" diagonal HDR display)
- Vision 17 (24" diagonal HDR display)
- OLED 22 (22" diagonal True Black display)
- Cine 24 (24" diagonal High Brightness display)

Your only tough choice will be which one to choose. Perhaps the OLED 22 or Vision 24 go to the grading suite, DIT and colorist. The DIT will, of course, also want a Vision 17 for second unit and car shots. Director and DP may watch on the OLED 22 or Vision 24. The Focus Puller can pull off the Cine 24 or Vision 17.

At the rear, all four Monitors have:

- 4x 12G SDI In and 4x 12G SDI Out BNC Connectors
- 1x HDMI In and 1x HDMI Out Connector
- 3-pin XLR 12-34 VDC 12A Input
- Dual-GM/VM Battery Plate (14/26V, sold as accessories)
- 2x 2-pin Lemo 12 VDC (2A total) AKS Power Connectors
- USB-C 5 VDC 1.5A Power Connector

The Monitors are all housed in a rugged, unibody, milled-aluminum chassis with feet. There are 36 individual ¼-20 mounting

points along the top and sides. The top handle is removable and there are 4 VESA mounting threads on the back. Power inputs are hot-swappable between the XLR power connector for a block battery or power supply and an optional slide-on dual battery plate. With choices of Gold Mount or V-Mount, 14V or 26V batteries, the plate slides onto a dovetail Smart Rail at the rear side of the monitor and engages with an integral power connector.

There are two 2-pin Lemo connectors on the back. Of course, you'll want to use one of them to attach a Teradek Bolt 4K zero-delay 4K 10-bit HDR receiver.

SmallHD Vision 24 (24", HDR, 4096x2160)



SmallHD Vision 24 — \$11,999 - available September 2020

HDR: PQ

Resolution: 4096 x 2160 10-bit color

Brightness: 1,000 nits

Contrast: 1,000,000:1

DCI-P3 Color: 115%

Full-Array Local Dimming (FALD) hardware with 2100 zones



SmallHD Vision 24 - rear

SmallHD 4K Monitors, cont'd

SmallHD Vision 17 (17", HDR, 3840x2160)



SmallHD Vision 17 HDR — \$8,999 - available September 2020
HDR: PQ Resolution: 3840 x 2160
8-bit
Brightness: 1,000 nits
Contrast: 1,000,000:1
DCI-P3 Color: 115%
Full-Array Local Dimming (FALD) hardware with 2400 zones

OLED 22 (22", 3840x2160 Reference Monitor)

Greg Smokler, Creative Solutions VP of Product, said, "DITs, DPs, and Colorists have been waiting for what feels like forever to replace their ancient HD OLED monitors," said. "That's why we spent over 2 years building OLED 22, the first lightweight 4K OLED production monitor equipped with a feature set that finally enables critical monitoring of 4K images, both on set and in the grading suite."



SmallHD OLED 22 HDR — \$11,999 - available now
HDR: PQ with True Black
Resolution: 3840 x 2160 10-bit color
Brightness: 350 nits
Contrast: >1,000,000:1
Screen diagonal: 21.6 in / 55 cm
Color gamut: DCI-P3: 100% Rec.709: 135%
Weight: 9.3 lb / 4.2 kg.

SmallHD Cine 24 (24" High Bright, 3840x2160)

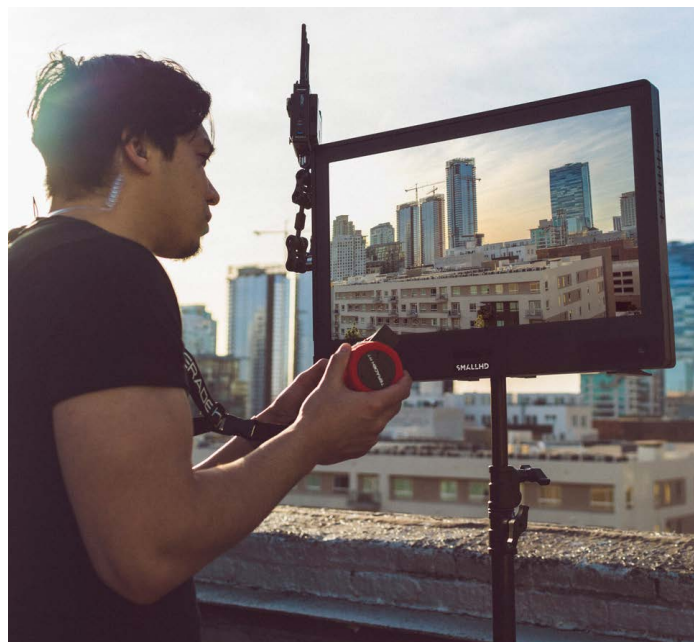


SmallHD Cine 24 High Bright — \$5499 - available now
Resolution: 3840 x 2160
10-bit (8+2 via Framerate Conversion)
Brightness: 1,350 nits
Contrast: 1000:1
DCI-P3 Color: 100%

These 4K Production Monitors run on SmallHD's proprietary PageOS 4 software and User Interface. PageOS 4 provides Color Pipe color-calibration that accurately converts log formats into SDR and HDR. PageOS 4 includes significant upgrades over previous PageOS software, including user page presets, 4K HDR (PQ) waveforms, improved false color, easy calibration and more.

The four new SmallHD 4K Monitors are currently available at special, limited-time introductory pricing.

smallhd/4k.com



SmallHD Cine 24 with Teradek Bolt 4K Receiver

Canon EOS R5 and EOS R6

EOS R5



RF Lens Mount on both R5 and R6
54 mm diameter
20 mm flange focal depth

EOS R6



12-pin connection for high-speed lens data transmission between camera and lens, on both R5 and R6



LCD panel

A distinguishing feature of the R5 is the MODE button and LCD MODE display panel on top.



R6 has an analog MODE dial on top



Focus and navigation joystick

R5 has a 5.76M dot OLED EVF

3.15" 2.1M dot LCD touchscreen monitor



Focus and navigation joystick

R6 has a 3.69M dot OLED EVF

3" 1.62M dot LCD touchscreen monitor

Canon EOS R5 - 8K RAW

EOS R System

Canon launched the EOS R System in Hawaii on Sept 5, 2018 with the Full-Frame Mirrorless EOS R camera and RF lenses. At that time, it was made clear that there would be more to come.

The more affordable EOS RP was released in March 2019.

For the third act in the EOS R series, Canon introduced the R5 and R6 cameras on July 9, 2020. Both cameras are weather, dust and spray resistant. My favorite feature, carried from the original R, is the mechanical shutter that completely covers and protects the sensor from dust when changing lenses (when the camera is turned off). All cine and mirrorless still cameras should have this.

Canon EOS R5

The following should catch your attention as it did mine.

Canon's new EOS R5 is a 45 Megapixel Full-Frame RF-mount mirrorless hybrid still/video camera that shoots and records uncropped 8K DCI 12-bit RAW at 2600 Mbps to an internal CFexpress card. The RAW is Canon RAW.

Like residents of Long Island, you may not wear socks from Memorial Day to Labor Day, but if you do, the R5 specs might just knock your socks off.

Here are a few of the sockless sartorial details:

- 45 megapixel Full Frame (36 x 24 mm approx) CMOS sensor.
- 8192 x 5464 photosites. (Estimated 4.40 µm pixel pitch).
- 8K RAW 12-bit internal video recording up to 29.97 fps, DCI 8192 x 4320.
- 8K 10-bit 4:2:2 Canon Log H.265 or HDR PQ H.265 internal recording to 29.97 fps. DCI 8192 x 4320 or UHD 8K (7680 x 4320).
- 4K 10-bit 4:2:2 Canon Log H.265 or HDR PQ H.265 internal recording to 119.88 fps. DCI 4K (4096 x 2160) or UHD 4K (3840 x 2160).
- Full-width (no crop) 8K RAW and 8K/4K sensor modes.
- Dual Pixel CMOS AF (Autofocus) available in all 8K and 4K recording modes.
- 5-axis In-Body Image Stabilization—a first for Canon. It works in conjunction with Optical IS equipped with many of the RF and EF lenses.
- Dual-card slots: 1x CFexpress Type B and 1x SD UHS-II.
- ISO range of 100-51,200; Expandable to 102,400.
- In-body Image Stabilizer for up to 8 stops of Shake Correction.
- Rear joystick for focus area selection and menu navigation.
- 0.5" 5.76 million dot OLED EVF, 119.88 fps refresh rate.
- 3.15" 2.1 million dot vari-angle LCD monitor/touch screen.
- Weight: 1.62 lb Size: 5.43" x 3.84" x 3.46"

Canon RAW and other details

The Canon R5 captures RAW up to 8K and records it internally

onto a CFexpress card. Canon RAW format is familiar to users of the EOS-1D X Mark III. The viewfinder is a 0.5-inch 5.76 million dot OLED EVF with a 120 fps refresh rate.

Autofocus and Subject Detection

The EOS R5 uses Canon's Dual Pixel CMOS AF Technology to make extremely fast Autofocus calculations. Subject detection adopted from the Live View AF tracking system in the EOS-1D X Mark III camera provides face, head and even eye tracking when selected. Autofocus of animals is also possible for the first time in a Canon camera, following focus by tracking the whole body, face, or eye of cats, dogs or birds.

New Sensor

Canon's EOS R5 has a newly developed CMOS sensor. It has IBIS (In Body Image Stabilization). When used in conjunction with the ever-popular in-lens stabilization (IS), handholding the camera and lens in incredibly low light levels will be possible.

EOS 5D Mark II then; EOS R5 now

This reminds me of an earlier paradigm disrupting product launch. Canon's EOS 5D Mark II changed the game for DSLR Video. The new EOS R5 will push the envelope of what filmmakers can do with Mirrorless cameras. I expect it foreshadows a migration of more to come in the field of hybrid cine/still cameras and lenses with shallow flange focal depth mounts.

Price

The EOS R5 camera is available at an estimated retail price of \$3,899.00 for the body only and \$4,999.00 for the R5 and RF 24-105mm F4 L IS USM lens kit.

EOS R6

Canon also introduced the EOS R6, which they described as "geared towards advanced amateurs." It has a 20.1 megapixel Full Frame sensor based on the EOS-1D X Mark III.

The R6 is expected shortly after the ink dries on these pages at the end of August, with an estimated retail price of \$2,499.00 for the body only, \$2,899.00 for the R6 and RF 24-105 F4-7.1 IS STM lens kit or \$3,599.00 for the R6 and RF 24-105mm F4 L IS USM lens kit.

- 20.1-megapixel Full Frame CMOS sensor.
- 5472 x 3648 photosites.
- ISO range of 100-102,400 expandable to 204,800.
- UHD 4K 10-bit 4:2:2 Canon Log H.265 or HDR PQ H.265 internal video recording to 59.94 fps.
- Full HD 1080p 10-bit 4:2:2 Canon Log H.265 or HDR PQ H.265 internal video recording to 119.88 fps.
- Almost full-width sensor modes (about 1.07x crop).
- Dual UHS-II SD card slots
- 0.5" 3.69 million dot OLED EVF, 119.88 fps refresh rate
- 3" 1.62 million dot vari-angle LCD monitor/touch screen.
- Weight: 1.5 lb Size: 5.43" x 3.84" x 3.48"

Canon EOS R5 and EOS R6, cont'd



R5 has one slot for CFexpress card and another slot for an SD UHS-II.



R6 has two SD UHS-II card slots.



EOS R5 camera left and right profile views, with Canon RF 85mm F1.2L USM lens. Autofocus, minimum focus 2.79 ft / 0.85 m, 82mm Ø front filter.



R5 with Wooden Camera RF to PL mount adapter.



Side view of R5 with Wooden Camera RF to PL mount adapter.



R5 with RF Mount. Shutter closed (protects sensor when changing lens).



Canon WFT-R10A Wireless File Transmitter for R5.

ARRI Bicycle Grip Adapters

Philip Vischer started out as a Camera Assistant, Focus Puller and Camera Operator. Next he worked as a camera rental manager and head of sales. These positions surely influenced the thoughtful designs he undertook in the latest phase of his career, as ARRI PCA (Pro Camera Accessories) Product Manager for more than the past ten years.

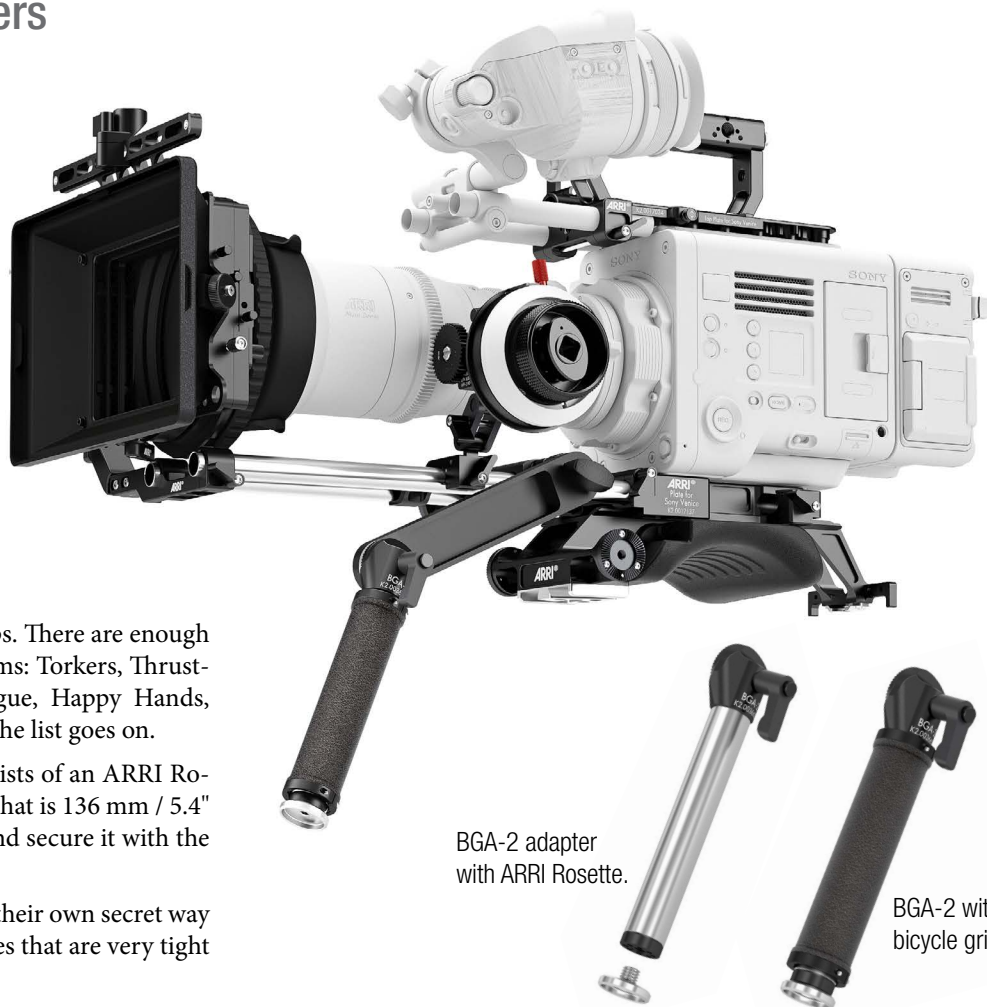
Here are some of the latest Professional Camera Accessories from ARRI. Note that these accessories are camera agnostic.

BGA-2

Bicycle grips make great camera handgrips. There are enough choices to fill large catalogs and showrooms: Torkers, Thrusters, Velo leather, Ergon, Comfort, Rogue, Happy Hands, Cork, Contour, Hard, Soft, Chrome, and the list goes on.

ARRI's Bicycle Grip Adapter BGA-2 consists of an ARRI Rosette attached to a 22 mm / 0.87" I.D. rod that is 136 mm / 5.4" long. Slide on your favorite bicycle grip and secure it with the screw-in end cap.

Suggestion: most bicycle mechanics have their own secret way to install a new bicycle grip, especially ones that are very tight or too loose or tend to twist.



BGA-2 adapter with ARRI Rosette.

BGA-2 with bicycle grip.

BGA-1

ARRI's BGA-1 adapter is slightly different. Instead of having a Hirth-Tooth Rosette on one end, it comes with a $\frac{3}{8}$ -16 screw with two anti-twist pins on one end and a $\frac{3}{8}$ -16 threaded socket with an anti-twist holes at the other end.

The BGA-1 works nicely with ARRI's Handle Extension HEX System, discussed on the next page.

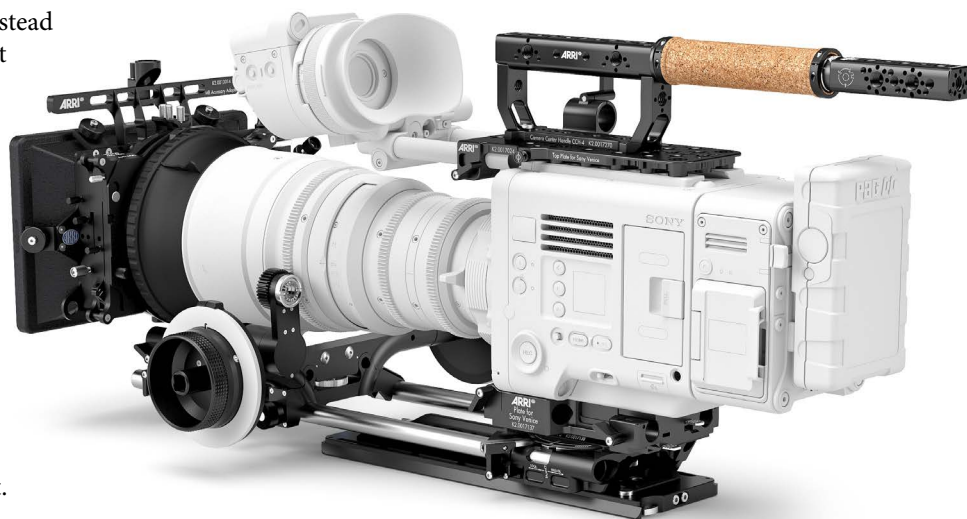
Bicycle Grips

ARRI does not sell bicycle handlebar grips at this time. So, ride on down to a well-equipped bike shop. You can spend hours trying grips out and obsessing over the proper fit.

Fortunately, bicycle manufacturers standardized more readily than the cine lens mount industry.

There are essentially two standard inside diameters for grips. Mountain, hybrid, cruiser, BMX, commuter and city bikes with horizontal handlebars accept 22.2 mm ($\frac{7}{8}$ ") Inside Diameter grips.

Road bikes with drop handlebars use 23.8 mm ($1\frac{5}{16}$ ") I.D. grips. Do not order these for your ARRI BGA: they will be too big.



BGA-1 adapter.

BGA-1 adapter with cork grip.

ARRI Handle Extensions HEX



CCH-4

Once upon a time, there was an ARRI top handle called CCH-4. Its full name was Camera Center Handle 4.

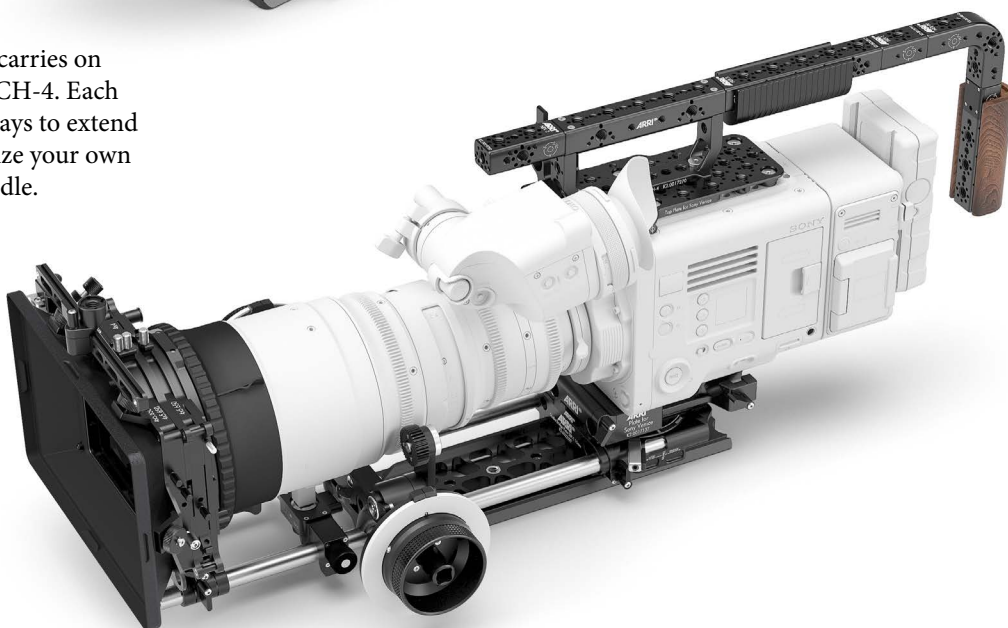
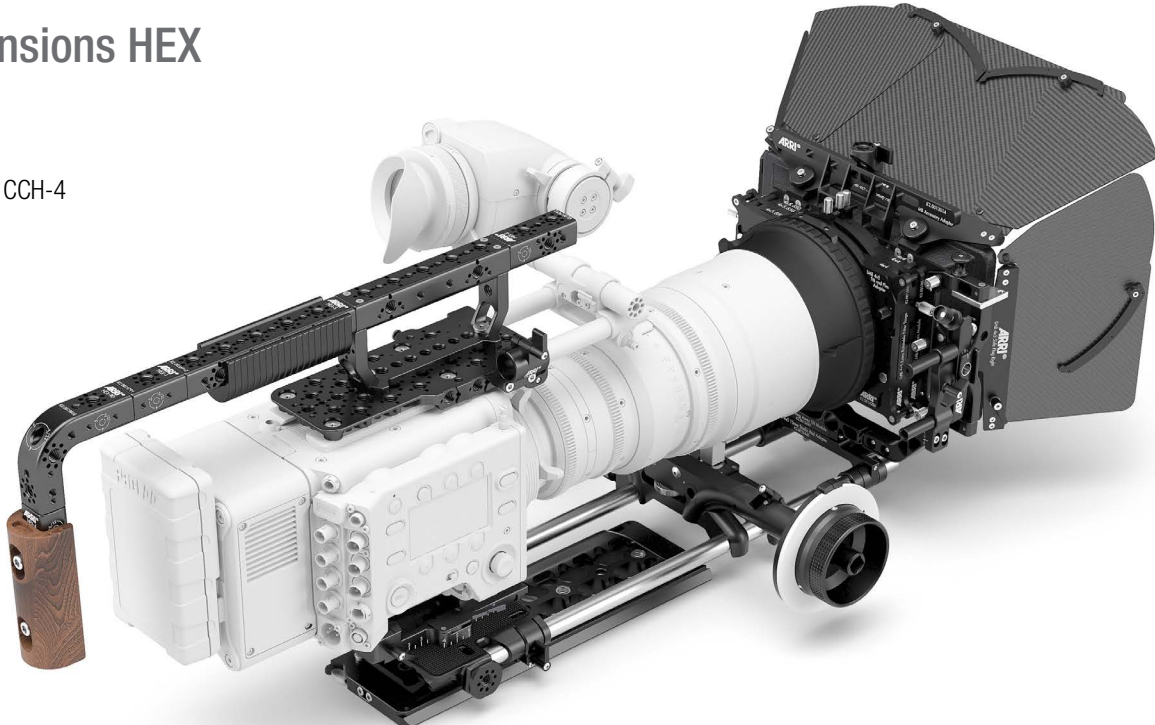
But not all camera crews carry cameras the same way. And so, the PCA team conceived of a modular system of handle extensions.

The ARRI Handle Extensions HEX system carries on the design of the Camera Center Handle CCH-4. Each component can be connected in multiple ways to extend out from the top handle. It lets you customize your own top handle or turn it into a Hollywood Handle.

Each HEX component has a $\frac{3}{8}$ -16 screw at the front with two anti-twist locating pins. A corresponding $\frac{3}{8}$ -16 threaded socket is at the back. The HEX components also have many $\frac{1}{4}$ -20 threaded sockets and Rod Mounting Bracket RMB-3 connecting points.

The HEX system can become a Hollywood Handle to better balance the camera on its bottom dovetail plate or operate from the rear without grabbing the on-board battery.

The HEX set includes 5 straight ARRI Handle Extensions, 1 curved unit, a wood grip and a composite grip. The number designation of each HEX component refers to the quantity of $\frac{3}{8}$ -16 threaded sockets it has (HEX-1 has one and HEX-5 has five). HEX comes in a foam inlay that fits in a Pelicase 1179. (Pelicase not included).



ARRI Handle Extensions HEX System

HEX components come in a foam inlay that fits in a hard shell like the Pelicase 1179.



ARRI Lightweight Lens Support LLS-1



The sun is swiftly setting and you are scrambling with five more setups until wrap. You're changing lenses faster than a short-order cook. But where are those essential lens supports?

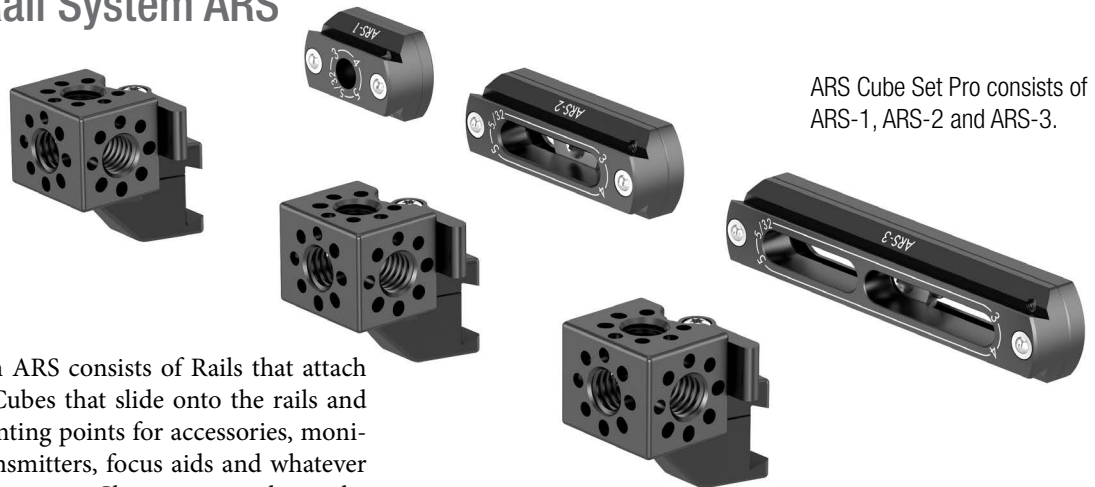
Instead of excavating the depths of the Bermuda Triangle that is your Camera Assistant bag, use ARRI's versatile, adjustable lens support. The Lightweight Lens Support LLS-1 secures lenses with diameters from 39 mm to 153 mm. That's a wide range from primes without support threads to big zooms.

The LLS-1 has a $\frac{3}{8}$ -16 and $\frac{1}{4}$ -20 screw for lenses with a support thread. Lenses with bare bottoms, such as the Alura Lightweight



Zoom, primes and still lenses, can be supported with the bracket's plastic support rollers. The LLS-1 can be flipped up or down.

ARRI Accessory Rail System ARS



ARS Cube Set Pro consists of ARS-1, ARS-2 and ARS-3.

ARRI's Accessory Rail System ARS consists of Rails that attach to camera or mattebox, and Cubes that slide onto the rails and provide $\frac{3}{8}$ -16 and $\frac{1}{4}$ -20 mounting points for accessories, monitors, motor drivers, video transmitters, focus aids and whatever else you need to attach to the growing Christmas tree that is the camera.

Cube Set Pro combines three Accessory Rail lengths: ARS-1 (30 mm / 1.18"), ARS-2 (60 mm / 2.3"), ARS-3 (90 mm / 3.5") and three ARC-1 Accessory Rail Cubes. The Cube is secured with a locking lever. The Rail attaches with two locating pins and a $\frac{3}{8}$ -16 screw that nicely accepts 4 different sized hex drivers: 3, 4, 5 mm or $\frac{5}{32}$ ". Spring-loaded ball bearings on top act as end stops for the Cube.



Bottom side ARS-3 showing $\frac{3}{8}$ -16 screw and two locating pins.

Sony α7S III



12 MP resolution, 4264 x 2814 (1.5:1) 35.6 × 23.8 mm FF sensor.



9.44 million-dot EVF and 2.95" touchscreen monitor.



Top view: summon cine mode from the top dial.



Bottom view: New NP-FZ100 battery inside



Connections: Full size HDMI Type-A; USB-C that also charges battery.



Touchscreen monitor flips out and rotates to the side.



Dual slots accept new high-speed CFexpress Type A Cards or SD Media Cards (UHS-I/UHS-II SDXC/SDHC).



Sony α7S III, cont'd

Sony α7S III
with Sony
G Master
12-24 f/2.8
zoom.



Sony's new α7S III (ILCE-7SM3) continues to blur the boundaries between still and cine cameras. Not blurred, of course, are its images and the trajectory of thoughtful innovation inside.

α7S III Specifications at a Glance

- 12 MP resolution, 4264 x 2814 3:2 (1.5:1) CMOS sensor.
- Full Frame (35.6 × 23.8 mm)
- ISO 80-102,400. (40-409,600 extended.)
- 15+ stop dynamic range in S-Log3.
- 10-bit 4:2:2 internal recording to high-speed CFexpress Type A Cards or SD Media Cards (UHS-I/UHS-II SDXC/SDHC).
- 16-bit external recording via full-size HDMI connector
- 4K full pixel readout in all modes. No crop.

Preliminary Details

The α7S III launched at 10 am EDT, Tuesday July 28. It is the latest in Sony's alpha series of hybrid still/cine E-mount Full Frame cameras. Think of "S" for "Sensitivity," "Speed" (as in high ISO) and "See in the Dark." It's hard to believe that its predecessor, α7S II, arrived 5 years ago and the original groundbreaking α7S was at NAB 2014.

By the way, you can remember what "R" stands for in the alpha series: "Resolution," as in 61 megapixels within the α7R IV delivered last September.

Sony's incomparable Mark Weir was infinitely patient with my questions about the α7S III and articulate in explaining complex theories understandably. Any errors that follow are mine.

The α7S III will record 4K QFHD Full Frame **internally** to CFexpress type A memory cards up to 120 fps.

The camera will output, to an **external** recorder, Full Frame 4264×2408 16-bit RAW 4K DCI up to 60 fps via its full-size HDMI type A connector.

A few minutes after the α7S III announcement, Atomos said that their Ninja V will get a firmware update around September 2020 to record 4Kp60 **ProRes RAW** over HDMI from the α7S III. The α7S III 16-bit Linear RAW will be compressed and recorded as 12-bit Log RAW on the Ninja V.

EVF and Sensor

You will be impatient to put eye to eyepiece because the α7S III has a QXGA 9.44 million dot OLED electronic viewfinder. That exceeds the detail and the ability to see critical focus of many optical groundglass finders.

There's an all-new, 12 Megapixel Exmor R CMOS sensor inside the dust and moisture-resistant, ventless and fanless camera body.

Some people call the sensor "back-illuminated."

"This is weird," says Mark Weir, because the light is not coming from the rear of the photosites. He suggests we call it "reverse structure" because the wiring is positioned behind the photodiodes.

The new sensor provides phase detect autofocus, something new in the α7 series. It's similar to the autofocus phase detection of the α7R IV and α9. The promise is very fast autofocus, real-time eye AF, rack focus, subject tracking, touch tracking and smooth focus transitions.

So, you might ask, if the α7S III camera's sensor is a "mere" 12 Megapixels, why is that so interesting when you can count up to 61 MP on its α7R IV cousin?

The short answer is: 4K, Full Frame, full width video, 15+ stops dynamic range, crazy high ISO, low noise, minimized rolling shutter effect, faster readout and higher fps.

The long answer is in the math. The 12K sensor has a resolution of 4264 x 2814. That means a 4K full-width image uses all those big pixels without binning, cropping or scaling. Although Sony does not give out official photosite size, you can divide sensor width in mm (35.6 mm) by number of pixels (4264) and you get about 8.4 microns.

Internal Recording

- No 29 min 50 sec limit. You can record up to 60 minutes in 4K at 60 fps according to Sony specs. I haven't tried yet, but it might be possible to record for several hours.
- Record 3 formats internally, up to 4K QFHD (3840 x 2160).
- XAVC-S Long-GOP (inter-frame) h.264 MPEG-4 3840 x 2140.
- XAVC-HS Long-GOP (inter-frame) h.265 HEVC.
- New XAVC-SI (all intra h.264) up to 600 Megabits/second, with frame rates up to 120 fps in 4K and 240 fps in Full HD.

Sony α7S III, cont'd



Sony E-mount lens collection—
Full Frame and APS-C.

Additional Details

Compared with the previous α7S II model, rolling shutter is minimized 3x, sensor readout speed is increased 2x and computing power of the new Bionz XR image signal processor is improved up to 8x. This means better sensitivity, greater signal-to-noise ratio and hence, less noise.

The OLED EVF has 0.90x magnification and 41 degree field of view with a 25mm high eye point. A menu setting lets you change the viewfinder field of view to about 35 degrees and approximately 35mm high eye point.

A fully articulating monitor swings out on left side of the camera. It has touch menu control and an all-new menu layout. The menu has been revised with a more intuitive 3 column layout. Submenus on the right show 2 additional levels of choices.

Still or Video menus are limited by the dial on top. The resulting menu settings are unique to each mode and keep your choices uncluttered.

This is Sony's first camera to use CFexpress type A memory cards. These cards achieve 700 Mbps write / 800 read speeds. They will come in 80 or 160 GB capacities. They are smaller than SDXC cards and CFexpress type B cards (used in the Canon R5). There are two slots in the camera and each slot accepts both types of cards. CFexpress type A media cards will be released around the same time as this camera.

As with the other α7 and α9 cameras, this one also has an E-mount: 18mm Flange Focal Depth, 46.1 mm I.D. There are currently 57 E-mount lenses from Sony and many more from SIGMA, ZEISS and others. Furthermore, there are many E-mount to PL, LPL, M, PV, and adapters.

The α7S III has IBIS 5 axis In-Body Image Stabilization.

Dust and moisture resistance have been improved. There is no internal fan. The lack of vents means that moisture resistance is increased.

The α7S III will be available in September 2020 for about \$3500-4000. More details will become available on alphauniverse.com



α7S III with VG-C4EM Vertical Grip and battery pack.



α7S III with Sony FE PZ 28-135 f/4 G OSS Zoom Lens.

Roger Cicala, Founder of Lensrentals



JON FAUER: I am an enthusiastic reader of your blog, lens tests and have been a happy customer of Lensrentals. How did all this impressive work begin?

ROGER CICALA: I was born in New York. My father's from the Bronx and my mother from Long Island. We moved to Memphis when I was in the third grade.

You trained and worked as a medical doctor?

I started in trauma critical care. After six years of that, I retrained in pain management, anesthesia and worked in a neurosurgery group. I wrote five textbooks on medicine and about 60 scientific articles. All that time, my hobby was photography and that's how I ended up shifting over to what I'm doing now: writing, testing and working with camera equipment.

How did Lensrentals begin?

As you can imagine, some of us who go into medicine are kind of obsessive-compulsive and anything worth doing is worth doing to excess. My hobby was photography and I had already bought far too much equipment. I was going on an Alaskan cruise and wanted a 500mm f/4 lens. I was quite convinced that photographing wildlife and whales would be best with a good telephoto lens and I looked for a place to rent one. This was around 2005-2006, and I quickly found out that it was not possible to rent unless you lived in New York, Los Angeles or perhaps Chicago. And so, I bought one. I went on the cruise, came home and had massive buyer's remorse at paying the astronomical sum of maybe \$5500.

I felt terribly guilty and thought maybe I could to rent it out. At the time, you could buy pre-made web pages for \$50. I put the 500mm f/4 lens on the website and that looked kind of lonely, so I put all my other equipment on it as well. I talked about it in local camera meetings and the next thing I knew, all my gear was out on rental. I took that as a message to buy more stuff so I bought more equipment, put it on my webpage, and within a couple of

months, it spiraled out of control. It was an accidental thing. Within a couple of years, I left medicine and did this full time.

And today you have at least 100 employees?

Closer to 200. I think there are 150 people here in Memphis. We have the Boston LensProToGo office and Nashville. Meanwhile, I have been what we call "promoted." Drew and Tyler each own a third of the business now. They're business people and run it. I do my thing testing and writing, but we've expanded many times and it seems that every time we expand, my office goes into the new area furthest away from theirs. Drew, by the way, is my son. He's an attorney and CPA. Tyler is an MBA and my son-in-law. So it's a family-run business.

Nepotism is fine as long as you keep it in the family, as they say.

It actually works out well. The part I love is the quality assurance, testing, research and writing. So it works out very well.

And the Fed Ex hub is right near you in Memphis?

Yes. There's an airport drop off. We can get there at 9 pm and usually have it delivered to you at 8 am the following morning.

Are rentals mostly cine or still photography these days?

It's about 60/40 cinema compared to still photography rentals.

You are famous for your lens testing and custom metrology.

Although the cinema world has been using projectors for a long time and they work great, it's hard to tell somebody you could do it better with a half million dollar optical bench. To be honest, with our volume of testing, we have to check at least 800 lenses a day. You can't do that with projectors. It takes too long. We'd have to dedicate half a dozen projectors and staff in a darkened room.

We designed our own testing machine, named Olaf. It is a vertical bench on which you can rotate the lens at different angles and quadrants to test the MTF again and again. Lenses are rotationally symmetrical in theory, on a computer, but of course in the real world they're not. The results can be different—the result of manufacturing variations or wear and tear in the field. We wrote software to automate the rotation of the lens, measuring at numerous points and angles. It prints out an entire map of the lens.

How has the nature of the Lensrentals business evolved?

We were a photo rental house and suddenly realized a lot of our renters were doing video work. We had to start stocking the proper support equipment: lighting, heads, stabilizers, tracks and true cinema lenses. That led us into the cinema world. As you are well aware, the expectations of a cinema renter are very different from the expectations of a photographer. Where photographers are often supplementing their existing equipment, cinematographers often put in much bigger orders. That puts a little more pressure on us to be perfect because one bad piece of gear can ruin the entire shoot. We added an entire department to ensure compatibility, for example, to ensure customers have the cables they need.

On the cinema side, pendulum's the right word because whatever is hot now is going to be passed over in two or three years for something different. There will always be a certain baseline of established lens sets. But then the requests come in for flaring lenses, antique-looking lenses, anamorphics, higher resolution, less resolution. What's next? We're going to have to be ready.

Dr. Roger Cicala, MD on Safety, Equipment and COVID-19

Here is advice on masks, social distancing, cleaning cameras and lenses in the time of COVID-19 by Dr. Roger Cicala, MD. Yes, he is the same Roger Cicala from the interview on the previous page. This information should be helpful in getting back to work.

Note that we published Roger's advice at fdtimes.com on March 20, 2020, the same day Gov. Andrew Cuomo put New York on lockdown. While other so-called experts waffled and weaved about how COVID-19 spreads and what to do about it, Roger emphatically said back then, "This virus transmits by aerosol, so if you breathe an infected person's air, bad things happen."

Read Dr. Cicala's original article here: tiny.cc/lensrentals

This is an updated, edited version with my annotations in italics.

Introduction

by Dr. Roger Cicala, MD and founder of Lensrentals

I'm qualified to talk about this subject to some degree; I take care of a ton of camera equipment, and I was a physician in my past life. I've had so many requests for information that it seems logical to put something out, so everyone has access to it.

What I'm going to discuss is relatively safe, but if you use one of these suggestions, be smart, test a small amount on yourself and your gear and make sure it doesn't cause any problems for you.

At this moment in time, there are no 100% right answers. New information may make some of this incorrect or show there are better ways to do things. If I say something today and the CDC says something else next Thursday, go with the CDC.

Well, it turns out Roger was more prescient than either the CDC or the World Health Organization.

Disinfecting Equipment and People

Wear a mask. Beards are risky. Aerosol transmission.

If you are going out among people, you're taking some risk. You can reduce it, but you can't eliminate it. **Masks** protect others from you a bit; they don't protect you from others. **Beards** increase your risk of both giving and receiving a bit and negate any benefit of a mask. **Gloves** keep stuff from getting on your fingers, but otherwise, virus transfers from gloves-to-face and gloves-to anything else just fine.

This virus transmits by **aerosol**, so if you breathe an infected person's air, bad things happen. That's what the **6-foot rule** is about, although **6 feet probably isn't quite enough**. The virus also settles on surfaces, and if you touch the surface and then your face, bad things happen. How long the virus can live on surfaces isn't clear and depends a lot on the surface and ambient conditions. At least 8 hours is a reasonable rule for encapsulated virions (virus particles), but under ideal (for the virus) conditions, 24 hours seems likely. There have been some reports of 72 hours in lab conditions, but that seems unlikely in real-life conditions. **So, if the gear hasn't been touched or breathed on in 24 hours, it's almost certainly safe; at 72 hours, you can take off the "almost."**

Roger added on May 23: Social distancing is very important. Wearing masks to protect others is very important. Interrupting air flow streams (plexiglas shields and air current baffles) is important in many areas (air currents can make 6 feet distancing meaningless).

Disinfectants

Soap and water

Soap used for 20 seconds is superbly effective on skin and other surfaces. Whatever **soap** is fine, it works by dissolving the lipid (fatty) capsule around the virus. And here's an alternative for those of you freaking out about "I can't get Lysol wipes." Just use some soap and water; it's effective if not quite as easy.

Isopropyl alcohol

Chemical name: Isopropyl alcohol

Examples: Purell and most hand sanitizers

At concentrations of 60% or higher, this is very effective—although it works a bit better on surfaces than on skin. Purell and most other hand sanitizers are basically 60% isopropyl alcohol. Alcohol may not work as fast as soap, and the rule of thumb is just let it dry rather than wiping it off.

If you can't get hand sanitizer, you can make your own if you can get 99% isopropyl alcohol; mix two parts alcohol with 1 part hand cream and blend it thoroughly. It's probably not as good as the regular ones, but it's better than nothing.

Or dilute 2 parts of 99% isopropyl alcohol with 1 part of water to get 70%. (70 ml 99% IPA + 30 ml water = 70% IPA.)

I get asked if ethanol (the alcohol you drink) would work, and the answer is probably, but to get the concentration you need, you better use pure grain alcohol or at least 150 proof. Methanol (wood alcohol) is rather toxic, and I'd stay away from it. But basically, all alcohol should work.

Chlorine Bleach

Chemical name: Sodium hypochlorate

Examples: Clorox, generic laundry bleach

Standard laundry bleach is usually 2.6% to 5.25% sodium hypochlorate (bleach), which is way too high a concentration to use for disinfecting. To make a disinfectant, you want to add 20ml of 5.25% bleach to a liter of water. Double it to 40 ml if you have 2.6% bleach, etc.

Some important notes here: **NEVER** mix chlorine bleach with any other cleanser. Never put it into a bottle that used to have another cleanser without thoroughly rinsing the bottle. And mix it in a **well-ventilated** area just in case. Bleach plus ammonia, vinegar, and several other things can cause noxious fumes. Chlorine bleach is very effective, hospitals use it, but it can be irritating in large quantities, and it can **fade** dyes and color. If you decide to **spray** down an entire room, for example, keep people out of that room until the fumes clear.

Non-Chlorine Bleach / Oxidizing Agents

Chemical names: hydrogen peroxide, sodium percarbonate, sodium perborate.

Examples: Clorox II, Oxi Clean, ECover, etc.

There are a lot of products in this category; basically oxy-this, non-bleach that, "safe bleach," and of course the dreaded "non-chemical, all-natural" variety. I'm sure you can get it as organic and non-GMO bleach at slightly higher prices. They mostly are **peroxides**, like hydrogen peroxide, but often slightly different

Dr. Roger Cicala, MD on Equipment and COVID-19, cont'd

chemicals that are more stable; regular hydrogen peroxide tends to bubble off and lose effectiveness over time once it's opened.

You need at least 2%, and probably 3% peroxide to be an effective disinfectant, and even then, its effectiveness against Coronavirus is 'probable,' but **not guaranteed**.

Quarternary Ammonium Products

Chemical names: benzalkonium chloride, Didecyltrimethylammonium chloride, Benzethonium chloride.

Examples: Clorox disinfecting wipes, Mediclean, Fantastik

There are tons of these. Benzalkonium Chloride is probably the one you see most commonly if you read ingredient labels, but if you're interested in chemical names, just google it. They are both detergents (like soap) and disinfectants, so they're very common in disinfecting wipes and such. They're also what's in most fabric softeners.

While I haven't seen any actual studies regarding specific effectiveness against COVID-19, they are effective against other Coronavirus and expected to be effective against this one.

Dryer antistatic sheets usually contain lots of quaternary ammonium compounds. My significant other (an ICU nurse) carries a few in her purse as door grabbers and emergency cleansing wipes.

Regular detergent can negate the detergent-like effect of quaternary ammoniums, so using both together isn't better and in theory could be worse.

Equipment and Spaces

So, you already know about hand washing and keeping distance.

Studio and Office Space

The first thing: **doorknobs**. This is the perfect place to use that dilute bleach solution—maybe 67 times a day if it's a busy location. All **surfaces, counters and desktops** should get this treatment too, but once or twice a day is probably enough in most cases. However, if you have a work location where different people may use the same desk or area during the day, it should get sprayed when person A leaves, and before person B starts there.

A few people have skin more sensitive to chlorine bleach than most, so a sign saying you're using it is a polite thing to do. Alcohol will work instead of chlorine, if you can find it.

Cloth things (backdrops, scenery, clothing) are best disinfected in a washing machine if possible. Regular **wash with detergent** is probably all you need, but a little bleach couldn't hurt if the clothing won't fade. If you can't wash it, you can spray it with bleach solution or alcohol. Of course, bleach may fade dyes in cloth.

Camera Gear and Equipment

First, remember that if your gear has been sitting away from people for a couple of days, it's safe. If you're on a single or multi-camera shoot, **don't share cameras**. Assign who uses what equipment as much as is possible.

Alcohol and Soap

Despite what some manufacturers have said, we, and every repair shop I know, have used **isopropyl** alcohol in 60% or greater concentrations on camera equipment for a long time and haven't seen any adverse effects. Some manufacturers said 99% isopropyl

might maybe affect lens coatings. I respectfully disagree, although I will say vigorous rubbing can affect some lens coatings, so take it easy and don't use wire brushes or such.

Don't soak the equipment. That is asking for trouble; just **moisten** it. Use common sense to try to keep your disinfectant on the outside and not put it on the inside. A light mist with a spray bottle, or a cloth or paper towel dipped in alcohol works great for large surfaces. You might want to dip a Q-tip or similar thing to get into small areas or places where you'd rather not spray.

A little **soap and water** applied with a dipped cloth and rubbed can be used on appropriate places; lens barrels, camera rubber, light stands, etc. Then wipe it off with a cloth and water after half a minute. Spray alcohol may be better in nooks and crannies if you can find it. I recommend only to use Q-tips or a dipped cloth around camera viewfinders, etc. There is a chance that alcohol used repeatedly could dull the rubber of lens rings or camera bodies. I haven't seen it, but I have seen it claimed. I have also heard that it can dull or fog the finish of LCD screens. Given the claims, I'd try to keep it to a minimum.

Either of these disinfectants can be used on light's Fresnel screens, but I would not apply them to high-intensity tungsten or strobe bulbs themselves. Any residue could, like finger oil, cause issues and burn out your bulb. They should be fine for LED lights, though.

Dilute Chlorine Bleach

This should be fine on metal things like light stands or lens barrels. It's probably fine on hard plastic, although there's a slight chance it might fade colors. Same with cloth or rubber, although the color fading chance is higher. And it could cause some rusting on unpainted iron surfaces.

I would **not** use chlorine bleach on cameras, nor would I apply it to front or rear elements. I think it would be safe, but I'm not certain, and I would go with one of the alternatives. Non-chlorine bleaches / oxidizers are less likely to cause fading, but you need to assume you're in the "probably effective" category now.

One Additional Note About Cameras

Let's face it: you have your face in the camera, so it's the most likely place to have received a big viral load. It's also the place you **don't** want to soak and saturate with any of the above solutions. Also, the areas around the LCD, viewfinder, etc. are full of nooks and crannies, making them more difficult to get to.

I recommend **not sharing** cameras on a shoot. If you do share, disinfect it carefully with a minimal solution and set it aside. Virus particles don't make spores and are not going to last on a surface for a long time. So: 24 hours should be long enough, but there is some good evidence that it takes 72 hours to be absolutely safe. While we're talking about cameras, don't forget that memory cards, batteries and walkie-talkies get passed around a bit. They need to be disinfected when this happens.

And a note about **UV light**. Far (not near) UV light kills bacteria fairly effectively and also kills some virus particles, but I do not know how effective it is against Coronavirus. UV irradiation is generally used to disinfect air in locations with limited airflow *and in laminar flow boxes to prevent contamination of the experiment*. It's less effective on surfaces where it's hard to get the light into all the *crevices*.

Angénieux Optimo Primes

The Silver Set of six Angénieux Optimo Primes will begin to ship in September. They are right on schedule, as announced at Cannes a year ago.

To learn more about the Optimo Primes and the companies involved, three partners were interviewed:

Severine Serrano is the Managing Director, Angénieux International Sales and Marketing, located in Saint-Héand, France.

Amnon Band is the CEO of Band Pro, headquartered in Burbank, California.

Jack Yu is Head of Cinematic & Broadcasting Solutions, Jebsen Industrial, based in Hong Kong.

For coordinating and editing the Zoom discussion with Severine, thanks to Dominique Rouchon, Deputy Managing Director, Angénieux International Sales-Marketing & Communication.

For managing our interview with Jack, thanks to Teresa Wong, Marketing & Portfolio Manager, Jebsen Industrial.



Above: Removing Angénieux Optimo Prime's Internal Optical Element in Band Pro Clean Room.



Angénieux Optimo Primes — Silver Set of 6 Lenses (in silver columns)

Focal length (mm)	18	21	24	28	32	40	50	60	75	100	135	200
Maximum T-Stop	2	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.2
M.O.D.	1'2"	1'2"	1'2"	1'2"	1'2"	1'2"	1'4"	1'8"	2'	2'4"	3'3"	4'
Front Diameter (mm)	95	95	95	95	95	95	95	95	95	95	95	≈ 114
Weight kg	<1.9	<1.8	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.8	<2.0	<2.3
Weight lb	<4.18	<3.96	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.75	<3.96	<4.4	<5.07
Length (mm) from PL mount	160	140	128	128	128	128	128	128	128	128	140	190
Length (in) from PL mount	6.30	5.51	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.51	7.48
Image Circle Ø:	46.31 mm (also covers ALEXA 65 5.1K Format, 48.46 mm Ø)											
Focus Barrel Rotation end stop to end stop:	320°						Focus Barrel Rotation MOD to ∞ : 300°					
Iris Barrel Rotation:	75°						Drive Gears: 0.8 Metric Module (Industry Standard)					

Specifications subject to change, especially weight.



JON FAUER: Our previous discussion about Optimo Primes was at the introduction a year ago. Can you please provide us with an update on the project since then?

SEVERINE SERRANO: We launched the Angénieux Optimo Prime Silver Set of 6 focal lengths in the middle of May 2020, exactly one year to the day since the announcement at Cannes. These 6 lenses (of a total of 12) in the Silver Set consist of: 21, 28, 40, 50, 75 and 135 mm. Demo sets have been delivered and are undergoing trials by cinematographers and rental houses. The plan is to start deliveries to customers this September. We are very proud that we are right on schedule. It's a great testimony to the efforts of our engineering team and partners.

Please tell us about this partnership.

Our partnership with Band Pro and Jebesen started with the Type EZ zooms three or four years ago. We were very happy with this partnership, and we decided to continue for the Optimo Prime project.

This partnership unites our energies. Our development teams are in constant communication with our partners in two major markets of the industry--the Americas and China/Asia Pacific. Our sales teams work together hand in hand and share their experience. Financial resources are combined on these specific projects to provide joint success for the three companies. It's massive but it is what was needed to set out on such an ambitious project. The Optimo Prime Series has been a kind of Mount Everest expedition, as Amnon Band says.

Why has the Optimo Prime project been like Mount Everest? What were the challenges in climbing?

Actually, the ascent was rather fast. The path presented questions. Were we going to continue to be content with our reputation and respected position in high-end zoom lenses only or did we want to be more ambitious and get back into primes? It was a major

L-R: Daniel Alzerra (Thales), Amnon Band (Band Pro), Emmanuel Sprauel (Angénieux) and Severine Serrano (Angénieux) with prototype 40mm Optimo Prime at the Cannes launch on May 23, 2019.

decision to resume work on prime lenses. We have specialized in the zoom lens business for the past 50 years, even though the company originally started with primes.

We chose the more ambitious route to secure a stronger future for the brand, reinforcing its market footprint and expanding its accessible global market.

Why does a major brand like Angénieux, a company within Thales, need partners?

It helps that Angénieux is part of a big group like Thales that provides stability and strength on a day-to-day basis, including in these difficult pandemic situations. Thales is a big group. When the pandemic started, Thales took strong measures to secure its businesses and activities and make sure that people could continue to develop products and manufacture in good conditions.

We are very fortunate to have the means to ensure an uninterrupted supply chain to secure our production. That's an advantage of being part of a big group. We worked hard to ensure that all our colleagues would be safe during this time, to be sure that they could produce and work at Angénieux without taking any risks. We know it's a difficult time for everybody. We are ready and we are trying to help our customers in this climate.

And even though we are part of Thales, a corporation of 85,000 people, we think unity with other companies in the industry is very important. Angénieux always had a strong international distribution network, but we thought that to reach our ambitions, we needed strong commercial and financial partnerships. Those are the reasons why we decided to have commercial partners, Band Pro and Jebesen, for this ambitious Optimo Prime project.

Severine Serrano on Optimo Primes, cont'd

If I remember correctly, you studied and started your career as an optical engineer. Is it more difficult to design a zoom than it is a prime lens?

Yes, it's more work. A zoom is more complex. Maybe it's not so difficult when you have the knowledge and the know-how, but the coordinated moving assemblies in the zoom lens are more complicated to develop and design.

What makes the Optimo Primes unique? Certainly we agree it's the Integrated Optical Palette and the customization.

It probably came from the fact that, since the Optimo Prime Series was such an ambitious undertaking for us, we took even more time to approach the market and listen to cinematographers' wishes and suggestions about prime lenses.

Also, as Amnon says in his own interview, we are the last ones coming to market, so we had to come up with something different. A me-too product would not have been appropriate. The Integrated Optical Palette, or IOP as we call it, offers real added value and unique features. But we should also point out that the Optimo Primes are also unique in their small size, light weight, Optimo look and Optimo quality.

Please explain the Integrated Optical Palette.

The IOP, Integrated Optical Palette, is a concept. It's like the palette of a painter, where each color is similar to what you can change in the lens to paint your own image. The IOP offers users the ability to express their individual creativity, to customize the look. You have three things inside the lens that you can change. You can exchange the rear filter, the iris assembly, and an internal glass element in the middle. These three things can enable cinematographers to explore unique styles, depending on the project.

How much customizing will be left up to the user and the rental house, and how much will only be available from Angénieux?

The rear filter will have a standard diameter and thread (40.5 mm for Super35 format and 46 mm for Full Frame). It can be purchased independently by the rental house or user. For the interchangeable iris assembly, we are looking at several proposals and feedback from users. Currently we have iris assemblies with 3 leaves for triangular bokeh, 6 and 9 blades, as well as an oval iris for anamorphic-style bokeh, and a round iris as well.

We intend to have a choice of internal glass elements that can be exchanged. For example, a blue streak filter combined with the oval iris could provide an approximate anamorphic look. We intend to have vintage looks, diffusion and various distortions. We have started some tests with partners, and we will see which ones are relevant.

Some rental houses have expressed interest in being able to make, buy, or provide their own unique internal optical element. Is that possible?

Yes. We will propose a neutral component inside that could be modified by the rental house. With this neutral element, they could add their own effects that may be different. It should be a possibility, absolutely.

What has been the reaction from DPs, rental houses and users in general?

The market reaction has been fantastic. We have feedback such as

"amazing," "gorgeous," "the dream of my life," "so compact" and "beautiful image." More than ever, the Optimo Primes will allow cinematographers to express their individual creativity. It has always been Angénieux's part in the cinema industry: to help cinematographers' dreams come true. That's what Pierre Angénieux did with the zoom.

As the Managing Director for sales and marketing, I am very optimistic about the success of the Optimo Prime Series because they provide unique qualities. The ability to customize and individualize the lens is very exciting for users and rental houses alike. It's like spicing up your food with a different flavor for each course.

The EMEA rental companies immediately realized that the Optimo Prime series is essentially like having several series in one. They have already placed orders. The market response is also excellent in the Americas and in China / Asia-Pacific.

How do you coordinate things between the three partners?

It can be a challenge to coordinate partners in Los Angeles, Hong Kong and France, mainly due to the time zone differences. It's like jet lag for everybody. But we have become accustomed to working with each other, as we did on the EZ Zooms, and we continue to synchronize our sales and marketing teams to ensure good coordination.

It is a synergy. Our sales-marketing team in St.-Héand works in coordination with the teams at Band Pro and Jebsen. We share videos, seminars, brochures and webinars. You can see them on our YouTube channel, by the way. And, now that Jean-Marc Bouchut is at Band Pro, the technical relationship is even stronger than before because he will accompany the arrival of the Optimo Prime series in the Americas as he used to do for the zooms when he worked with us. There are real bridges between our three companies that give us so much strength.

At Angénieux, we place great importance on our partnerships, as described by Emmanuel Sprauel, President of Angénieux, in his recent message to the cinema community. He said, "My ambition is to be and remain the leading optical company for the high-end cinema industry, with a large and comprehensive portfolio of zooms and primes prepared for the Full Frame format." *

Please expand on that ambition.

The past five years have been very busy for us. The Type-EZ zooms proved Angénieux's ability to address a completely new market based on a new business model. The Optimo Ultra 12X launch confirmed Angénieux's commitment to the high-end cinema zoom business since that lens followed the same track as the 24-290 and is becoming the new reference standard of the industry. The Optimo Prime series is a new step in the brand's strategy to commit to the high-end cinema industry for not only zooms but also primes.

And, I can tell you we will not stop here. As Christophe Remontet told you in a recent interview, there is definitely more to come in Full Frame and many other things. Our ambition is for Angénieux to continue in the avant-garde for years to come.

** See the complete video of Emmanuel Sprauel's announcement: youtu.be/0xavrGHV32o*



Amnon Band at the Optimo Prime launch in Cannes. May 23, 2019.

JON FAUER: Your exploits in the lens business could be described as “The Man Who Played with Fire” or “The Guy Who Kicked the Hornets’ Nest.” You may not be the Lisbeth Salander character of Stieg Larsson’s book, but you still seem to enjoy stirring things up and undertaking ventures that many others would detour.

The Angénieux Optimo Primes are the fifth in your series of escapades with lenses and not for the faint of heart. You were responsible for ZEISS DigiPrimes, Leitz Summilux-C, IB/E Raptors, Angénieux EZ-Zooms and now Optimo Primes.

Why do you do this?

AMNON BAND: I’ll have to refer to my time in first grade. We had a crafts class. The teacher told us to make a backgammon set that was a box with a lid. I said, “No, I don’t want to make that. I want to make paddleball rackets.” I was always a salmon.

OK, then the book title is not fire or hornets, but salmon. “Swimming upstream with Salmon.”

I never thought that my life should be dictated by the flow of a river. And I would never like to be in a rowboat without oars. I like to be early. It doesn’t always work. The lens business is tough. After DigiPrimes, Summilux-C, Raptors and EZ zooms, I thought I was done. It can be a pretty rough ride with delays, design challenges, changing markets, and evolving trends.

When did the Angénieux Optimo Prime project first begin for you? Were you talking to users and manufacturers or did this just appear in a vision one day?

Angénieux was thinking about primes and collecting user data way before they spoke to us. What DPs always wanted in a prime but were afraid to ask. Angénieux had been surveying the market. They were well aware of the terrain. Angénieux lenses are at home on every major movie. They have been building cine lenses for more than 60 years.

For us, the idea had been simmering more than five years ago. I was an early enthusiast of Full Frame cameras and lenses, as were you. I knew I wanted Full Frame lenses that offered more than the others. I was looking for a manufacturing partner with a strong brand name and, at the same time, Angénieux was seeking a strong partner for the Americas, their largest market, and so the timing was excellent.

First, we joined together on the EZ zoom project. The partnership worked well and continues to be successful. The chemistry between the Thales management and us was good. As soon as Angénieux made the decision to build Optimo Primes, we became an integral part of the crew. It’s an honor and quite a humbling experience for us to be part of the team.

By the way, just to remind you, we were the last at the adult table.

What do you mean?

We were the last major company to announce Full Frame Primes. And we knew we were the last. In the beginning, some rental houses held this as a disadvantage. But I told them, “No, I am perfectly fine with where I am because if I’m at a poker table, I know everybody’s hands by now.”

How did Angénieux and you hammer out the specifications? Hammer is probably not a good verb to use with lenses. Shall we say, “Decide on the specs?”

Helmut Lehnhof taught me, in the year 2000, that any lens design is a compromise. When you consider the main parameters of size, weight, speed and price, each directly affects the other, and especially price. So you make a list of all the things you want to have in the lens. Our list had more than 10 ingredients. At the top of the list were Optimo look, small size, light weight, lens meta-data and fast T Stop. Further down the list were interchangeable iris mechanism, rear filters and front filters. At the very bottom, almost an afterthought was an interchangeable internal element.

But, after talking to cinematographers and rental houses, by June 2019, the list was flipped. All the items at the bottom of our list were put on top because of the demand and desire to individualize and customize the lens to a particular production or cinematographer’s look. The interchangeable internal element, iris assembly and rear filter advanced to the very top of the list. Even its name evolved. It is called the Integrated Optical Palette.

Tell us more about the Integrated Optical Palette from your perspective.

Traditionally, a DP can manipulate the look of a lens with filters and lighting. You put filters on the front or rear, maybe use a stocking or net. A few, select rental houses can play with air gaps, decoating and recoating. Now, there is a difference between put-

Amnon Band on Optimo Primes, cont'd

ting a filter at the rear of the lens, in the middle of the lens, or in front of the lens. If you put the same effect filter in those three places, the picture won't look the same every time. There is a difference. Location matters.

So, with the Optimo Primes, we have front and rear threads and people can buy conventionally available filters.

We also have an internal, exchangeable element. Angénieux, in their wisdom and during our talks, clearly realized that there was a way to build the lens where you can change the internal element, one of the three components of the Palette.

When the lenses will be delivered in September, they will have a neutral Internal Optical Element. In other words, they are styled to match Angénieux Optimo zooms. I must admit, we were apprehensive and disappointed at first that other choices would not be ready by then. Well, guess what? The customers are in heaven. They want clear elements. They want to be able to determine the look themselves.

They can purchase additional clear elements from Angénieux and customize them on their own. We have been doing this experimentally here at Band Pro: diffusing the element with hairspray, adding nets, stockings, monofilament, glitter, all kinds of crazy effects.

There will also be Angénieux branded elements, designed and built in St-Héand. Not a filter. Not all of them flat. Some will have curves. Some will have little bellies. It depends on the effect. There will be Palettes that will change the air gaps and field curvature. This is where Angénieux's experience comes to play. They know many of the looks that can be achieved. They have already done simulations.

What we don't know is where cinematographers want to take us next with Optimo Primes.

How do you change the Palette?

Very easily. You take out the front optical group, then the second group, the internal element and the iris mechanism. It is a brilliant design in lens construction. It's simple. There's nothing complicated. The groups are all modular. They're all independent. You don't need to realign, you don't need to shim or do anything when you put it back. All the parameters stay the same. You just have a different look. There's a whole new world of looks that is going to happen.

But don't change the Palette in the field. Any time you open the lens, you should be in a clean room, or under a laminar flow box. It's really not that complicated. And by the way, we're making videos here with Jean-Marc Bouchut on the process. A skilled optical technician, properly trained, can do this with ease. We're changing Palettes 20 times a day.

Yesterday, Jean-Marc and Randy Wedick put shrink-wrap around the Palette. Unbelievable. They are doing crazy things and this is just a taste of what's going to start happening in camera prep, when these lenses are about to go out on a job.

It's what DPs everywhere have been asking for — for more than 100 years. Never accept what the manufacturer gives you without customizing, individualizing, retrofitting. As soon as the Lumiere Brothers provided Cinematographs to their Camera

Operators in 1895, there was a collective commotion of sawing, drilling, filing and sanding to make those cameras and lenses their own.

Jon, there are risks. Let's begin by asking what happens when people who are not qualified try to take the lens apart to change the Palette. Or a rogue camera assistant tries to do it on location. I don't have control over that. Dust goes inside the lens. An element is scratched. What happens to the warranty? Who is authorized to do it and so forth? What happens if a rental house, or (gasp) we provide a Palette that the DP hates. Well, who takes responsibility? There are pitfalls.

But those things can happen with any lens. I don't see pitfalls, I see benefits. Users will appreciate proper procedures. As for making your own Palette, it's like they say in car commercials, professional drivers of lenses on a controlled course in a rental or repair facility, do not attempt at home. And yet, I can see a brisk business in laminar, clean air flow boxes for camera trucks on location, in studios, and Palette classes given by Band Pro for camera assistants.

Yes, there is an aspirational component to this. Optimo Primes let you be adventurous in creating different looks, not in post, but in the lenses themselves.

Optimo Primes will enable cinematographers to essentially develop lenses with their own personality rather than settle on a lens that has its own look already baked in at the factory. What DP would not like their work to be unique and stand out from everyone else? To create something special. This lets them create and craft something special. This is freedom.

What about service?

Knowing that I was doing the Optimo Prime project, I had to enhance our optical services and tools. We made substantial investments in a Clean Room, Full Frame projector, tools, personnel, training and factory certification.

Getting back to the man who stepped on the hornet's nest. Why is there a partnership between the manufacturer, Angénieux, and the distribution companies, Band Pro and Jebsen, who also invest in the R&D?

It's a business decision for all of us. If you look at the many cross-roads and intersections of my career, clearly there is a pattern of identifying what's missing in the market and addressing that need. Granted, the Optimo Prime project is, shall we say, the tallest mountain financially that I have climbed. It's my Mount Everest.

Every lens manufacturer has what I call a personality in their lenses. When you have a me-too product, then the question is why. Why did you just make another lens like all the others? Well, looking at the business side, I don't think that's smart.

So, it's a pleasure to work with a company that, especially on this project, wants to push the envelope. Convincing some lens manufacturers to venture into uncharted territory can be like pushing an elephant sideways. But French cinema has a great legacy of innovation and experimentation. There is a long history of tradition, craftsmanship and art. Now we've added a degree of adventure. What Angénieux is doing now is very brave. It's not a small step; it's a big leap.

Jack Yu, Head of Cinematic & Broadcasting Solutions, Jebsen Industrial



Jack Yu at Cannes.

JON FAUER: When did the Angénieux Optimo Prime project first begin for Jebsen?

JACK YU: The Angénieux Optimo Prime project was officially started in 2018, following the successful collaboration between Angénieux, Band Pro and Jebsen on the Angénieux Type EZ Series. And our strong partnership with Angénieux is also rooted in Jebsen's effort in building the brand presence of Angénieux in Asia over the decades.

How did Angénieux, Band Pro and Jebsen decide on the specifications of the Optimo Primes?

From the beginning of the Optimo Prime project, Angénieux invited both Band Pro and Jebsen to exchange ideas raised by DPs and rental companies from different regions. It is always critical to ensure that customer feedback is taken into consideration when developing lenses. As we always said, the design of Optimo Primes is based on the industry's feedback. The decision on specifications was finally made together by all three partners, along with open communication and continuous improvement throughout the design and production phases.

Did you discuss wish-lists from DPs and rental houses?

Yes, we did. The exchange of DPs and rental companies' feedback did not stop right after the lens design, but also continued after the launch of the first Silver Set.

Did they make suggestions about the Integrated Optical Palette?

Jack: DPs are constantly looking for tools that can create a distinctive look to define their story. It will be a game-changer for the Integrated Optical Palette to achieve quality imaging effects that are difficult to achieve in post-production under time and budget constraints.

Who will manage service of the Optimo Primes in your region?

Jebsen's JCineCare Service Centre will be the service point for Optimo Prime Series in Asia. It is part of our on-going effort not only to provide the best cine lenses to our customers but also the after-sales, repair and maintenance services to make sure Angé-

nieux lenses are always kept in their best condition.

Is Full Frame gaining in popularity in your regions?

Although many of the films in Asia are still shooting with Super35, there is a rising trend from DPs requesting large format acquisition. The recent pandemic had caused the suspension of film shooting, but we believe the trend will pick up again once productions are back in full swing.

Have you shot tests with the Optimo Primes yet?

Jack: We recently had our Optimo Primes on set in projects of the 14th FIRST International Film Festival in Mainland China. Every year, FIRST invites internationally recognized filmmakers as tutors to mentor the new generation of filmmakers in their FIRST projects. We supported the program by providing Optimo Primes to the young filmmakers to curate their stories.

We received positive feedback from the DPs. They appreciated the engineering, minimized chromatic aberration and distortion, and delivery of a natural-looking image. They are compact and lightweight. All these features allow more flexibility in shooting and ensure greater creativity for DPs to create the image they want.

Who will receive the first deliveries in your market?

Since Angénieux unveiled the Optimo Prime Series at the Cannes Festival, Jebsen has already received inquiries and pre-orders from the market, including Mainland China, Taiwan, Japan and Korea. The series generated a lot of buzz in the region. It also showed that our customers have strong trust and confidence with the optical performance and image quality delivered by Angénieux. You will soon hear from us and our customers about the first deliveries as the Silver Set will be ready for shipping in the coming months.

What lens mount are your customers requesting? PL or LPL?

We received both PL and LPL mount requests from customers.

Please tell us about the partnership with Angénieux and Band Pro — beginning with the EZ Zooms and now Optimo Primes.

The launches of the Optimo Prime Series and Type EZ Zoom Series are collaborative efforts by Angénieux, Band Pro and Jebsen. By bringing together the three companies through these projects, we are creating a significant synergy with a strong foothold and extended outreach to the film industry worldwide. The release of Type EZ zooms has proven that we are on the right track, meeting the market demand of an affordable run-and-gun shooting style combined with high optical quality products. Meanwhile, the Optimo Prime Series is also the answer for the gaining popularity of shooting in Full Frame. DPs and rental companies will now have more lens choices to choose from, as well as Primes that beautifully match with their Angénieux Optimo Zooms for high-end production.

Did you sell EZ Zooms mostly in S35 or Full Frame versions? They come in both formats and can be easily converted from one format to the other: EZ-1 in 30-90 T2 (S35), 45-135 T3 (FF) and EZ-2 15-40 T2 S35, 22-60 T3 (FF).

We see there is a shift in demand from S35 to Full Frame format in the Type EZ Zooms. Our market is changing quickly and the demand for Full Frame versions has now reached nearly 90% of our orders.

On-Set Social Distancing Using AJA Products



Sushi is not socially distant. Andy Bellamy in pre-pandemic days, providing bounce fill with his napkin at Yamazato in Amsterdam.

This is not an article about sushi.

Nevertheless, let's digress. Remember when you could sit elbow to elbow at a finely sanded hinoki counter and the greatest fear might be fugu poisonous blowfish if it were part of the omakase evening? You might worry about the provenance of that raw oyster sitting on a stone slab or how many days ago the Hokkaido crab staring at you was caught.

Which brings us to the author of this article. Andy Bellamy has been a co-conspirator with Nick Rashby, Bryce Button, Karen Raz, Arato Ogura and me in sushi adventures worldwide. Intrepid explorers, we spent horrifying amounts of time on research to ultimately triangulate the most promising place within reasonable, and sometime insane, travel time from whatever trade show we were attending. We managed to avoid eviction from Yamazato in Amsterdam, Sukiyabashi Jiro in Roppongi Hills and other fine establishments whose chefs suffered our antics in tabletop lighting and camera tests between Michelin starred bites.



Bellamy beaming like a choirboy at Sukiyabashi Jiro.
L-R: Fauer, Chef Ono, Bellamy and Ogura.

At the end of one evening, Chef Takashi Ono gave us his father's book on sushi etiquette, "Jiro Gastronomy." Yes, that Jiro, who Dreams of Sushi. The book's first of ten sushi commandments warned, "Please refrain from taking photos of the sushi. The only sure way of enjoying Jiro's sushi is to concentrate on dining." Oops.

The next commandment was, "Our recommended beverage is green tea." Too late. We had already polished off several bottles of Sukiyabashi Jiro's smoothest Junmai Daiginjo, made from rice also polished, but in a different way—to micron-accurate lens-like tolerances.

We may have been spared expulsion because Bellamy's euphoria had grown in intensity as the evening progressed and his expository praise of Chef Ono's artistry was both poetic and eloquent.

Here now is an equally eloquent discourse by Andy on production and social distancing using AJA products.

by Andy Bellamy
Product Marketing Manager, AJA Video Systems

Introduction

The recent global spread of COVID-19 has meant a lengthy lull in film and television production to protect cast and crew. Newly introduced guidelines mean that production can begin again with important factors to consider in returning to work safely. Television and film production sets have traditionally been very busy places, bustling with constant activity, often in close quarters. Video and audio is required in more than one place on set or location. So now, with increased focus being made on social distancing, crew will be further away physically from each other than they were before.

Recently released regulations for film and television production state physical distancing of at least 6 feet between people is required on all off-camera areas. This includes the cast and crew, holding and common areas, the video village and all other work places. New areas and potential dual stages for setup prior to actor presence and crew departure means that many more crew members, from art directors to producers, will be watching shoots in

4K 12G-SDI PRODUCTION STANDARD PRODUCTION VIDEO CABLING EXAMPLE

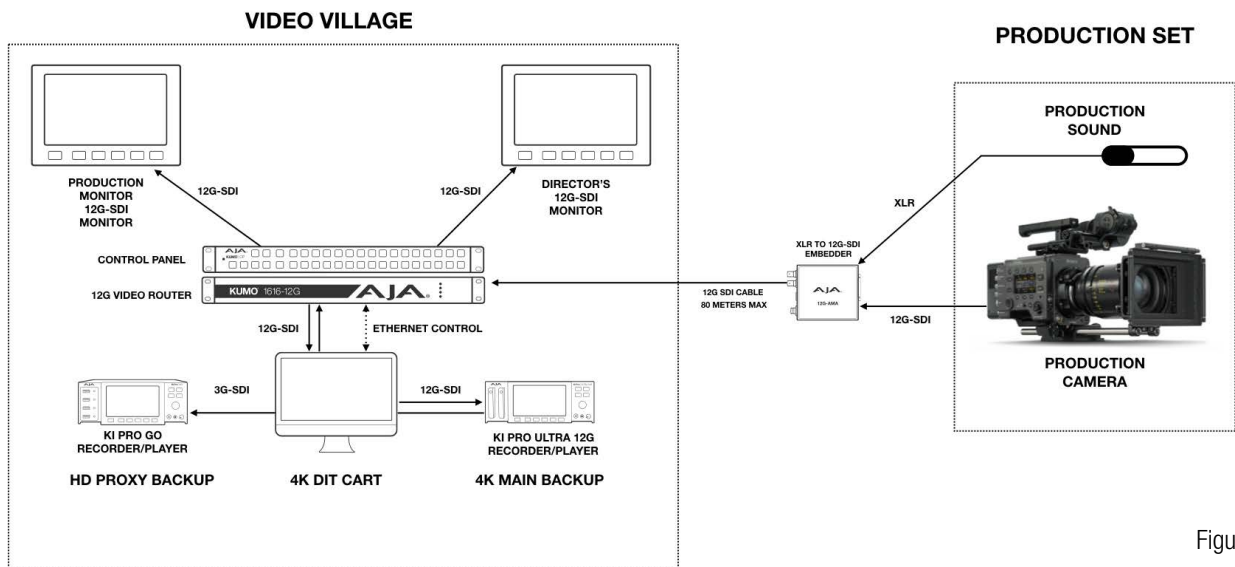


Figure 1

real time from a safely distanced vantage and longer cable runs, with remote equipment configuration and control, to ensure the health and welfare of all on set.

Equipment such as video village monitors will be placed further away from the main action to allow for this distancing. AJA Video Systems makes a number of products that can help to implement these requirements and increase the safety of personnel both above and below the line, crew members and talent, while providing full control over devices and media remotely.

Creating Distance through Fiber Connections

A typical production set has SDI (serial digital interface) cable runs to connect cameras to areas where video monitoring is required. In an age of common 4K or UltraHD camera sources, 12G-SDI simplifies cable runs and troubleshooting while also decreasing the amount of time for both setup and distribution.

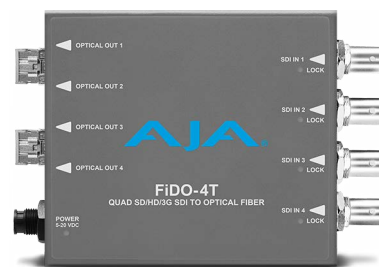
Examples of 4K 12G-SDI include video feeds from cameras to monitors in a video village, to the director, DP, script supervisor, producer and other crew members who benefit from a monitor during production. Recording to additional devices for either primary or backup recording is also a typical requirement. These areas are now likely to be distanced on-set or even near-set, but it remains important to keep the signal quality high—with the least latency to ensure the fidelity of the image for critical immediate approval and backup, as well as having end-to-end security of camera signals. SDI cabling however can't be run for overly long distances without signal degradation or loss of sync. (See figure 1.)

But SDI video cable runs, including those which are 12G-SDI, can be significantly extended by using fiber converters from AJA. Fiber optics allow the transmission of digital information (in this case digital video and audio) as light pulses through glass or plastic fibers almost as thin as a human hair.



AJA FiDO family

AJA FiDO fiber optical converters can extend high-frame rate 4K video and audio up to 10 km. Single-Channel converters carry a single video and audio feed whereas Dual-Channel converters carry more than one.



AJA FiDO-4T

You can also choose between single-mode or multi-mode fiber. Multi-Mode fiber cable is more flexible for cable runs and can be curved, taken around corners without loss of signal but overall distance is curtailed compared to single-mode. AJA FiDO converters are also format agnostic, so various SDI-based signals can be transported, even camera RAW formats.

4K FIBER OPTICAL PRODUCTION SOCIAL DISTANCING PRODUCTION VIDEO CABLING EXAMPLE

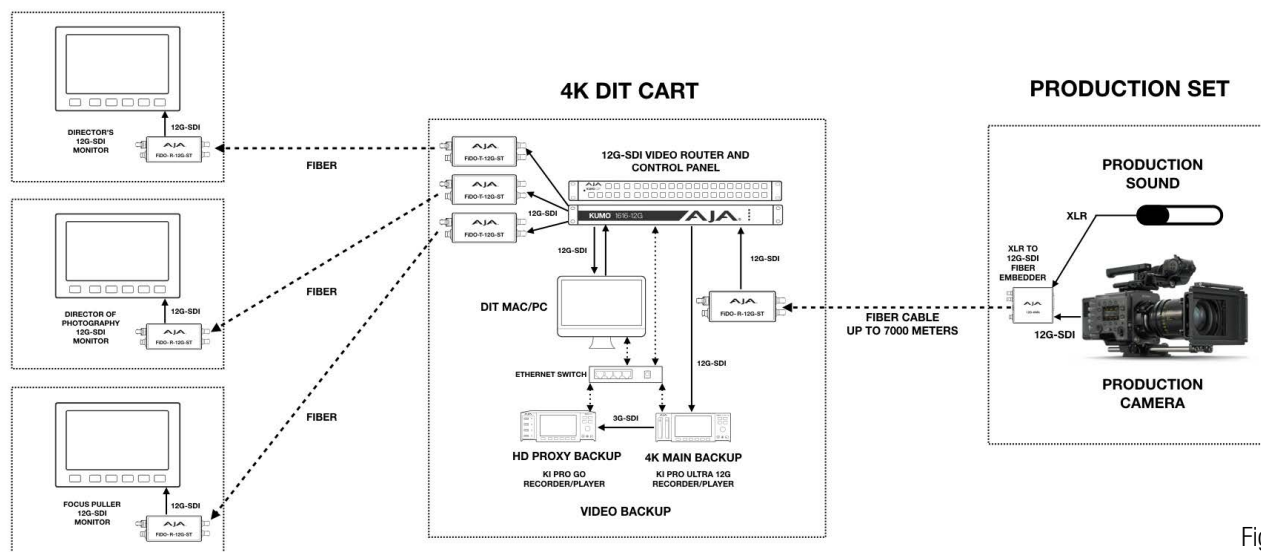


Figure 2



AJA FiDO-TR-12G

AJA FiDO converters are easy to use and come in three main types: Transceivers, Transmitters and Receivers. Instead of cabling a camera directly to a monitor or recorder via SDI cable, the video output of the camera is plugged directly into the FiDO Transceiver or Transmitter. Optical fiber cables are then run from the FiDO converter to wherever the monitors are on set, without any loss. The optical fiber cables are typically terminated with either ST or LC connectors and AJA provides options for both.



ST connector

For on-set use, many prefer an ST connector with its locking barrel, well suited to the rigors of production. Simply add the FiDO Transceiver or Receiver converters that correspond to your needs at the other end of the fiber optical cable run to provide the output required.

Low latency for fiber transmission also means that a focus pulling monitor can be added to the socially distanced set to allow for precise, no-latency control from a remote position. (see figure 2.)

Recording, Playback and Backup

Most productions have a video village for on-set viewing and playback of content being shot. Typically, this includes a DIT station, monitors for viewing, as well as dedicated video and audio

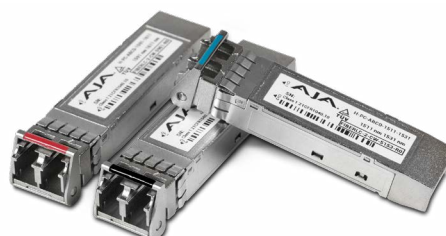
recording devices. The video village has traditionally been fed by SDI video cables or wireless transmission from the camera as well as embedded audio from the sound recordist.

Embedding audio from the sound recordist to the 12G-SDI feed from the camera is easily achieved by using AJA's 12G-AMA. Its analog XLR audio inputs allow up to four channels of audio to be added into the 12G-SDI output.



AJA 12G-AMA

As the video village itself may now be further away, AJA can provide additional safeguards for distance working by using the fiber optic infrastructure described in the previous section, or by simply choosing a 12G-AMA model version with the appropriate Fiber SFP (Small Form-Factor Pluggable) pre-installed.



SPF and SPF+
(Small Form-Factor
Pluggable)

Once the fiber optic cable runs are terminated with SDI converters, AJA offers the KUMO 1616 or 3232 12G routers so that you're able to route 12G-SDI video with ease using the accompanying KUMO Control Panel or web browser control.

VIDEO BACKUP - DETAIL

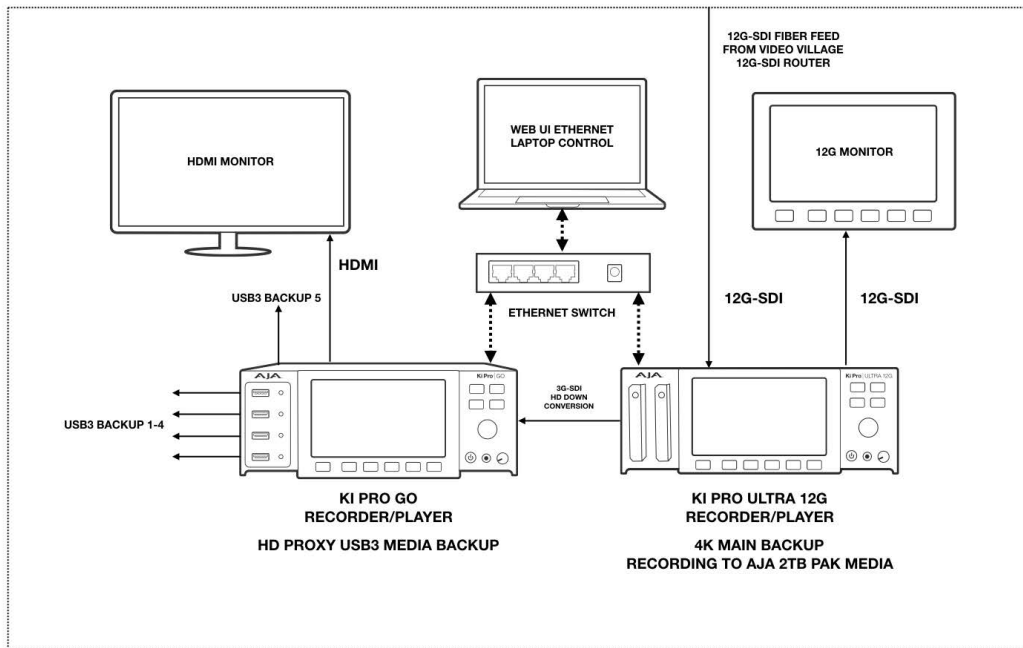


Figure 3



AJA KUMO 1616 front and rear

KUMO routers can also act as distribution amplifiers, allowing one 12G-SDI input to become as many as required for the purposes of the set.

For recording and playback at up to 4K 60p, AJA offers the Ki Pro Ultra 12G, a digital video recorder and player with optional fiber connectivity built in, meaning that fiber optic cable runs can be connected directly to the device in the video village.



AJA Ki Pro Ultra 12G front

Once connected, Ki Pro Ultra 12G can record the incoming digital video and audio as post-friendly Apple ProRes or Avid DNx formats and also provide playback of recorded material on demand. All the features of Ki Pro Ultra 12G are available remotely via ethernet as a web browser-based control system, meaning that an operator in the video village can provide full support to the needs of the production at a safe distance with no compromise in performance.



AJA Ki Pro Ultra 12G rear

Ki Pro Ultra 12G can also be fed 12G-SDI directly from the KUMO router as shown in the Video Backup Detail diagram, figure 3.

For simultaneous H.264 proxy recordings, an AJA Ki Pro GO H.264 recorder can be cascaded from the Ki Pro Ultra 12G via 3G-SDI as an HD down-converted back up, providing smaller file size recordings onto off-the-shelf USB3 media, allowing for easy review of captured material on any computer or mobile device. Ki Pro GO offers the same easy front panel buttons or web browser-based control.

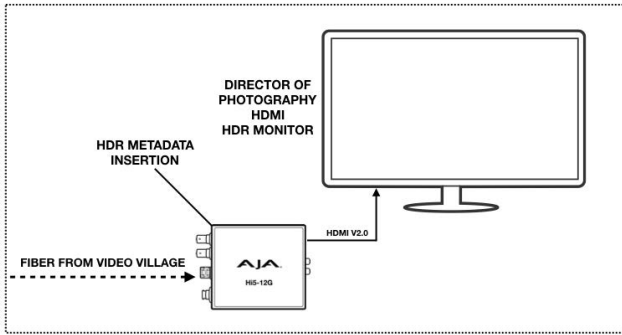


AJA Ki Pro GO front and rear



CONVERSION

DIRECTOR OF PHOTOGRAPHY MONITOR



DIRECTOR'S MONITOR

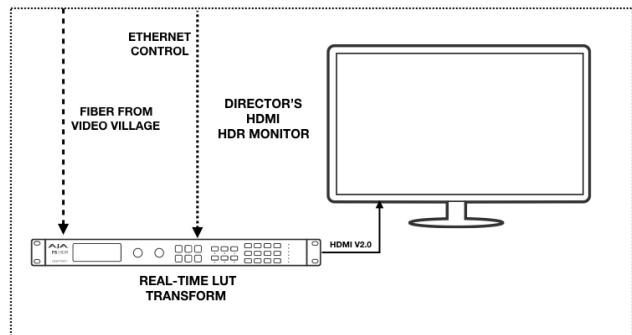


Figure 4

Conversion

We've already seen that you can connect long fiber optic cable runs directly to digital video recorders for distanced playback in a video village, but sometimes there are other requirements for the video before it is viewed or recorded.

An example of this would be shooting with HDR (high dynamic range) delivery in mind. By using the AJA Hi5-12G-R-ST converter, you are able to receive a long ST or LC fiber optic cable run that connects directly to the converter. The converter then is able to generate HDR10 or HLG metadata via its HDMI v2.0 output without any extra conversion, so the image can be viewed appropriately on HDMI HDR monitors on set. See figure 4.



AJA Hi5-12G

If more tools are required to adjust or format-flip the image before it is viewed on set, AJA also offers fiber-enabled frame synchronizers like the FS-HDR. It provides a broad base of HDR/SDR conversion, color correction, and scaling tools for HD/4K, and when ganged together, can also support 8K formats.

FS-HDR is fully controllable via Ethernet and a web browser UI in much the same way as with the Ki Pro Ultra 12G. FS-HDR also offers support for LUTs, making it an excellent choice for any HDR shoot by offering a multitude of features that can help ensure that the HDR video is viewed as intended, while maintaining any distancing required. Using in-line devices to transpose images in real-time on set saves valuable time in post while ensuring that images are viewed as accurately as possible on set.



AJA HELO

When the need arises, you can also live stream your shoot to any staff and crew members who may be in a hotel, at home or in their office. For these truly remote situations, AJA offers several products—including the stand-alone HELO streaming device for easy and reliable H.264 delivery to CDN (Content Delivery Network) and private platforms. There are AJA I/O products for multi-channel needs and the rapidly evolving Video IP landscape—including SMPTE ST 2110 (uncompressed video and almost no latency), NDI (Network Device Interface), and SRT (Secure Reliable Transport), which we will discuss in our next article.



AJA FS-HDR front and rear



Panalight Rome and Milan Reopen



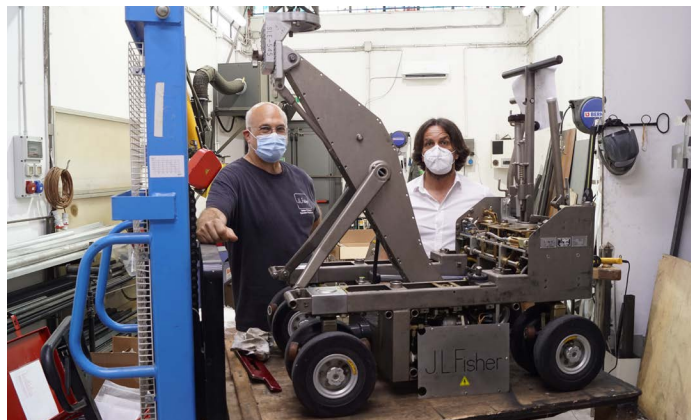
L-R, at Panalight Rome: David Jarrat, Warwick Hempleman, Carlo Loreti

As part of J. L. Fisher's ongoing RHC (Refined Hydraulic Control) upgrade program, Wick Hempleman was scheduled to travel to Rome on March 17th and stay for a few weeks, tending to clients in Rome and Milan. On March 10th, his flights were cancelled and the money was refunded. This is when Wick realized how serious the COVID-19 crisis really would be. J. L. Fisher Inc. closed in Los Angeles that same week, as did most of the global film, TV production business and supply chain.

In June, the lockdown eased across Europe. Wick contacted the clients that had been scheduled for visits, including REC, Movie People, D-Vision and especially Panalight. It looked like work would be cautiously restarting in Italy in July. David Jarratt and Carlo Loreti, Panalight Managing Directors, wanted to get their fleet of dollies upgraded and ready to return to work.

"I've been doing these RHC upgrades across Europe for some months, so the logistics are pretty dialed in," said Wick. "I elected to drive down with the tools needed, and ship the upgrade kits. It's a two-day drive from my base in Cologne to Rome. We're trying to be as fair as possible to all our clients, old and new, large and small." The RHC Upgrade provides gentler starts and stops on the lift beam, better acceleration, a precise start point, faster top speed in both directions, and much smoother movement. For more info: 11rhc.com/RHC-control-introduction.pdf

Panalight had prepared a workspace and several dollies for the upgrade. They also had several equipment check-ins and check-outs going on under tents outside. Hygiene requirements in Italy were strictly adhered to: daily temperature checks upon enter-



Warwick Hempleman, Massimo Proietti (Panlight Rome Head of Optics and Camera Service and Fisher Eleven getting RHC Upgrade).

ing the building, social distancing, masks worn at all times, hand sanitizer stations everywhere, and a daily registration form for outside visitors. Nobody was taking any chances.

Panalight started the lockdown on March 9th according to government decree and video conferencing was promoted by management to stay in touch with employees and organize the reopening procedures. The lockdown was extended until May whereupon the Italian government produced the protocol for working environment safety rules (*DPCM 11 marzo 2020 e del Protocollo condiviso di regolamentazione delle misure per il contrasto e il contenimento della diffusione del virus Covid-19 negli ambienti di lavoro del 14/03/2020*).

Panalight reopened on May 18. It had been a period of uncertainty that still is not over. But Carlo Loreti, David Jarratt and Panalight President Roberto Schettini were relieved that all employees were in good health. "This is really the most important thing," Carlo Loreti said.

During April and May, ANICA (Associazione Nazionale Industrie Cinematografiche Audiovisive e Multimediali) created the guidelines for cinema industry workers. In July, several domestic series and feature films finally restarted production that had been interrupted by the lockdown. At the same time, new domestic TV, feature projects and commercials have started up.

"In most of the continuing and new projects, in all segments, Fisher dollies are an integral part of Panalight's equipment packages. So, when Wick suggested coming down, we were naturally enthusiastic," said Carlo Loreti.



Panalight Milan: Maurizio Barchiesi, Wick Hempleman, Stefano Laveniziana

SIGMA 85mm F1.4 DG DN | Art



SIGMA 85mm F1.4 DG | DN Art in L-Mount. Above, with sunshade, below without sunshade.



SIGMA 85mm F1.4 DG | DN Art in E-mount, with sunshade.



SIGMA introduced a high-end 85mm F1.4 Full-Frame lens for E-Mount and L-Mount mirrorless cameras. The new SIGMA 85mm F1.4 DG DN | Art prime lens is remarkably small and lightweight, yet delivers superb optical performance. MTF values even exceed the much larger SIGMA 85mm F1.4 DG HSM | Art predecessor.

Several notable characteristics include:

- Iris click / declick switch
- Auto and manual aperture settings with linear aperture scale.
- Auto and manual focus.
- Dust and splash proof seals.
- L-Mount (20 mm FFD) for SIGMA, Panasonic and Leica L-Mount Alliance cameras.
- E-mount (18 mm FFD) for Sony cameras.
- Compact: 82.8 mm $\varnothing$ $\times$ 94.1mm long / 3.3" $\varnothing$ $\times$ 3.7".

- Light weight: 630g / 22.2oz.
- Optics: 11 groups, 15 elements — including 5 SLD (Special Low Dispersion) and 1 aspherical.

Paired with SIGMA's new fp camera, this lens will be an especially welcome companion for portraits in both still and video modes.

I can almost hear minds and gears spinning as colleagues consider whether this foreshadows the next wave of new lenses for cine: mirrorless still and cine camera design, shallow FFD of 18-20 mm, light and small.

The SIGMA 85mm F1.4 DG DN | Art lens will be available on Aug 27 at US \$1,199 (MSRP excluding tax), € 1,099 (with tax) and £ 999 (w tax).



SIGMA 85mm F1.4 DG | DN Art on SIGMA fp camera, side view.



SIGMA 85mm F1.4 DG | DN Art E-mount on Sony α camera, top view.



SIGMA 85mm F1.4 DG | DN Art L-Mount on SIGMA fp, top view.

DENZ Optical Director's Finder with 2x, 1.8x and 1.5x Desqueeze

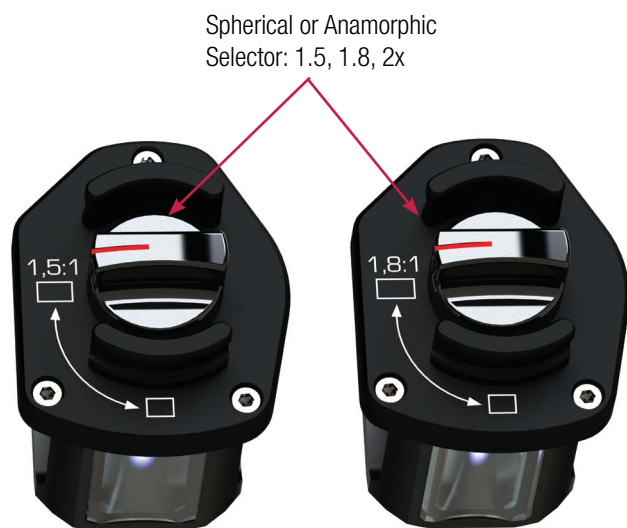


Because not all anamorphic lenses have a 2x squeeze ratio, DENZ has added two new desqueeze modules to their OIC FF Full Frame Optical Director's Finder. Now you can view 1.8x and 1.5x in Full Frame anamorphic desqueezed glory.

Scorpio FFA and Glaswerks Anamorphics are 2x; Cooke Full Frame Anamorphics are 1.8x and Technovision Anamorphic lenses are 1.5x, among others.

The DENZ OIC FF has a lever to flip from spherical to anamorphic (desqueezed) viewing.

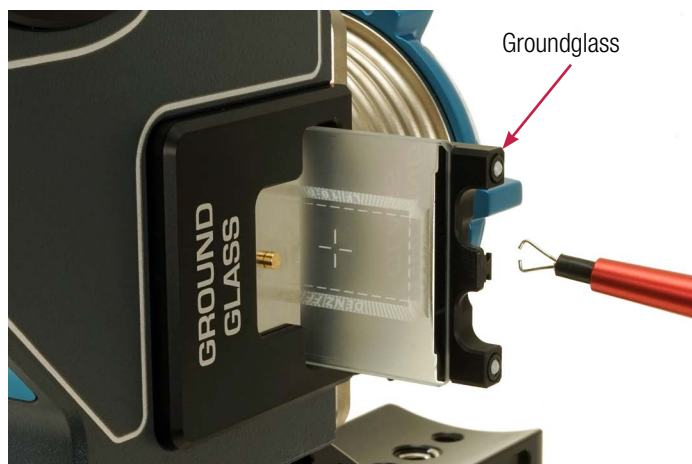
You can swap modules by unscrewing three hex screws. Do this in a clean, dust-free environment.



Traditional Directors' Finders can look like long telescopes, but the DENZ OIC FF works like an SLR camera to "fold" and shorten the beam path with precision deflection mirrors.

The 6x magnifying eyepiece has six optical elements, adjusts -4 to +4 diopters and the eyecup rotates for right or left-eyed viewing.

The lens mount attaches with four screws: PL, LPL, SP70.

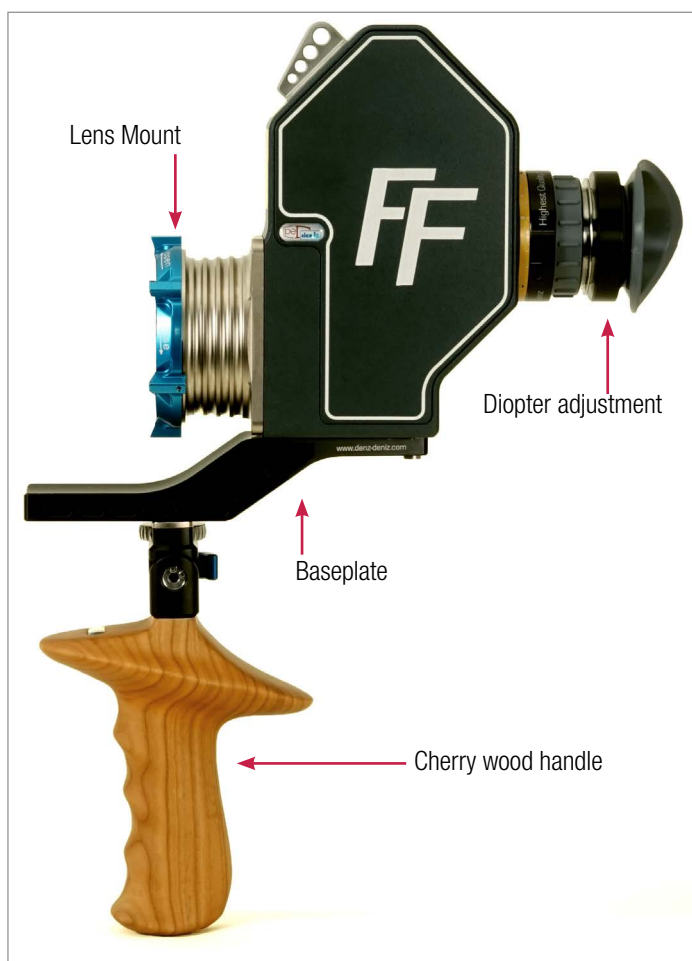


Swapping the groundglass for various aspect ratios is simple. The groundglass has a plane parallel design and it is separate from the field lens. This enables DENZ to provide a variety of relatively inexpensive groundglass options with format markings and frame lines using a 3D laser holographic process.

The groundglass is easy to clean. It covers an area greater than Full Format and shows "look-around" areas beyond the frame lines.

An ergonomically shaped cherry wood handle adjusts with a Hirth tooth rosette. A sliding plate balances heavy lenses and a thread on the bottom lets you attach the OIC FF to a monopod or tripod.

denz-denz.com



LEITZ ZOOM

All four lines of Full Frame / Large Format / Leica Format cine lenses are delivering now. The next four pages feature updates, photos and specifications courtesy of Leitz.

The M 0.8 series was introduced in 2016. THALIA came next, in 2017. September 2018 saw a new set of unnamed and untouchable Leica Format prime lenses inside a locked glass case at IBC. The name came in February 2019: LEITZ PRIME. Shortly after, LEITZ ZOOM lenses were announced. The format pioneered by Ernst Leitz and Oskar Barnack in 1913, known as the Leica Format, became the universal standard of 24x36 mm Full Frame still photography

for the next century. That same Leica Format is now embraced by cinematographers using Full Frame cine cameras from ARRI, Sony, RED, Canon and Panavision, along with mirrorless hybrid FF cameras from Canon, Nikon, Panasonic, SIGMA and of course, Leica.

Leica Format (and larger) Leitz cine lenses are presented here in reverse order of introduction: newest first.

Let's start with LEITZ ZOOM lenses. They are color matched with the LEITZ PRIME. No ramping. Parfocal. Breathing is minimal. Almost no distortion and chromatic aberration. leitz-cine.com



Focal Length (mm)	25-75	55-125
Zoom Ratio	3:1	2.3:1
Maximum Aperture	T2.8	T2.8
Close Focus (m)	0.91	1.05
Close Focus (ft)	3'	3'5"
Weight (kg)	3.9 kg	4.2 kg
Weight (lb)	8.6 lb	9.3 lb
Length (mm)	266.6	307.4
Length (in)	8.92	12.10
Zoom Rotation	112.65°	120°
Iris Blades	15	21
Image Circle	46.5 mm Ø	

Same Gear Positions: Focus, Iris and Zoom gear rings are at the same distance from mount for all focal lengths

Lens Mount: P or, LPL — /i and LDS-2 contacts in mount
 Iris: T2.8 for both. Circular through all stops
 Front Diameter: 114 mm (same as LEITZ PRIME)
 Front Filter: 112 mm (same as LEITZ PRIME)
 Rear Filter: Net holder
 Focus Scales: Easy to swap between Imperial and Metric
 Focus Barrel: 270° rotation
 Iris Barrel: 54° rotation

/i
and
LDS-2



MACROLUX 114

Leitz MACROLUX 114 slips onto the front of a LEITZ ZOOM or LEITZ PRIME (114mm front diameter) for high resolution, high contrast macro work. (Note, MACROLUX 95 fit Super35 Summilux-C and Summicron-C lenses with 95mm front diameters.)



Macrolux +0.5



Macrolux +1



Macrolux +2

LEITZ PRIME

The look of the LEITZ PRIME has been described as “cinematic, beautiful, an iconic confluence of coatings, glass, design, art and craft.” Development began in 2015.

In 2019, I remember rhapsodizing, “LEITZ PRIME has the look of glowing, lusciously smooth skin tones, detailed details where

you want them—sharp eyelashes and eyebrows—with silky sympathetic focus roll-off, gently tempered depth of field dimensionality, impressionistic luminous backgrounds, beautiful bokeh and harmonious contrast.

Both PRIME and ZOOM have /i Technology metadata.



Focal Length (mm)	18	21	25	29	35	40	50	65	75	100	135	180
Maximum Aperture	T1.8											
Close Focus (ft)	1'10"	1'10"	1'10"	1'2"	1'6"	1'2"	1'7"	2'2"	2'6"	3'11"	3'11"	4'11"
Close Focus (m)	0.55	0.55	0.55	0.35	0.45	0.35	0.47	0.65	0.75	1.2	1.2	1.5
Weight (lb)	7.1	6.1	6.2	5.9	6.3	6.0	6.0	6.1	6.2	6.1	6.4	6.8
Weight (kg)	3.2	2.76	2.8	2.67	2.87	2.71	2.7	2.78	2.83	2.77	2.89	3.1
Length (in)	7.9"	7.2"	7.2"	7.2"	7.2"	7.2"	7.2"	7.2"	7.2"	7.2"	7.2"	7.9"
Length (mm)	201.5	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7	201.5
Image Circle	46.5 mm Ø											

- Same Gear Positions: Focus and Iris gear rings are at the same distance from mount for all focal lengths
- Same Length: All focal lengths are the same length (except the 18 mm and 180 mm)
- Lens Mount: PL or LPL — /i and LDS-2 contacts in mount
- Iris: T1.8 for all. 15 blades, circular through all stops
- Front Diameter: 114 mm (same as LEITZ PRIME)

- Front Filter: 112 mm (same as LEITZ PRIME)
- Rear Filter: Net holder
- Focus Scales: Easy to swap between Imperial and Metric
- Focus Barrel: Cam driven, 270° rotation (except 18mm which is 207°)
- Iris Barrel: Cam driven, 70° rotation (except 18mm which is 63°)

THALIA

Leitz Thalia primes cover Large Format, Full Frame, Leica Format and 65mm Format cameras like ARRI ALEXA 65, Fujifilm GFX 100, etc. The image diagonal is 60 mm.

There are three Makro lenses in the Leitz THALIA set. They focus to 1:2, meaning that you can fill the frame with an object that in real life is twice as large as the sensor. The focus barrels are marked not only with distance, but also magnification factor and exposure (light loss) for which you have to compensate. The Ger-

man spelling of Makro is used, with a "k."

The THALIA-T looks like the rest of the THALIA set on the outside, but its optical characteristics are totally different. Wide open, it has a vintage, romantic, slightly hazy and soft look. Stop down from T2.2 to T5.6 and things become progressively sharper, perhaps less vintage, veering toward post-modern. THALIA-T was based on venerable Leica optical designer Max Berek's 1930s portrait lens: soft, glamorous, Greta Garbo glowing highlights.



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

Image Circle: 60 mm (ARRI ALEXA 65)
 Mount: PL and LPL - with /i Technology lens data
 Front Diameter: 95 mm
 Front Filter: 92 mm screw-in
 Rear Filter: Net holder

Focus Barrel:
 Iris: 270° Rotation
 Matched Focus/Iris Ring locations: 15 Blades, circular through all stops
 Makro: All focal lengths
 German spelling for macro, 1:2 ratio

M 0.8

Leitz M 0.8 are iconic Leica M lenses with a click-less iris, 0.8M industry-standard gear rings for lens motors, an 80 mm front diameter and 77 mm screw-in front filter threads. A screw-in metal sunshade makes the front . M 0.8 lenses are hand-selected for accuracy and quality. They receive three times more cleaning

and polishing than regular Leica M lenses. You can shoot with M 0.8 lenses on cameras fitted with M mounts, and of course, Leicas. These are among the smallest and lightest Leica Format / Full Frame lenses anywhere — and their look is the stuff of legends.



Focal Length (mm)	21	24	28	35	50	50 Noctilux	75	90
Maximum Aperture	f/1.4	f/1.4	f/1.4	f/1.4	f/1.4	f/0.95	f/2.0	f/2.0
Close Focus (Feet/Inches)	2'4"	2'4"	2'4"	2'4"	2'4"	3'3"	2'4"	3'3"
Close Focus (Meters)	0.7	0.7	0.7	0.7	0.7	1.0	0.7	1.0
Weight (lb)	1.1	1.1	1.1	0.8	1.0	1.8	1.3	1.3
Weight (kg)	515	505	480	370	466	835	572	605
Length (in)	3.4"	3.4"	3.8"	2.9"	3"	3.9"	3.4"	3.7"
Length (mm)	8.7	8.7	8.3	7.4	7.5	9.8	8.7	9.5
Image Circle	44 mm Ø							

Front Diameter / Screw-in Filter: 80 mm Ø / 77 mm Ø

Lens Mount: Leica M-Mount (27.80 mm FFD; 44 mm Ø ID)

M-Mounts for ARRI, Sony, RED



M mount made by Leitz for ARRI
ALEXA LF, Mini LF, Mini



M mount made by Leitz
for Sony VENICE



M mount made by RED for
RED DSMC,



50mm Noctilux

Leica M10-R — 40 Megapixel Sensor



March 1914, Wetzlar. Oskar Barnack completes the prototype of his Liliput camera, the “Ur-Leica. It shoots 36x24 mm (Full Frame) stills, using 35mm cine film positioned horizontally.

March 1925. The Leica I begins serial production and is introduced at the Leipzig Fair. The format is called Leica Format.

1930. The Leica I gets a 39 mm diameter threaded mount for interchangeable lenses and looking back, can be called a primordial ILMC—Interchangeable Lens Mirrorless Camera.

1932. The Leica model C standardizes on a Flange Focal Depth of 28.8 mm.

1954. The first M series Leica Camera, with a bayonet mount, is introduced at Photokina. Flange Focal Depth is now 27.8 mm and the mount's Inside Diameter is 44 mm.

July 16, 2020, Wetzlar. Leica Camera introduces the latest in their long line of beloved M cameras. The M10-R has a new, 40 Megapixel sensor. Image noise is reduced, dynamic range increased, time exposure now goes to 16 minutes for those night sky shots, and ISO ranges from 100 to 50,000. The shutter is quieter and causes less vibration. This is a still camera. It doesn't do video. It's the camera you want on set for unobtrusive, silent BTS, tests, pre-vis, scouting and production stills.

The current Leica M Full Frame rangefinder family now includes M10, M10-P, M10-D, M10 Monochrom and M10-R.

The Leica M10-R runs around \$8,295 in black or chrome.

Technical Details

- Lens mount: Leica M bayonet with contacts for 6-bit communication
- Flange focal depth: 27.80 mm
- Lens adapters: Leica L, Leica R, PL mount, and more.
- Sensor: 40 Megapixel CMOS. Full Frame 36 x 24 mm.

- Stills Resolution: DNG: 7864 x 5200 (40.89 MP).
- JPEG: 7840 x 5184 Pixel (40.64 MP), etc.
- Stills formats: DNG RAW 14-bit, JPEG 8-bit
- Media: SD cards up to 2GB. SDHC cards up to 32GB. SDXC cards up to 2TB.
- Sensitivity: ISO 100 - 50000, adjustable in 1/3 stop increments, choice of automatic or manual control.
- Rangefinder: Bright line frame viewfinder with automatic parallax compensation
- Eyepiece: Calibrated to -0.5 diopter, fixed. Additional -3 to +3 diopters available.
- Frame lines: Two bright lines shown with each lens used: For 35 and 135 mm; 28 and 90 mm, or 50 and 75 mm; automatic switching when lens is attached.
- Viewfinder: Four-digit digital display
- Rear: 3" color -TFT LCD monitor with 16 million colors and 1,036,800 dots, approx. 100% image field, glass cover of extremely hard, scratch-resistant Gorilla glass.
- Shutter: Metal blade focal plane with vertical movement.
- Shutter speeds: Aperture priority 125s to 1/4000s.
- Manual: 8s to 1/4000s in 1/2 steps; 8s to 125s in whole steps.
- B: For time exposures up to maximum 125s (in conjunction with self-timer T function, i.e. 1st release = shutter opens, 2nd release = shutter closes)
- Power: 1 lithium ion rechargeable battery, nominal voltage 7.4V, capacity 1300mAh.
- WiFi: 802.11b/g/n (standard Wifi protocol), channel 1-11.
- Camera body: Die cast magnesium body, synthetic leather covering. Brass top panel and base, black or silver chrome-plated finish
- Dimensions (width x depth x height): 139 x 38.5 x 80 mm
- Weight: approx. 660 g (with battery)

Leica M10-R



Leica M10-R front



Leica M10-R rear



M10-R with 50mm f/1.4 Summilux-M



M10-R with 35mm f/2 Summicron-M



M10-R with 50mm f/1.4 Summilux-M



M10-R with 35mm f/2 Summicron-M



M10-R top view with 50mm f/1.4 Summilux-M



Leica M lenses



Michel Suissa is General Manager, The Studio - B&H

JON FAUER: Usually we have these discussions in person over a fine French lunch. Aside from meeting by Zoom, how has the business of the business changed for The Studio at B&H?

MICHEL SUISSA: We have come to understand that a physical location as point of retail is not as critically important as it was for our business of serving professionals. It's been enlightening. Our B-to-B (business to business) channel has gained more presence in the minds of the company's upper management and they see us as an important part of the picture, more than ever.

Of course, if we could go back and make the pandemic go away, we all would, for sure. But if there's a silver lining, it is that we've got to be better prepared for the future and that's what we're trying to do.

How do you think this is going to affect the future of equipment, production techniques and trade shows?

Trade shows are a long way away. It's as distant as reopening large venues. Video chats are providing a way to reach customers on a more personal level, without distractions. Productivity is quite low at trade show, I find, compared to talking directly with a customer.

How has business been lately?

Business has been good. It hasn't stopped. It's been different. The sale of large orders of production equipment has slowed down dramatically. We've been able to adapt with people who are still doing production but have to communicate from multiple locations. The business models have changed.

Do have specific examples?

We have a fashion customer who finished an entire campaign that was shot in four different cities. The creative and production team remained in New York. The models were filmed in empty studios in Paris, London, and other European cities. We deployed secondary cameras attached to the rigs holding the "A" camera and they could interact with the talent as if they were there.

It comes down to what mode of communication you use. Do you want to rely on traditional WiFi or internet technology which exists everywhere but is also tenuous because a lot of people rely on Public internet traffic. If a dozen people in your neighborhood decide that they all want to stream a 4K movie at the same time, your bandwidth is going to come down to a crawl. We have a good partnership with LiveU deploying bonding technology that aggregates a number of cellular channels to increase bandwidth. That's been another option for people who do not want to rely on traditional internet connections.

We've used a number of new modes of communication for wireless data transmission. A lot of people have installed mini-production environments in their own homes or backyards, for example, with a Blackmagic switcher or TriCaster and multiple cameras. A lot of universities, colleges, sports leagues and teams are exploring that method of communicating. It's an entire spectrum with different needs that we've had to adapt to. We continue to support the production community. People are still going to need to produce content because the consumption side is not changing. You're home more often and you need more content.



What about lighting?

We have been working with ARRI on IP-based and bonded cellular control of cameras and lights. The cameras and lights can be controlled via internet from a computer app. For example, if you have a complex lighting design with theatrical-style Leko lights as well as an entire stage with SkyPanels, you can have two people operating the same application at the same time with multiple remote logins.

When is it cellular and not hard-wired ethernet?

One of the ARRI sales people, François Gauthier, was in a location with a few lights, an ALEXA Mini LF and a series of lenses. He did not have good internet connectivity there. So, the only way to get a signal out was through a different type of wireless communication—bonded cellular.

Access to physical locations where you shoot is going to be far more limited in the near future. You're not going to have a soundstage with 50 crew members. It's going to be different. A lot of this work is going to be remote. We may see three or four camera operators and remote heads on a soundstage where each one of them communicates through an IFB (Interruptible Foldback) intercom or separate channels.

If the talent is on one stage and the camera operators are working elsewhere, what happens with latency and lag?

That's where the technology will evolve. It's not good enough to be three or four frames delayed. We need to make sure that the response time is instantaneous and as interactive as it can be.

Does that mean fiber optic networks?

It means fiber, widespread deployment of 5G, virtual private networks and the price of all this infrastructure coming down.

Does 5G offer much less latency?

5G has very low latency. Last year, we put together a studio for RYOT Films, a division of Verizon, with real-time VR requiring a lot of computational power for gaming across 5G networks between multiple locations and multiple users. It was in conjunction with another company partner of ours, Ncam, who do real-time motion tracking.

How are current sales of new equipment on the high end?

We're optimistic. We've made, and continue to make, very wide commitments to the world of high-end digital cinema by investing in inventory as well as continuing to modernize our studio—to make sure that we have a level of readiness for the marketplace that did not exist before. These commitments are going to continue. They're here to stay and I think we're very encouraged by the fact that the demand for high-end camera systems has started to pick up substantially. That's encouraging.

Do you see trends?

The demand from individuals, production companies and corporations with an in-house media department is growing rapidly.

It's like going back to the French New Wave and Cinema Verité with a cameraman, director, and small crew in a minivan.



Photos by Michel Suissa with Canon 5D, ZEISS CP.3 28mm wide open.

We've seen the non-scripted market—reality and documentary filmmaking—becoming a lot more interested in newer and higher-end technology. Especially with all the new OTT platforms, there is as much demand for good non-scripted content as there is for scripted television.

Feature filmmakers are taking on important causes and creating documentaries. Their standards for quality are high and because of that, the production companies involved are upping the ante. OTT platforms are providing the widest distribution. If you want your content to be acquired by some of these OTT platforms such as Netflix, Amazon Studios or even the newcomers Apple and Disney, you have to conform to their technical specs. That means you need your cameras to provide the acquisition they demand to make sure you qualify.

That's where people are investing. For example, the last six high-end camera sales that we completed in the past week were for production companies creating non-scripted content, documentaries, on the high-end.

If it's non-scripted, are they buying Full Frame or Super35 cameras. Are the lenses mostly zooms or primes?

Full Frame Cameras. And prime lenses. Oh, absolutely. It's totally high-end and I've been impressed by the level of knowledge that exists within these companies. They know how to capture their material. It's really creative. They know their craft and it's fascinating to see what kinds of choices they make based on the nature of the content they create.

I would have expected zooms for documentaries. Rental houses are reporting widespread use of zooms on episodic TV lately.

Zooms are still prevalent. If you want to be more nimble and have a small crew, rather than changing your prime lenses all the time, a zoom lens is valid. But a zoom might be inherently larger, heavier and slower.

We see two parameters that play into the selection of prime lenses for this category. One is the look. Users are often very attached to what a lens is going to look like. Number two is price. People will ask, "What can I get for a certain price range that's going to give me this look?" And then, there's the reverse, "Okay, I want this look. What is going to be the budget for that?"

We've seen success with SIGMA Full Frame High Speed Primes, ZEISS Supreme Primes, all the way to ARRI Signature Primes. Of course, Signature Primes are more prevalent with people who choose an ALEXA Mini LF. So, Signature Primes are gaining a lot of traction. We think they're great lenses and they are an excellent companion to the Mini LF. We've also seen a lot of continuing interest in Cooke lenses. We cannot stop them from flying off the shelves. And, we were successful in recently introducing the first set of Leitz PRIME lenses in the U.S.

You mentioned inventory. I would assume, in this new world, that having products in stock is very important.

It's very important and also very delicate. You're at the mercy of any downturn in the economy should production falter again. It is a gamble but we've decided that it is worth taking. We are happy to be gaining a higher level of respect from the community. Image is as important as revenue at the moment. Revenue will continue to grow. But I think that demonstrating a willingness to make an investment in better serving the community is something that's really important.

Takumi 40.6 - 332 mm Full Frame



Musashi Optical System Company is located in Saitama, Japan. Their expanders, extenders and optical adapters, such as the OptMag, OptMag Plus and OptMore, are well known.

Now, Mushashi-Opt presents their new Takumi 40.6-332 mm T4.8 Full Frame zoom lens. It covers an image diagonal of 46.3 mm. There are three independently moving internal groups. Optical performance is excellent. There is no aperture ramping throughout the entire zoom range.

Flange Focal Distance (Flange Back) is adjustable. There are 9 iris blades. Gear pitch is standard 0.8 mm for all barrels.

The Takumi zoom lens is made in Japan. musashi-opt.co.jp

Focal length	40.6 - 332 mm
Maximum Aperture	T 4.8
Image diagonal	46.3 mm
Lens mount	PL (52mm Flange Focal Depth)
M.O.D. from image plane	1.22 m / 4.1 ft
Angular Field of View 16:9 Aspect Ratio	Wide (40.6 mm) 53.1° x 30.6° Tele (332 mm) 7.1° x 4.0°
Object Dimensions at M.O.D. (16:9 Aspect Ratio)	Wide (40.6 mm) 918 x 516 mm Tele (332 mm) 111 x 62 mm
Barrel rotation	Focus: 280° Zoom: 160°
Front lens diameter	136 mm
Length	413.2 mm / 16.3 in
Weight	9.2 kg / 20.3 lb



Takumi 40.6-332 mm T4.8 Zoom at BSC Expo in January 2020.

Cartoni UV-C BOXER



Elisabetta Cartoni, President and CEO of Cartoni Camera Supports is addressing the pandemic: "At Cartoni and in Italy, we were among the first to be hit by this devastating crisis. During our state-mandated lockdown, we studied ways to help our industry. We came up with a device that could help production crews and rental houses to stay safe from the virus. Social distancing, masks, and hand sanitizers are essential safety requirements. But, on production sets where the equipment is constantly handled multiple times during shooting hours by operators, assistants, grips, and crew, we think for production to truly ramp up again, there is a compulsory need to disinfect and decontaminate gear daily or even several times a day."

The new Cartoni UV-C BOXER is equipped with ten medical-grade UV-C (100-280nm) lamps to neutralize micro-organisms including COVID-19, germs or mold. The total irradiation and disinfection cycle of the Cartoni UV-C Boxer takes just 5 minutes to sanitize each batch of equipment, controlled by a timer. Like all UV light, exposure to UV-C rays can be harmful to people, so Cartoni designed the BOXER with a safety lock system to avoid accidental UV-C exposure.

cartoni.com



INOVATIV AXIS Health Products for Safer Sets

INOVATIV GUARDIAN

viewed from crew and visitor side, with two monitors, sanitizer, mask and glove dispenser

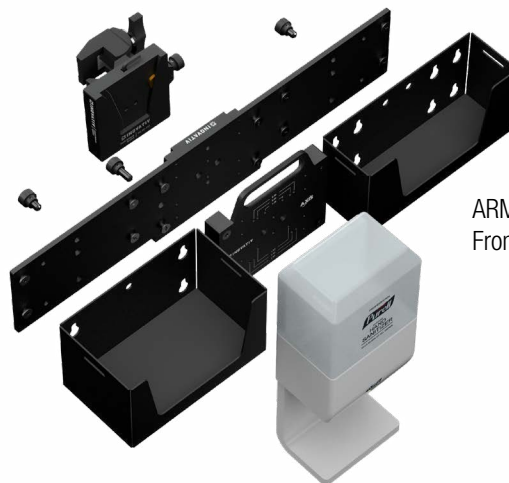


So, instead of stuff scattered on random tables, Inovativ's nicely designed AXIS Health safety products and work surfaces attach to ubiquitous Inovativ carts and stands, or to most other stands.



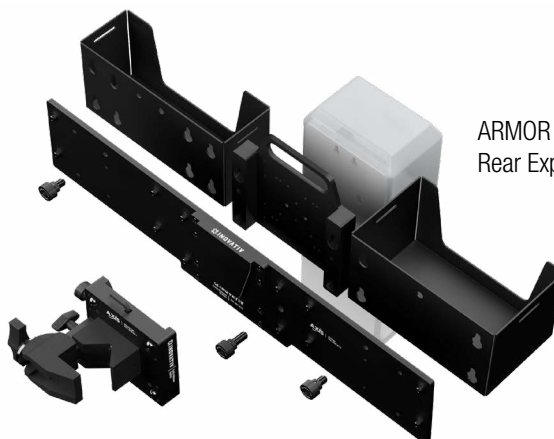
SHIELD QR
Front Exploded View

Inovativ's AXIS SHIELD QR is a clever mount to attach a hand sanitizer like the Purell Touchless Dispenser to any post that is 2 inches or less in diameter. That includes an Inovativ cart, C-Stand, Monitor Stand, Light Stand or Steadicam Stand. QR means it has a Quick Release bracket connected to a Manfrotto-style Super Clamp. There are also hard-mount versions of the QR products.



ARMOR QR
Front Exploded View

Inovativ AXIS ARMOR QR is more comprehensive. It holds not only a hand sanitizer dispenser, but also holders for boxes of protective face masks and gloves.



ARMOR QR
Rear Exploded View

You arrive on set. They check you in at a flimsy folding table. Where are the masks? Gloves? Protocols?

Getting back to work and working safely in Coronavirus times can be helped by some common-sense practices and products.

Now, INOVATIV introduces a new line of AXIS Health workstations to stay safe on set and on location as production reopens. Inovativ is the same innovative and enterprising company famous for high-tech equipment workstations and carts favored by ACs and DITs. They also make unique stands for Video Village, monitors, Steadicam and gimbals.

Inovativ's new AXIS Health systems are mobile, collapsible, portable and modular. They attach to existing carts and stands or to an Inovativ AXIS Stand without requiring tools.

Inovativ AXIS Health products conform to COVID-19 protocols that productions, studios and rentals houses are implementing. Many of Inovativ's AXIS Health products provide and dispense brand name touch-free hand sanitizers, face masks, and gloves in conveniently portable configurations that mount on anything up to 2 inches in diameter.

Patrick Blewett, Inovativ CEO, said, "am excited to release this fleet of post COVID-19 workstations and components. It's my goal to assist productions, studios, and rental houses with a series of tools that will allow them to relaunch the industry as efficiently and safely as possible."

Inovativ AXIS for Safer Sets

INOVATIV GUARDIAN
viewed from set medic / healthcare
professional's side



CHECKPOINT viewed
from visitor side



Inovativ's AXIS GUARDIAN is a complete check-in station for crew, cast and all visitors to a set. It combines the ARMOR sanitizer, mask and glove dispenser with an antimicrobial white work surface and locking draw with a rolling stand and dual monitors for documenting arrivals and departures along with production information.

GUARDIAN includes an Armor QR with:

- Hand sanitizer dispenser
- Mask box holder
- Glove box holder

The Axis Worksurface Lite (also sold separately) is a shelf and drawer unit onto which you can place a laptop to check in employees and visitors:

- Antimicrobial Powder Coating
- White Surface allows easy cleaning
- Cable Pass-Through
- Combo-Locking Drawer – store scanning thermometers, medicine, documents, credential passes and extra supplies

The pedestal of the GUARDIAN is Inovativ's AXIS Stand, an already familiar 3-wheel rolling workstation:

- Fully extends to 79" and collapses to 50.5"
- Parallel Dual Monitor Bracket for safety videos and check-in
- Three swiveling pneumatic 8" Wheels with foot brakes and sealed bearings
- Easy to install and remove
- Extremely quiet and easy to roll
- Setup Time: 2-3 minutes
- Packs flat for travel
- Easily separated into 5 individual assemblies making it portable and simple to replace parts

AXIS CHECKPOINT is similar to the GUARDIAN. But, instead of wheels, it has a fixed base that is 31" wide. Height is not adjustable; it is set at 62". Like the GUARDIAN, the CHECKPOINT can be packed flat in about 3 minutes.



CONVOY

Inovativ's AXIS CONVOY is a portable set safety system in a rugged Pelican 1730 watertight, air-tight, dust-proof, crush-proof, chemical resistant, and corrosion-free polypropylene case.

Inside:

- ARMOR QR with sanitizer, mask and glove box
- Axis Worksurface Lite (shelf and locking drawer)
- Clamps to posts (2" or thinner), AXIS Stand or AXIS Pedestal, C-Stand, Medium Rolling Stand, Monitor Stand, Speed Rail, Steadicam or Light Stand.

These AXIS Health products are available now for pre-order directly from INOVATIV or their worldwide dealer channels.
inovativ.com



Reception area of Otto Nemenz International's new facility in Culver City.

Otto Nemenz International (ONI) has moved to a vast new facility at 5700 Buckingham Parkway, Culver City, CA 90230.

We usually list specifications for cameras and lenses. Here are a few specs about the new place. These details tell a lot of the story:

- 38,000 square feet
- 41 employees
- 21 prep bays
- 2 large feature prep rooms
- 128 parking spaces
- 345 maximum occupancy (173 in current social distancing times)
- 1500 sq. ft storage area for camera assistant carts
- 1250 sq. ft. machine shop
- 1085 sq ft projection and lens test room with Chrosziel Large Format Projectors
- New Trioptic Lens Tester
- 45 truckloads of equipment brought from the former place on Vine St.

This is Otto's third location. I remember the first storefront at 7531 Sunset Boulevard and then the move to 870 Vine Street around 1983 with 8 employees.

Otto said, "We certainly didn't plan it this way, but the place is enormous. We're lucky to have the latest HVAC system with advanced air filtration. The place is so large that social distancing

comes naturally. The prep bays have 23-foot high ceilings. Crews can check out for jobs and remain safe."

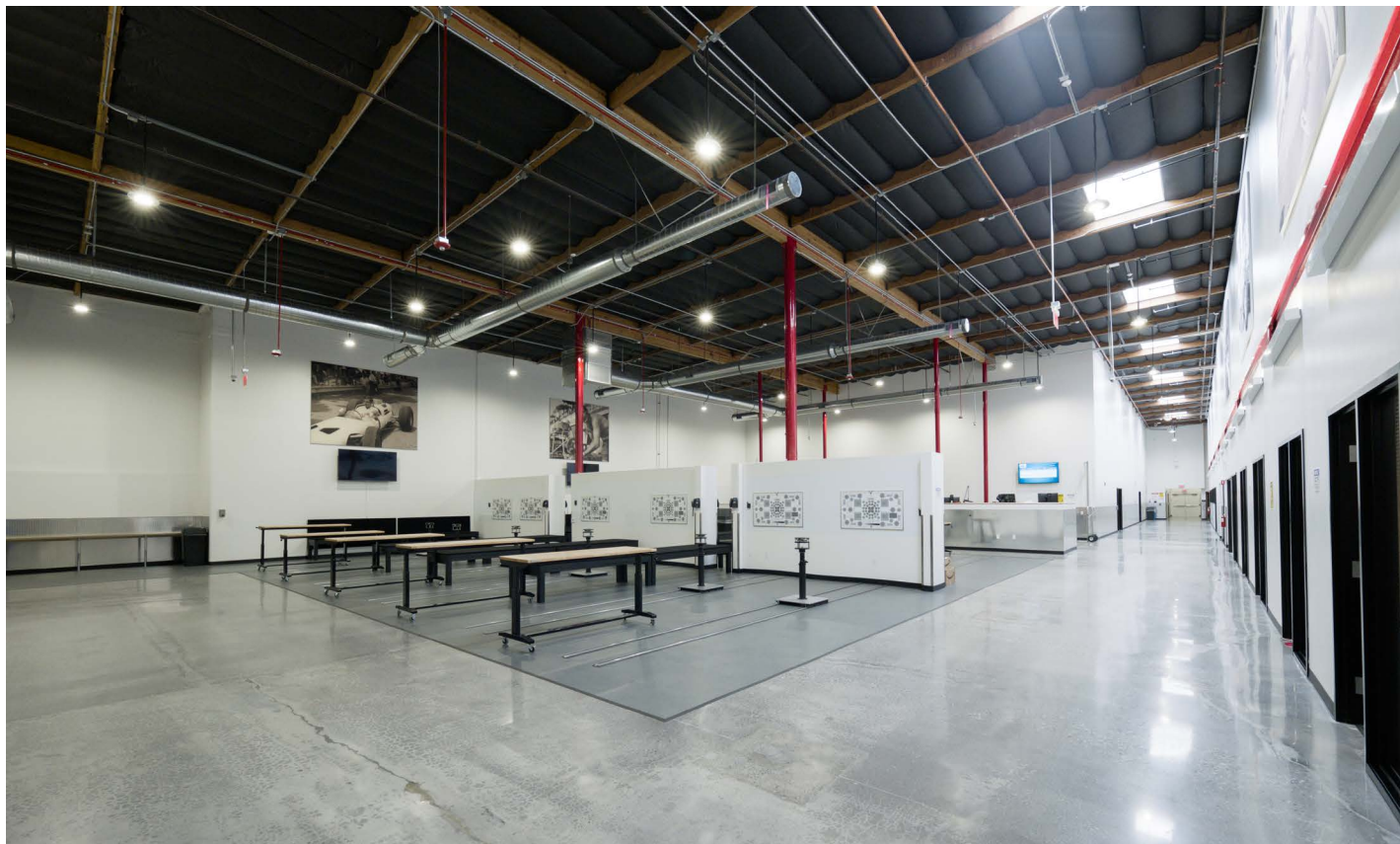
Fritz Heinzle added, "Union and safety committees visited and approved of what they saw. The halls are 12-foot wide. Equipment is returned to the loading dock where it is checked in and sanitized. The vault is fireproof. Prep technicians work with customers in the big, open plan area. Customers sign in, have their temperature checked, receive masks and gloves. We are open for business and are already prepping jobs."

Instead of fixed camera pedestals and moving lens charts on rails that hang from the ceiling, they embedded tracks into the floor on which each camera can move. "Having the camera move on tracks frees up a lot of space," Otto explained.

They installed more than 30 P.A.T. (Pret à Tourné) Focus Charts sourced from MYT Works in New York. The charts have magnetic backings that attach and move on the perfectly perpendicular walls.

Their massive Trioptic ImageMaster Cine Flex is similar to the ones installed at ARRI, the Signature Prime manufacturing facility, ARRI Rental and elsewhere. Essentially, it's three motorized telescopes that pivot on center and off-axis along a "wheel of fortune" to test, align and check lenses, including MTF values. The data is stored in its computer. So, if you change air gaps or mess with elements, the Trioptic tester will let a technician return the lens back to the default factory settings. It also checks for loose el-

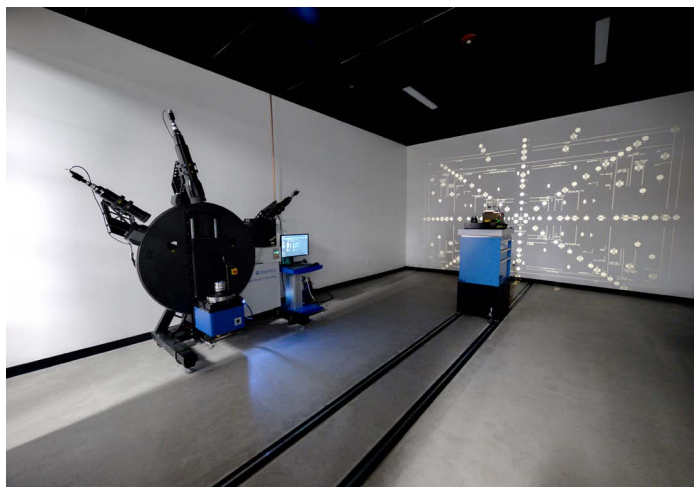
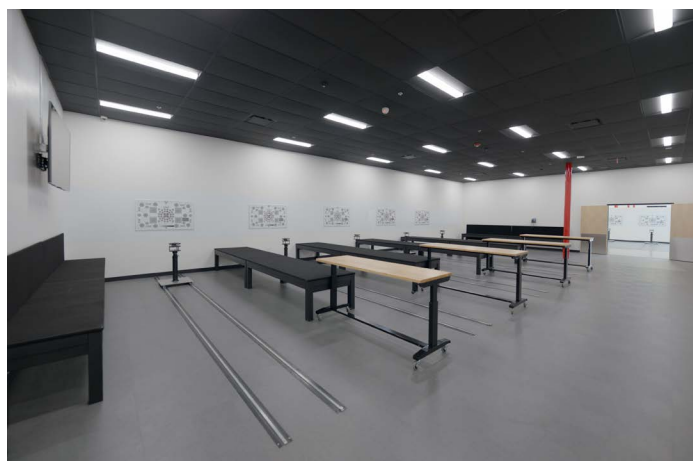
Otto Nemenz Moves



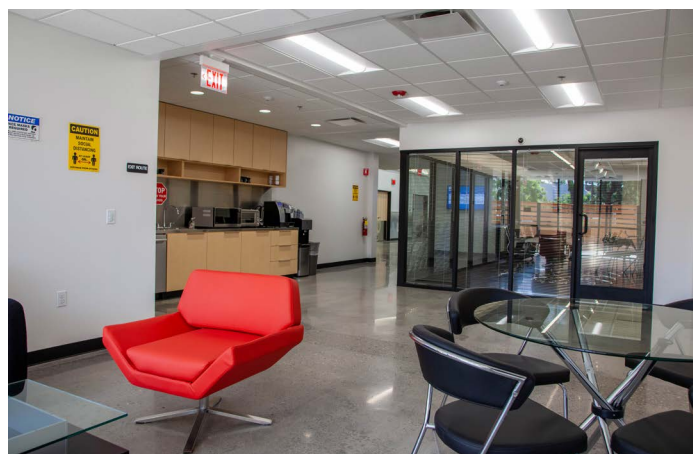
Above: Prep Area with 23' high ceiling and PAT-ACC Focus Charts.
Below: Feature Prep Room with 12' ceiling.

ements and anything else amiss inside, both before and after a job. The Chrosziel TP7 lens projectors are the latest models for Large Format, with LED illumination and a 60mm Image Circle. The lens test room is 50 feet long, so you can check out far distances as well.

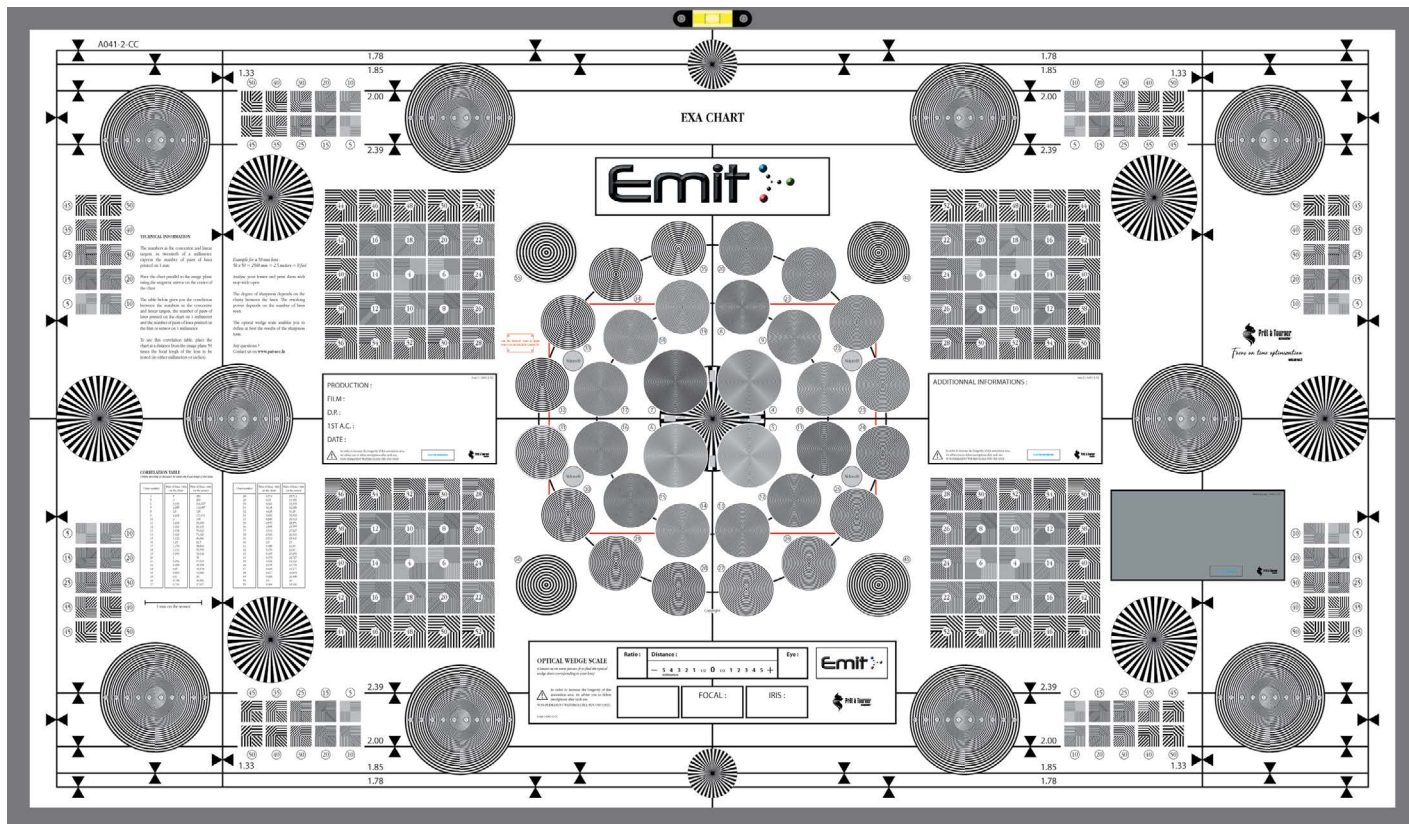
Otto summed it up, “This move has been in the works for a long time. We were running out of space in the Vine Street location. We would love to have you come visit us. Thanks to all the cinematographers, assistants, crews, directors and producers for all their years of support. We look forward to working together for many years to come.”



Above: Trioptic ImageMaster Cine Flex and Chrosziel Projector in the Lens Test Room.
Right: Lounge Area and Kitchen

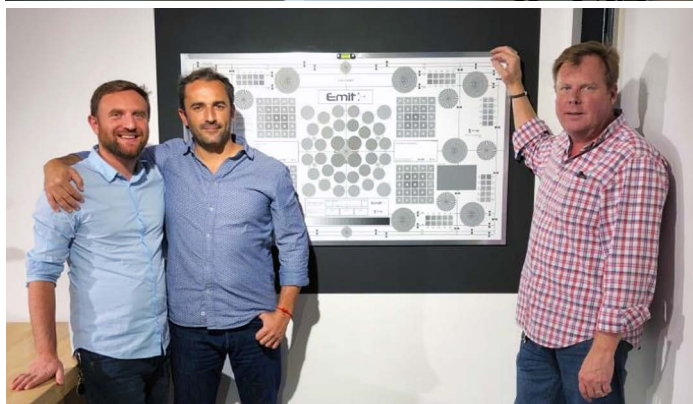
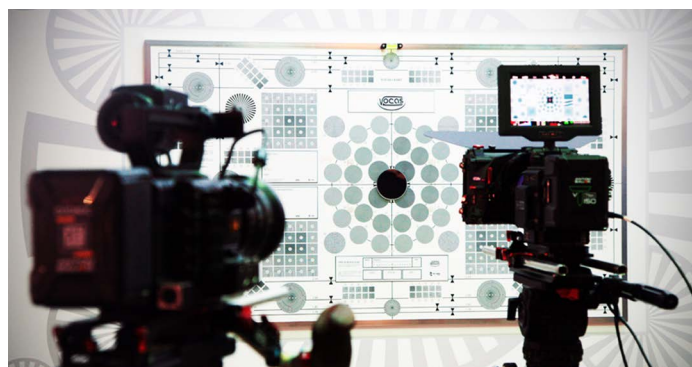


P.A.T. Lens Charts



Stéphane Paillard is a former Camera Operator and Camera Assistant who turned his sharp knowledge into a thriving business designing and supplying high-tech lens charts and essential accessories. His company P.A.T-Accessories (Prêt à Tourner—Ready to Shoot) is a few miles from the location where the Lumière Brothers shot *The Arrival of a Train at La Ciotat Station* with their Cinematograph in 1895. P.A.T. charts let you check the resolution of a lens or the camera's sensor.

Lens charts have been around since the 19th century. But, Stéphane realized that conventional printing techniques yield fuzzy lines. And so, PAT-ACC charts use special inks and laser processes that exceed many lens projector reticle resolutions. PAT-ACC charts are used at leading rental houses, manufacturers and optical services worldwide. Shown below, clockwise from top left: RVZ, Vocas, FDTimes, EMIT. You can order them directly: (pat-acc.com) and from MYT-Works in the USA (mytworks.com).



Etienne Sauret and MYT Works



Etienne Sauret at his Okuma Genos M560 CNC Machining Center.

Etienne Sauret is an award-winning New York filmmaker. A few years ago, he started his own company, MYT Works (pronounced "Mighty"). As his logo says, it was "born out of frustration" with the equipment he was using.

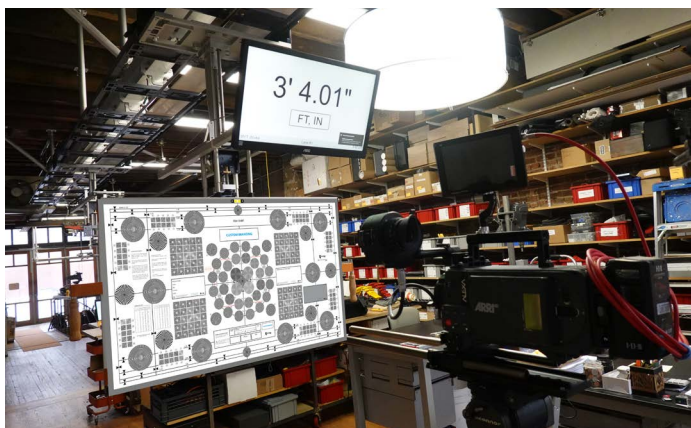
Etienne grew up in Annecy, France in a family of machinists, followed his creative muse to an MFA in film at NYU, and has now come full circle by founding and running an advanced cine design and manufacturing company near Industry City in Brooklyn. There, amid the latest CNC machines and precision tools, Etienne and his crew design and build beautiful camera sliders, skaters and rover dollies, motion control gear, nodal heads, tie-downs, half-balls, bowls, plates, quadripods and advanced camera and lens checkout bays.



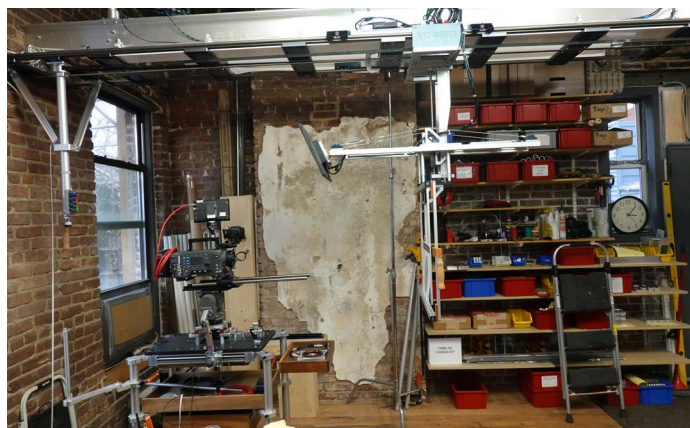
MYT Works showroom of sliders, rails and accessories.

The MYT Works Opti-Glide checkout system consists of an ingenious overhead track under which a motorized PAT-ACC focus chart glides from near to far. Instead of running your tape measure from camera to chart, a large monitor automatically displays the exact distance, accurate to $\frac{1}{100}$ inch. There are various theories on doing this: some rental houses move the camera; others move the chart. Optic-Glide can accommodate both.

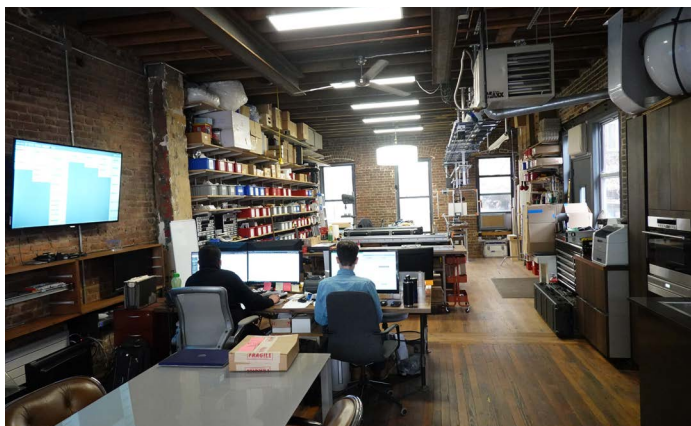
Etienne is a polymath. When his massive 18.5 ton CNC machine arrived and wouldn't fit inside his Brooklyn factory, he designed a rail system to move it from street to interior and then cut away the floor to lower it into the basement. He designed the shop's hydronic heating system. In the garden at the back of the office, free-range French hens supply eggs for lunch. mytworks.com



Opti-Glide system with PAT-ACC chart, Distance Display, Overhead Track.



Profile view of Opti-Glide system at MYT Works.



MYT Works research and design space.



MYT Works showroom with sliders, accessories and a rare ARRI D-21.

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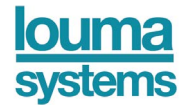
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