ARRINEWS

NAB ISSUE 2016

ALEXA MINI
Now with internal ARRIRAW and 4:3 recording modes

SKYPANEL FIRMWARE 2.0
Major update increases versatility with 10 new features

TWO NEW MASTER ANAMORPHICS
Range extends at both ends with 28 mm and 180 mm lenses

ARCHIVE TECHNOLOGIES
ARRISCAN and Wet Gates used for Asian film restorations

EDITORIAL

DEAR FRIENDS AND COLLEAGUES

Emmanuel Lubezki's Oscar® for his amazing cinematography on *The Revenant* means that ALEXA has been used to capture all five of the films to have won in this category since the camera's introduction in 2010. As well as ALEXA M and ALEXA XT, *The Revenant* captured with ALEXA 65 for selected sequences; the fact that one of the first productions to use this camera went on to win the cinematography Oscar® is a wonderful validation of ARRI Rental's efforts to bring it to market.

Camera feature-sets continue to grow, with new recording formats becoming available through the ALEXA SXT cameras and updates for AMIRA and ALEXA Mini. This opens up even more workflows to productions, with internal ARRIRAW and 4:3 recording for the ALEXA Mini being especially welcome, and coinciding with the announcement of two new Master Anamorphic focal lengths. Meanwhile the increasing importance and industry awareness of HDR is highlighting the advantages of our high dynamic range sensor.

10 exciting new features have been implemented in the software of our versatile SkyPanel LED soft lights, including gel libraries, enhanced low light performance and DMX fan control. In this issue gaffer David Sinfield tells us about using SkyPanels as highly controllable space lights and also floor lights on *The Huntsman: Winter's War.*

It's always good to include a film restoration story in the magazine. This time we feature L'Immagine Ritrovata's new facility in Hong Kong, where they are tapping into the Asian market by using an ARRISCAN and Wet Gates to restore classic films from the likes of Bruce Lee and John Woo.

We hope to see you here at NAB, but if you couldn't make it to Las Vegas this year then you'll find all of our latest product news, user stories and videos on our website.

Dr. Jörg Pohlman   Franz Kraus

CONTENTS

CAMERA SYSTEMS

28

36

4

ARRI AT THE AWARDS

At this year's awards ceremonies ARRI cameras again proved to be the tools of choice, with ALEXA a clear favorite among top filmmakers

Emmanuel Lubezki
ASC, AMC

ARRI cameras dominated as the capture tools of choice for many of the films recognized during this year's awards season. In 2016 the majority of ASC nominated productions were captured with ALEXA, as were the majority of Best Picture, Cinematography and Director nominees at the Academy Awards, including all three winners.

Following victories at the ASC and BAFTA Awards, Emmanuel Lubezki ASC, AMC won his third consecutive Oscar® for *The Revenant* – an unprecedented achievement in the Best Cinematography category. Directed by Alejandro G. Iñárritu, *The Revenant* was captured with ALEXA M, ALEXA XT and Master Primes, with selected sequences shot on the ALEXA 65 and Prime 65 lenses.

Lubezki won last year for *Birdman* and in 2014 for *Gravity*, both of which were also captured with ALEXA. In fact, this latest win marks the fifth time in a row that the cinematography Oscar® has been awarded to an ALEXA-shot production. *The Revenant* was also

recognized with the Best Directing statue for Iñárritu and Best Actor for Leonardo DiCaprio.

Best Picture honors at the Academy Awards went to *Spotlight*, directed by Thomas McCarthy and shot by cinematographer Masanobu Takayanagi on ALEXA XT. The drama, based on the true story of the Pulitzer Prize-winning Boston Globe investigation, also won Best Original Screenplay.

The film that won the most Oscars® was *Mad Max: Fury Road*, garnering six awards in the technical categories. Directed by George Miller, it was captured by John Seale ACS, ASC with ALEXA Plus and ALEXA M cameras.

Every single movie nominated for Best Foreign Film was shot with ARRI cameras, with the winner being Hungary's *Son of Saul*. It was directed by László Nemes and shot in 35 mm by Mátyás Erdély on ARRICAM LT and ARRIFLEX 235 cameras, with Master Prime lenses. The film also won a Golden Globe and tied for the ASC Spotlight Award with *Macbeth,* which was captured with ALEXA by Adam Arkapaw ACS.

At the BAFTAs as well, every Best Foreign Film nominee was shot with ARRI cameras. The winner in London was *Wild Tales,* directed by

Emmanuel Lubezki ASC, AMC shooting *The Revenant*
Photo: Kimberley French © Twentieth Century Fox

Gianfranco Rosi
Photo: Richard Hübner @ Berlinale 2016

Gianfranco Rosi
Photo: Studio Punto e Virgola

John Seale ACS, ASC (right)

Damián Szifrón and captured with ALEXA by Javier Julia ADF.

At the 2016 Berlin International Film Festival, or Berlinale, the top prize of the Golden Bear went to Italian director, cinematographer, producer and screenwriter Gianfranco Rosi, for *Fire at Sea*. Shot by Rosi with an ARRI AMIRA, the film examines the current European migrant crisis by focusing on the inhabitants of the Italian island of Lampedusa.

This prestigious accolade represents the first major awards victory for an AMIRA production. Since its release in 2014, the single-operator AMIRA has proved its versatility by being used on an ever-widening variety of different production types, from TV dramas, sports, music videos, branded content and commercials to independent movies, nature films and documentaries.

At a press conference following the film's Berlinale screening, Rosi specifically cited the AMIRA as being vital to his approach: "This time I also had the privilege of using a camera which is quite light but is a fantastic camera – the AMIRA from ARRI. It made a huge difference because with this camera I was able to shoot at night, with little or no light; I was shooting with a small torch, and that gave me enormous freedom...the technology helped me a lot on this film because being able to work with a small camera – a tiny camera – by myself, was an incredible tool."

ARRI congratulates all of the winners and nominees of this year's awards season, and thanks them for selecting ARRI equipment.

SKYPANEL®
FEATURE-SET GROWS

10 new features added to the SkyPanel LED soft light with the release of Firmware 2.0

FW 2.0   **SkyPanel: Pure Creativity**
Vision. Control. Freedom.

From the outset, part of the promise of the SkyPanel was firmware developments that would expand the feature-set after purchase. SkyPanel Firmware 2.0 is the first release to deliver on this promise, bringing 10 new features and several refinements. This update is free of charge and can be installed on a SkyPanel quickly and easily, opening up new applications and providing an added level of control. With it, the SkyPanel will seem like a new fixture – and this is just the beginning.

ROSCO/LEE GEL LIBRARIES

Already able to create a vast number of colors, SkyPanel can now, from Firmware 2.0, emulate a wide variety of well-known lighting gels, making the fixtures more versatile than ever before. The SkyPanel's calibrated light engine reproduces color filters more accurately than a lighting console and enables users to select familiar gels in seconds via the on-board controls or through a new DMX protocol. SkyPanel gel libraries comprise Rosco and Lee filter categories that include color corrections, party colors, Rosco CalColor, Storaro Selection and many more.

LOW END MODE

SkyPanel is known for its impressive output, but with camera sensors becoming more sensitive, the ability to produce good quality low light levels is also important. The Low End Mode enables SkyPanel to generate accurate CCTs with high color rendition and smooth dimming at very low light levels. Finer control over the entire dimming range expands SkyPanel applications even further.

TUNGSTEN MODE

Tungsten sources have endured for more than 120 years because of their excellent light properties and attractive dimming behavior. In the new Tungsten Mode, SkyPanel can mimic the dimming curve and strike on-and-off effect of a traditional tungsten lamp. The CCT warms as the light is dimmed and when the intensity drops to zero quickly there is a short afterglow of warm light. This mode is perfect for mixing the SkyPanel with tungsten sources or for producing a familiar effect.
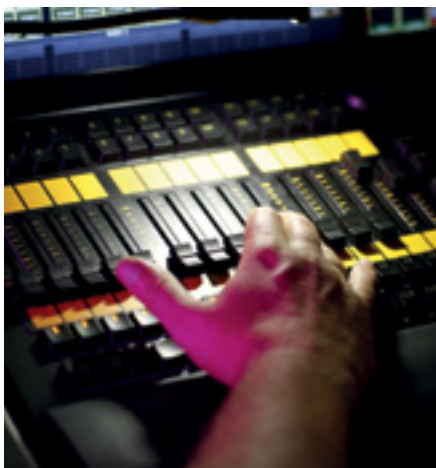
DMX FAN CONTROL

Fans on the SkyPanel provide cutting-edge cooling that allows the LEDs to last for a long time and prevents CCT shift during usage. But even at less than a whisper-quiet 20 dB, fans can become a sound problem on the most sensitive sets. For added control and to eliminate any sound issues for delicate installations, the SkyPanel fans can now be set to different modes or even turned off for short periods of time, directly via DMX. The SkyPanel will always protect itself from damage by turning the fans back on at a very low level if the LEDs get too hot.

DIMMING CURVES
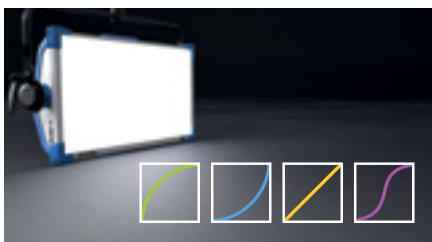
From Firmware 2.0 the number of SkyPanel dimming curves increases from one to four, allowing different dimming behavior for specific applications. The exponential curve provides fine control at the low end of the dimming scale, while the logarithmic curve allows for better control at the high end. The 'S' curve gives both high and low end dimming fidelity, but limited control in the middle, and the linear curve gives a one-to-one translation of the output to intensity level.

RDM IMPLEMENTATION

An increasingly popular feature in advanced lighting fixtures, RDM (Remote Device Management) is now fully implemented in the SkyPanel. This two-way communication between the fixture and the console saves time by facilitating control of many SkyPanel functions from the ground, including DMX address and protocol, fan mode, temperature sensor readings, display settings, IP address and special modes.

ART-NET IMPLEMENTATION

Lighting communication protocols and data infrastructures continue to evolve and change. Art-Net provides DMX512-A and RDM functionality over Ethernet network protocols. In SkyPanel Firmware 2.0 Art-Net is fully implemented, allowing an expanded range of network devices to be used in building a complex lighting rig.

SAVE ERROR LOGS TO USB

SkyPanel has been built to be incredibly robust. If an error should ever occur, the fixtures are easy to diagnose and service, with the automatically generated error log being the first step in determining what went wrong. This error log can now be exported to a USB stick, reducing the need to connect the SkyPanel to a computer.

SAVE/LOAD PRESETS VIA USB

With the SkyPanel it is possible to store and recall up to 10 different user presets, enabling the creation of a color palette for a particular production. It is now possible to save these presets to a USB stick and transfer them to another SkyPanel, making them more sharable and versatile.

SAVE/LOAD SETTINGS VIA USB

SkyPanel Firmware 2.0 speeds up the process of configuring individual fixtures on large SkyPanel rigs by allowing all settings to be exported to a USB stick and transferred to another fixture. The DMX protocol, fan mode, dimming curve and many more settings can be loaded in a matter of seconds, with minimal menu navigation.

Download Firmware Update 2.0:
www.arri.com/lightingsoftware

Richard Ladkani in Amboseli National Park, Kenya
IVORY / TMFS / © Tobias Corts

AMIRA vs THE IVORY TRADE

Director and cinematographer Richard Ladkani discusses taking AMIRA on an amazing journey to document the fight against elephant poaching

Produced by Terra Mater Factual Studios and Vulcan Productions in association with Malaika Pictures, and co-directed by Kief Davidson, Richard Ladkani's latest project is a documentary feature film that centers on the supply and demand chain of illegal ivory, from poachers killing elephants in Africa to criminal syndicates bribing officials at international ports. For the globe-trotting, year-and-a-half-long shoot, the filmmakers worked primarily with the ARRI AMIRA, recording ProRes 422 HQ for a fast, efficient workflow that suited the hectic, improvised schedule.

What led you towards AMIRA as your camera of choice?

We knew from the beginning that we would use many different cameras, but we wanted the lead camera to be the AMIRA because we love its natural and cinematic look. When it comes to images of people, especially faces, I haven't seen anything that compares to that kind of quality, and of course it is people driving the story we want to tell. We knew that we were going to risk our lives shooting this film; we would only have the chance to shoot things once, if at all, so there was no room for compromise.

How did you tend to configure and use the AMIRA?

I wanted to be as lightweight as possible and the Canon EF lenses I shot the film with worked perfectly for that. I used the electronic change of aperture and was able to configure the AMIRA so that I could quickly access all the controls I needed. The flip-out screen I would only use for interviews when I was talking to someone, camera on my shoulder, and needed to maintain eye contact with that person. Mostly, however, I would look through the electronic viewfinder, which I find great.
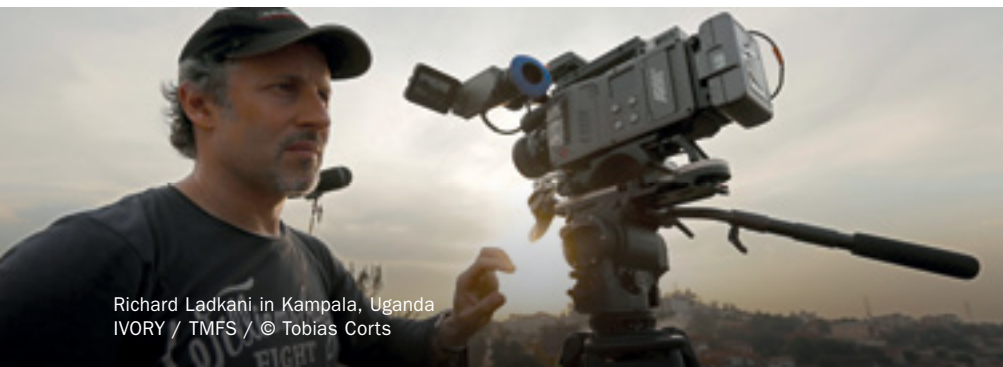
Richard Ladkani in Kampala, Uganda
IVORY / TMFS / © Tobias Corts
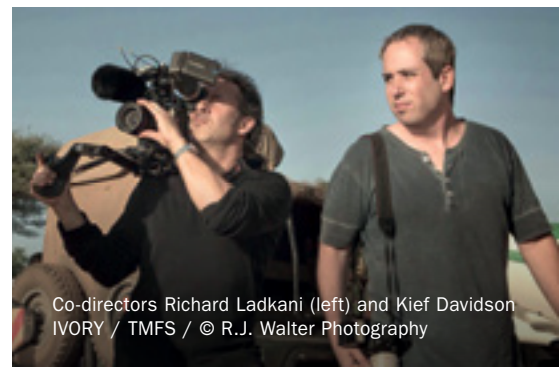
Co-directors Richard Ladkani (left) and Kief Davidson
IVORY / TMFS / © R.J. Walter Photography

The internal ND filters were crucial for getting the aperture I needed in direct sunlight; there's no way I could have used external NDs because there wasn't time and I wanted my setup to be as compact as I could get it.

Did you have much of a crew?

The biggest team we had was four people, with DP Tobias Corts shooting second camera, Roland Winkler recording external sound and Kief Davidson co-directing. But quite often in remote regions it was just two of us; I had the AMIRA on my shoulder, with Roland recording

"I had this camera in Africa for 11 months straight and it never had a problem."

sound. The key was to be as close to our characters as possible and to be immersed in their world, which meant we had to be extremely flexible and fast. We couldn't plan anything; we just followed our subjects wherever they decided to go.

Can you give an example of this unplanned approach to filming?

There was a big trafficker who was enemy number one, the Al Capone of ivory trafficking. His nickname is Shetani, which means the devil, and we followed the hunt for him from early in the shoot. There was so much talk about this guy and we didn't even know if he really existed, but on the last day of shooting in Hong Kong we got a call from Tanzania that they had closed in on him. We had a mad rush for a flight out that night and flew to Munich, then Zurich, then Nairobi, then Dar es Salaam. It took 24 hours to get there and we arrived just in time to see them bringing him in. It was the most unbelievable thing, to make that

journey and suddenly come face-to-face with Tanzania's most wanted poacher in handcuffs. We captured the whole thing and it became the grand finale of our film shoot.

Did the AMIRA stand up well to the hardships of the shoot?

I remember saying to my crew how amazing it is that I had this camera in Africa for 11 months straight and it never had a problem. It lived through all the incredible hardships of wet and dust so extreme that our faces were completely orange. Of course I had a dust-off for the camera but that was it – there was no servicing or anything like that. So it survived this shoot and that's pretty unbelievable, because all of the other cameras didn't!

Richard Ladkani boarding a helicopter in Lewa, Northern Kenya
IVORY / TMFS / © Roland Winkler

LEADING THE WAY WITH HDR

*From the unsurpassed dynamic range of its cameras to
its cutting-edge Dolby Vision grading cinema, ARRI
leads the field with HDR technology*

ALEXA: HDR SINCE 2010

The next big shift in our industry is towards HDR (High Dynamic Range). Enabled by higher contrast display technologies, HDR delivers a significant improvement to picture quality, with greater contrast between shadow areas and highlights, deeper color saturation and higher perceived sharpness.

Interest in HDR has been driven by television manufacturers and content providers, since higher resolution alone has not prompted consumers to buy new TV sets or pay a premium for content. Manufacturers are therefore releasing second-generation UHD TV sets that can display HDR, new laser projectors are being installed to show HDR images in cinemas, and broadband streaming services have started streaming content in HDR.

A LONG HISTORY WITH HDR

Because of the brilliant design and large size of the individual photosites on ARRI's ALEV III sensor, the ALEXA, ALEXA Mini and AMIRA cameras have the widest exposure latitude on the market. Larger photosites get more light, which translates into higher dynamic range, increased base sensitivity

and better signal-to-noise performance. Awareness of dynamic range as a crucial element of overall image quality has influenced ARRI product design since the ARRILASER and ARRISCAN, when the goal was to capture the beautiful, high contrast images of Kodak and Fuji film stocks. This focus on digitally replicating the dynamic range and colorimetry of film continued with the development of ALEXA, which was a key reason behind its success.

In truth, any image captured with ALEXA since its introduction in 2010 is technically HDR, and can easily be prepared for HDR delivery by undertaking an HDR color grade of the original ARRIRAW or Log C material. ALEXA, ALEXA Mini and AMIRA are therefore perfect for all productions looking to shoot images that will play well in the HDR future. The next step is HDR monitoring on set; ALEXA SXT cameras will support this with special ALF-2 look files, and future software update packages will implement HDR monitoring in an even more convenient form.

UHD ALLIANCE

Last year the UHD Alliance was formed – a consortium of television manufacturers, Hollywood studios, technology firms and distribution companies such as Netflix, Amazon and DirecTV. With its long history of HDR expertise, ARRI joined as a contributing member in April 2015. The group's objective was to develop a common specification and marketing message for HDR, which it duly announced at CES in January 2016, unveiling the Ultra HD Premium brand.

AMAZON CHOOSES ALEXA

Having successfully trialed an ALEXA-based technical workflow on three pilots last summer, Amazon Studios is capturing with ALEXA in ProRes 3.2K, finishing in UHD and grading for HDR on its shows *Patriot, Good Girls Revolt* and *Z: The Beginning of Everything*, and is planning to implement the same workflow for upcoming seasons of established productions such as *Hand of God* and *The Man in the High Castle*. So why is ALEXA the camera of choice for Amazon Studios? While initially they recommended cameras with 4K sensors for UHD productions, several factors made them reconsider. First and foremost, their creatives and producers kept asking for ALEXA due to the overall image quality, flexible workflows and system reliability. Their decision to promote and deliver HDR content, and ALEXA's superior dynamic range, was an additional factor; and finally the introduction of ProRes 3.2K recording with ALEXA allowed them to capture at native resolution, conform in UHD and grade on an HDR display, all with a very streamlined workflow.

DOLBY CINEMA

Meanwhile, Dolby has been working on technology for HDR cinema display, using modulated laser light sources with 4K DLP Cinema projectors. The proprietary Dolby Cinema system, comprising Dolby Vision projection technology and immersive Dolby Atmos audio, is licensed to exhibitors. Approximately 20 Dolby Cinema screens have been installed in the US and Europe to date, with more than 100 contracted for installation over the coming years. Dolby Vision technology is also being incorporated into new TV sets, for an enriched home viewing experience.

ARRI@BAVARIA FILM

ARRI Media, ARRI's postproduction and creative services company, recently completed a deal with Dolby to install a Dolby Vision mastering projector and Atmos audio system into the ARRI@Bavaria Film grading cinema in Munich, Germany. Representing the first Dolby Cinema mastering environment outside of the United States, the grading suite was opened in March 2016 with a major event attended by luminaries from the worlds of film production and technology. This ground-breaking facility reflects ARRI's commitment to the benefits of HDR workflows, all the way from image capture to final exhibition.

ALEXA SXT

Previously unannounced features for the new generation of ALEXA cameras

SXT, or Super Xtended Technology, is the new high-performance platform for the ALEXA family of cameras, with the ALEXA SXT EV (Entry Version), ALEXA SXT Plus and ALEXA SXT Studio replacing ALEXA XT models.

The ALEXA SXT cameras utilize new components that include electronics and image processing from the ALEXA 65, as well as color management and noise reduction from the AMIRA. They share the same qualities as previous ALEXA cameras, but offer more versatile recording and monitoring options, improved look management and enhanced image quality.

In addition to previously announced features, ALEXA SXT cameras offer HDR monitoring, two anamorphic ProRes recording formats (one 2K and one 4K, both of which simplify anamorphic shooting through in-camera de-squeeze), an ARRIRAW 3.2K recording format that achieves 120 fps, an Open Gate ProRes 3.4K recording format, an improved web remote, a single speed mode and support for LEXAR's 256 GB CFast 2.0 cards.

ALEXA XT, ALEXA XT Plus or ALEXA XT Studio cameras shipped after January 1, 2015 can be upgraded to the full SXT feature-set free of charge. Cameras shipped earlier are eligible for the SXR Module upgrade, which delivers all current SXT features but possibly not all the future upgrade potential.

FUTURE-PROOF IMAGES FOR 4K, HDR AND HFR

More than ever before, ALEXA offers the best overall image quality with the SXT cameras. For content producers that are increasingly concerned about compatibility with next-generation standards for deliverables and displays, there is no better choice than ALEXA SXT.

By striking a perfect balance between pixel size and resolution, ALEXA SXT is able to produce beautiful images in HD, 2K and 4K, while also delivering the highest dynamic range of any camera on the market. So not only does ALEXA SXT meet the resolution needs of 4K and UHD distribution with easy, efficient workflows, it is also uniquely well equipped to create content that will take fullest advantage of emerging HDR (High Dynamic Range) display technologies. In addition, the ability to record at up to 120 fps in full image quality means that HFR (High Frame Rate) approaches to enhancing viewer experience can also be accommodated.

NEW RECORDING FORMATS

ALEXA SXT cameras offer a total of 14 recording formats, six of which are completely new. The reason for having so many is to provide carefully fine-tuned recording options for all types of production. Whatever the budget, intended market, resolution requirements, aspect ratio, lens choices or postproduction intentions, there is an ideal ALEXA SXT recording format to ensure easy operation on set and a seamless image pipeline.

For the first time, all sensor modes (including the new 6:5 mode developed specifically for the most efficient anamorphic shooting) are available in both ProRes and ARRIRAW. ProRes offers high image quality in compressed files that are smaller, cheaper to process, immediately viewable on a Mac and easy to deal with in post. ARRIRAW offers the highest image quality, the greatest flexibility for color grading and visual effects in post, and the safest archiving.

In-camera ProRes 4K recording (UHD/Cine)

ProRes 4K UHD is designed for TV productions and offers the easiest, fastest path to the best 4K UHD image quality. ProRes 4K Cine is designed for 4K DCI cinema and includes extra headroom for VFX markers or repositioning in post.

6:5 ProRes (2K/4K Cine Anamorphic)

These 'plug-and-play' options offer the most economical route to the best overall image quality with anamorphic lenses. The camera creates a ready-to-view ProRes image in the 2K or 4K DCI delivery format, with no debayer, cropping, re-scaling or de-squeezing needed in post.

Open Gate ProRes 3.4K

Open Gate with a lower data rate. This format combines the immediacy, speed and economy of ProRes with the resolution advantages of Open Gate, including padding or up-sampling if required.

16:9 ARRIRAW 3.2K

Offers the largest pixel raster that also fits inside the image circle of most ARRI Super 35 PL mount lenses and reaches 120 fps. Less of a data load than 4K, but enough resolution for padding or up-sampling.

Recording Formats (SXT SUP 1.0)

Sensor Mode	Recording File Type	Recording Resolution
16:9	ProRes	HD
		2K
		3.2K
		4K UHD
	ARRIRAW	2.8K
		3.2K
6:5	ProRes	**2K Anamorphic**
		4K Cine Anamorphic
	ARRIRAW	2.6K
4:3	ProRes	2.8K
	ARRIRAW	2.8K
Open Gate	ProRes	**3.4K**
		4K Cine
	ARRIRAW	3.4K

NEW ARRI LOOK MANAGEMENT

ALEXA SXT incorporates a completely new look management architecture, offering the most powerful and flexible method to create, view, transport and postproduce looks.

New components of the ARRI Look Management include the **ARRI Look File 2 (ALF-2),** which contains a 3D LUT, CDL values and a target color space. The new **ARRI Color Tool** is a free Mac utility that can import and export 3D LUTs in many formats and create ALF-2 files for custom looks. Third parties can read ALF-2 files and use all ARRI Color Tool functions via the **software library.**

Graded Rec 709 or Rec 2020 image

On-set monitoring

ALEXA SXT

CDL & 3D LUT
Ethernet

ARRIRAW
Metadata

Deliverables creation

Color grading

Live grading on set

ALEXA SXT cameras can replace a LUT box on set. Live grading is supported by Pomfort LiveGrade and Codex Live, with others in progress.

Automated deliverables

The ALF-2 look file is always stored in ARRIRAW and ProRes metadata, so dailies and editing proxies with the look applied can be generated automatically and fast.
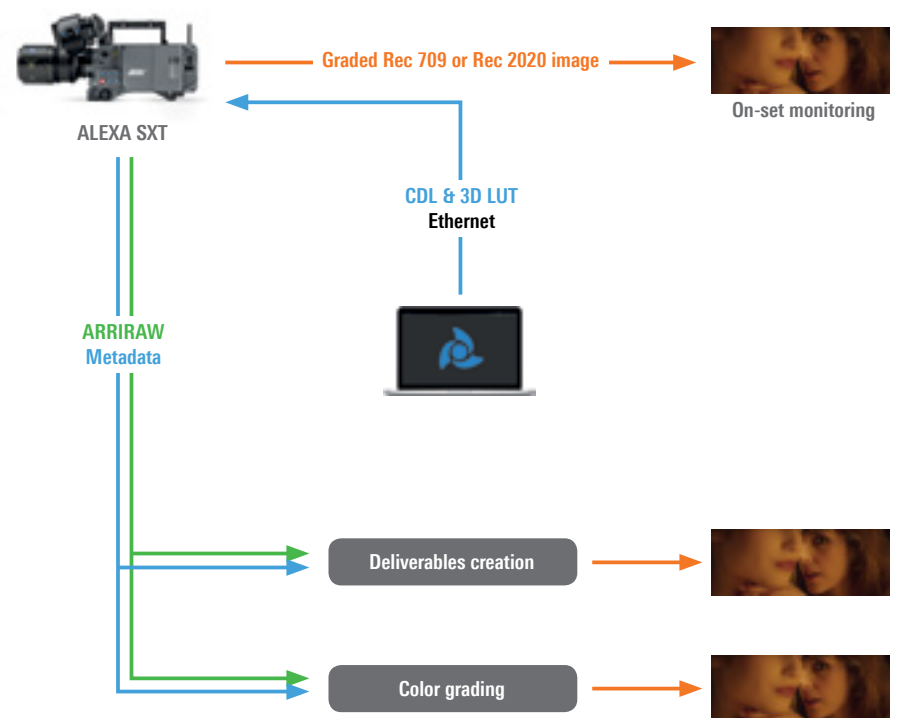
Editing with looks

Looks can be automatically applied by non-linear editing programs such as Avid, Final Cut Pro and Adobe Premiere.

Flexible and future-proof

The same look files and tools are shared by ALEXA SXT, ALEXA Mini (SUP 4.0) and AMIRA (SUP 4.0).

SUPER-FLEXIBLE ON-SET MONITORING

ALEXA SXT features four independent monitoring outputs, catering to the needs of different people on set, for example the camera operator, assistant, DIT and director. Each output has completely independent settings such as image processing, surround view, status info, peaking and false color.

The color range captured by ALEXA is larger than that needed for Rec 709 or Rec 2020 output, so ALEXA SXT allows an independent Rec 709 or Rec 2020 setting for each MON OUT. While ALEXA recording has been HDR since 2010, the ALEXA SXT is now prepared for HDR monitoring on set.
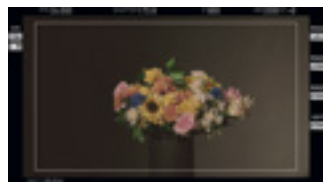
Operator: EVF-1 with custom look, frame lines, surround view, status info
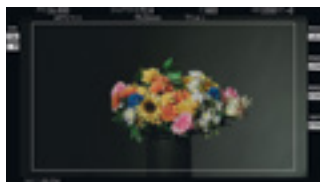
Assistant: Rec 709 on-board monitor with ALEXA Classic 709 look, frame lines, surround view, status info, LDS info
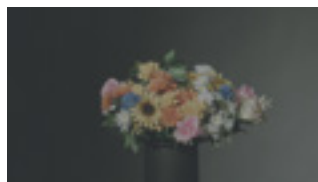
DIT: Rec 709 monitor on DIT cart with Log C, clean
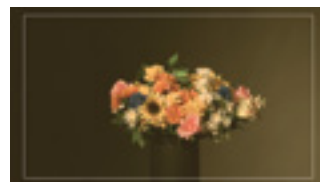
Director: Rec 2020 monitor with custom look, frame lines, surround view
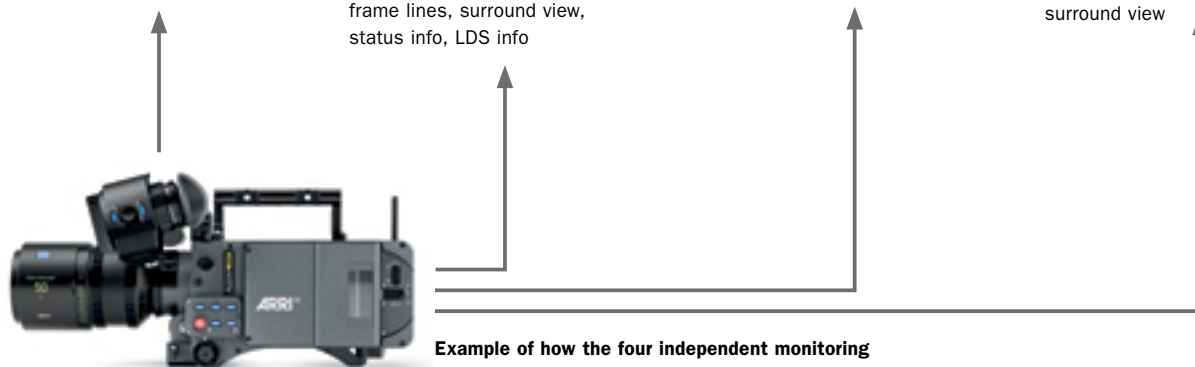
Example of how the four independent monitoring outputs might be used on set

NEW MEDIA BAY AND DRIVES

ALEXA SXT cameras come with a new media bay side panel that can accommodate four different recording media via their respective adapters: SXR Capture Drives and XR Capture Drives, SxS PRO and SxS PRO+ cards, as well as CFast 2.0 cards.

The new SXR Capture Drives represent the next generation of professional solid state media for ALEXA SXT, ALEXA SXR and ALEXA 65 cameras. The lightning-fast maximum write speed of 20 Gb/s allows for higher maximum frame rates for some recording formats, while the 1 TB or 2 TB capacity permits longer recording times. A new SXR Capture Drive Dock with an included Vault Production Suite license complements the SXR Capture Drives.

M-SERIES

MORE LIGHT, LESS WORK.

Cinematographer Christoph Krauss BVK and gaffers Christoph Dehmel and Björn Susen explain why they are never without ARRI M-Series daylight fixtures

| M8 | M18 | M40 | M90 | ARRIMAX |
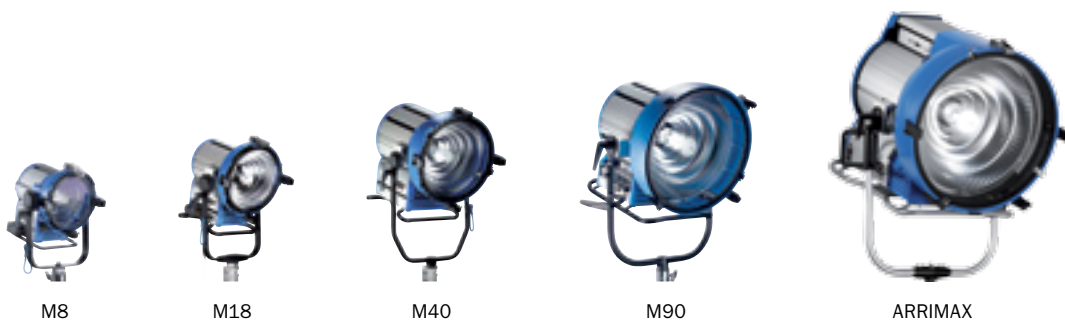
The M-Series comprises ARRI's most innovative daylight lighting fixtures, all of which feature the unique, patented MAX reflector first introduced with the Academy Award-winning ARRIMAX 18/12. MAX Technology enables lens-less, focusable lampheads that unify the advantages of a PAR and a Fresnel, providing maximum light output.

On *Manifesto*, a highly acclaimed 12-screen video installation by the Berlin-based artist Julian Rosefeldt that features Cate Blanchett playing 13 different characters, cinematographer Christoph Krauss BVK and his gaffer Christoph Dehmel relied on ARRI M18 lights.

"There was not much time for elaborate rigging so we needed quick and easy solutions," says Dehmel. "That's why we chose to have M18s on our lighting truck. They are very versatile to use, both directly and bounced, and you don't have to lug lenses around. They also produce an enormous output of light, equivalent to 4 kW when fully focused, but you can just plug them into a domestic socket so there is no need to lay power cables."

An experienced gaffer whose movie credits include *Phoenix* and *Mr. Morgan's Last Love*, Dehmel tends to use M-Series fixtures through a soft grid cloth or a thin curtain, even when creating sunbeam effects. He comments, "I also like to bounce them off a big Styrofoam or a butterfly, because the wide range between the spot and the flood positions gives me optimal control."

Krauss notes, "I first used the ARRIMAX 10 years ago to light a railway station interior; we needed a powerful source that we could diffuse and punch through a huge window to light a big hall and cast a single shadow. It worked perfectly. From that moment I was convinced about the advantages of MAX Technology and it has been great to see ARRI develop a whole
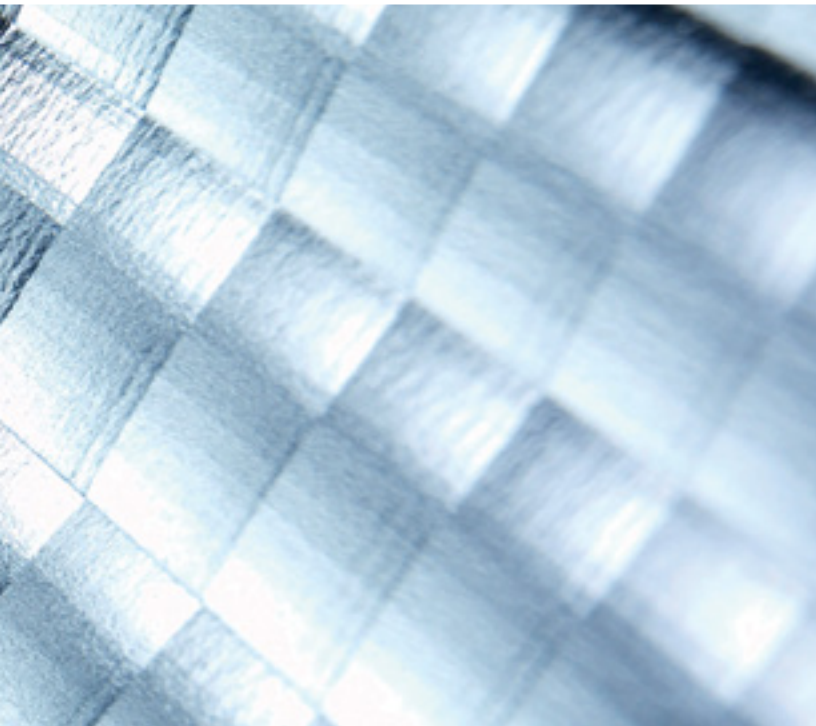
Gaffer Christoph Dehmel (left) with DP Christoph Krauss BVK

Gaffer Björn Susen

family of well-designed M-Series fixtures, drawing on their decades of experience. The M18 in particular has been in my standard lighting package from the moment it was released."

Gaffer Björn Susen's recent projects include the feature films *Hitman: Agent 47*, *Alone in Berlin* and *A Cure for Wellness,* on which he worked with the entire M-Series range. "I love the M-Series and I wouldn't do a film without them," he says. "They are so versatile, easy to handle and have a bigger

output and smoother light field, which really makes life easier on set. It's fantastic that the MAX reflector design means we don't need heavy lenses anymore, which often used to get broken."

For Susen, the fact that the M-Series covers such a wide range of power classes makes the fixtures a go-to solution for almost any shooting scenario. "The M-Series family encompasses just what you need on set and covers all application needs," he says. "I use the M8 a lot on commercials and features

because it is a small, flexible light but still very bright. The M18 is a workhorse that should be on every set, especially where the space and power supply are limited. I often use the M90 with a 6 kW lamp because the output is still very high, and the ARRIMAX is fantastic because it has enough punch to 'over-light' a little, which makes simulated sunlight much more realistic."

NEW HIGH-SPEED BALLAST FOR THE M40

EB 2.5/4 HS AutoScan

ARRI's new generation of ballasts incorporates an AutoScan feature that ensures optimum light and image quality with a minimum of effort for high-speed recording up to 1,000 fps and beyond.

First to be released was the EB 12/18 HS AutoScan for 12 kW and 18 kW discharge lamps, followed by the EB 6/9 HS AutoScan. Now ARRI presents the EB 2.5/4 HS AutoScan, designed for the 2.5 kW and 4 kW power classes.

Three different modes are available for high-speed operation: AutoScan (fully automatic), Man (manual frequency control)

or AutoMan (manual frequency setting with automatic frequency control). Other key features include Active Line Filter (ALF), Compensation for Cable Losses (CCL) and DMX control, delivering maximum light quality with efficient supply and wiring. When combined with the ARRI M40 lamphead, the EB 2.5/4 HS AutoScan ballast enables a faster and simpler way of working on set – at any frame rate.

ARRISCAN IN ASIA

Renowned restoration lab L'Immagine Ritrovata has opened a new ARRISCAN-equipped facility in Hong Kong to service the Asian market

(Left to right) Bede Cheng, Managing Director of L'Immagine Ritrovata Asia, with director John Woo and Davide Pozzi, Director of L'Immagine Ritrovata

Based in Bologna, Italy, L'Immagine Ritrovata is a unique lab facility that specializes solely in the preservation and restoration of films. Facility director Davide Pozzi speaks here about how a growing demand for high-quality restorations in Asia led the company to open its first overseas office in Hong Kong, and why an ARRISCAN equipped with ARRI Wet Gates was the right choice for the restoration of Asian classics such as the Bruce Lee movies *The Big Boss, The Way of the Dragon, Fist of Fury* and *The Game of Death*, and John Woo's *A Better Tomorrow*.

BEFORE

AFTER

Why did you decide to open a facility in Hong Kong?

Since 2008, when we restored Fei Mu's 1940 film *Confucius* for the Hong Kong Film Archive, our Asian clients have grown in number continuously. We realized that there weren't facilities in Asia exclusively focused on film restorations, so our concept was simple: to have a scanner close to the film materials. Hong Kong is like Paris in Europe or Los Angeles in the United States – it is the city of cinema in Asia. From there we are able to service all the Asian countries, including Taiwan, Thailand, Singapore, the Philippines, Indonesia and mainland China.

The goal was to open a top-level facility and that's why we chose the ARRISCAN. We needed the best scanner in order to offer the highest-quality scanning service in Asia. For me, the ARRISCAN and Wet Gates were a key factor; if it weren't for our partnership with ARRI we could not have opened there.

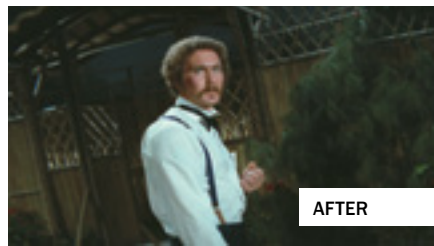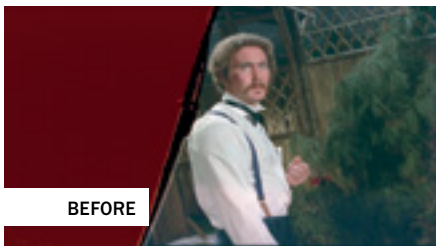**How long have you been working with ARRI and the ARRISCAN?**

We started our relationship with ARRI in 2009 and we now have three ARRISCANs – two in Italy and one in Hong Kong. When we first opened our film scan department in 2006 we chose a different scanner, but I discovered it was not the right one. In 2009 we were restoring a Lumière brothers film that dates from the nineteenth century and has non-standard perforations. At that time ARRI was developing the Sprocketless Transport and we agreed to do a test together, which was so successful that we decided to buy a scanner. That was the beginning of my long friendship with the ARRISCAN.

For me the ARRISCAN is not just the best scanner, it is the most dynamic and versatile – able to scan with or without sprockets, dry or wet. When it comes to restoration work there is not one standard or one workflow; every job brings new challenges and new problems. The ARRISCAN gives you the flexibility to meet these different challenges.

What about the people running this facility for you?

That was another key factor for me. My operators in Hong Kong come from the archive field and are keen on film heritage; they all attended our film restoration summer school in Bologna, which we run every year. To work in restoration you have to understand 16 mm and 35 mm film, and all the problems that can occur with it. This is true not just for scanning but for carrying out a digital restoration; to fix damage you have to understand how and why it happened.

BEFORE

AFTER

"The ARRISCAN gives you the flexibility to meet these different challenges."

**What kinds of Asian clients are you working with?**

Almost every country has a national archive, but there are also many private libraries and our clients are completely mixed – we work with both. We recently restored four Bruce Lee titles in Hong Kong for Fortune Star Media Limited; they were *The Big Boss* (1971), *The Way of the Dragon* (1972), *Fist of Fury* (1972) and *The Game of Death* (1978). This project reflects the growing demand for

4K restorations and we were very proud to work on such important titles.

What film materials were available and what condition were they in?

For two of the titles we were able to work from the original camera negative and for the other two we started from the interpositive because the camera negative was not available. Since they are very popular films, the materials were pretty

damaged through heavy use and in fact we decided to do Wet Gate scans for all four titles. There were a lot of scratches and other issues with the material – nothing impossible, but it took a long time to carry out the work. It was important to select the best elements available and to pay the same attention to the sound as to the image. Special attention was given to the color correction process, in order to respect the original look of the films.

BEFORE

AFTER
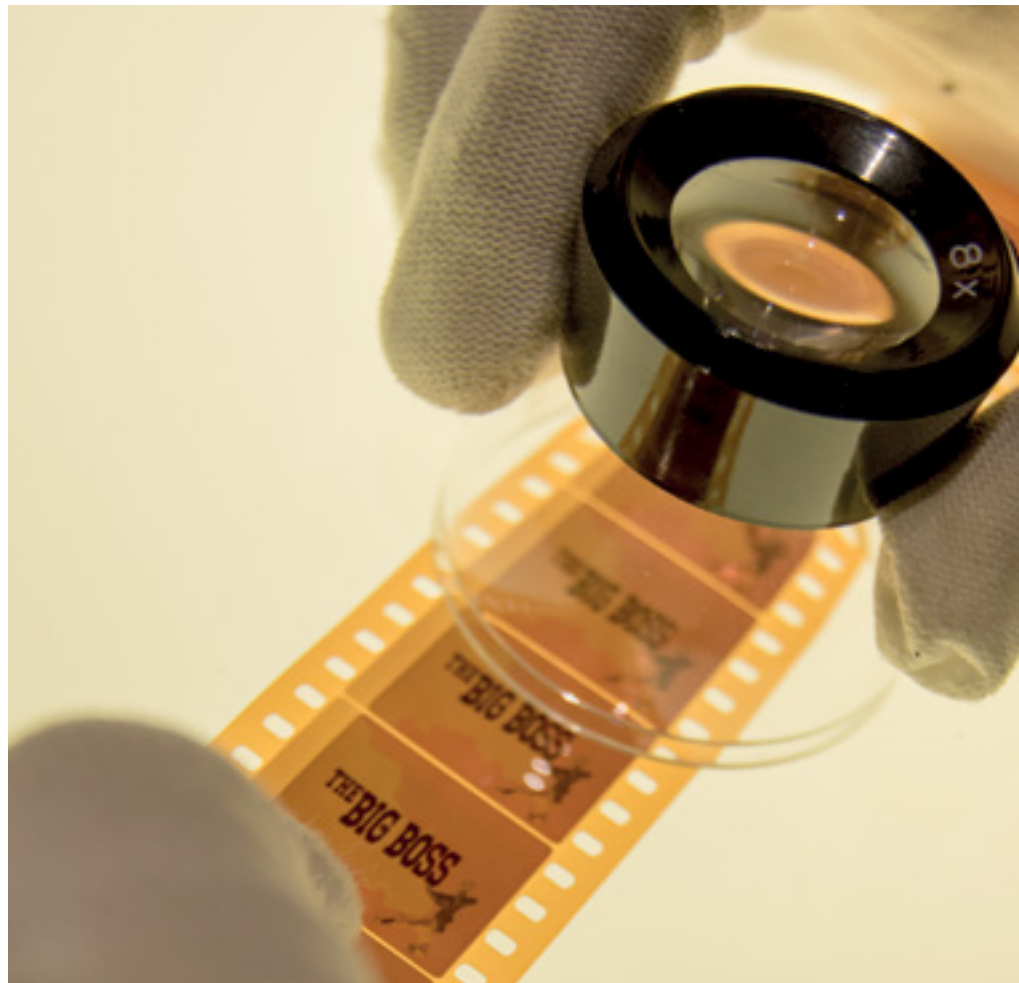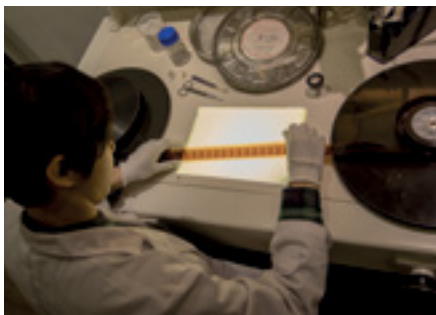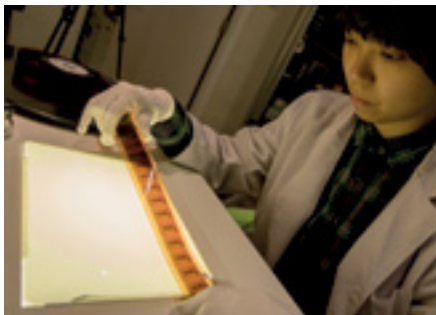
Fist of Fury © 2010 Fortune Star Media Limited. All Rights Reserved.

Does the fact that delicate film materials now won't have to leave Asia reassure your clients?

This is the most important thing, because sending films overseas makes people nervous and increases the restoration costs. With our Asian hub we can cover the first part of the workflow locally, so in Hong Kong we do the film inspection, film repairs, film washing, film scanning and sound scanning. Then we send the files to Italy to be digitally restored. With the color correction we have two options: we can do it in Italy or we can do it in Hong Kong through a local partner, which is useful if the director or cinematographer live in Asia and can attend.

What did the restoration of *A Better Tomorrow* involve?

That was a major project for us; we did it last year for the Shanghai International Film Festival and Fortune Star Media Limited, and it premiered at the festival in June. Fortune Star provided us with the original camera negative for scanning and we worked very closely with the cinematographer Wing-Hang Wong, and of course with the director John Woo. The goal of this 4K restoration was to return the film to the state it was in when first released. We did a very nice and respectful color correction, with the help of the filmmakers and also by referencing a vintage print from the original release.

Learn more about
ARRI Archive Technologies:
www.arri.com/archive_technologies

ALEXA MINI SUP 4.0

*Software Update Package 4.0
brings new features including internal
ARRIRAW recording and 4:3 modes
for anamorphic productions*

SUP 4.0

ARRI proudly announces the release of Software Update Package (SUP) 4.0 for the ARRI ALEXA Mini camera. With a compact and lightweight carbon body and the same image quality as other members of the ALEXA family, the ALEXA Mini has already proved a huge success in many different configurations and on countless production types. SUP 4.0 will widen the ALEXA Mini's versatility and appeal still further, with new features that include internal ARRIRAW and Open Gate recording for uncompromised image quality, as well as 4:3 recording modes optimized for anamorphic lenses.

+ 4:3

4:3 ProRes recording modes
Activated through the purchase of an ALEXA Mini 4:3 License Key at the ARRI License Shop, these three new ProRes recording modes access the full 4:3 sensor area and support the use of anamorphic lenses. The first mode records the highest 4:3 resolution possible, while the other two de-squeeze and re-scale the recorded images in-camera for an efficient, specialized workflow. Monitoring paths for all 4:3 modes offer SDI setups featuring dual 1.5G or 3G outputs.

ProRes 4:3 2.8K records the full 4:3 sensor area (2880 x 2160) and can be used with anamorphic or spherical lenses. It offers frame rates up to 50 fps and an optional 2x anamorphic de-squeeze for the EVF and SDI monitoring paths.

ProRes 2.39:1 2K Ana. records a 2.39:1 standard 2K format (2048 x 858), which does not require any cropping or scaling in post. Due to the in-camera scaling the data rate is reduced, allowing recording speeds up to 120 fps.

ProRes 16:9 HD Ana. is for situations where the look of anamorphic lenses is desired but the end product is full 16:9 HD without letterboxing. This mode also supports recording speeds up to 120 fps.

Anamorphic Modes
MXF/ARRIRAW or ProRes recording possible
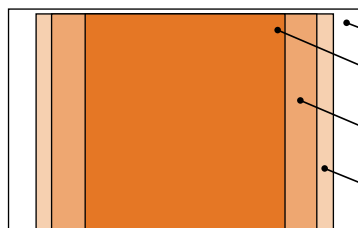
Full Sensor (Open Gate) 3424 x 2202 photosites (1.55:1)
28.25 x 18.17 mm / 1.112 x 0.715", ø: 33.59 mm / 1.624"

16:9 HD Ana. 1920 x 2160 photosites
15.84 x 17.82 mm / 0.624 x 0.702", ø: 23.84 / 1.116"

2.39:1 2K Ana. 2560 x 2145 photosites
21.12 x 17.70 mm / 0.831 x 0.697", ø: 27.55 / 1.317"

4:3 2.8K 2880 x 2160 photosites
23.76 x 17.82 mm / 0.935 x 0.702", ø: 29.70 / 1.428"

ARRIRAW

Internal MXF/ARRIRAW recording

Activated through the purchase of an ALEXA Mini ARRIRAW License Key at the ARRI License Shop, SUP 4.0 allows ARRIRAW to be recorded to the ALEXA Mini's in-camera CFast 2.0 cards by wrapping the files in an MXF container. Like ARRIRAW, the new MXF/ARRIRAW format is uncompressed, unencrypted, and contains audio and metadata. Only the packing is different, so third-party ARRIRAW processing tools such as DaVinci Resolve and Baselight have to be updated with a new SDK, which ARRI has provided for them. ARRIRAW Converter supports MXF/ARRIRAW from version 3.4, available free of charge on the ARRI website.

MXF/ARRIRAW clips do not require specially formatted CFast 2.0 cards, so MXF/ARRIRAW and QuickTime/ProRes clips can be mixed on the same card.

MXF/ARRIRAW 16:9 2.8K records an area of 2880 x 1620 and supports frame rates up to 48 fps.

Internal MXF/ARRIRAW Open Gate recording

Installing both the ALEXA Mini 4:3 License Key and the ALEXA Mini ARRIRAW License Key on a camera activates the MXF/ARRIRAW Open Gate 3.4K recording modes enabled by SUP 4.0.

MXF/ARRIRAW Open Gate 3.4K has a resolution of 3424 x 2202 and a maximum recording speed of 30 fps. As with the ProRes 4:3 recording modes, an optional 2x anamorphic de-squeeze is available for all monitoring paths and a dual 1.5G or 3G SDI setup is supported.

In order to offer anamorphic ProRes productions an easy way to capture some shots in MXF/ARRIRAW, three additional Open Gate 3.4K recording modes are being introduced:

- MXF/ARRIRAW 4:3 2.8K (OG 3.4K)
- MXF/ARRIRAW 2.39:1 2K Ana. (OG 3.4K)
- MXF/ARRIRAW 16:9 HD Ana. (OG 3.4K)

These modes record 3.4K Open Gate at up to 30 fps, but the monitoring paths reflect the corresponding 4:3 ProRes modes. The active image area is noted in the metadata, so postproduction tools will crop the images automatically. ARRIRAW Converter and other tools that support the new ARRIRAW SDK are able to override that information and return to the full Open Gate frame if required.

Super 16 HD recording

Allowing the use of Super 16 lenses with the ALEXA Mini, the new ProRes S16 HD recording mode uses a 1600 x 900 sensor cutout and scales it to full HD 1920 x 1080.

ECS and Lens Data Archive

Electronic Control System (ECS) support in the ALEXA Mini has been extended to include the Lens Data Archive, allowing custom lens files to be created and used.

Wireless Compact Unit WCU-4 with Lens Data Archive

Transvideo StarliteHD5-ARRI improvements

The touchscreen interface of the Transvideo StarliteHD5-ARRI monitor now has a more neutral look and new functions including record start/stop, access to the top three user buttons and playback.

Transvideo StarliteHD5-ARRI 5" OLED monitor

Support for the Camera Control Panel CCP-1

The soon-to-be-available CCP-1 is essentially an MVF-1 viewfinder without an eyepiece. It can be used with the camera in place of the viewfinder and provides full access to the UI home screen and menu, as well as a small monitor image. It can also be used in combination with the MVF-1 by daisy-chaining the monitor from the second EVF connector of the CCP-1.

Camera Control Panel CCP-1

Additional features of ALEXA Mini SUP 4.0

- **Extended SDI metadata** – SDI outputs now embedded with standard ARRI metadata
- **Wi-Fi toggle via user button** – to quickly enable and disable the Wi-Fi interface
- **Selectable viewfinder zoom position** – adjustable via the LCD panel buttons
- **Longer exposure times** – no restrictions on exposure times longer than 1/24 s

ALEXA MINI

Cinematographer Eben Bolter talks to ARRI while shooting the movie iBoy with ALEXA Mini in a 4:3 recording mode and Master Anamorphic lenses

Collaborating for the second time with director Adam Randall, British cinematographer Eben Bolter has been shooting the feature film *iBoy* in London with a beta version of the ALEXA Mini's new ProRes 4:3 2.8K recording mode, enabled by ALEXA Mini Software Update Package (SUP) 4.0. Optimized for anamorphic capture, the new mode has allowed Bolter to take full advantage of the 4:3 ALEXA sensor while working with ARRI/ZEISS Master Anamorphic lenses.

Photos: Will Loyd-Holmes
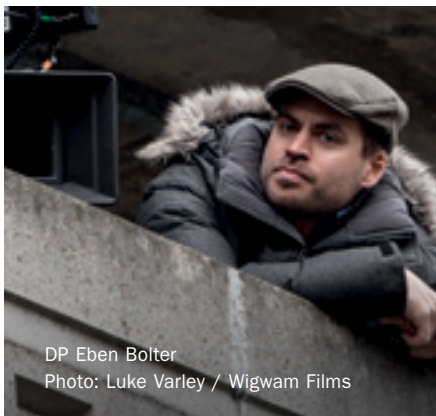
DP Eben Bolter
Photo: Luke Varley / Wigwam Films

Why did you choose the Master Anamorphics?

When I tested the Master Anamorphics I thought they'd be incredibly sharp and perfect, but not have any personality. In fact the 35 mm, 40 mm and 50 mm, which usually in anamorphic would be too wide for me, had a solidity to the frame that almost created a medium format or 65 mm feel, because you've got this massive canvas with minimal distortion. So in our tests we started using those focal lengths as close-up lenses, only about four to five feet from the subject, giving us really big, graphic images with the look of comic book panels, which we fell in love with for certain parts of the film.

How important is it proving to have the ALEXA Mini?

The ALEXA Mini has been almost too good to be true. Initially we thought we'd just use the Mini for handheld and Steadicam shots, but actually we ended up using it on the low loader, handheld, on the Steadicam, on the dolly; it's been our workhorse. We recorded ProRes 2.8K in the new 4:3 mode on the ALEXA Mini, which was perfect for us because this is an anamorphic film.

Have there been setups that could only have been done with the ALEXA Mini?

We did a car rig where we had a six-foot motorized slider going from the front side window to the back. It was a big Range Rover on a standard low loader, which meant we only had about two feet of space at the side and we were right on the limit of hanging over the edge, which you're not allowed to do unless you close the roads. The Mini took up so little space that it kept us within what was permitted. On an XT we wouldn't even have attempted the shot.

We're also going to be flying our ALEXA Mini in a drone and we're planning to get an anamorphic lens on there as well, although it will be close, weight-wise. I've done a reasonable amount of handheld operating with an Easyrig, and I also like to operate with the camera at waist height, so the Mini being so much lighter and smaller is fantastic. I don't even put it down between takes; it's fine to walk around with it for an hour at a time.

Do the Master Anamorphics and the ALEXA Mini complement each other?

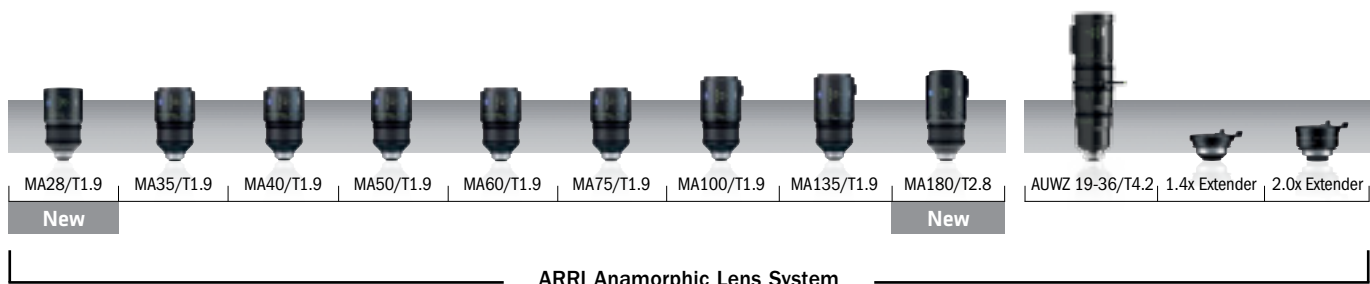They go together very well and now with the 4:3 recording modes it's seamless. The Master Anamorphics retain so many of the traditional benefits of anamorphic; it's still a classic cinematic image, but the wide-angle focal lengths on the Mini – delivering that big canvas look – feels new. It feels like filmmaking is being pushed forward, which is exciting. Visually, this is the best film I've shot, just because we're being so bold. We'll find out if we're successful with it, but we're certainly taking risks and pushing for something fresh. The Master Anamorphics and the ALEXA Mini have liberated us to strive for that.

> "The ALEXA Mini has been almost too good to be true...it's been our workhorse."

TWO NEW MASTER ANAMORPHICS

New 28 mm and 180 mm ARRI/ZEISS Master Anamorphic lenses will extend the series at the wide and long ends

MA28/T1.9	MA35/T1.9	MA40/T1.9	MA50/T1.9	MA60/T1.9	MA75/T1.9	MA100/T1.9	MA135/T1.9	MA180/T2.8	AUWZ 19-36/T4.2	1.4x Extender	2.0x Extender
New								**New**			

ARRI Anamorphic Lens System

The Master Anamorphic lens series, developed collaboratively by ARRI and Carl Zeiss, has set a new high standard for the optical performance of anamorphic lenses. Producing organic-looking images with pleasing skin tones and crisp, natural colors, the lenses display incredibly low distortion, so straight lines stay straight – even at close focus.

Image quality is consistently high across the frame, with the 15 iris blades rendering out-of-focus backgrounds beautifully and giving a rounded edge to the classic oval-shaped highlights, which are evenly illuminated. The punchy separation of main subject from background and smooth focus fall-off contribute to a truly immersive, cinematic look.

At NAB 2016 ARRI is showing prototypes of two new focal lengths that will be added to the Master Anamorphic series, extending the focal length range at both the wide-angle and telephoto ends. The 28 mm MA28 shares the fast T1.9 aperture speed of all seven preceding Master Anamorphics, making it ideal for low light work and shallow depth of field. For such a long focal length, the 180 mm MA180 has an impressively fast stop of T2.8 and a compact design, with a front diameter of just 95 mm. Both lenses display the same superior image quality and perfect optical aberration correction as all other Master Anamorphics.

The MA180 is optimized to be used together with the ARRI LDS Extender 1.4x to extend the focal length to 250 mm, and with the LDS Extender 2.0x to achieve a focal length of 360 mm. This means that the ARRI anamorphic lens system, comprising nine Master Anamorphics and the Anamorphic Ultra Wide Zoom AUWZ 19-36/T4.2, will now cover an exceptionally wide focal length range of 19 mm to 360 mm.

Dedicated Master Anamorphic Flare Sets are available for all nine focal lengths, allowing the front or rear glass elements, or both, to be quickly and easily replaced with flare-enhancing optics. Providing three additional looks for each lens, the flare sets lend texture and character to the image, enhancing on-set creativity.

MASTER ANAMORPHIC FEATURES

· Low distortion for uncompromised anamorphic capture
· Cinematic bokeh with high contrast and nice focus fall-off
· Beautiful skin tones and precise color rendition
· Characteristic oval out-of-focus highlights
· Large image field for full freedom in composition
· Fast T-stop for shallow depth of field
· Flare set accessories for alternative looks

SKYPANEL MOVIE DEBUT

Gaffer David Sinfield discusses working with SkyPanel on its first feature film,
The Huntsman: Winter's War

Gaffer David Sinfield

UK lighting rental company Pinewood MBS was an early adopter of the SkyPanel, taking delivery of a batch of pre-release S60 units in mid-2015. The first production to make use of them was *The Huntsman: Winter's War*, shot by Phedon Papamichael ASC, GSC, which is released this month. Papamichael's gaffer David Sinfield spoke to ARRI about how the SkyPanels were used and what advantages they brought to the film.

How did this come to be the first movie to use SkyPanels?

When I started on the film I called Pinewood MBS to ask what LEDs they had available to put in light boxes. They said they had something new, so we went to Pinewood and they showed us the SkyPanel, which hadn't been announced at that point. We were very impressed with what we saw, so Pinewood MBS got in enough stock for when we started work on the stages.

Where did you use the light boxes?

The main set we needed them for was a great hall in a castle. One end of the hall is like a normal castle, with warm firelight, but by the time you get to the other end it's a very cold environment because the character is an ice queen. So we had to go from warm to cold as you travel down the length of the great hall. Instead of gelling space lights, my idea was to use LED so we could dial in this transition from very warm to very cold.

What was the setup and how many SkyPanels did you use?

We had a big light box of 30 square feet with 16 SkyPanels inside, and then two 15 square-foot light boxes at either end, with nine SkyPanels in each. Then we had smaller ones dotted around that had just two fixtures in. So on the stage in total we had perhaps 60 SkyPanels, with some being used on the floor as key lights or fill. We put them through 12 x 12 frames or bounced them and we were able to dial in the colors on the floor to match ARRIMAXes that were lighting through the windows.

"The SkyPanels were very efficient and gave us maximum flexibility on our big stage. Since we had to switch over from night to day mode within minutes, it was essential for us to be able to control intensity and color temperature from the ground, on the fly!"

Phedon Papamichael ASC, GSC

Photo: Giles Keyte © Universal Pictures

Photo: Giles Keyte © Universal Pictures

SkyPanels in light boxes, providing a clean, soft, controllable top light on the great hall set.

Do you feel that the accessories now available make the SkyPanel family more versatile?

When we were first shown the SkyPanel I asked straight away if we could use accessories to reduce the beam angle. The answer was yes and sure enough when our first lamps turned up there was a honeycomb there as well, which allowed us to use the SkyPanel as a fill light or project it through a large diffusion frame, without lots of flagging. We found multiple uses for it and the great thing always was being able to make a light level change without having to worry about a color change as well, which was fantastic.

Was Phedon happy with how the SkyPanels performed?

He was. We had so much flexibility because we would stand at the monitor and if Phedon wanted to adjust a SkyPanel in terms of color or intensity, we could do it at the touch of a button from the desk. For the sake of speed we had Pinewood MBS build us a little eight-way wireless slider desk that

we had by the DIT monitor and we chose certain SkyPanels to control from this slider; we would light the scene and then set levels from the monitor.

And would Phedon use SkyPanels on the actresses for beauty shots?

Yes, he would. On that set especially we used M90s and M40s off large bounces, and we sometimes used a SkyPanel or an L7 as fill. All of our finesse lighting with the actresses was done with very soft light and Phedon was perfectly happy to use a SkyPanel for that, perhaps putting it through Opal diffusion, and it would work fantastically well.

I do feel that the SkyPanels have moved LED lighting forward, basically because the control and flexibility that you have with them is fantastic. Lots of LEDs were bi-color but these have a lot more to offer, especially being a soft source straight from the head.

AMIRA
UPDATES

A new ProRes S16 HD recording mode allows the use of Super 16 lenses, while the Multicam mode facilitates multi-camera setups

SUP 4.0

AMIRA Software Update Package (SUP) 4.0, released in April 2016, shares many but not all of the new features of ALEXA Mini SUP 4.0, the most important of which for AMIRA shooters is the new Super 16 recording mode. Unique to AMIRA is the Multicam mode, refined with SUP 4.0, which provides an open interface for remote-controlling multiple AMIRA camera images across a network by using standard remote control panels.

ProRes S16 HD recording

Feedback from customers around the world has made it clear that there is widespread interest in using Super 16 format lenses with the AMIRA. In order to meet this demand, ARRI is introducing a ProRes S16 HD recording mode with AMIRA SUP 4.0.

The new mode takes a Super 16-sized crop from the sensor and scales it to a 16:9 HD picture in any ProRes codec. The image circle is 15.1 mm, which is slightly larger than the traditional Super 16 image circle of 14.5 mm. Many lenses designed for Super 16 will cover the new recording mode without any vignetting inside the image area, but testing is always advisable.

Super 16 optics are still widely available at rental houses and are generally underused. The new S16 HD recording mode will make economically priced, high-quality lenses available to AMIRA productions and also extend the return on investment from those lenses for the rental house.

Although the S16 HD mode is limited in image quality, due to the smaller sensor area and also the optical performance of the lenses themselves, it offers distinct advantages to various sectors of the industry. Sports productions are looking for smaller lenses, especially zooms with a better ratio of zoom range to size and weight than 35 mm can offer. Documentarians are keen to make use of lenses they know from

having previously worked with the Super 16 format. In fact anyone shooting handheld – for which the AMIRA is designed – has a vested interest in working with the lightest and most compact lenses possible. In all such cases Super 16 lenses offer a cine-style alternative to EF mount stills photography lenses.

For TV series the factors of size, weight and cost are also relevant, but cinematographers will additionally find the new S16 HD format appealing for purely creative reasons. Working with vintage Super 16 lenses provides an opportunity to create looks that bring a sense of life and texture to the digital image in a totally organic way. Prime lenses such as the ARRI Ultra 16

S16 HD
ProRes recording

AMIRA S16
15.1 mm diag
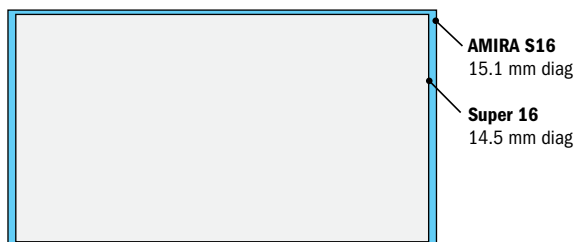
Super 16
14.5 mm diag

series will be of particular interest for these productions, as they offer higher image quality than Super 16 zooms.

Besides allowing the use of Super 16 lenses, the S16 HD mode can also be used to effectively extend the focal length of 35 mm lenses by a factor of 1.8. For productions such as nature documentaries that work at long focal lengths, the advantages of getting a closer view of subjects will outweigh the compromise in image quality. Since the S16 HD mode can be activated quickly, it also provides a method of responding rapidly in situations where a longer focal length is required but there is insufficient time for a lens change. While the same effect would be achievable in post, many productions might not have the time or money in post to do it. The in-camera route also gives greater compositional control to the cinematographer and makes precise framing easier.

OTHER FEATURES OF AMIRA SUP 4.0

- **Support for the Camera Control Panel CCP-1** – can be daisy-chained with the viewfinder
- **Selectable viewfinder zoom position** – adjustable via the LCD panel buttons
- **Extended SDI metadata** – SDI outputs now embedded with standard ARRI metadata
- **Longer exposure times** – no restrictions on exposure times longer than 1/24 s
- **Transvideo monitor improvements** – including control of playback and record start/stop

Multicam mode

Available for all AMIRA models, the Multicam mode is an extremely attractive option for multi-camera shooting environments such as music concerts and live events, as well as TV soaps and other fast-paced scripted productions.

Essentially, Multicam is a simple and flexible interface that can be used with virtually any transmission system required. It allows the image parameters of multiple AMIRA cameras to be remote controlled using a Sony RCP (Remote Control Panel), including iris settings. Multi-camera setups

can comprise AMIRAs only, or can combine AMIRA with other third-party cameras.

First introduced with AMIRA SUP 3.0, Multicam mode has been refined in SUP 4.0 and will continue to evolve in response to feedback coming in from the growing number of user applications.
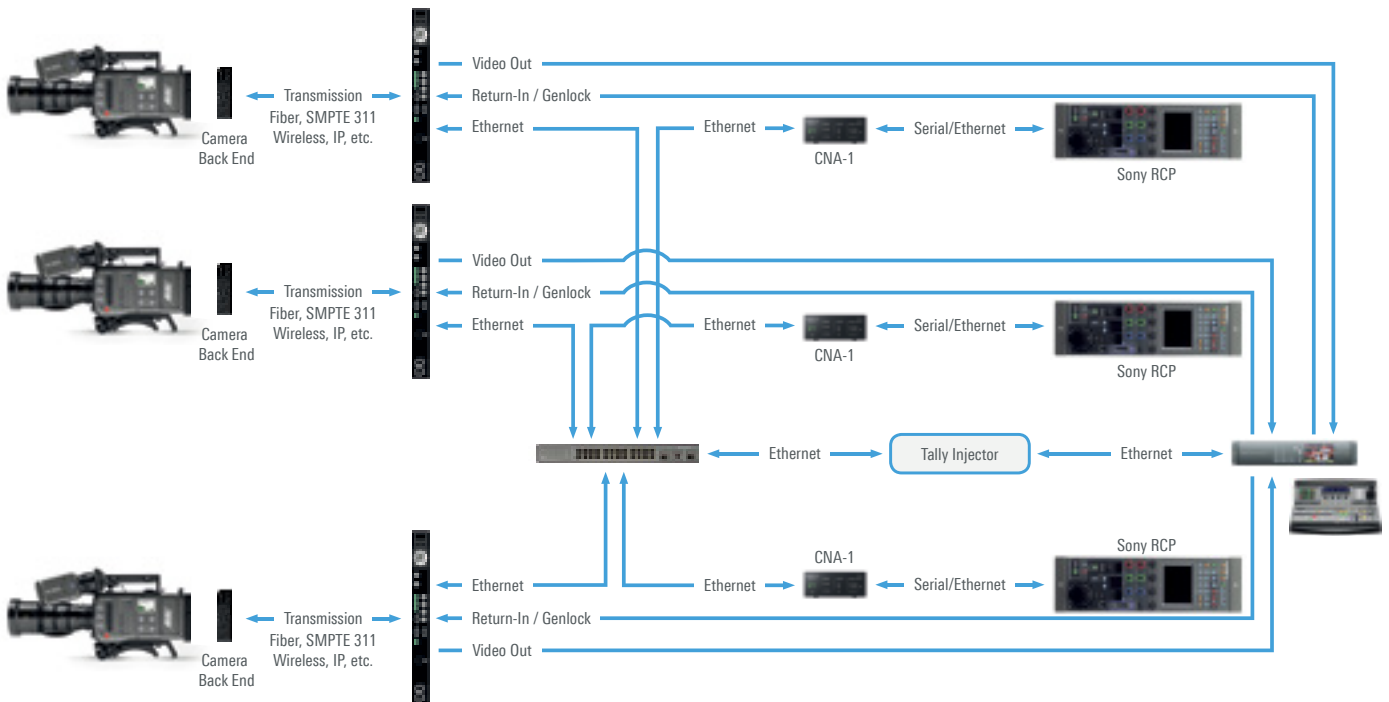
GOING WIDE

Matthew Allard ACS gives his report of working with the ARRI Ultra Wide Zoom UWZ 9.5-18/T2.9 on an architecture shoot in Japan

Shooting with really wide lenses has always involved a trade-off between the focal length and image performance. The wider the lens, the more edge softness and distortion you tend to get. This can be very evident when shooting architecture – straight lines no longer appear straight and if you have people in the corners of the frame they often look distorted and unnatural.

On a recent shoot in Japan I was lucky enough to use the ARRI UWZ 9.5-18/T2.9, loaned to me by ARRI's distributor in Japan, NAC Image Technology. The project involved capturing the Ribbon Chapel in Hiroshima, designed by Hiroshi Nakamura and named as a finalist at the 2015 World Architecture Festival awards in Singapore. By entwining two freestanding spiral stairways, the building itself is a metaphor for the act of marriage.

Trying to convey a sense of space and show how wide the human eye can see is a difficult task. You can try and shoot with a fisheye lens but that ends up leaving you with badly distorted visuals and a very unnatural-looking image. The ARRI UWZ was the perfect lens for this assignment and allowed me to

capture images that would have been virtually impossible using standard optics. The interior space of the chapel is not that big, but when you are standing inside it feels bigger than it actually is. The UWZ allowed me to replicate what my eye was able to see.

I used the UWZ for a lot of the shots, as well as a TLS 80-200 mm T2.8. For a couple of the moving shots I used the Wally Dolly, which worked well even when I had to set it up on uneven terrain. Everything was shot on the ARRI AMIRA in 3.2K in ProRes 4444 12 bit and then edited in FCPX.

The UWZ is a big piece of glass and weighs in at 4.8 kg (10.6 lbs.). To use it on my AMIRA I had to use 19 mm rods, a lens support and an ARRI dovetail plate attached to my Sachtler 18 P tripod. The UWZ uses cutting-edge optical technology and for ARRI to design a lens this wide that didn't compromise on image quality they had to do a few things differently. The UWZ doesn't optically flip the image like most other lenses, it keeps it upside down. It is strange to bring the material into an edit and see everything you shot upside down, but it is very quick and easy to flip the image in most NLE systems.

The main thing you notice when using the UWZ is that it produces a rectilinear image – straight lines remain straight – and stunning quality no matter what focal length you are at. On most wide-angle lenses the corners become very soft and straight lines end up warping and becoming curved.

I found the UWZ an absolute pleasure to use. The lens is amazingly sharp even wide open, produces just the right amount of flare and shows almost no signs of softness, even in the far corners of the image. The lens is built like a tank and as you would expect the focus, iris and zoom operations are first class. The other amazing thing is the lens has almost no visible breathing at all.

The UWZ is a remarkable piece of glass for those looking for an ultra-wide zoom that doesn't compromise on image quality. The lens covers an image circle of 34.5 mm and not only comes in an ARRI LDS PL mount but also a Canon EF mount. I can't see too many people using this lens in EF mount, but it's nice to know there is an option.

First published at newsshooter.com

Watch the video online:
www.arri.com/goto/1604/uwz

MECHANICAL PCA

New Pro Camera Accessories expand ALEXA Mini configurations and improve the professional usability of third-party cameras

ARRI PCA FOR ALEXA MINI

The **ARRI Broadcast Plate for ALEXA Mini** is an adjustable base plate designed for documentary-style filming. Featuring advanced shoulder pad adjustment, it permits precise balancing on the shoulder without any need to disturb rod-mounted accessories. The plate's compatibility with VCT-style tripod adapters such as the ARRI Quick Release Plate QRP-1 allows swift transitions between shoulder and tripod.

The **ARRI Low Bracket for Camera Shoulder Pad CSP-1** is specifically designed for the Mini Adapter Plate MAP-2. When fitted to the CSP-1 shoulder pad, it makes handheld operating easier by lowering the ALEXA Mini on the shoulder by 15 mm.

New ALEXA Mini Broadcast LWS Kits:
www.arri.com/qr/fl/alexaminikit
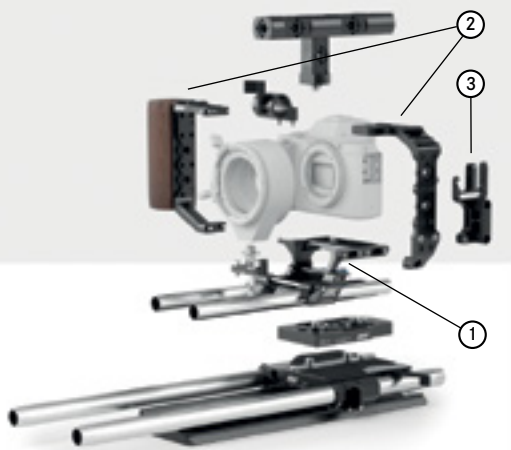
ARRI PCA FOR SONY a7S/R II

① The **ARRI Base Plate for Sony a7S/R II** is a camera-specific support built tightly around the 15 mm LWS rod system. The robust, lightweight base plate is ideal for handheld operating, but is also ready for the heavier setups of classic rental environments that involve studio bridge plates such as the ARRI BP-8 or BP-9.

② The **ARRI Side Brackets for Sony a7S/R II** surround the camera. They offer protection to the camera body and provide industry-standard accessory threads and cold shoes, allowing handles and a sturdy third-party viewfinder bracket to be attached. The camera rig can be comfortably operated using the generously-proportioned wooden grip provided.

③ The **ARRI Cable Clamp for Sony a7S/R II** spares the camera's Micro HDMI connector from the stresses of repetitive use. An offset, full-size HDMI female connector offers a reliable connection to recorders, viewfinders or monitors.

ARRI PCA FOR RED DSMC2

Two ARRI PCA base plates are available for the RED Weapon, Scarlet-W and Raven DSMC2 cameras.

① The **ARRI Cine Plate for RED DSMC2** fits over classic studio bridge plates such as the ARRI BP-8 and BP-9, and offers a pair of sturdy rosettes.

② The documentary-style **ARRI Broadcast Plate for RED DSMC2** enables users to adjust the position of the camera on the shoulder without repositioning accessories mounted to the rod system, and is compatible with VCT-style plates such as the ARRI QRP-1.

③ The **ARRI Top Plate for RED DSMC2** is designed for low-mode applications and allows accessories to be mounted via industry-standard threads. It connects to the camera's electronic interface and offers a LEMO connector compatible with the RED LEMO adapter B.

④ The **ARRI Handle for RED DSMC2** features a sturdy, integrated 15 mm LWS rod console for the mounting of accessories such as lens motors or ARRI viewfinder brackets.

⑤ The **ARRI Monitor Bracket for RED DSMC2** allows the camera monitor to be repositioned on top-mounted 15 mm LWS rods.
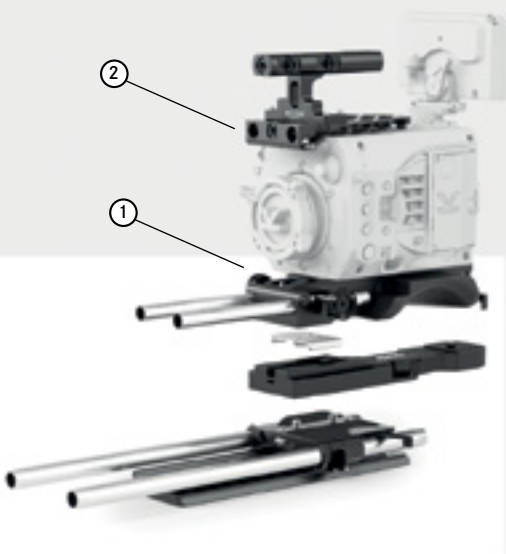
PCA FOR PANASONIC VARICAM LT

① The **ARRI Plate for VariCam LT** is a lightweight, hybrid support that is well-suited to common rental setups using studio bridge plates such as the BP-8 or BP-9, as well as documentary setups using VCT-style base plates like the ARRI QRP-1. It features fore and aft lockable adjustment on the base plate for shoulder balance optimization, as well as a pair of built-in extended rosettes.

② The **ARRI Top Plate for VariCam LT** is a low-mode support, featuring numerous accessory threads and a built-in console for 15 mm LWS rods. It can be fitted with a range of ARRI PCA tools such as the CCH-2 handle, while maintaining compatibility with the original Panasonic viewfinder mount and handle.

Images courtesy of Digital Garden Inc.

MASTER ANAMORPHIC FLARE SETS

Cinematographer Takehiko Fukae discusses working with the creative flare sets available for ARRI/ZEISS Master Anamorphic lenses

DP Takehiko Fukae

Tokyo-based production and shooting support company Digital Garden recently produced a showreel to demonstrate the creative possibilities of its Master Anamorphic Flare Sets, which were the first to arrive in Japan. The flare sets, available for all nine Master Anamorphic focal lengths, comprise easily replaceable front and rear glass elements that can be used individually or in combination to provide additional looks. Cinematographer Takehiko Fukae, working with director Shinichi Takamura and DIT Tatsuo Sasaki, combined the Master Anamorphics with ALEXA XT and ALEXA Mini cameras on the shoot, and here shares his thoughts about the looks they achieved.

What location and lighting setup did you use to showcase the flare sets?

We shot the clips at a real store that we decorated specially for the shoot. For day scenes we used a 4 kW ARRISUN illuminating the room from outside a window as our key light and two sets of LED panels as fill light; natural light was also coming in and there were various practical fixtures. I didn't use any additional lights on the set purely to create flare, but the flare sets provided very beautiful and natural effects without complicating the lighting setup; this made everything easier and offered great flexibility. For night shots I just used a practical lamp in the store and for our exterior shots on an intersection I used only natural light.

How would you describe the goal of your shoot?

We wanted to demonstrate how much flare, ghosting and veiling glare are generated by the front and rear elements of the Master Anamorphic Flare Sets, and to explore how well they can be used to capture moments that feel alive and real. As well as experimenting with the flaring characteristics, we also checked that the gradation of dark and bright parts within the image was properly expressed. In the showreel you can see different effects depending on different iris settings.

What kinds of looks do the flare sets create?

ARRI's Master Anamorphic lenses provide great sharpness and contrast, and these remain even when you use the flare sets; you also retain the amazing lack of distortion, breathing and vignetting. What the flare sets add is a slightly softer gradation and a more intense feeling for the atmosphere of a place, as well as beautiful veiling glare, especially when using the rear flare element.

I am not fond of lenses that lighten the blacks and prevent them from being dark enough, but with the flare sets shadow areas still looked really good; they just brought a very pleasing softness to the image, with wonderful out-of-focus backgrounds and highlights, and of course the flares were amazing, they were just beautiful.
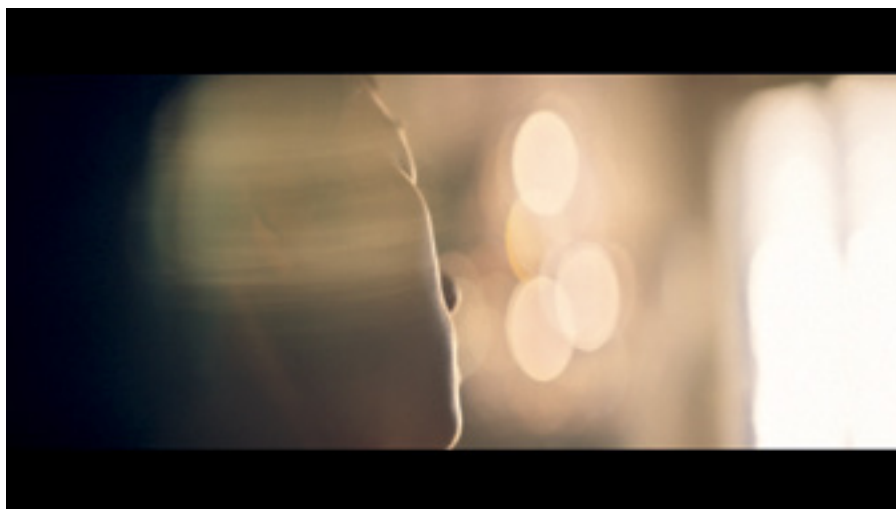
What productions can you imagine the flare sets being used on?

I think the flare sets are ideal for commercials, especially for glamor products like cosmetics. The overall tone will be soft and you can make good use of their nice bokeh. The flare sets are also very interesting to use for night scenes, to create a visually appealing, non-ordinary world. I think they will appeal to cinematographers because they enhance creativity, but are very easy to use.

What did you find most exciting about working with the flare sets?

I love that the flare sets give you the choice of three different looks because of the different combinations of elements: front and rear, just front or just rear. I found that we kept discovering exciting images that we hadn't originally planned, sometimes by just moving the camera or our model a little bit, which made for a very creative atmosphere on set. We also just enjoyed playing with the unique features of anamorphic lenses, like oval bokeh and a film-like look, which create more perspective and a realistic sensation.
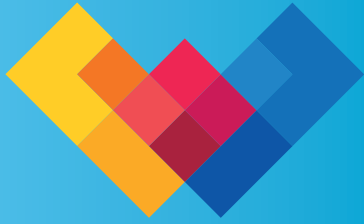
Director Shinichi Takamura

DIT Tatsuo Sasaki

Watch Digital Garden's flare set showreel:
www.arri.com/goto/1604/dgfs

Webgate
cloud services

Nicholas Goodwin of Constantin Film describes how the ARRI Webgate cloud service facilitated an efficient dailies workflow on the latest Resident Evil film

Webgate is ARRI's cloud service for video and file management and distribution, designed to meet the highest security standards of the international film industry. Nicholas Goodwin, Head of Postproduction at Constantin Film, speaks here about using Webgate as a dailies platform for the sixth film in its *Resident Evil* franchise. Filmed in South Africa in partnership with Impact Pictures and the Sony-owned US distributer Screen Gems, *Resident Evil: The Final Chapter* was written, produced and directed by Paul W.S. Anderson, and shot by cinematographer Glen MacPherson ASC, CSC.

How did you and your production partners decide on Webgate as your dailies streaming platform?

At Constantin Film we have been working with Webgate since 2011; it has become an important toolkit for our daily work. For our partners, however, it clearly meant a step out of their comfort zone. I think all US studios are hesitant to use out-of-country content management platforms – it just doesn't

WEBGATE FEATURES

- Organize your online content quickly, safely and conveniently – anytime, anywhere
- High quality transcoding of almost any input video file format
- Video streaming in various resolutions up to full HD
- Set individual watermarks on your videos to ensure a high level of security
- Vote and comment on files, clips or frames to simplify decision-making within a team
- Invite co-workers and clients to your projects and control user access levels
- Share files and streaming media via directlink with external users without a Webgate account

> "Webgate offers an abundance of features for a fraction of the price."

go well with their philosophy of content protection. I can understand it because we share the same concern: you want to know whose fingers are wrapped around the precious content.
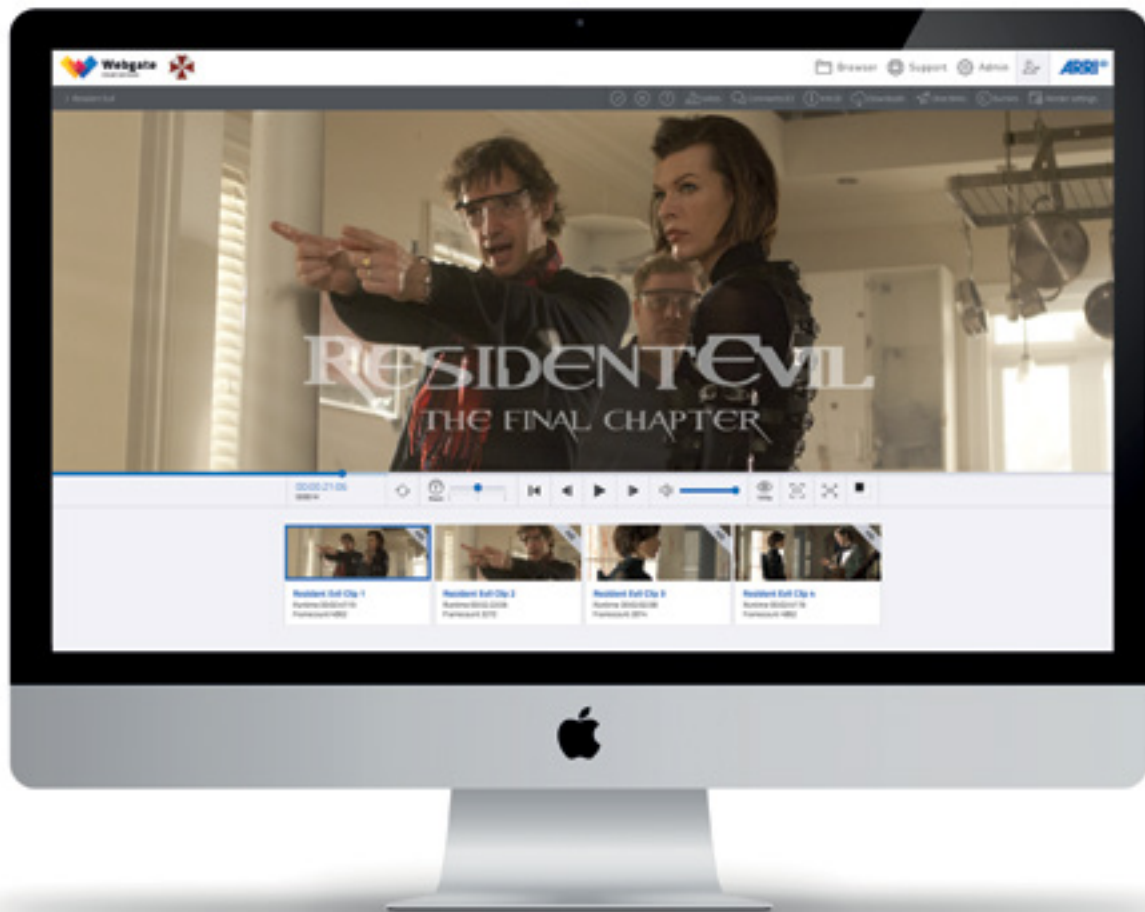
I believe the name ARRI stands for rigor and credibility, and that quickly opened the door. The price-performance ratio proved to be a huge advantage as well. Webgate offers an abundance of features for a fraction of the price of US competitors. It gets the job done concisely, efficiently and even more important: safely. We conferred with Screen Gems' Vice President of Postproduction, Brad Word, who had a look at the tool and seemed quickly convinced of its qualities.

What was the workflow for the upload and distribution of the dailies?

The camera data was wrangled twice a day: during the lunch break and after wrap. The original data went to Searle Street, our local postproduction partner in Cape Town, and was transcoded for Avid and Webgate.

Nicholas Goodwin of Constantin Film

They created the H.264 QuickTime files in 1280 x 720 resolution with a Constantin Film watermark and then uploaded them to Webgate. During 71 shooting days the production generated approximately 18,000 minutes of footage, with about 13,000 separate clips – totaling two terabytes of compressed data – uploaded to Webgate and viewed by up to 55 people.

Did the performance and usability of the platform stand up?

We didn't hear anything negative about the performance or capacity of the system. We were told that the executives at Sony are used to viewing their dailies through a TV set-top box – not streamed but automatically downloaded overnight and readily available in the morning. They were a bit apprehensive about streaming data, thinking the picture might stall or jitter. Thorsten Wirth, the Postproduction Supervisor at Constantin in Munich, had set up the viewing environment for our US colleagues. He provided a bit of training for the users and was available as a support contact, but the system is quite self-explanatory and so the whole process was very smooth.

During the first two weeks of shooting Searle Street only uploaded selected takes that were pre-edited. After 15 shooting days the producers wanted to see all dailies. That's when the load got really heavy, but we never had any problems.

Does Webgate have other uses for you?

Constantin uses Webgate as a working platform for everyday business, not just for dailies. We use it in all phases of our productions, all the way through postproduction to distribution. With *Resident Evil*, editing moved back to Los Angeles after the shoot and thus it seemed expedient for Sony to keep the data local. Nevertheless, they were able to view all the material during photography and selectively share access to Webgate in order to generate marketing and promotional materials early in the process.

Watch the Webgate promotional film:
www.arri.com/goto/1604/webgate

LED SOLUTIONS

Russell Steen, lighting director at Joyce Meyer Ministries in Missouri, gives his account of working with ARRI L-Series and SkyPanel LED fixtures

Joyce Meyer Ministries created a new weekly show called *Enjoying Everyday Answers*. The producers wanted a standing set designed as a loft apartment/coffee shop, to be built in a studio space with floor-to-ceiling windows on three walls. Those windows, which have a green tint, determined the amount of light we needed inside.

I hoped to go with LED lights to avoid having to redesign the existing electrical distribution, but I was skeptical about the quality of light most LED fixtures put out. Attending the LDI show in Las Vegas, I had the opportunity to look at ARRI's new line of color-changing LED instruments. They were exactly what I wanted for this project.

We purchased eight L5-C, four L7-C and four L10-C LED Fresnels, as well as four SkyPanel S60-C soft lights. I control these with an ETCnomad Puck 512 (Eos) using a touchscreen monitor.

The first show in our new studio looked great and I enjoyed being able to finesse the lighting from a touchscreen. No more ladder dragging and wire scrim drops in front of a waiting cast and crew. No more burning flesh and hot scrim juggling. No more gelling lights to compensate for color shifts when dimming, only to need more light than the gelled fixture puts out. I am not going to miss these things. Welcome to choosing the exact amount of perfect light. When senior producer/director John Pipes arrived, I had the whole set lit proportionally at about 60%. I could go up or down, in miniscule increments, on any light – with no color shift.

"Welcome to choosing the exact amount of perfect light."

Now I can adjust the entire set, a group of lights, or any single light from 10,000 K to 2,800 K. More importantly, I can adjust the warm-to-cool ratio of light motivated by a window and lights motivated by a ceiling fixture, practical, fire or anything else. To compensate for the green-tinted windows in our studio I simply added green to the ARRI LEDs. What a nightmare this used to present.

Lighting director Russell Steen

In my view the ARRI tuneable LEDs stand out from the crowd. Not only do the L-Series C-type lights pass the, "Who cares about the specs, how does it look?" test, they rock the specs and nail the color charts. They are also mechanically well-designed: the tilt brake, sliding balance adjustment, zoom/flood range, optics and on-board controls are all nicely done.

The ARRI SkyPanel S60-C is a dream come true: a bright, soft, controllable, color-accurate light source in a flat panel that uses only around 450 W. Combining the SkyPanel with a 60-degree honeycomb grid is particularly useful for us.

The six 20 A circuits available were more than enough for the ARRI L-Series and SkyPanel lights in our studio. The advantages of these fixtures cannot be overstated: minimal power requirement, color-accurate daylight or tungsten light, no additional air conditioning, no waiting for lights to cool, more color options, more control, great design, brilliant optics, and built to last.

I chose the stand mount version of all the lights we purchased, even though they require extra hardware and are a bit more hassle to rig up in a grid. I coil the entire power cable to the side and hang the lights so they can come down easily because it makes them more versatile; being able to add the 20 ARRI LED fixtures to our lighting package when we go out and shoot on location increases their value exponentially. I can also use them on the ads we produce and on our design department's photo shoots.

I work for a non-profit ministry funded by voluntary donors, so spending more than necessary or buying for status is not an option; thankfully, Joyce Meyer Ministries values having the right tools to maintain high production standards.

KEY CONTACTS

ARRI's Electronic Control System (ECS) is a versatile, modular toolset for wireless remote control of any camera and any lens. At NAB 2016 two new ECS products are being introduced that widen the range, bringing immediate benefits to ALEXA Mini shooters.

LCUBE CUB-1

The LCUBE CUB-1 is a miniature signal converter that converts LBUS protocols to serial protocols and vice versa. It is multi-purpose protocol converter that will prove useful for many different functions and many different camera setups.

Previously it has not been possible to view the readout from ultrasonic distance measurers such as ARRI's UDM-1 on the WCU-4 hand unit when using the ALEXA Mini with integrated lens motors. Now, the UDM-1 can be connected to the ALEXA Mini via the LCUBE and a daisy chain of one or more cforce motors, delivering distance readings to the WCU-4. This allows focus tracking in the same way as is possible with other ALEXA cameras or the Universal Motor Controller UMC-4.

Connecting the UDM-1 to the ALEXA Mini is just the first production advantage of the LCUBE. In future it will support various other serial protocols, permitting the latest ARRI ECS accessories to communicate with third-party cameras.

ELECTRONIC CONTROL SYSTEM

The new LCUBE signal converter and cforce plus lens motor expand options for remotely controlling lens and camera functions with ECS

CFORCE PLUS LENS MOTOR

The new intelligent cforce plus motor is yet another product developed through the partnership between ARRI and cmotion. Strong enough to move the geared rings of any standard lens in a very fast and smooth, pleasant manner, the cforce plus features twin LBUS connectors that allow up to three cforce motors to be daisy-chained in a row.

Some productions are using the ALEXA Mini in studio-style setups, but up until now there hasn't been an integrated, fully compatible lens motor that could handle heavier lenses. With the cforce plus, these productions are no longer restricted to lightweight configurations with the ALEXA Mini, but can also build the camera up into a studio configuration with a bigger prime or zoom lens.

The cforce plus offers various rod-to-rod mounting options known from the CLM-4 motor, including a Hill Bracket rosette, as well as the standard rod bracket for maximum flexibility on set. The standard rod clamp includes a hinge for convenient mounting when the camera is already configured.

As well as integrating directly with the ALEXA Mini, the cforce plus connects to ARRI's AMC-1 and UMC-4 motor controllers for camera-independent setups. It is fully compatible with LBUS-compatible cmotion devices.

Learn more about ECS for your camera:
www.arri.com/ecs

Move the sky.

Go mobile with the S30 and battery adapter plate.

SkyPanel is a versatile family of compact and fully tuneable LED soft lights, delivering light of unsurpassed power and quality. Combining the lightweight S30 with a battery adapter plate allows for an untethered configuration perfect for "run and gun" operation, while retaining the SkyPanel's excellent color rendition and full color tuneability.