ALEXA LF Software Update Package 3.0

for ALEXA LF cameras (SUP_AlexaLF_3.0_42530)

RELEASE NOTES

August 23, 2018

A. Introduction

We are happy to announce the availability of Software Update Package LF SUP 3.0 for the ARRI ALEXA LF camera. LF SUP 3.0 provides new features, supports new hardware and includes important bug fixes.

Please note that LF SUP 3.0 will not run without a new electronic board (ACDA4) in the camera. Newly manufactured cameras will have the new board and LF SUP 3.0 installed. Existing cameras running LF SUP 2.0 or LF SUP 2.1 can be updated from ACDA3 to ACDA4 and from LF SUP 2.0/2.1 to LF SUP 3.0 by all ARRI Service Centers, free of charge. This is also why LF SUP 3.0 is not available for download on the ARRI website. Please contact ARRI Service to schedule an appointment.

This document describes new features and changes for all ALEXA LF cameras that are part of LF SUP 3.0 in contrast to LF SUP 2.0/LF SUP 2.1.

New Features Overview

A more detailed description of each feature is given in the section 'New Features and Changes'.

- **Support for ALEXA Electronic Viewfinder EVF-2**
- **Support for SxS PRO+ 256 GB cards**
- **Support for battery adapters BAB-HG & BAB-HV**
- **New features**
  - MAGNIFICATION for EVF-1/2 & MON OUT
  - Six ZOOM positions for EVF-1/2 & MON OUT
  - Simplified global anamorphic de-squeeze
  - Monitor Identification

LF SUP 3.0 Requires the new ACDA4 Board

Please note that without the new ACDA4 board, LF SUP 3.0 will not run, nor will it be possible to downgrade back to LF SUP 2.0/2.1. Therefore, upgrading to LF SUP 3.0 is something only ARRI Service should do, which is also why LF SUP 3.0 is not available publicly on the ARRI website.

Downgrading

Once LF SUP 3.0 is installed, it is not possible to revert to a previous release version.

Additional Software

When recording SXR Capture Drives in an ALEXA LF, one must always use the Codex Production Suite 4.1 software or later for downloading. The older Codex dts 3.x software should not be used anymore. The ARRIRAW Converter and ARRIRAW SDK 5.3 and later are not affected and do not cause a problem.

Customers can download Codex Production Suite (https://codex.online/software) and request a free Full functionality trial license for 60 days, after which time the software will revert to permanent Basic VFS functionality. A 12-month Codex Connect subscription can be purchased to continue with Full functionality.

Customers who purchase a new SXR Thunderbolt Capture Drive Dock will receive a full functionality license for the Codex Production Suite. Owners of older Capture Drive Docks can receive a free Basic VFS license or purchase a 12-month Codex Connect subscription for a full functionality license.

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B. New Features and Changes

Accessories

Support for Battery Adapters BAB-HV & BAB-HG

The Battery Adapter Back High-Load V Mount BAB-HV allows the ALEXA LF to support the Bebob 14.4V VCINE (V Mount) series of batteries.

The Battery Adapter Back High-Load Gold Mount BAB-HG allows the ALEXA LF to support the Bebob 14.4V ACINE (Gold Mount) series of batteries.

The Bebob VCINE and ACINE batteries deliver 14.4V nominal. The voltage input range of the on-board battery interface of the ALEXA LF is 18.5 V to 34 V. The BAB-HV and BAB-HG feature a built-in booster circuit that raises the voltage of the battery from 14.4V to 20V, allowing the use of the Bebob VCINE or ACINE batteries on the ALEXA LF. The BAB-HV and BAB-HG interface with the Bebob High Load on-board batteries via proprietary High Load pins to safely deliver the power load required by the ALEXA LF.

Battery Adapter Back BAB-HV (K2.0019453) and BAB-HG (K2.0019456) are available through ARRI sales channels. Bebob batteries are available through Bebob sales channels.

- More information regarding the Battery Adapter Back BAB-HV can be found in OSI/Info 1412.
- More information regarding the Battery Adapter back BAB-HG can be found in OSI/Info 1421.
- More information regarding powering the ALEXA LF from on-board batteries can be found in the Technical Information ‘ALEXA LF & On-board batteries’, which is available in the DOWNLOADS area of the ALEXA LF microsite or directly here.

Electronic Viewfinder and/or MON OUT

Support for ALEXA Electronic Viewfinder EVF-2

MENU > MONITORING > ELECTRONIC VIEWFINDER > GAMMA

MENU > MONITORING > ELECTRONIC VIEWFINDER > POWER

EVF MENU (on EVF-2) > GAMMA

Since the display used in the EVF-1 has been discontinued, a new viewfinder - the EVF-2, has been developed to accompany the ALEXA LF. While still maintaining its predecessor's proven robustness, reliability and ergonomics, the EVF-2 is equipped with a new display with full HD resolution and higher contrast, improving the operator's ability to judge focus and dynamic range.

We have taken the opportunity to also include a new glass eyepiece based on the ARRICAM design for a cleaner image which is free of distortions, and which allows greater freedom of movement for the operator through a wider exit pupil.

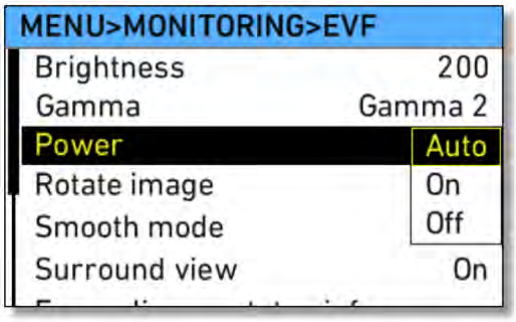
And while we were at it we have implemented the latest color science, which gives more accurate color rendition, a better match to on-set monitors, and a stable color balance at all display brightness settings, image brightness levels and from -20ºC to +45ºC (-4º F to +113º F).

For those who use EVF-1 and EVF-2 on the same set, an "EVF-1 gamma" setting emulates the EVF-1 tonal behavior.

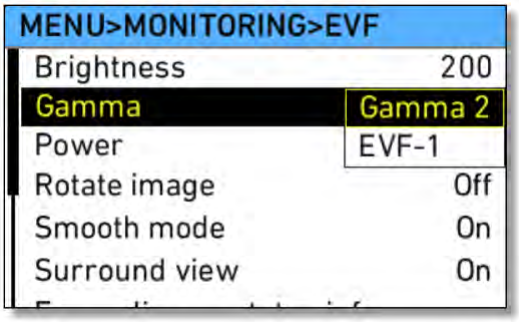
The EVF-2 requires ALEXA LF Software Update Packet LF SUP 3.0. All ALEXA LF cameras shipping from availability of LF SUP 3.0 onwards will be delivered with the EVF-2. ALEXA LF cameras with LF SUP 3.0 are compatible with EVF-1 and EVF-2.

Since a hardware upgrade from EVF-1 to EVF-2 is not feasible, owners of ALEXA LF/EVF-1 can acquire the EVF-2 by trading in their EVF-1 and paying half the EVF-2 list price.

- A new POWER setting in the camera's EVF menu selects the EVF-2 display mode.
  - **Auto** automatically switches the EVF-2 display on and off based on the eye sensor in the eyepiece. When you are looking through the eyepiece, the display is on. When you remove your eye, it turns off. This is the recommended default mode and designed to increase the display's lifetime.
  - **On** forces the EVF-2 display to always stay on. Use this only if the sensor in the eyepiece malfunctions and turns the display off when it should be on. Note: this will reduce the lifetime of the display.
  - **Off** permanently turns the EVF-2 display off. Use this option when you do not need to see through the viewfinder, but the viewfinder is in such a position that the eye sensor is covered, for instance by a raincover when the camera is mounted on a crane or Steadicam.



- A new setting in the camera's and the viewfinder's EVF menu selects the EVF-2 gamma characteristic.
  - **Gamma 2** activates a tonal curve (aka EOTF - Electro-optical Transfer Function) that is optimized for the EVF-2 viewfinder and close to the look of on-set Rec 709 monitors.
  - **EVF-1** activates a tonal curve (aka EOTF - Electro-optical Transfer Function) that is similar in its contrast characteristics to the EVF-1. This can be used when working with other ALEXA cameras that have an EVF-1 on the same set or when the EVF-1 look is preferred.



MAGNIFICATION for EVF-1/2 & MON OUT

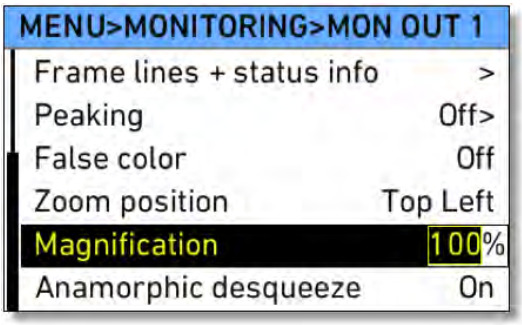
MENU > MONITORING > ELECTRONIC VIEWFINDER > MAGNIFICATION

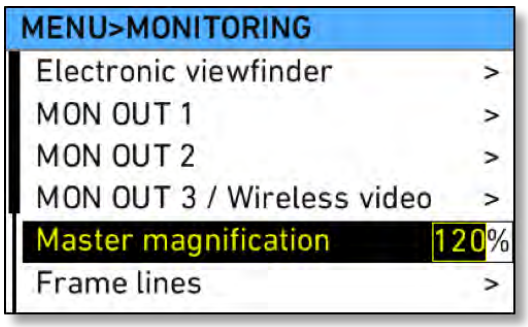
MENU > MONITORING > MON OUT <X> > MAGNIFICATION

MENU > MONITORING > MASTER MAGNIFICATION

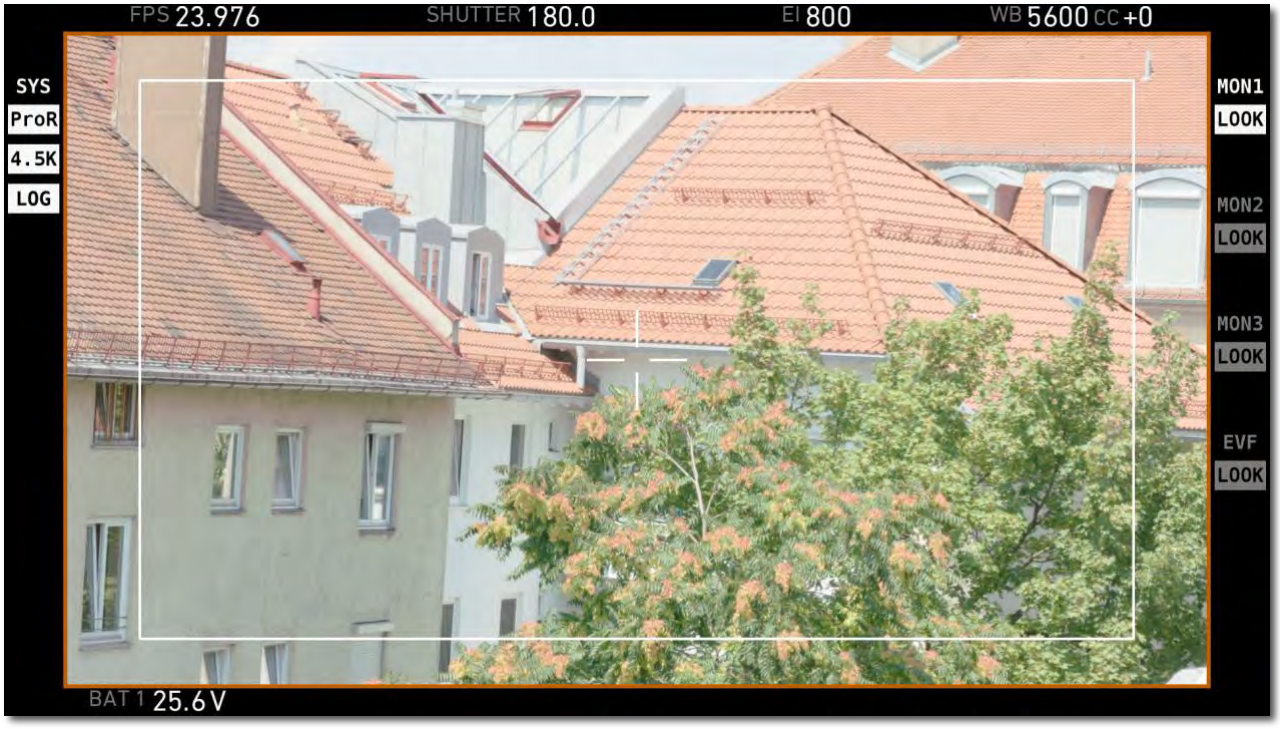
The new MAGNIFICATION feature sets a persistent magnification for each of the four monitoring outputs paths (EVF and MON OUT 1, 2 and 3), so the intended target image can be as big as desired on EVF and monitors. This is because some combinations of frameline/sensor mode lead to a smaller image on the viewfinder or MON OUT.

It is possible to set the MAGNIFICATION value from 100% to 200% for each monitoring path individually or override all MAGNIFICATION values with the global MASTER MAGNIFICATION value.





If less than the recorded area is shown on the EVF or on the MON OUT image, an orange border will be shown at the frame boundaries where the recorded image exceeds what is visible.



A screenshot from an ALEXA LF in LF Open Gate Mode with a 16:9 frameline (white rectangle). To enlarge the image on the monitor, the MAGNIFICATION feature has been used. The orange borders indicate that more image is being recorded than is visible.

Note: The MAGNIFICATION feature only works for 1.5G HD MON OUT, not for 6G UHD MON OUT.

Zoom Position for EVF-1/2 & MON OUT

MENU > MONITORING > ELECTRONIC VIEWFINDER > ZOOM POSITION

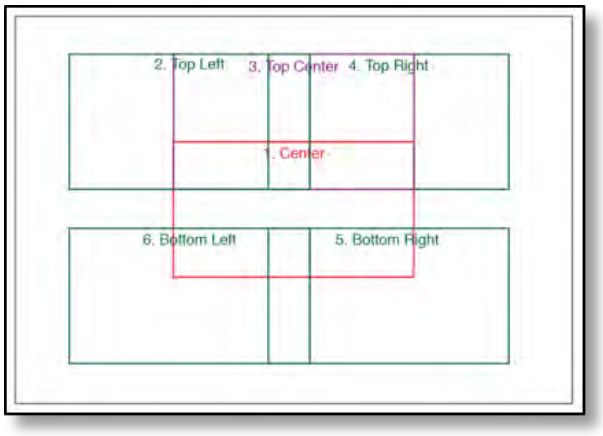
MENU MONITORING > MON OUT <X> > ZOOM POSITION

USER > BUTTON <x> > SMART ZOOM

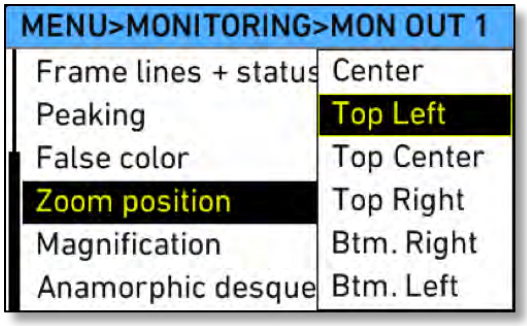
USER > BUTTON <x> > ZOOM

USER > BUTTON <x> > ZOOM POS.

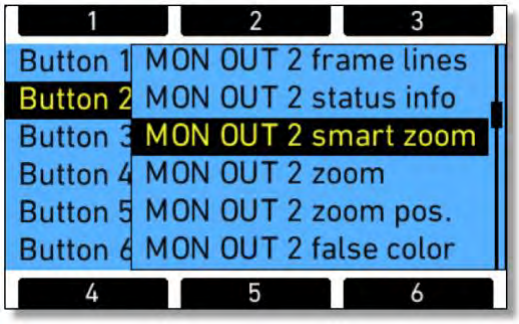
The existing ZOOM feature, designed for a temporary zoom-in to quickly check focus, is improved with six user-settable target areas. While ZOOM on the EVF can be accessed as always through the dedicated ZOOM button, the ZOOM feature on the MON OUT paths can be accessed through ZOOM user buttons. Please note that the six available ZOOM positions and the amount of overlap between them is different on EVF-1 and EVF-2 and in the three sensor modes, to optimize their usefulness.



- With the ZOOM POSITION menu item in the ELECTRONIC VIEWFINDER and MON OUT menus, a ZOOM position can be preset.



- Three user button designations, available for the EVF and each MON OUT separately, make accessing the ZOOM function fast and convenient.
  - **smart zoom** turns ZOOM on and off and steps trough all six zoom positions with one button. With the first push of the Smart zoom user button the ZOOM function is activated and starts on position 1 (center). Pushing the user button again steps through the zoom positions. A push for two seconds turns ZOOM off. When activating Smart zoom again, it will enter at the last zoom position.
  - **zoom** toggles the ZOOM function on and off
  - **zoom pos.** changes the position of the zoomed-in image when ZOOM is on



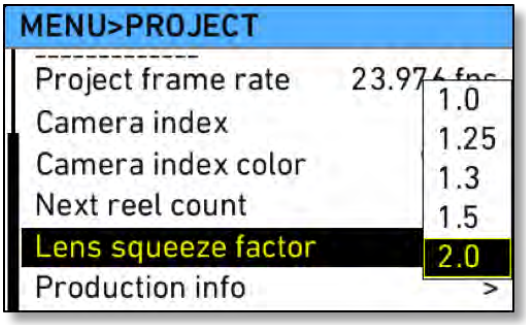
- An extra feature makes the ZOOM function on the EVF more convenient. When ZOOM is enabled on the EVF, rotating the EVF jog wheel steps through all zoom positions.

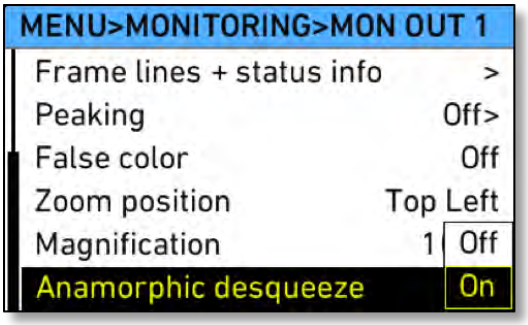
Simplified Global Anamorphic De-squeeze

MENU > PROJECT > LENS SQUEEZE FACTOR

MENU > MONITORING > MON OUT <X> > ANAMORPHIC DESQUEEZE

Setting the anamorphic de-squeeze ratio has been simplified. It is now possible to globally set one de-squeeze ratio in the PROJECT settings. This de-squeeze ratio can be activated or deactivated individually for each of the four monitoring image paths (EVF, MON OUT 1, 2, 3). This de-squeeze ratio will be recorded in metadata and used for automatic de-squeeze in the ARRIRAW Converter and other postproduction tools.





Monitor Identification

This new feature helps to quickly identify which monitor is connected to which MON OUT. This simplifies cable trouble shooting on set. The MON status icon that belong to the respective output path is as bright as the rest of the status info, while the icons of the other paths are dimmed.

General

Incompatible Accessories

The following accessories are not compatible with ALEXA LF cameras (in contrast to ALEXA SXT W) running LF SUP 3.0:

- ALEXA 12V on-board battery adapters for 12V Gold Mount (BAB-G K2.72003.0 and BAT-G K2.72006.0) and 12V V Mount (BAB-V K2.72010.0 and BAT-V K2.72011.0)
- Viewfinder Cable Long (2.00m/6.6ft) KC 152-S (K2.72014.0). The length of this viewfinder cable is such that proper functioning cannot be guaranteed at all times.
- Internal S35 FSND filters
  - Use internal LF FSND filters instead (included with ALEXA LF Pro sets)
  - Note: S35 ALEXA cameras equipped with an LPL lens mount need special "LPL S35 FSND filters"
- Codex XR Capture Drives
- All CFast 2.0 cards
- All SxS PRO and SxS PRO+ cards except SxS PRO+ 256 GB (SBP-256D, SBP-256E)
- ARRI Ultra 16 lenses, since they collide with the LF FSND filters

Imaging

No changes.

Image Processing

Improved Noise Reduction

The ARRI Noise Reduction (ANR) algorithm has been improved and results now in lower black levels than in LF SUP 2.0/2.1.

Inputs

Power Input Voltage Range

The acceptable lowest power input settings for the on-board battery interface have been changed to accommodate battery adapters that boost a 14.4V on-board battery to 20V. The input values for the BAT connector have not been changed.

We have found that in LF SUP 2.1 sometimes tolerances in the equipment and the voltage measurement process can result in battery adapters that nominally output 20V being rejected, which meant the camera would not boot up.

LF SUP 2.1

ALEXA LF BAT connector: power up is possible from 19.5 - 34.0 V
ALEXA LF BAT connector: automatic power down occurs < 18.5 V and > 34.25 V

ALEXA LF On-board battery interface: power up is possible from 19.5 - 34 V
ALEXA LF On-board battery interface: automatic power down occurs < 18.5 V and > 34.25 V

LF SUP 3.0 (changed values on a yellow background)

ALEXA LF BAT connector: power up is possible from 19.5 - 34.0 V
ALEXA LF BAT connector: automatic power down occurs < 18.5 V and > 34.25 V

ALEXA LF On-board battery interface: power up is possible from 18.5 - 34 V
ALEXA LF On-board battery interface: automatic power down occurs < 17.5 V and > 34.25 V

Recording

No changes.

Lenses

No changes.

Media Access

No changes.

Metadata/Time Code

No changes.

Outputs

No changes.

Recording Media

Supported Recording Media

ALEXA LF SUP 3.0 fully supports SxS PRO+ 256 GB (SBP-256D, SBP-256E) cards. Please note that, as with all ALEXA cameras, SxS PRO+ cards will only record ProRes, not ARRIRAW. SXR Capture Drives can record ProRes or ARRIRAW.

Supported recording media for all ALEXA LF cameras with LF SUP 3.0 include:

- SXR Capture Drives 1 TB (CDX-37019)
- SXR Capture Drives 2 TB (CDX-37021)
- SxS PRO+ 256 GB cards (SBP-256D, SBP-256E)

An overview of recording options, media, resulting maximum frame rates and running times is given below:

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

Recording Media not Supported

- XR Capture Drives 512 GB (CDX-3730)
- all SxS PRO and SxS PRO+ cards except SxS PRO+ 256 GB (SBP-256D, SBP-256E)
- all CFast 2.0 cards

Remote Control/3D

No changes.

User Interface

No changes.

C. Known Issues

LDS/LDA

• Signature Prime 75 focus displayed in wrong unit

The focus distance of the Signature Prime 75mm/T1.8 (with imperial unit focus scale) is displayed as feet+inch value instead of the engraved, inch-only, value for focus distances below 3ft. The displayed distance value is correct but only the units a different.

• Camera does not detect lens

On rare occasions, it is possible for the camera to not detect a connected LDS or /i lens. This can be fixed with a reboot of the camera.

Frame grab

• Frame grabs to a full SD card

When the SD card is full and another frame grab is attempted, the camera will store it as a corrupted frame grab file on the SD card.

Monitoring

• Camera index letter is visible during ZOOM

When using the ZOOM function, the camera index letter remains visible on MON OUT outputs.

• Overlay of RETURN IN image is low on EVF-2

The overlay (framelines, cross) of the RETURN IN image is positioned lower than it should be in the EVF-2.

• Double PSF RETURN IN image on EVF-2

When feeding a PSF signal to the ALEXA LF RETURN IN and viewing it on an EVF-2, two half-height images will be visible in the viewfinder. This does not affect how PSF images are displayed on the EVF-1 or on MON OUT 1a, 1b, 2 or 3.

• Magnification results differ for live and playback

The MAGNIFICATION feature will always magnify the image by the set percentage. The live image with Surround View turned on will be magnified by the same percentage as the playback image which never has Surround View, and therefore the playback image will show a different amount of magnification.

• Magnification artifacts

Some magnification factors may lead to scaling artifacts in high frequency and/or high contrast areas of the image. Please change the magnification factor to one or two percent higher or lower to avoid those artifacts.

• Magnification does not change with Sensor Mode Change

The Magnification setting is currently a global value that will not change when changing Sensor Mode. So it needs to be re-adjusted after each sensor mode change.

• MON OUTs lose sync after frame rate change

When the frame rate of one MON OUT is changed, it cannot be guaranteed anymore that all MON OUTs are in sync with each other.

• No frame border left & right in LF 2.39:1 sensor mode

In LF 2.39:1 sensor mode, on the EVF and the MON OUT outputs, there is a frame border visible at the top and bottom of the frame, but not at the left and right sides.

• Wireless video artifacts when peaking is on

On rare occasions an image artifact can occur when using wireless video with peaking on.

• Wireless video transmission image artifact

On rare occasions will the red and blue colors be reversed for the wireless video.

• Wireless video image drifts after sensor mode change

When using the integrated wireless video transmitter or WVT-1 and changing the sensor mode of the ALEXA LF and ALEXA SXT W, it is possible that the MON OUT of the WVR-1 could lose sync and drift horizontally across the screen. In this case, turning the integrated video transmitter or WVT-1 off and on again should fix the problem.

Playback

• Playback from SxS PRO+ cards can be jerky

When playing back ProRes 4444 XQ files that were recorded in LF 2.39:1 or LF 16:9 sensor modes, it is possible that the playback is jerky and slow. In this case, quit playback mode by pushing the HOME button and try again.

• EVF playback: tearing might occur

When playing back a clip in the EVF, on rare occasions there can be a tearing-type image artifact at the bottom of the frame. In this case, quit playback mode by pushing the HOME button and try again.

This artifact is not in the recorded footage and will not be seen in the MON OUTs.

Recording

• REC does not start recording

After running continuously for more than 20 hours, in some cases the camera may not start recording after the REC button has been pushed. In this case, the red "REC" text in the camera's HOME screen, in the viewfinder and in the MON OUT images will blink red continuously and the camera will not record. Please note that a red, blinking "REC" text is normal for a maximum of 10 seconds before and after the camera starts recording. Only when the "REC" text blinks red for longer than 10 seconds is this known issue present. Power the camera down and up again and you can continue to shoot.

Recording Media

• "ACOM down" or "No Media" or "Media Error" or "PCIe error"

On rare occasions an error will occur when the camera is accessing an SxS PRO+ card or an SXR Capture Drive. This can happen when booting the camera, recording or playing back. Turning the camera off and on again should fix the problem.

• Warning is not cleared

Warning "W:Media: Temperature high, be careful when handling drive" is not cleared when drive is ejected.

Remote Control

• User Button 1, 2, 3 do not show feature state on WCU-4

User Button 1, 2, 3 do not show the feature state on the WCU-4.

• Webremote shows LF Open gate when LF 16:9 is selected

The webremote shows sensor mode "LF OPEN GATE" when really sensor mode "LF 16:9" is selected

• Switching surround view with webremote will toggle the frame border

Switching surround view on or off with the webremote will toggle the frame border on and off.

Timecode

• No User Bits in ARRIRAW

ARRIRAW Timecode User Bites do not contain any information.

Usability

• ALEXA webremote does not work with Safari browser on a Mac

The ALEXA webremote may not work with the Safari browser on a Mac, but will work with Firefox.

• BAT PERCENTAGE has no meaning for Hawk-Woods batteries

Setting a MENU > SYSTEM > POWER > BAT2 WARNING PERCENT value has no meaning when using Hawk-Woods Reel Power on-board batteries as the batteries do not communicate with the camera. Use the MENU > SYSTEM > POWER > BAT2 (ONBOARD) WARNING value in Volts instead.

• LDS Not Working, "Warning: LDS failure. Please reboot."

It may happen upon booting the camera, that the LDS functionality does not work and the camera issues an error stating "Warning: LDS failure. Please reboot."

• Color bars take long after reboot

The first time that color bars are activated after the camera has been powered on, it may take up to 6 seconds for color bars to appear.

• iPhone can lose WiFi connection

In some circumstances, it is possible for the webremote on an iPhone to lose connection about every 30 seconds to a minute for about 20 seconds.