ALEXA LF Software Update Package 4.0
for ALEXA LF cameras (SUP_AlexaLF_4.0_43140)

RELEASE NOTES

November 30, 2018

A. Introduction

We hereby announce the availability of Software Update Package LF SUP 4.0 for the ALEXA LF camera. This update provides significant new features, compatibility with ARRI LBUS accessories and important bug fixes.

This document describes new features and changes for ALEXA LF cameras that are part of ALEXA LF SUP 4.0 in contrast to ALEXA LF SUP 3.0.

New Features and Changes Overview

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

- **New anamorphic de-squeeze factors 1.65x and 1.80x**
- **LBUS support**
- **EXT Sync (sensor sync and settings sync)**
- **Separate MAGNIFY values for each sensor mode**
- **Project frame rate changes sensor and SDI frame rates**
- **"False color mode" menu item moved up**
- **Improved dynamic defect pixel correction**
- **Timecode User Bits setting disabled**

Upgrade Notes

LF SUP 4.0 Requires LF SUP 3.0 Software & Hardware Upgrade

LF SUP 4.0 should only be installed on ALEXA LF cameras that have previously undergone the "ALEXA LF 3.0 Software & Hardware Upgrade", which can be performed free-of-charge by ARRI service. The ALEXA LF 3.0 upgrade includes the upgrade of an electronics board (ACDA3 gets exchanged for ACDA4), and LF SUP 4.0 requires the ACDA4 board. LF SUP 4.0 will not run on ALEXA LF cameras with the ACDA3 board installed (any camera running LF SUP 2.0 or LF SUP 2.1).

Upgrade Paths

- If your ALEXA LF has LF SUP 2.0 or 2.1: contact ARRI Service to schedule your free upgrade to "ALEXA LF 3.0 Software and Hardware". ARRI service will then also install LF SUP 4.0. More information about the "ALEXA LF 3.0 Software and Hardware Upgrade" can be found at:

  http://www.arri.com/de/camera/alexa/wissen/sup_30_for_alexa_lf_cameras
- If your ALEXA LF has LF SUP 3.0: Download the LF SUP 4.0 and install.

Downgrading

Once LF SUP 4.0 is installed, it is not possible to revert to any previously released LF SUP versions.

Accessing SXR Capture Drives

To access footage from an SXR Capture Drive that was recorded with an ALEXA LF or ALEXA SXT, use a Codex dock and the Codex Device Manager software. Neither a license nor registration nor Codex Virtual File System (VFS) is required. If, however, you want to use the VFS, you can still get a full Production Suite license from Codex.

The Codex Device Manager presents the Capture Drive mounted in a Codex dock on the desktop as a mounted drive named by camera roll. If you have multiple docks connected, multiple drives will show up with different roll numbers. The Codex Device Manager can Eject, Load, Format and Erase a magazine. ARRIRAW or ProRes files appear as expected.

Download the Codex Device Manager from https://codex.online/software.

ALEXA LF and ALEXA SXT footage should not be accessed via the older DTS-3.0 software, as it does not properly support ARRIRAW data from these cameras.

ARRI Software Tools

The ALEXA LF camera with LF SUP 4.0 is compatible with and should be used with the following versions of the ARRI software tools. Unless otherwise noted, these are the currently available versions. The ALEXA LF camera with LF SUP 4.0 is of course also compatible with later releases. All these tools can be found on the ARRI website at www.arri.com/de/camera/alexa/tools.

ARRI Software Tools (standalone)

• ARRIRAW Converter (ARC) 4.0
  - Planned for Q4 2018
  - The current version (ARC 3.5.3) will work fine, with the following exceptions
    - ARRIRAW moving image files that have been recorded with the lens squeeze factor set to 1.65x or 1.80x will erroneously be shown to have the lens squeeze factor of 1.00x. Use a third-party tool for de-squeezing.
    - ARRIRAW frame grabs that have been recorded with the lens squeeze factor set to 1.65x or 1.80x are not supported.
• ARRI Color Tool (ACT) 1.6.0.1 beta
• ARRI Meta Extract (AME) 3.5.3.3

ARRI Software Tools (online)

• ALEXA Camera Simulator for ALEXA LF SUP 4.0
  - Planned for Q4 2018
• ARRI Frameline Composer 4.2
• ARRI Formats & Data Rate Calculator 1.1.9
• ARRI LUT Generator
• ARRI Lens Illumination Guide (LIG) 3.0

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B. New Features and Changes

Accessories

LBUS Support

By connecting an LCS to LBUS cable (Cable LCS (5p) - LBUS (0.8m/2.6ft) - K2.0007318) to one of the two LCS connectors on the ALEXA LF, it is now possible to use the majority of ARRI LBUS accessories with the ALEXA LF. LBUS devices can daisy chain, but it is also possible to connect one cable each to the two ALEXA LF LCS connectors to support even more LBUS devices.

LBUS accessories compatible with ALEXA LF:

• cforce mini lens motors

• cforce plus lens motors

• cforce mini RF lens motors
  - Needs cforce mini RF SUP 1.1 (planned for Q4 2018)
  - The cforce mini RF motor must be set to "client mode". Then it works like a cforce mini motor without the RF functionality, which the ALEXA LF has built-in anyway.

• Master Grips
  - Needs at least Master Grip/OCU-1 SUP 1.1.2
  - For override function it needs Master Grip/OCU-1 SUP 2.0 (planned for Q4 2018)

• Operator Control Unit OCU-1
  - Needs Master Grip/OCU-1 SUP 2.0 (which is what the first OCU-1 units will be shipped with, planned for Q4 2018)

• LCUBE CUB-1
  - With the CUB-1 it is possible to connect an ARRI Ultrasonic Distance Measure (UDM) to an LBUS connector. While a different cable can also connect the UDM directly to the ALEXA LF EXT connector, the CUB-1 option might come in handy if the EXT connector is in use otherwise (e.g. for sensor sync).

• LCUBE CUB-2
  - The CUB-2 allows an ARRI LBUS device (for instance the Master Grips or Operator Control Unit OCU-1) to control the internal motors in ENG lenses.

• cmotion pan-bar zoom

• cmotion steady zoom

• cmotion cfinder III

Please note that for OCU-1 override function, the WCU-4 needs WCU-4 SUP 3.2 (planned for Q4 2018).

> Please note that when using cforce motors with ALEXA LF, separate power must be provided to the cforce lens motors from the other side of the daisy chain, for instance from an LBUS to D-tap cable (LBUS - D-Tap - K2.0006758) connected to an on-board battery. This is because the power output from the ALEXA LF LCS connectors cannot provide sufficient power to the cforce motors. If cforce motors are powered from the LCS connectors, calibration may malfunction, fast motor movements may result in stuttering motor movements and a whining noise could be generated during slow motor speeds.

Incompatible Accessories

The following accessories are not compatible with ALEXA LF cameras (in contrast to ALEXA SXT W) running LF SUP 4.0:

- ALEXA on-board battery adapters for 12V on-board batteries
  - Battery Adapter Back for Gold mount (BAB-G K2.72003.0 and BAT-G K2.72006.0)
  - Battery Adapter Back for V Mount (BAB-V K2.72010.0 and BAT-V K2.72011.0)
  - Battery Adapter Top for Gold Mount BAT-G (K2.72006.0)
  - Battery Adapter Top for V Mount BAT-V (K2.72011.0)
- AMIRA and ALEXA AC Power Supply Light (K2.0006876)
- 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 Dynamic Defect Pixel Correction

The ALEXA LF with LF SUP 4.0 now uses the same sophisticated dynamic defect pixel correction algorithm as the ALEXA Mini and AMIRA.

Inputs

No changes.

Lenses

No changes.

Metadata

Timecode User Bits Setting Disabled

To reduce testing time and complexity, we will no longer support the ability to set user bits via the menu in the camera (TC > USER BITS). User bits are by default set to "00:00:00:00". It is still possible to set the user bits by jam-syncing to an external time code source.

Monitoring

New Anamorphic De-squeeze Factors 1.65x and 1.80x

MENU > PROJECT > LENS SQUEEZE FACTOR

Two new anamorphic lens squeeze factors are available for monitoring the image on EVF and MON OUT 1, 2 and 3:

- 1.65x is used for Panavision Ultra Vista Anamorphic lenses
- 1.80x is used for Cooke Anamorphic/i Full Frame Plus lenses

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```
MENU>PROJECT
-------------
Project frame rate      23.9    1.00
Camera index                    1.25
Camera index color              1.30
Next reel count                 1.50
Lens squeeze factor             1.65
Production info                 1.80
                                2.00
```

About lens squeeze metadata

• Any lens squeeze factor that is set will be recorded in ProRes metadata, and the Apple QuickTime player (and some third-party QuickTime players) will automatically de-squeeze the image correctly.

• Any lens squeeze factor that is set will be recorded in ARRIRAW frame grabs, and the ARRIRAW Software Developer Kit (SDK) 6.0 and later and the ARRIRAW Converter 4.0 and later will automatically de-squeeze the image correctly.

• At this point in time, the two new lens squeeze factors (1.65x and 1.80x) are not being recorded in ARRIRAW motion picture metadata. Instead, the motion picture ARRIRAW metadata will list a lens squeeze factor of 1.0 (however, the 1.25x, 1.30x, 1.50x and 2.00x squeeze factors will be recorded properly in metadata). The ARRIRAW Software Developer Kit (SDK) 6.0 and later and the ARRIRAW Converter 4.0 and later contain a new feature that allows for the manual entry of a de-squeeze ratio, which must be used for footage shot with 1.65x and 1.80x squeeze lenses.

For more details on using ALEXA LF and anamorphic lenses, please see the "ALEXA LF & Anamorphic Lenses" white paper that can be found at http://www.arri.com/ALEXALF&AnamorphicLenses.

Separate MAGNIFY Values for each Sensor Mode

Each of the three sensor modes now has separate magnify values for EVF and MON OUT 1, 2 and 3. The camera will remember those magnify values and automatically switch between them when sensor modes are switched.

So, if magnify for the EVF is set to 130% while in the LF Open Gate sensor mode, and the camera is switched to LF 16:9 sensor mode and the EVF is set to 110% magnification, and then switched back to LF Open Gate, magnify for the EVF will automatically also switch back to 130%. The same is true for the magnify values for MON OUT 1, 2 and 3.

This is a handy feature if you are shooting in LF Open Gate or LF 16:9 and want to quickly pop into LF 2.39:1 for a slow motion shot at 150 fps.

Outputs

No changes.

Recording

No changes.

Recording Media

No changes.

Remote Control

No changes.

Sync

EXT Sync (sensor sync and settings sync)

Like in the Super 35 ALEXA cameras, it is now possible to precisely synchronize the sensors and the settings of two ALEXA LF cameras for 3D shooting or other applications that require a tight synchronization of the sensors.

Sensor sync

MENU > SYSTEM > EXTERNAL SYNC > SENSOR SYNC

Two ALEXAs running at at least one fps can be synced using the EXT cable (ALEXA EXT - EXT Cable (2.0m/6.6ft) KC 155-S - K2.72032.0). When synced, images are captured from each camera's sensor at the same time with an accuracy of 10 μs.

Settings sync

MENU > SYSTEM > EXTERNAL SYNC > SETTINGS SYNC

The settings of two ALEXAs can be synchronized over Ethernet (therefore "ETH master" and "ETH slave") using the ALEXA Ethernet/Ethernet Cable KC 156-S (K2.72033.0), or over an Ethernet hub using the ALEXA Ethernet/RJ-45 Cable KC 153-S (K2.72021.0). ARRI recommends syncing the settings of the same ALEXA models only, for example, two ALEXA LF cameras. For a complete list of synced settings see the ALEXA LF SUP 4.0 manual.

User Interface

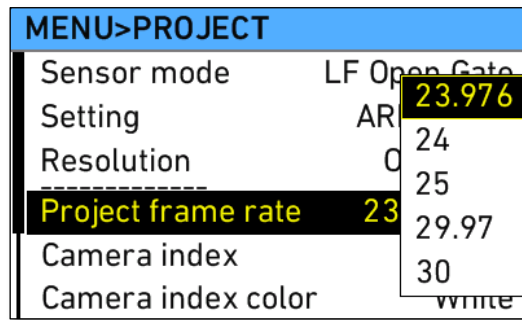### Project Frame Rate Changes Sensor and SDI Frame Rates

MENU > PROJECT > PROJECT FRAME RATE

For fast camera setup, changing the menu item "Project frame rate" will set the project frame rate (which determines the Timecode time base and the playback frame rate), the sensor frame rate (HOME > FPS) and the frame rates of the three MON OUT SDI outputs (MENU > MONITORING > MON OUT <1>, MENU > MONITORING > MON OUT <2>, MENU > MONITORING > MON OUT <3>) to the same value.

Please note that it is still possible to have separate project, sensor and SDI MON OUT frame rates since:

• Changing the sensor frame rate will neither change the project frame rate nor any of the SDI MON OUT frame rates.
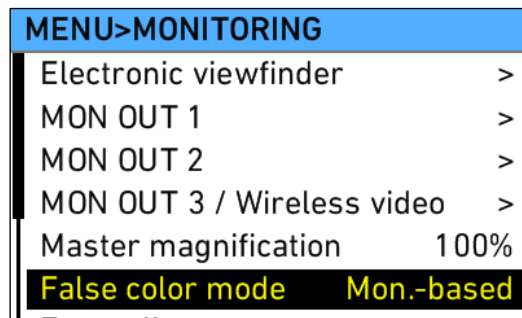

• Changing any one of the SDI MON OUT frame rates will neither change the other SDI MON OUT frame rates nor the project frame rate nor the sensor frame rate.

```
MENU>PROJECT
Sensor mode          LF Open Gate
Setting              AR     23.976
Resolution           O      24
-------------               25
Project frame rate   23     29.97
Camera index                30
Camera index color          white
```

"False color mode" Menu Item moved up

MENU > MONITORING

The menu item "False color mode" has been moved up in the MONITORING menu so it is immediately visible without scrolling. This is because it is important to be able to quickly look up if the false color mode is set to "Mon.-based" or "Log C-based".

```
MENU>MONITORING
Electronic viewfinder              >
MON OUT 1                          >
MON OUT 2                          >
MON OUT 3 / Wireless video         >
Master magnification            100%
False color mode         Mon.-based
```

C. Known Issues

Accessories

Motor values for Cabrio lens can seemingly be changed

With the Fujinon Cabrio 85-300 ENG lens and LCUBE CUB-2 connected, the motor side, torque, and teeth count values can be changed in the menu screen but will not actually change the parameters.

Battery switch with Battery Adapter Back BAB-HV/BAB-HG

When attaching an on-board battery to the Battery Adapter Back BAB-HV/BAB-HG on a camera that is running on mains power supply (BAT1), one should wait at least 3 seconds or until home display of BAT2 switches to the percentage display before unplugging the mains power. Otherwise it is possible that the camera turns off.

Bebob VCINE/ACINE on-board battery charging

Bebob recommends: After power-intensive use (high fps, many accessories) of Bebob VCINE/ACINE on-board batteries on the Battery Adapter Back BAB-HV/BAB-HV on ALEXA LF cameras, one should wait at least 30 minutes before putting the battery on a charger.

LDS/LDA

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."

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 the units a different.

Canon 17-120 not detected

Canon 17-120 CN7x17 (and possibly other Canon PL ENG style lenses) does not get powered by the LDS contacts. There is a workaround to power the lens via a CUBE-2, but LDS data still does not work.

Metadata

Wrong Metadata in motion picture ARRIRAW for 1.65x and 1.80x lens squeeze

At this point in time, the two new lens squeeze factors (1.65x and 1.80x) will not be recorded in ARRIRAW motion picture metadata. Instead, the motion picture ARRIRAW metadata will list a lens squeeze factor of 1.0 (however, the 1.25x, 1.30x, 1.50x and 2.00x squeeze factors will be recorded properly in metadata and will be properly listed).

The ARRIRAW Software Developer Kit (SDK) 6.0 (planned for Q4 2018) and later and the ARRIRAW Converter 4.0 (planned for Q4 2018) and later contain a new feature that allows for the manual entry of a de-squeeze ratio, which must be used for footage shot with 1.65x and 1.80x squeeze lenses.

Please note that any lens squeeze factor that is set will be recorded properly in ProRes metadata, and the Apple QuickTime player (and some third-party QuickTime players) will automatically de-squeeze the image correctly. Also, any lens squeeze factor that is set will be recorded properly in ARRIRAW frame grabs, and the ARRIRAW Software Developer Kit (SDK) 6.0 and later and the ARRIRAW Converter 4.0 and later will automatically de-squeeze the image correctly.

The current previous version of the ARC (3.5.3) will also work, with the following exceptions:

1. ARRIRAW moving image files that have been recorded with the lens squeeze factor set to 1.65x or 1.80x will erroneously be shown to have the lens squeeze factor of 1.00x. Use a third-party tool for de-squeezing.

2. ARRIRAW frame grabs that have been recorded with the lens squeeze factor set to 1.65x or 1.80x are not supported.

Miscellaneous

SD card does not mount
Sometimes the SD card does not mount. A reboot usually helps.

Fan revs up on power on
Sometimes, during booting the fan speeds up to max speed for a couple of seconds and then settles in nicely.

Monitoring

Wireless video transmission image artifact
On rare occasions will the red and blue colors be reversed for the wireless video.

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

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.

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

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 by one or two percent to avoid those artifacts.

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. Therefore, the playback image will show a different amount of magnification in comparison to a live image with surround view on.

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.

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.

Orange Line in Frame
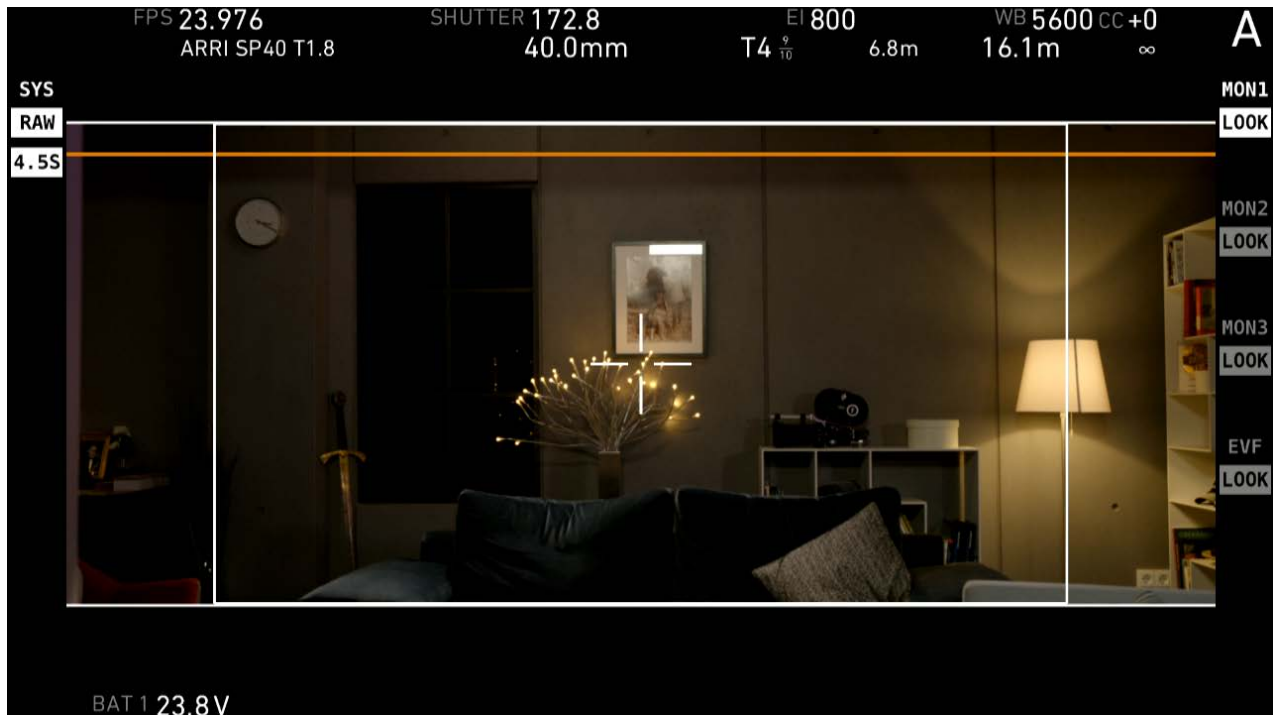
A horizontal orange line can appear in the frame where it does not belong (see image above) in the following cases:

• LDS info is turned on while
  - the camera is in LF 2.39:1 sensor mode and
  - an LDS lens is attached and/or LDA is enabled

• LDS info is turned on while
  - anamorphic de-squeeze is on and
  - an LDS lens is attached and/or LDA is enabled

The orange line can be removed with the following procedure (if LDA causes the issue, turn LDA on/off instead of removing the LDS lens):

• Make all the MON OUT settings you need (framelines, center cross, etc.) first. Any change to the MON OUT settings will bring that orange line back

• Remove the lens

• Turn LDS info off. This can be done in MENU > MONITORING > MON OUT <X> > FRAME LINES + STATUS INFO > LDS INFO

• Wait 10 seconds

• Turn LDS info back on

• Re-attach the lens

Note 1: Unfortunately, the line comes back after each camera reboot or when any changes to the MON OUT settings are made.

Note 2: The orange line is there on purpose when it appears directly underneath the LDS info, i.e. touching the LDS info area. In that case the orange line indicates that there is image information (that is being recorded) underneath the LDS info. This orange line cannot be removed with the procedure above.

Recording

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.

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

Warning is not cleared

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

"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.

Remote Control

Web remote shows LF Open gate when LF 16:9 is selected

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

Switching surround view with web remote will toggle the frame border

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

SUP Update

Updates without LPL lens mount fail

The ALEXA LF camera currently requires the LPL lens mount to be attached when updating the camera's software.

Sync

Sensor sync - error if master is started first

In a setup with sensor sync, but without settings sync, recording needs to be started first on the slave camera, and then on the master camera. When shooting ARRIRAW, recording on the master camera should be started as quickly as possible after the slave camera. If too much time passes (>2s) after recording has been started on the slave camera, the slave camera will go into an error state as soon as recording is started on the master camera.

MON OUT not in sync when off-speed

When the sensor frame rate is not the same as the MON OUT frame rate, the MON OUT SDI signals of two cameras are not in sync.

Usability

iPhone can lose WiFi connection

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

ALEXA web remote does not work with Safari browser on a Mac

The ALEXA web remote 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.

D. Updating Instructions

Download and Naming Convention

The ALEXA LF Software Update Package LF SUP 4.0 can be downloaded from the DOWNLOADS section at the bottom of the ARRI Large Format microsite at www.arri.com/largeformat. No registration is needed.

The LF SUP 4.0 can be installed on the camera either by using an SD card directly on the camera (described in detail below) or from a computer via the ALEXA Ethernet Cable (K2.72021.0).

Please note that ALEXA LF cameras, ALEXA SXT cameras, ALEXA Classic cameras and ALEXA XT/XR cameras require different SUP installation packages.

• Installation packages for ALEXA LF cameras are named 'SUP_AlexaLF_<*version-number*>'.

• Installation packages for ALEXA SXT cameras are named 'SUP_AlexaSXT_<*version-number*>'.

• Installation packages for ALEXA Classic cameras are named 'SUP_Alexa_<*version-number*>'.

• Installation packages for ALEXA XT/XR cameras are named 'SUP_AlexaX_<*version-number*>'.

Camera Update Procedure via SD Card

Using the SD card for updating is the easiest method. It updates the ALEXA camera as well as the Electronic Viewfinder EVF-1 and EVF-2 as long as the viewfinder is connected to the camera.

Please note that the ALEXA LF requires the LPL lens mount to be attached when installing a Software Update Package.

Precaution

Make sure the power supply of the camera is stable. The best way to achieve this is by using a mains power supply attached to the battery socket. We do not recommend updating a camera that is powered from a battery.

Preparing the SD Card

• Have a FAT16 or FAT32 formatted SD-Card ready.

• Cards larger than 4 GB are not supported. If you have a larger SD card, you need to create one partition with max. 4GB so it will be compatible with ALEXA.

• Go to MENU > SYSTEM > SD CARD and choose
  - 'Prepare SD card' to create the ALEXA folder structure on the SD card, and keep the existing data.
  - 'Format + prepare SD card' to DELETE ALL DATA on the SD card before creating the ALEXA folders.

• Copy the update package
  SUP_AlexaLF_x.x_zzzzz.pkg (for ALEXA LF) or
  SUP_AlexaSXT_x.x_zzzzz.pkg (for ALEXA SXT) or
  SUP_AlexaX_x.x_zzzzz.pkg (for ALEXA XT/XR) or
  SUP_Alexa_x.x_zzzzz.pkg (for ALEXA Classic)
  into the 'Firmware' folder on the SD card.
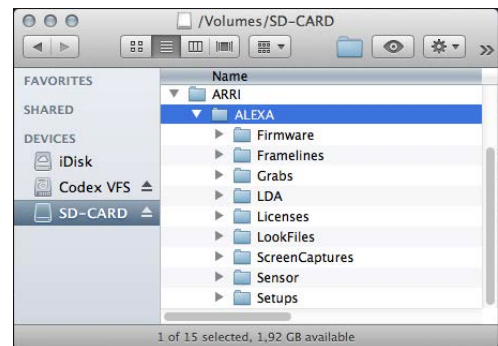
Performing the Update

• Turn the camera on.

• Perform a factory reset in MENU > USER SETUPS > FACTORY RESET.

• Insert the SD card into the SD card slot of the camera. The slot is located below the display on the bottom of the camera, covered by a slider. The direction how the SD card has to be inserted is shown on the camera housing.

• A card icon will show up in the notification area of the camera display. If not, the card is not recognized by the camera.

• Go to MENU > SYSTEM > FIRMWARE.

• The FIRMWARE screen shows you which package is currently installed (Current version: xxx).

- Press the jog wheel to select an update file. The list shows all SUP files that are available on the SD card.
- Choose the desired package and press the two lower outer screen buttons simultaneously to start the update.
- Caution: Do not remove the SD card while the package is being copied to the camera!
- When the 'copying files' message disappears the SD card can be safely removed.
- The update process may take 15 to 20 minutes, depending on the actual software package. Wait until the update process has finished. This is indicated by a green screen informing you that the update process is completed.
- If the update process fails, which will be indicated by a red screen, please restart the camera and repeat the update procedure.
- After the update, turn the camera off by holding down the power button for a few seconds.
- Turn the camera back on. The software is now updated and you can use the camera.

Camera Update Procedure using a Web Browser on your Computer

How to connect ALEXA to a computer
- Turn the camera on.
- Connect the Ethernet port of the computer to the camera with the ALEXA Ethernet/RJ-45 Cable KC 153-S (3.00m/9.8ft, order number K2.72021.0).
- Configure the computer's network interface to which the camera is connected with the following settings:
  IP address: 169.254.1.2 (static IP)
  Subnet mask: 255.255.0.0
- Open a web browser
- If you are using a Macintosh or a computer with Apple's Bonjour protocol installed enter the following URL into the address bar:
  http://alexaXXXX.local/update.cgi, where XXXX is the four-digit serial number of your camera (e.g. for ALEXA 7123: http://alexa7123.local/update.cgi).
- If you are using a computer without Bonjour support please use the camera's IP address to connect, e.g.:
  http://169.254.xxx.xxx/update.cgi, where xxx.xxx is the two last groups of your camera's actual IP address. You can determine ALEXA's IP address by going to INFO > SYSTEM.
- If the network settings are configured correctly you will be presented the update page of the camera.

Performing the Update
- Download the Software Update Package to your computer.
- Perform a factory reset in MENU > USER SETUPS > FACTORY RESET.
- In the 'Camera Update' section select the Software Update Package by clicking the 'browse' button and selecting the path to the downloaded SUP on your computer.
- Click the 'Update Camera' button in the 'Camera Update' section.
- The file will be uploaded to the camera which takes about a minute. The browser will switch to the 'Update Log' page showing the update log of the three main boards. This page can be updated by refreshing the page. At the same time the update screen with the progress bars appears on the camera display.
- The update process may take 15 to 20 minutes, depending on the actual software package. Wait until the update process has finished. This is indicated by a green screen informing you that the update process is completed.
- If the update process fails, which will be indicated by a red screen, please restart the camera and repeat the update procedure.
- After the update, turn the camera off and on again. The software is now updated, and you can use the camera.

Updating an Electronic Viewfinder EVF-1 or EVF-2

In case an ALEXA electronic viewfinder EVF-1 or EVF-2 has not been updated with the camera, it is possible to update the viewfinder separately by using a computer. Please note that the viewfinder will be updated to match the SUP package that is installed on the camera.

• Connect the Ethernet port of the computer as described above in 'How to connect ALEXA to a computer'.

• Connect the viewfinder to the camera.

• Open a web browser on the computer and open the update web page of the camera (see above).

• Click the 'Update EVF' button in the 'EVF Update' section.

• You can watch the progress of the update on the screen.

• When the update is done, the last line on the screen reads 'successfully updated Evf'. The update is now finished even though the web browser continues to refresh the page. This is normal. The viewfinder is up to date.

• Depending on its software version, the camera may state: 'software error – reboot camera' on the camera display. This is normal. Please reboot the camera.