AMIRA SUP 2.0

Software Update Package SUP 2.0.14

Date: March 30, 2015

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A. Introduction

We are proud to announce the release of AMIRA Software Update Package 2.0 for all ARRI AMIRA cameras. This version expands functions for all AMIRA models as indicated below.

SUP 2.0 includes major improvements for AMIRA and we strongly recommend installing this update at your earliest convenience on all AMIRA camera models.

This document also contains known issues that exist in for this software version. Please take your time to go through this information.

For more information, please visit **www.arri.com/amira**.

New features & changes overview

- 4K UHD license* supporting:
    - ProRes 4K UHD recording
    - ProRes 3.2K recording
    - 6G UHD-SDI output (technology demo)
    - De-noising Option for 4K UHD (not in HD/2K)
- Solo function to toggle audio channel monitoring
- Extended Lock function
- Switching FPS while in Pre Record
- Image sharpness and Image Detail parameters shown in EVF during editing
- … and more usability improvements

* 4K UHD license available in the ARRI AMIRA license shop (alshop.arri.de/catalog/amira_licenses)

Product Line up

(new in SUP 2.0 in blue)

The economical - **AMIRA**
Features include: HD 1080i and 1080p; 0.75-100 fps; ProRes 422 and 422 (LT) recording in Rec 709; three looks; adjustable in-camera image parameters for knee, gamma and saturation; peaking for focus control; zebra, false color and waveform for exposure control.

The all-rounder - **AMIRA ADVANCED**
Features additional to AMIRA: 100-200 fps; ProRes 422 (HQ) recording; Log C; unlimited look functions; import looks; ASC CDL in-camera grading; Dynamic auto tracking WB, Bluetooth audio, Prerecord function

The all-inclusive - **AMIRA PREMIUM**
Features additional to the AMIRA Advanced: 2K (2048 x 1152) and ProRes 4444 recording; import custom 3D LUTs.

All models can be upgraded with the 4K UHD license

Technical Specifications

Product	AMIRA	AMIRA Advanced	AMIRA Premium
Sensor Type	35mm format ARRI ALEV III CMOS (28.17x18.13)		
Sensor Pixel Count	3414 x 2198: 3200x1800 (4K UHD) 2880 x 1620 (HD), 2868 x 1612 (2K), for monitoring with surround area: 3168 x 1772 (HD), 3154x1764 (2K)		
Recording Pixel Count	1920x1080 ProRes HD and HD outputs, 2048 x 1152 ProRes 2K, 3840 x 2160 Pro Res 4K UHD and UHD outputs*		
Lens Mounts	PL mount w/ Hirose connector and LDS, B4 mount w/ Hirose connector, EF mount		
Shutter	Electronic shutter, 5.0° to 356.0°		
Exposure Index	EI 160 to EI 3200 (EI 800 base sensitivity)		
Exposure Latitude	14+ stops over the entire sensitivity range from EI 160 to EI 3200 as measured with the ARRI Dynamic Range Test Chart (DRTC-1)		
Audio Recording	4 channels, 24 bit PCM 48 kHz		
Integrated motorized ND Filters	FSND 0.6, 1.2, 2.1		
Sound Level	< 20 dB(A)		
Weight	~ 4.1 kg/9.2 lbs (camera body with PL Lens mount)		
Dimensions	Length: 309mm/12.1", width: 139 mm/5.4" , height: 149mm/5.8" (camera body with PL lens mount)		
Environmental	-20° C to +50° C (-4° F to +122° F)		
Viewfinder	AMIRA Multi Viewfinder MVF-1 (OLED and LCD)		
Outputs Video	2x HD-SDI out 1.5G, 3G and 6G: uncompressed HD/UHD video with embedded audio and metadata		
Outputs Audio	3,5mm headphone jack, Bluetooth audio		
Outputs Power	Hirose 12pin (for ENG type zoom lenses); 12V: D-tab, Hirose 4pin, Lemo 2pin; 24V: RS 3pin		
Inputs	Genlock, HD-SDI, Timecode (In and Output), all BNC		
Other Interfaces	USB 2.0 (for user setups, looks etc.), Ethernet		
Recording Media	CFast 2.0 memory cards		
Recording Formats	HD 1920x1080 (interlaced & progressive) 4K UHD 3840x2160*	HD 1920x1080 (interlaced & progressive) 4K UHD 3840x2160*	HD 1920x1080 (interlaced & progressive), 2K 2048x1152, 4K UHD 3840x2160*
Recording Framerates	0,75 - 100 Fps (progressive); 0,75 - 60 Fps with 4K UHD*	0,75 - 200 Fps (progressive) 0,75 - 60 Fps with 4K UHD*	0,75 - 200 Fps (progressive) 0,75 - 60 Fps with 4K UHD*
Recording Codecs (w/ audio & metadata)	ProRes 422, 422 LT	ProRes 422 HQ, 422, 422 LT	ProRes 4444, 422 HQ, 422, 422 LT
Rec709/LogC	Rec709	Rec709 & Log C	Rec709 & Log C
Looks	3 fix Looks (in camera adjustable)	Complete Look functions; import Looks	Complete Look functions; import Looks
Adjustable Image Parameters	Knee, Gamma, Saturation, Black Gamma, Saturation by Hue	Knee, Gamma, Saturation, Black Gamma, Saturation by Hue ASC CDL parameter (Slope, Offset, Power, Saturation)	Knee, Gamma, Saturation, Black Gamma, Saturation by Hue ASC CDL parameter (Slope, Offset, Power, Saturation)
Import of Custom 3D LUTs	-	-	Import of custom 3D LUTs
Focus and Exposure Control	Peaking, Zebra, False color	Peaking, Zebra, False color	Peaking, Zebra, False color
White Balance	Auto WB	Auto WB, Dynamic auto tracking WB	Auto WB, Dynamic auto tracking WB
Wifi** and Ethernet Camera Remote Control	-	Wifi and Ethernet Camera remote control	Wifi and Ethernet Camera remote control
Audio monitoring	Headphone output (mini jack)	Headphone output (mini jack), Bluetooth audio monitoring	Headphone output (mini jack), Bluetooth audio monitoring
Pre Record Function	-	Pre Record function	Pre Record function

* Requires installed 4K UHD license
** WiFi remote control will be supported with later SUP

B. Update Instructions

Download and Registration Process for software updates

You can find the Software Update Package (SUP) in the AMIRA Downloads Section on arri.com/amira/downloads. You have to register your AMIRA camera with your camera serial number to access the Software Update Package (SUP) download. Existing ALEXA customers with an active ALEXA account for the download section can use this account, unless otherwise requested.

A SUP can be installed on the camera by using an USB stick as described in detail below.

How to get a Software Update Package

• If you have not registered yet, please go to the AMIRA downloads page at arri.com/amira/downloads and scroll to the 'AMIRA Software Update Package x.x' section (where 'x.x' is the version number of the desired Software Update Package). Click 'Please -> register to get an account.' The AMIRA customer registration page will be opened.

• Fill in the requested data and make sure to put in the serial number(s) of your camera(s) in the format of K1.71700.0-xxxxx. Don't forget to agree to the registration terms at the end of the page.

• When you hit the 'create account' button the system will send you an acknowledgement email with a link for the activation of your account. After following the link a welcome mail is sent containing the login credentials. Please login at arri.com/login/login.html and navigate to the download section again.

• Upon access of the software package download you will be asked to agree to the terms and conditions of this download. As soon as you agree to these terms the download link is released.

Camera Update Procedure

The AMIRA software is updated with an USB stick.

The SUP package will update the AMIRA camera as well as the Viewfinder (MVF-1) as long as the viewfinder is connected to the camera.

- After the download, please double click the downloaded file (*.zip) in order to unpack it or unpack it manually. This will place two update files (*.SUP and *.lic) and the SUP 1.1 release notes onto your computer.
- If not done prior, prepare the USB stick for use with AMIRA by connecting it to the camera: please navigate to MENU>Media>Prepare USB medium & press CONFIRM. This will create the required folder structure on the USB stick.
- Connect the USB stick to your computer and place the downloaded *.SUP file in the folder ARRI/AMIRA/SUP on the USB stick.
  Then place the downloaded *.lic file in the folder ARRI/AMIRA/LICENSES on the USB stick.
- Make sure the camera is connected to a cable power source, or is powered with a full battery to avoid power loss during the update process.
- Connect the USB stick to the camera and navigate to MENU>System>Camera update.
- Select the SUP file from the list and press the jogwheel.
- In the following message, press CONFIRM to start the installation.
- Check the audio screen for the update progress.
- After the update process has finished, a success message is displayed on the monitor.

- In case a downgrade from SUP 2.0 to 1.1 would be required, the license file amira_fw_update_aes_2.0.x.lic needs to be present on the USB stick under \ARRI\AMIRA\LICENSES\.

C. New Features

1. ProRes 4K UHD recording (with 4K UHD license*)

The new 4K UHD recording format has been developed for productions that need to generate high-resolution deliverables. It allows ProRes codecs up to ProRes 4444, to be recorded in Ultra High Definition 3840 x 2160 resolution directly onto the in-camera CFast 2.0 cards.

Sensor mode: 3200x1800

Recording format: 3840x2160

Codecs: ProRes 422 LT, ProRes 422, ProRes 422 HQ, ProRes 4444

Frame rates: 0.75 to 60 fps.

Recording media: CFast 2.0 card

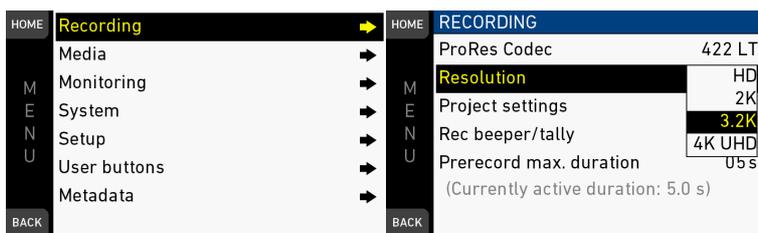## 2. ProRes 3.2K recording (with 4K UHD license*)

For productions opting for a 4K UHD scaling in postproduction, ProRes 3.2K is the option. It also allows cross-compatibility with ALEXA cameras running ALEXA SUP 11.0 (and later).

Sensor mode: 3200x1800
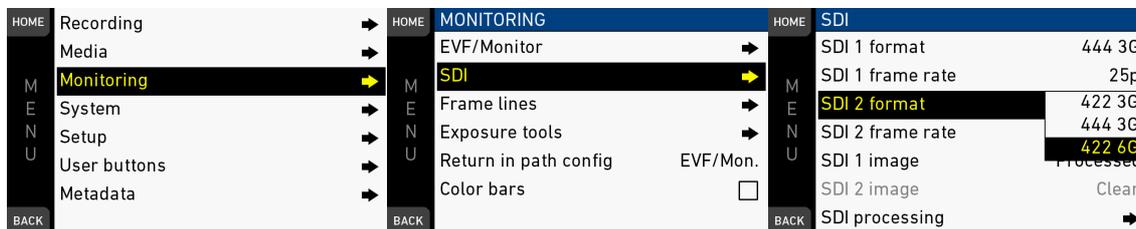
Recording format: 3200x1800

Codecs: ProRes 422 LT, ProRes 422, ProRes 422 HQ, ProRes 4444

Frame rates: 0.75 to 60 fps.

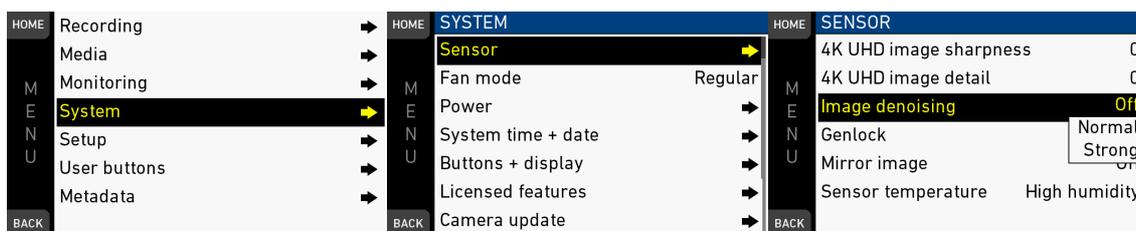## 3. 6G UHD-SDI output (technology demo) (with 4K UHD license*)

The 6G UHD-SDI output allows monitoring UHD with devices supporting 6G UHD-SDI. As this is not an official standard so far, it is implemented as technology demo. Compatibility with devices cannot be guaranteed.

HOME	Recording	➡	HOME	MONITORING		HOME	SDI	
	Media	➡		EVF/Monitor	➡		SDI 1 format	444 3G
M	Monitoring	➡	M	SDI	➡	M	SDI 1 frame rate	25p
E	System	➡	E	Frame lines	➡	E	SDI 2 format	422 3G
N	Setup	➡	N	Exposure tools	➡	N	SDI 2 frame rate	444 3G
U	User buttons	➡	U	Return in path config	EVF/Mon.	U	SDI 1 image	422 6G
	Metadata	➡		Color bars	☐		SDI 2 image	Clean
BACK			BACK			BACK	SDI processing	➡

4. Image De-noising Option for 4K UHD (with 4K UHD license*)
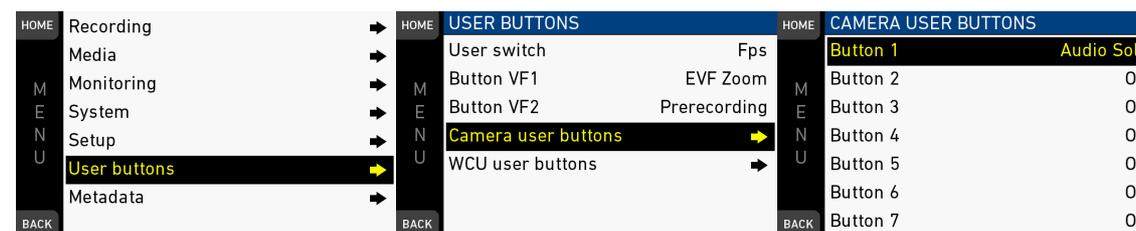
4K UHD images can be modified in noise with this option. There are 3 modes: "Off", "Normal" and "Strong".

While "Normal" results in perfectly de-noised images in all usual situations, the "Strong" mode should be used with care for moving objects.

This option is not available in HD/2K

HOME	Recording	➡	HOME	SYSTEM		HOME	SENSOR	
	Media	➡		Sensor	➡		4K UHD image sharpness	0
M	Monitoring	➡	M	Fan mode	Regular	M	4K UHD image detail	0
E	System	➡	E	Power	➡	E	Image denoising	Off
N	Setup	➡	N	System time + date	➡	N	Genlock	Normal
U	User buttons	➡	U	Buttons + display	➡	U	Mirror image	Strong
	Metadata	➡		Licensed features	➡		Sensor temperature	High humidity
BACK			BACK	Camera update	➡	BACK		

5. Solo function to toggle audio channels

In order to monitor audio recording channels individually, you can configure a user button to toggle through all 4 recording channels. The monitoring of each channels is set "soloed", you only can hear the single channel while the remaining 3 channels are muted (Only channels assigned to an input are employed)

HOME	Recording	➡	HOME	USER BUTTONS		HOME	CAMERA USER BUTTONS	
	Media	➡		User switch	Fps		Button 1	Audio Solo
M	Monitoring	➡	M	Button VF1	EVF Zoom	M	Button 2	Off
E	System	➡	E	Button VF2	Prerecording	E	Button 3	Off
N	Setup	➡	N	Camera user buttons	➡	N	Button 4	Off
U	User buttons	➡	U	WCU user buttons	➡	U	Button 5	Off
	Metadata	➡					Button 6	Off
BACK			BACK			BACK	Button 7	Off

6. Extended Lock function

The Lock function can now be configured individually. This allows for certain use cases where only specific buttons or switches should be active, while the others are locked. It also allows to lock buttons which are typically not used and should be always locked (like the viewfinder buttons which may accidently been pushed when operating the camera.

HOME				HOME	SYSTEM			HOME	BUTTONS + DISPLAY	
	Recording	➡			Sensor	➡			Display style	Day
	Media	➡			Fan mode	Regular			Button brightness	0
M	Monitoring	➡		M	Power	➡		M	Lock config	➡
E	System	➡		E	System time + date	➡		E		
N	Setup	➡		N	Buttons + display	➡		N		
U	User buttons	➡		U	Licensed features	➡		U		
	Metadata	➡			Camera update	➡				
BACK				BACK				BACK		

HOME	LOCK CONFIG			HOME	CAMERA BUTTONS + SWITCHES	
	Camera buttons + switches	➡			Select all/none	☐
M	EVF buttons	➡			ND filter switch	☐
E	Lens buttons	➡		M	US switch	☐
N				E	EI switch	☑
U				N	WB switch	☑
				U	AW button	☐
BACK				BACK	REC button	☑

7. Further usability improvements:

- Frame rates can now be switched while in Pre Record mode. This allows for quick adjustments, without the risk to lose a critical second of the Pre Record buffer, as it fills up again immediately.

- The parameters for Image sharpness and Image Detail are now shown in EVF when they are adjusted. This allows better control of the resulting image in correlation to the settings.

- For faster access, a 200 fps preset was added to the frame rate lists of AMIRA Advanced and Premium.

- Faster menu operation with "one click" checkboxes for activating/de-activating

- and more …

* 4K UHD license available in the ARRI AMIRA license shop (alshop.arri.de/catalog/amira_licenses)

D. Known Issues

This is a list of known issues for this particular SUP 2.0 software Package. For a listing of answers to frequently asked questions please visit our website at arri.com/camera/amira/learn/amira_faq.

Accessories

• Lens mount change.

When changing the lens mount, please make sure the camera is powered down when you remove or attach a lens mount. Changing lens mounts with powered up camera can potentially damage the camera electronics.

• EF lens image stabilizer

The image stabilizer of EF lenses is not supported.

• Lens data for ENG style lenses using LDS contacts vs. lens camera cable

When using an ENG style lens, the lens data readout may differ between data from the LDS contacts (and no lens camera cable connected) compared to a connected lens camera cable.

• Re-connecting Bluetooth devices after boot up

Some Bluetooth devices for audio monitoring are not always automatically reconnected when camera is booted. Please make sure to manually reconnect your bluetooth device in this case.

• Auto iris calculation for EF and ENG lenses

The Auto iris calculation with EF and ENG style lenses is based on the exposure for a neutral gray card.

Use HOME > EI > IRIS > OPTIONS > AUTO IRIS OFFSET to adjust the offset for auto iris.

Audio

• Specific behavior on the audio line inputs.

The audio line inputs allow a signal of +8dBu max, while the signal attenuation is limited to -6dB max. Please make sure that your line input is not exceeding +8dBu in order to avoid clipping. For higher input levels, please use an external attenuator or just reduce the signal level.

For cameras including the upgrade to the new audio board (IAOU2) the line input level can be switched to 24dBu. For details on how to activate this mode, please check the bullet 22. in the SUP 1.1 Release Notes "New Features" section or in the SUP 2.0 manual.

• Single audio input cannot be recorded with different levels.

A single audio input can be routed to different recording channels, but the recording levels are the same on all channels and cannot be different.

• Audio glitches when booting down

Please be cautious for potentially loud audio glitches when wearing headphones while powering down the camera.

• Audio playback is off when AUDIO RECORDING is disabled

Audio playback of clips that have been recorded with audio do not play back audio when the AUDIO RECORDING setting is set to OFF.

• No SDI embedded audio with SDI frame rate not matching PROJECT frame rate

When the SDI output frame rate is different to the PROJECT frame rate, a clip with audio has no SDI embedded audio at playback. The audio will be played back on the headphone output.

Inputs/Outputs

• In 6G UHD-SDI output no embedded audio*

The 6G UHD-SDI output does not support embedded audio in the signal stream.

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• No Return-In in 3.2K and 4K UHD mode*

The Return-In input is not supported when the camera is in 3.2K or 4K UHD modes, even though the corresponding menu entries do suggest this.

• Changing SDI Out 1 to "clean" in 3.2K and 4K UHD mode

After switching to 3.2K or 4K UHD mode, changing SDI 1 to "clean" may not work at first attempt, but only when further switching between "clean" and "processed".

• HD-SDI genlock is limited to single link HD-SDI 422 1.5G signal

For genlock with HD-SDI, the input needs to be a progressive 422 1.5G single link HD-SDI signal, using the identical frame rate (30fps max).

• Only one USB slot can be used at a time

When 2 USB sticks are connected during boot up, the device in slot 1 is ignored and only the device in slot 2 is used. You may use the second slot to power a USB device.

• Removing a USB stick

When a USB stick is removed while the camera reads or writes data (user setup, camera log, frame lines, license keys etc.), please make sure the file transfer is finished, before removing the device. An incomplete file transfer can cause corrupt files on the camera or on the stick.

• Some USB devices may not work properly with AMIRA

You may encounter issues with some USB devices. Please test the device prior to use it for critical tasks, or use the USB stick delivered with the camera.

• USB devices for AMIRA

AMIRA only supports USB sticks or pendrives. Harddrives or similar will not be recognized. Please see the manual for more information.

• Limited scaling quality in HD-SDI outputs when recording in 2K

The resulting image quality is considered as sufficient for monitoring but may be limited for recording the signal as the master record. This is due to the downscaling of the 2K resolution to HD. Please set the recording format to HD when recording HD on the HD-SDI output as master record.

Media

• *_BIN.bin file on CFast cards

AMIRA creates a file named "*_BIN.bin" (i.e. A001R3VJ_BIN.bin) when recording. This is used for internal data management, you may just ignore this file.

Monitoring

• Activating RETURN IN while recording may lead to an error

Please do not activate RETURN IN while recording.

• RETURN IN is limited to progressive signals

The return in HD-SDI signal needs to be a progressive format and identical to the camera settings.

Recording

• Power loss during record with SanDisk cards.

When a SanDisk CFast 2.0 card is removed while the camera is recording onto the card, or if the power of the battery or power supply suddenly goes down while recording, the card may need to be re-formatted for further use when indicated by the camera: The camera will show a warning message in this case. Please follow these instructions in order to avoid potential damage of the card or further recordings. If there is no warning message by the camera, no action is required.

Please contact ARRI service for more information or if you encounter any further issues.

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• SanDisk CFast 60GB card frame rate limitations.

Due to the lower write speed on the SanDisk 60GB cards, the max frame rates are limited at the highest data rates: ProRes 4444 recording in 2K: 120 fps; ProRes 4444 recording in HD: 137 fps; ProRes 422HQ recording in 2K: 181 fps. ProRes 422HQ recording in 2K: 181 fps

• SanDisk 120GB cards recording in card slot B at very high temperatures with very high data rates.

Using SanDisk 120GB cards at extremely high environmental temperatures well above 40° Celsius or 104° Fahrenheit, and recording ProRes 4444 at highest frame rates close to 200fps, the card slot B might be limited in the maximal duration of recording. Please use CFast slot A for longer recordings if the above conditions are met.

• Error message for maximum clip size.

On very rare occasions, the camera may stop recording and report "Recording stopped - maximum clip size reached". This can only occur with image content that has very little detail and using a codec with low data rate like ProRes LT.

• 400 clips max possible per card

AMIRA cannot record more than 400 clips on a single card. Please note that the camera gives no further information but just refuses to record more clips.

SUP update

• Camera default setup is reset

When updating the camera with a SUP, the "Default setup" is cleared.

• Timezone/daylight saving time are reset

After a SUP update, please make sure to re-set Timezone/daylight saving time accordingly.

Timecode

• No embedded timecode with 3G HD-SDI output on some devices

With HD-SDI outputs set to 3G, some devices may not read the timecode embedded in the signal. No limitations are seen with timecode output using 1.5G HD-SDI output settings.

Usability

• Licenses can be removed from the camera menu.

All licenses installed can be deleted in the license menu. This will remove the corresponding function from the camera. To re-install a license (like AMIRA Advanced or Premium licenses), the appropriate license key for this individual camera needs to be reloaded. In the case a camera set was purchased including the license, the license key can be found on the USB stick which has been delivered with the camera. In the case of a license being purchased from the ARRI license webshop, please use the license provided there.

• Loading looks containing a custom 3D LUT require the "AMIRA Premium license"

When attempting to load such a look, it will just fail but no message will be displayed.

• Filename length 28 characters max.

Filenames longer than 28 characters (excluding extension) cannot be loaded by AMIRA, they are neither seen in the corresponding lists nor can be used.

• Limited number of camera files on USB sticks.

There is a limited number of camera files that can be supplied on a USB stick: User Setups: 20; Look Files: 100; Frame lines: 100; License files: 100; SUPs: 20.

• Re-loading default LOOK files

When a default LOOK file is deleted, it can only be re-loaded if a USB stick, containing at least one LOOK file, is connected to the camera. A factory reset also restores any deleted default LOOK files.

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• "REC 709" look file export

If for any reason you may want to export the look file "REC 709" to USB, you are suggested to make a DUPLICATE and just save it under a different name (i.e. "REC 709mod").

• Changing Exposure Index or White Balance during record

When changing Exposure Index or White Balance during record it is possible that a single frame contains two different image characteristics.

• During erase, Record is not possible on other card

During card erase it is not possible to record to the second card.

It is also not possible to change any camera settings while cards are erased.

• Running the SENSOR FPS at a different speed than the PROJECT RATE

The frame rates for sensor and project rate must match to enable audio recording and to create clips that will play back at project speed (i.e. not in slow or fast motion).

The settings can be checked here:

- on the HOME screen, where the project rate is shown behind the time code (e.g. @25p).

- on the FPS screen, where the project rate is shown below the FPS setting, including an notation whether you are recording normal speed, slow-, or quick motion.

- Non-matching settings will also show the message "audio recording disabled (FPS)" on the audio screen and a small crossed-out speaker icon over the audio levels on the viewfinder monitor.

Non-matching settings will also show the FPS icon in the homescreen and the EVF/SDI status overlays in orange. The home screen will show an orange exclamation mark next to the FPS logo.

Viewfinder

• Never constantly cover the viewfinder proximity sensor!

Please note that constantly covering the proximity sensor (for MVF-1 serial number 2150 and below located at the edge of the viewfinder close to the eyepiece; for Serial number 2151 and higher or upgraded eyepiece located within the eyepiece) with tape or similar, can cause an irreversible burn-in on the OLED display!

• For MVF-1 up to serial number 2150: the viewfinder sometimes may not turn on.

The AMIRA MVF uses a proximity sensor to activate the OLED display only while the eyepiece is in use. Approaching the MVF at an unfavorable angle may cause it not to trigger properly.

• The AMIRA viewfinder is not hot-pluggable.

When the AMIRA viewfinder is connected while the camera is booted, it will not be operational until the camera is restarted.

• ZOOM or SURROUND VIEW at very low framerates

The EVF/MONITOR´s image momentarily fades when either zoom or surround view get activated or de-activated at very low frame rates (below about 5 fps).

• Heated Eyecup HE-6 is not compatible with the AMIRA viewfinder.

When using the heated eyecup, the proximity sensor that activates the OLED display will always be in an activated state. In this state, the OLED display will not switch off when not in use, and can burn in when the displayed image does not change over time. This is especially true for status overlays.

Please use the new HE-7 Heated Eyecup instead. This is compatible with all MVF-1 viewfinders starting with serial number 2151, or viewfinders with the eyepiece upgrade installed.

* Requires installed 4K UHD license

Service

For service purposes the ND filter stage can be moved mechanically with screws at the bottom side of the camera. Please do not turn the screws on your own, as this could severely damage the camera internals. Please contact an ARRI service station for any issue here.

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