



# HIGH SPEED



## Main Features

# 120 FPS

To ensure that our products enjoy a long and useful life we build them to the highest quality standards and continually develop new capabilities. After the Anamorphic Desqueeze license, the next such new development is High Speed mode, which allows the ALEXA family of cameras to run up to 120 fps for slow motion shots, using Apple ProRes codecs and Sony 64 GB SxS PRO cards. This eliminates the expense of carrying a separate high speed camera.

Despite using a more efficient debayering algorithm, High Speed mode maintains ALEXA's unsurpassed 14 stops of exposure latitude, high sensitivity, natural colorimetry, low noise level and organic, film-like image quality. And since High Speed mode uses the same number of pixels and the same Super 35 sensor area as Regular Speed mode, the images keep the same cinematic shallow depth of field and the same angle of view for all lenses. A 50 mm lens in High Speed mode results in exactly the same image as a 50 mm lens in Regular Speed mode.

The High Speed capability is available as an online purchase of a license key at <http://alshop.arri.de>. Each license key is coded to a particular camera and can be enabled by copying the license to an SD card and loading it into the camera. Licenses can also be disabled, allowing rental facilities control over which cameras are sent out with High Speed mode.

To achieve the necessary high data rates, High Speed mode records in Apple ProRes up to 422 HQ. High Speed mode outputs all images in 4:2:2 color sampling. As a result, the REC OUT becomes another MON OUT and ARRIRAW, ProRes 4444 and 4:3 sensor modes are not supported.

### ALEXA High Speed license

- Shoot slow motion with ALEXA
- Eliminates the expense of a separate high speed camera
- 60 to 120 fps for Apple ProRes codecs up to 422 HQ (16:9)
- Requires Software Update Packet (SUP) 5.0
- License key available for purchase online at <http://alshop.arri.de>

### Same exposure latitude, sensitivity, colorimetry and low noise level as Regular Speed mode

### Same sensor area

- Same Super 35 cinematic depth of field
- Same Super 35 angle of view for all lenses

### High Speed mode outputs 4:2:2 color sampling

- REC OUT = MON OUT
- ARRIRAW, ProRes 4444 and 4:3 sensor mode are not supported

### Requires new SONY SxS PRO 64 GB card

- Twice the capacity and over twice the data rate of 32 GB cards
- Professional grade cards for a long card life with sustained high data rates
- One year manufacturer's warranty
- ProRes 422 HQ at 120 fps in High Speed mode
- ProRes 4444 at 60 fps in Regular Speed mode with SUP 5.0
- Copies data over twice as fast to a computer

Recording such high data rates requires the use of SONY's new SxS PRO 64 GB cards. These cards are built to the same tough reliability and environmental standards as the SxS PRO 32 GB cards while offering twice the recording capacity and over twice the data rates. The blazingly fast write speed allows recording at 120 fps on the set, while the fast read speeds allows copying a full 64 GB card from the card slot of a 17" MacBook Pro to a Thunderbolt RAID in less than 7 minutes.

These cards maintain their high data rate during their entire life. This is essential for dependable on-set use. Even without the High Speed license, the SxS PRO 64 GB cards allow recording of ProRes 4444 at 60 fps (with SUP 5.0). The environmental robustness, high data rates, high reliability and small size of the SxS PRO 64 GB cards make them the perfect recording medium for the ALEXA family of cameras.

Having 120 fps functionality available on ALEXA cameras will be of tremendous benefit to a range of different production types. It gives directors and cinematographers the opportunity to create slow motion images without the cost, time and effort of having to get a specialized high speed camera to the set. In simple terms this means greater creative freedom, which is the guiding principle of the ALEXA system.

## High Speed Mode - Technical Data

All technical data are the same as the respective camera's features in Regular Speed mode except for the following:

<b>Requirements</b>	ALEXA or ALEXA Plus with Software Update Packet (SUP) 5.0
<b>Mode Switch</b>	Power up into High Speed mode: about one minute. Switching from Regular Speed to High Speed mode or back: 40 seconds.
<b>Sensor Area</b>	1.5x oversampling (2880 x 1620) for 1920 x 1080 output. 16:9 sensor mode only, 4:3 sensor mode not supported.
<b>Frame Rates</b>	ProRes 422 (Proxy), 422 (LT), 422 and 422 (HQ): 60 - 120 fps; adjustable with 1/1000 fps precision; HD-SDI 4:2:2: 23.976, 24, 25, 29.97 or 30 fps. ARRIRAW, ProRes 4444 and HD-SDI 4:4:4 are not supported
<b>Shutter</b>	Electronic rolling shutter, adjustable from 5.0° to 356.0° with 1/10 degree precision.
<b>Viewfinder</b>	Displays 60 fps in High Speed mode.
<b>In-camera Recording</b>	Recording ProRes 422 and 422 (HQ) at 120 fps requires use of SxS PRO 64 GB card. Recording ProRes 422 (LT) and ProRes Proxy at 120 fps is possible with SxS PRO 32 GB cards. Approximate recording time for ProRes 422 (HQ) on a 64 GB card at 120 fps: 8 minutes.
<b>Recording Outputs</b>	REC OUT BNC connectors will output the same signal as MON OUT.
<b>Monitor Output</b>	MON OUT BNC connectors for uncompressed 1.5G HD-SDI video: 1920 x 1080, 4:2:2 YCbCr; legal range.
<b>Processing</b>	16 bit linear internal image processing, High Speed image debayering algorithm
<b>Audio</b>	No audio recording in High Speed mode
<b>SD Card</b>	No image grab in High Speed.

Please note that the image debayering, which is the process of reconstructing the raw sensor data into a full color image, is different for the High Speed mode than it is for Regular Speed mode.

While our tests have shown that the High Speed debayering delivers images with the same exposure latitude, sensitivity, colorimetry and low noise level as Regular Speed debayering, we have also noticed that in some saturated red and blue colors a checkerboard pattern can be visible. We are working on improving this, and even though we consider it a minor issue, we want to be up front about it.

Notes: All technical data based on Software Update Packet (SUP) 5.0. All data subject to change without notice.

