SONY

# PXW-FX9

Discover FX9, Sony's full-frame 6K sensor camera with Fast Hybrid AF, Dual Base ISO and S-Cinetone™ colour science.

## Overview

### Full-frame creativity

Realise beautiful imagery with the creative freedom of a huge high resolution 6K full-frame sensor. Capture every detail from the scene with shallow depth of field and stunning bokeh with a truly cinematic look. 15+ stops of dynamic range and Dual Base ISO enable capture of every nuance, from subtle shadow detail to specular highlights and with an immaculate colour palette.

### Capturing the impossible

Make sure your story's always clear with Enhanced Fast Hybrid AF that tracks your subject with unprecedented speed, smoothness and precision. Its impact is transformative for premium documentary, commercials and event applications.

### Shoot in comfort, expand your horizons

FX9 revolutionises full-frame cinematography with peerless ergonomics and advanced technology for on-the-go shooting. The world's first full-frame electronic variable ND filter* transforms possibilities for shooting in variable lighting conditions. Built-in Wi-Fi and 12G-SDI support advanced workflows while the optional XDCA-FX9 extension kit further expands the operational possibilities of the PXW-FX9.
*As of September 2019

## Features

### 6K Full-Frame "Exmor R" sensor for stunning picture quality

The camera's full-frame 6K sensor provides superb recording in DCI 4K*, Ultra HD and HD resolutions. Powerful image processing with debayering and downsampling ensures image quality beyond the limits of conventional Super 35mm sensors. The back-illuminated CMOS image sensor also uses Sony's Exmor R[AS(1] ™ technology for improved sensitivity and noise reduction. Compared to a 4K Super 35mm sensor, the FX9's 6K sensor has over twice the surface area while providing a wider angle of view and narrower depth of field.

*DCI 4K (4096 x 2160 at 17:9 recording) will be available with future firmware release.

### Phenomenal 15+ stops dynamic range for limitless expression

FX9 offers an exceptional 15+ stops of dynamic range - beyond the normal range of human perception - allowing for unprecedented creative freedom in colour grading and post. Camera operators can concentrate on framing the scene they want while relying upon the FX9 to capture every nuance and detail using either 4K 4:2:2 10-bit internal recording or 16-bit RAW external recording.* In grading, colourists can find colour and detail beyond the normal viewing abilities of the camera operator to create a final image that exactly portrays the mood of the scene.

* RAW recording requires future firmware release and external recorder.

### Dual Base ISO for stunning images in any light

FX9 features a base sensitivity of ISO 800, providing the optimal dynamic range for typical documentary applications such as shooting outside or in brightly lit interiors. A secondary High Base sensitivity of ISO 4000 excels in low light conditions such as early morning and evening shoots while maintaining superb image quality. ISO 4000 is also ideal whenever you're using slow lenses. Combining Dual Base ISO with the camera's electronic variable ND Filter provides superb creative control in almost any shooting environment, with truly next generation responsiveness to changing conditions.

*ISO 800 and ISO 4000 are used in S-Log3, Cine EI mode.

### S-Cinetone™ colour science

S-Cinetone is the default look of FX9 that's tuned to meet the requirements of today's content creators with rich mid-range colours, alluring facial tones and a softer tonal look – developed with the same expertise as Sony's world-leading VENICE digital cinematography camera. S-Cinetone™ means that straight out of the camera your content looks fresh and vivid, with subjects that really stand out while retaining plenty of latitude in post production thanks to the high performance full-frame image sensor.

### Beautifully smooth slow motion using full-frame sensor

Shoot at higher frame rates up to Full-HD 180fps* for stunning slow-motion footage, using the sensor's full-frame or Super 35mm image circle for uncompromised picture quality – ideal for quality documentaries and movie making.

* Up to 120fps with Ver1.0. Full-HD 180fps will be supported with future firmware.

### Catch the action with enhanced Fast Hybrid AF

Effortlessly track fast moving subjects with pin-sharp focus, even when using wide lens aperture settings to maintain a shallow depth of field with the camera's full-frame sensor. Developed by Sony's α camera engineers, enhanced Fast Hybrid AF combines phase detection AF for fast, accurate subject tracking with contrast AF for exceptional focus accuracy. In addition, Face Detection intelligently recognises and locks on to human faces.
The dedicated 561-point phase detection AF sensor covers approximately 94% of the whole image area width and 96% of height, allowing consistently accurate, responsive AF tracking, even with fast-moving subjects.

### Customisable AF settings

FX9's comprehensive autofocus settings provide the creative flexibility to integrate with any project.
7-level AF transition speeds from Fast - switching between subjects as quickly as possible – to Slow, where speed is reduced to fit a more measured shooting style, such as a historical TV drama.
5-level AF subject shift sensitivity ranges from Locked-on – ignoring other moving subjects in the frame – to Responsive that switches focus from one subject to another – ideal for snapping between race cars as they speed by.

### Autofocus with all E-mount lenses

Experience smooth, responsive autofocus with every E-mount lens, including Sony's new Cinema Lens Series with premium optical performance and operability for demanding cinematography applications. Advanced E-mount lever lock operation allows quick, easy lens exchange in the field, plus added stability and security with large lenses.

### World’s first electronic variable ND filter for full-frame sensor*

Realise even greater creative control with Sony’s unique built-in electronic variable neutral density (ND) filter – a world first* for professional full-frame camcorders. Set to Auto, or adjust filter density manually in smooth increments from 1/4 to 1/128 as you shoot, for perfectly exposed images without affecting depth of field as lighting conditions change. Use higher density settings with a slower shutter speed for breathtaking artistic effects.
Since this ND filter system is built-in, it is no longer necessary to prepare multiple ND filters separately.

*As of September 2019

### Proven ergonomics & accessory compatibility

FX9 chassis is the latest refinement of the revolutionary FS7 design, so you can be sure it will feel great to shoot with from almost any position, while also offering compatibility with a large proportion of the countless FS7 accessories including U-Series batteries, chargers, E-Mount lenses, plus third-party rigs, arms and lens adapters.*
The control arm is easily adjusted without tools, so FX9 adapts effortlessly to your physique and preferred shooting style – handheld, at waist level or shoulder mounted. The smart grip features an updated design, more compact than before while still holding all the key shooting controls, allowing you to concentrate on the scene without distractions. FX9 also introduces a micro USB interface for improved responsiveness and support for a belt.
*Detailed compatibility with 3rd party accessories to be confirmed separately. BP-U30 and XDCA-FS7 are not compatible with the FX9.

### 16-bit RAW capability*

16-bit RAW offers a phenomenal increase in post-production creative freedom to fully exploit FX9’s exceptional 15+ stops of dynamic range. FX9 supports export of 16-bit RAW at either 4K or 2K resolution using the optional XDCA-FX9 extension unit with a single BNC cable connection to compatible external RAW recorders.

* RAW output will be enabled with a future firmware release. Limited to 10-bit recording during 120fps high frame rate shooting within Super35 image circle.

### Stable, shake-free handheld footage

Advanced image stabilisation information means even handheld footage can be transformed with Sony Catalyst Browse/Catalyst Prepare software* in post-production to look as smooth as if it were shot with a gimbal. This feature is compatible with any E-mount lens and allows for far faster processing than conventional NLE stabilisation workflows**.

* Catalyst Browse/Catalyst Prepare Ver.2019.2 is required. 3rd party NLE support to be added in future (details to be confirmed).
** Resolution and angle of view reduced compared to native footage.

### Beautifully matched shooting partners

Optimised for professional cinematography applications, the light, compact, SELP28135G powered zoom lens is an ideal complement for the full frame imaging possibilities of the FX9.
- Circular aperture with full-frame image circle format
- Motorised servo zoom for smooth, precise zoom moves
- Independent three rings for focus, zoom and iris with smooth, silent drive

You have the choice of purchasing the FX9 on its own (PXW-FX9) or with SELP28135G lens (PXW-FX9K).

### Cinema Lens Series

Explore new artistic possibilities and precise creative control with Sony’s Cinema Lens Series. Purpose-built for documentary production and digital cinematography with full-frame cameras such as the FX9 and VENICE.
The first lens in the series, the FE C 16-35mm T3.1 G full-frame wide angle zoom, is due in early 2020.

### Adds shoulder-style operation, advanced networking

Further extend the capabilities of the FX9 with the optional XDCA-FX9 extension unit that optimises camera weight distribution and ergonomics for comfortable shoulder-style shooting – ideal for ENG (Electronic News Gathering) and documentary applications. The extension unit also adds advanced networking for streaming/file transfers and Genlock/Timecode for multi-camera shoots.

### 4-channel audio input and recording

FX9 offers superb audio capabilities with independent control dials for each channel. In applications such as interview, 4-channel audio recording enables simultaneous use of an external microphone for recording ambient sounds, the built-in microphone for voice memos by the operator, and two optional UWP Series wireless microphones for voice of interviewer and interviewee. In addition, using the optional XLR-K3M, XLR-K2M or XLR-K1M XLR adapter – with two extra XLR inputs – allows even more devices to be connected.

### Multi-Interface (MI) Shoe

Sony’s flexible Multi-Interface (MI) Shoe provides power, signal connections and coordinated on/off switching with compatible Sony accessories. For example, you can connect and control Sony UWP-D wireless microphone systems (sold separately).

### Networked for high mobility

- Content Browser Mobile™** allows the PXW-FX9 to be controlled remotely from a smartphone or tablet computer via a Wi-Fi connection. Adjust the exposure level, zoom, Record/Stop and more via your mobile device - it’s ideal for single operator shoots. One-touch authentication is also possible with smartphones offering NFC connectivity.
- FTP Transfer allows content files to be sent over the internet for remote storage on an FTP server even while shooting. In case of signal interruption, the system will automatically resume as soon as connection restored.
- Trimming allows you to set start and end points in a clip, eliminating time-wasting transfers of unneeded content.
- XDCAM air can upload proxy footage to the cloud from multiple camera operators in the field, so editing can start immediately. Uploaded content can be accessed securely from any location. News teams can even start logging clips while shooting is still going on, saving even more valuable time when a story’s breaking.
- Wired LAN port with optional XDCA-FX9 allows connection of the FX9 to the Internet with a standard Ethernet cable, allowing files to be streamed or transferred by FTP.
- Dual Link Cellular is enabled with optional XDCA-FX9 and uses two cellular networks in combination to provide an even more reliable network connection. FX9 is compatible with standard USB cellular dongles from most networks. (Please check for most appropriate service provider for your region. Standard network fees will apply.)

- High quality Sony QoS Streaming to Network RX station (sold separately) and XDCAM air by Sony allows images to be streamed live for viewing at a remote location

*5GHz support dependent on country/regional regulation. ** Content Browser Mobile™ application can be downloaded from Google Play Store or App Store. Wi-Fi operation cannot be guaranteed with all smartphones and tablet computers.

## Specifications

### General

| | |
|---|---|
| | Important Note: FX9 is available from Sony as four SKUs. PXW-FX9V (without lens) and PXW-FX9VK (with lens) support both 5Ghz and 2.4Ghz Wi-Fi. PXW-FX9T (without lens) and PXW-FX9TK (with lens) support 2.4GHz Wi-Fi. Availability is determined by country/regional regulations. |
| Mass | Approx 2.0 kg (body only)<br>Approx. 4.8 kg (with Viewfinder, Eyepiece, Grip Remote Control, BP-U35 battery, SELP28135G LENS, an XQD memory card, Handle, MIC holder) |
| Dimensions (W x H x D) | 146 x 142.5 x 229 mm (body without protrusions) |
| Power Requirements | DC 19.5V |
| Power Consumption | Approx. 35.2 W (while recording XAVC-I QFHD 59.94p, SELP28135G Lens, Viewfinder ON, not using external device) |
| Operating Temperature | 0°C to 40°C<br>32°F to 104°F |
| Storage Temperature | -20°C to +60°C<br>-4°F to +140°F |
| Battery Operating Time | Approx. 54min. with BP-U35 battery (while recording XAVC-I QFHD 59.94p, SELP28135G Lens, Viewfinder ON, not using external device)<br><br>Approx. 108min. with BP-U70 battery (while recording XAVC-I QFHD 59.94p, SELP28135G Lens, Viewfinder ON, not using external device) |
| Recording Format (Video) [XAVC Intra] | XAVC-I QFHD 59.94p mode : VBR, MAX bit rate 600 Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I QFHD 50p mode : VBR, MAX bit rate 500 Mbps, MPEG-4 AVC/H.264 |

| | |
|---|---|
| | XAVC-I QFHD 29.97p mode : VBR, MAX bit rate 300 Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I QFHD 25p mode : VBR, MAX bit rate 250 Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I QFHD 23.98p mode : VBR, MAX bit rate 240 Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I HD 59.94p mode : CBG, MAX bit rate 222 Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I HD 50p mode : CBG, MAX bit rate 223 Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I HD 59.94i/29.97p mode : CBG, MAX bit rate 111 Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I HD 50i/25p mode : CBG, MAX bit rate 112Mbps, MPEG-4 AVC/H.264 |
| | XAVC-I HD 23.98p mode : CBG, MAX bit rate 89Mbps, MPEG-4 AVC/H.264 |
| Recording Format (Video) [XAVC Long] | XAVC-L QFHD 29.97p/25p/23.98p mode : VBR, MAX bit rate 100 Mbps, MPEG-4 H.264/AVC |
| | XAVC-L QFHD 59.94p/50p mode : VBR, MAX bit rate 150 Mbps, MPEG-4 H.264/AVC |
| | XAVC-L HD 59.94i/29.97p/50i/25p/23.98p/59.94p/50p mode : VBR, MAX bit rate 50 Mbps, MPEG-4 H.264/AVC |
| | XAVC-L HD 59.94i/29.97p/50i/25p/23.98p/59.94p/50p mode : VBR, MAX bit rate 35 Mbps, MPEG-4 H.264/AVC |
| | XAVC-L HD 59.94i/50i mode : VBR, MAX bit rate 25 Mbps, MPEG-4 H.264/AVC |
| Recording Format (Video) [MPEG-2 Long GOP] | MPEG2 HD422 mode : CBR, MAX bit rate 50 Mbps, MPEG-2 422P@HL |
| Recording Format (Audio) | LPCM 24 bits, 48 kHz, 4 channels |
| Recording Frame Rate | **[XAVC Intra]**<br>XAVC-I QFHD mode: 3840 x 2160/59.94P, 50P, 29.97P, 23.98P, 25P<br>XAVC-I HD mode: 1920 x 1080/59.94P, 59.94i, 50P, 50i, 29.97P, 23.98P, 25P<br>**[XAVC Long]**<br>XAVC-L QFHD mode: 3840 x 2160/59.94P, 50P, 29.97P, 23.98P, 25P<br>XAVC-L HD 50 mode: 1920 x 1080/59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P, 25P<br>XAVC-L HD 35 mode:1920 x 1080/59.94P, 50P, 59.94i, 50i, 29.97P, 23.98P, 25P |

| | |
|---|---|
| | XAVC-L HD 25 mode:1920 x 1080/59.94i, 50i<br>**[MPEG-2 Long GOP]**<br>MPEG HD422 mode: 1920 x 1080/59.94i, 50i, 29.97P, 23.98P, 25P |
| Recording/Playback Time [XAVC Intra] | XAVC-I QFHD 59.94p<br>When using QD-G128A (128 GB): Approx. 22 minutes<br>When using QD-G64A (64 GB): Approx. 10 minutes |
| | XAVC-I QFHD 50p<br>When using QD-G128A (128 GB): Approx. 26 minutes<br>When using QD-G64A (64 GB): Approx. 13 minutes |
| | XAVC-I QFHD 29.97p<br>When using QD-G128A (128 GB): Approx. 43 minutes<br>When using QD-G64A (64 GB): Approx. 21 Minutes |
| | XAVC-I QFHD 25p<br>When using QD-G128A (128 GB): Approx. 52 minutes<br>When using QD-G64A (64 GB): Approx. 25 Minutes |
| | XAVC-I QFHD 23.98p<br>When using QD-G128A (128 GB): Approx. 54 minutes<br>When using QD-G64A (64 GB): Approx. 26 Minutes |
| | XAVC-I HD 59.94p<br>When using QD-G128A (128 GB): Approx. 57 minutes<br>When using QD-G64A (64 GB): Approx. 28 Minutes |
| | XAVC-I HD 50p<br>When using QD-G128A (128 GB): Approx. 57 minutes<br>When using QD-G64A (64 GB): Approx. 27 Minutes |
| | XAVC-I HD 59.94i/29.97p<br>When using QD-G128A (128 GB): Approx. 105 minutes<br>When using QD-G64A (64 GB): Approx. 53 Minutes |
| | XAVC-I HD 50i/25p<br>When using QD-G128A (128 GB): Approx. 105 minutes<br>When using QD-G64A (64 GB): Approx. 53 Minutes |

| | |
|---|---|
| | XAVC-I HD 23.98p<br>When using QD-G128A (128 GB): Approx. 130 minutes<br>When using QD-G64A (64 GB): Approx. 65 Minutes |
| Recording/Playback Time [XAVC Long] | XAVC-L QFHD 29.97p/25p/23.98p<br>When using QD-G128A (128 GB): Approx. 125 minutes<br>When using QD-G64A (64 GB): Approx. 62 Minutes |
| | XAVC-L QFHD 59.94p/50p<br>When using QD-G128A (128 GB): Approx. 86 minutes<br>When using QD-G64A (64 GB): Approx. 42 Minutes |
| | XAVC-L HD 50<br>59.94i/29.97p/50i/25p/23.98p/59.94p/50p<br>When using QD-G128A (128 GB): Approx. 225 minutes<br>When using QD-G64A (64 GB): Approx. 110 Minutes |
| | XAVC-L HD 35<br>59.94i/29.97p/50i/25p/23.98p/59.94p/50p<br>When using QD-G128A (128 GB): Approx. 305 minutes<br>When using QD-G64A (64 GB): Approx. 150 Minutes |
| | XAVC-L HD 25 59.94i/50i<br>When using QD-G128A (128 GB): Approx. 410 minutes<br>When using QD-G64A (64 GB) Approx. 200 Minutes |
| Recording/Playback Time [MPEG-2 Long GOP] | MPEG HD422 59.94i, 50i, 29.97P, 23.98P, 25P<br>When using QD-G128A (128 GB): Approx. 220 minutes<br>When using QD-G64A (64 GB): Approx. 105 Minutes |
| Recording Format (Proxy Audio) | XAVC Proxy: AAC-LC, 128 kbps, 2 channels |
| Recording Format (Proxy Video) | XAVC Proxy: AVC/H.264 Main Profile 4:2:0 Long GOP, VBR<br>1920 x 1080, 9Mbps<br>1280 x 720, 9Mbps<br>1280 x 720, 6Mbps<br>640 x 360, 3Mbps |

## Lens

| | |
|---|---|
| Lens Mount | E-mount |

## Camera Section

| | |
|---|---|
| Imaging Device (Type) | 35 mm full-frame, single-chip CMOS image sensor |
| Imaging Device (Pixel Count) | 20.5 M pixels (Total) |
| Built-in Optical Filters | Clear, linear variable ND (1/4ND to 1/128ND) |
| ISO Sensitivity | ISO 800/4000 (Cine EI mode, D55 Light source) |
| S/N Ratio | 57 dB (Y) (typical) |
| Shutter Speed | 64F to 1/8000 sec |
| Slow and Quick Motion Function | FF 6K mode:<br>XAVC-I/L<br>3840 x 2160, 1920 x 1080<br>1 to 30 frames (29.97/25/23.98)<br><br>S35 4K mode:<br>XAVC-I/L<br>3840 x 2160, 1920 x 1080<br>1 to 60 frames (59.94p, 50p, 29.97/25/23.98)<br><br>FF 2K, S35 2K mode:<br>XAVC-I/L<br>1920 x 1080<br>1 to 60, 100, 120 frames (59.94p, 50p, 29.97/25/23.98) |
| White Balance | Preset, Memory A, Memory B (2000K-15000K)/ATW |
| Gain | -3 to 18dB (every 1dB), AGC |
| Gamma Curve | S-Cinetone, STD1, STD2, STD3, STD4, STD5, STD6, HG1, HG2, HG3, HG4, HG7, HG8, S-Log3 |
| Latitude | 15+ stop |

## Input/Output

| | |
|---|---|
| Genlock Input/REF Output | BNC, Genlock IN/REF OUT Switchable |
| TC Input/TC Output | BNC, TC IN/OUT Switchable |
| Audio Input | XLR-type 3-pin (female) (x2), line/mic/mic +48 V selectable<br>Mic Reference: -30 to -80 dBu" |
| SDI Output | SDI OUT1: BNC, 12G-SDI, 3G-SDI (Level A/B), HD-SDI<br>SDI OUT2: BNC, 3G-SDI (Level A/B), HD-SDI |
| USB | USB device, micro-B (x1) |
| Headphone Output | Stereo mini jack (x1) -16 dBu 16 Ω |

| | |
|---|---|
| Speaker Output | Monaural |
| DC Input | DC jack |
| Remote | Stereo mini-minijack (Φ2.5 mm) |
| HDMI Output | Type A (x1) |

## Monitoring

| | |
|---|---|
| LCD | 8.8 cm (3.5 type) Approx. 2.76 M dots |

## Built-in Microphone

| | |
|---|---|
| Built-in Microphone | Omni-directional monoral electret condenser microphone |

## Media

| | |
|---|---|
| Type | XQD Card slot (x2)<br>SD/MS Card slot (x1) for saving configuration data<br>SD card slot also can be used for proxy video recording |

## Wi-Fi/NFC

| | |
|---|---|
| Supported Format | IEEE 802.11 a/b/g/n/ac |
| Frequency Band | 2.4 GHz bandwidth<br>5.2/5.3/5.6/5.8 GHz bandwidth*<br>*Depending on country / regional regulation and only on PXW-FX9V and PXW-FX9VK. |
| Security | WEP/WPA-PSK/WPA2-PSK |
| NFC | NFC Forum Type 3 Tag compliant |

## Supplied Accessories

| | |
|---|---|
| Supplied Accessories | Body Cap (1)<br>Viewfinder (1)<br>Eyepiece (1)<br>Grip Remote Control (1)<br>IS1293 power cord (2) **<br>AC Adapter<br>BC-U1A battery charger (1)<br>BP-U35 battery pack (1)<br>Power cord (2)<br>USB cable (1)<br>Operating Guide (2)<br>CD-ROM "Manuales for Solid-State Memory Camcorder" (1)<br><br>** For India only. Not supplied in other |

# Gallery