SONY

PXW-Z90 XDCAM

1.0 type Exmor RS™ CMOS Compact Solid-State Memory Camcorder

4K* · ZEISS · Exmor RS™ CMOS Sensor · BIONZ X · XAVC · AVCHD Progressive · Wi-Fi CERTIFIED

* 4K: 3840×2160pix

The PXW-Z90 offers broadcast quality 4K with advanced features such as high-speed Auto Focus, Instant HDR Workflow, up to 960fps* Super slow motion and streaming at 2.4GHz or 5GHz** with QoS streaming.
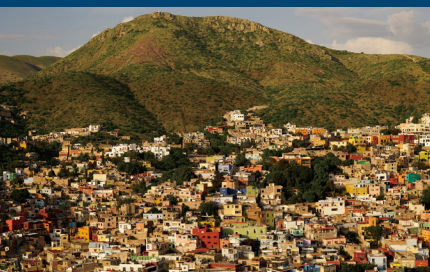
* 960 fps (NTSC). 1000 fps (PAL).
** 5GHz support dependent on support from country/regional regulation.

Amazingly fast precision auto focus

The PXW-Z90 incorporates an advanced Fast Hybrid AF system, alongside face detection and lock-on auto focus technology, making it easy to focus and track a subject while filming.

* Attached microphone (ECM-VG1) is optional

First professional palm camcorder with 4K HDR

The PXW-Z90 is the first professional palm-sized camcorder to deliver stunning 4K High Dynamic Range (HDR) content with Hybrid Log-Gamma (HLG) file-based workflows. S-Log3 is also supported, enabling you to create beautiful imagery with a wide colour gamut and colour range.

Super slow motion up to 960fps* and S&Q motion up to 120fps**

High Frame Rate shots can turn everyday actions into slow motion ballet and the PXW-Z90 delivers a stunning 120 frames per second (fps) in Full HD XAVC 10bit 4:2:2, giving you continuous 5 times slow motion expression. Higher frame rates up to 960fps using S&Q motion cache recording are also possible for even greater creative flexibility.

* 960 fps (NTSC). 1000 fps (PAL). ** 120fps (NTSC)/100fps (PAL)

Revolutionary imaging performance with Exmor RS

Exmor RS is a Sony's CMOS image sensor that adopts a unique "back- illuminated and stacked structure. A large 14.2-megapixel (effective) 1.0-type stacked CMOS image sensor delivers beautiful background bokeh defocus effects and superior sensitivity for capturing high-quality images with less noise, even under dark or bright conditions. This sensor integrates up to 273 phase-detection AF points that densely cover approx. 84% of the image area, for precise tracking of subjects throughout the shooting frame.
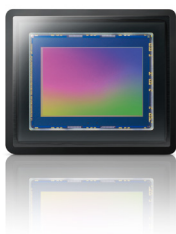
Enhanced Fast Hybrid auto focus captures action

Enhanced Fast Hybrid auto focus (AF) is comprised of a number of features: Phase-detection AF with up to 273 reference points covering approximately 84% of the image area, face detection and lock-on auto focus technology to estimate subject movement. They all work together seamlessly to capture fast-moving subjects with amazing sharpness.

Instant HDR workflows

Shoot, edit and view HDR content in HLG without the need for additional colour grading.

As the expanding need for HDR content continues, internet video platforms and professionals producing corporate or event content are paying more attention to the added value of HDR. They need to deliver content quickly, without compromising on imaging expression and quality of content. To meet this demand, the PXW-Z90 offers HLG (Hybrid Log Gamma) curve and BT.2020 color space shooting, in addition to S-Log3, for easy file-based workflows, whilst achieving the image quality of HDR. This simple workflow enables the shooting, editing and viewing of HDR content in HLG, without devoting a lot of time to post-production work and additional color grading.

Stunning slow motion in Full HD

High Frame Rate shots can turn everyday actions into slow motion ballet and the PXW-Z90 delivers up to 120 frames* per second (fps) in Full HD, giving you a maximum of 5 times slow motion expression. There's no sacrifice in bit depth and no "windowing" of the sensor. So there's no crop factor, no loss in angle of view.

Higher frame rates** are also possible at specific resolutions.
 * 120fps (NTSC)/100fps (PAL)
** 240, 480, 960 (NTSC)/250, 500, 1000fps (PAL)

Broadcast quality 4K (QFHD) and HD

The PXW-Z90 allows you to record a wide range of 4K (QFHD) and HD formats for maximum flexibility from this stunning palm-sized camcorder. The Z90 supports XAVC QFHD 100Mbps recordings at 30p/25p/24p, XAVC HD Long GOP 422 50Mbps, MPEGHD422 50Mbps*, MPEGHD420 35Mbps and AVCHD.

* MPEG HD recording requires optional licence (CBKZ-SLMP) upgrade.

Networked for high mobility

The PXW-Z90 comes with 5GHz* and 2.4GHz Wi-Fi as standard – simply turn on and log onto your preferred network to enable a host of advanced wireless production features:

* 5GHz support dependent on country/regional regulation.

Ustream® Direct Streaming allows you to share scenes as they happen with high quality picture and sound without a switcher.

QoS Streaming to XDCAM air allows images to be streamed live from the camcorder for viewing at a remote location.

FTP Transfer allows content files recorded with MPEG HD 422/420 proxy feature (CBKZ-SLMP required) and other content files shot in XAVC (QFHD/FHD) and AVCHD formats to be sent over the internet for remote storage on an FTP server.

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's still going on, saving even more valuable time when a story's breaking.

Wi-Fi/NFC (Near Field Communication) with Content Browser Mobile™ allows the PXW-Z90 to be remotely controlled from a smartphone or tablet computer (iOS 9.0 - 10.3 or Android 4.4 through 7.1) via a Wi-Fi connection. One-touch authentication is also possible with smartphones that offer NFC connectivity

* The Content Browser Mobile™ application can be downloaded from the Google Play Store or App Store. Wi-Fi operation cannot be guaranteed with all smartphones and tablet computers.

Wired LAN connection allows the PXW-Z90 to be connected to the internet over a wired connection via the separately available VMC-UAM2 USB adapter cable and network adaptor kit (CBK-NA1), allowing files to be streamed or transferred by FTP.

Wide-angle zoom lens with great control

The PXW-Z90 is supplied with a fixed 29mm wide-angle ZEISS Vario-Sonnar T* lens, ideal for capturing panoramic landscapes. The 12x optical zoom can be increased to 18x with Clear Image Zoom, maintaining full QFHD resolution using Super Resolution Technology or 24x in HD. In addition, the Digital Extender can double this range again, up to 48x zoom.
The camcorder's lens ring enables smooth, natural adjustment of focusing or zooming, depending on which mode is selected; while the manual dial and buttons on the side of the body allow swift and easy adjustment of IRIS (aperture), ISO/GAIN and shutter speed.

Superb quality monitoring with enhanced OLED viewfinder

You have superb monitoring options with the Z90: an enhanced 0.39-type 2359K dot OLED viewfinder and 3.5-type 1550K dot LCD. The super high resolution OLED viewfinder offers excellent quality brightness, contrast and response, giving you better precision of manual focus operations and eliminating any colour-breaking phenomenon. The LCD gives you further flexible composition options.

Dual XLR inputs

Two XLR inputs reject electromagnetic interference for unhindered audio. Switchable phantom power supports mics that need it, while true input level controls put you in charge of sound.

Remote operation

The PXW-Z90 has a featured remote interface (2.5 mm stereo mini-mini jack) wired interface. Using a wired remote controller such as the RM-1BP or RM-30BP the focus, zoom, rec start/stop and rec review can be controlled remotely.

Dual media slots

To extend recording time and workflow flexibility, the PXW-Z90 is equipped with two memory card slots and is compatible with SDXC and SDHC cards.
Relay mode automatically switches recording from the first to the second memory card when the first is full; Simul mode allows simultaneous recording to two memory cards (for example to create an immediate back-up version). The PXW-Z90's two Start/Stop buttons on the handle grip and camcorder body can independently start and stop recording on different memory cards while recording in Simul mode.

Multi-Interface (MI) Shoe

The PXW-Z90 takes advantage of Sony's flexible Multi-Interface (MI) Shoe, which provides power, signal connections and coordinated on/off switching to compatible various Sony accessories.

Wide choice of connections

The PXW-Z90 offers numerous connections to suit the broadcast workflow, including 3G HD-SDI, HDMI®, Multi/Micro USB jack and composite output. The Rec Trigger signal can be sent through SDI and HDMI to link an external recording device. HDMI/SDI/composite output is possible during QFHD recording*.

* HDMI supports up QFHD resolution, 3G-SDI supports up to HD resolution. Composite is SD-only.

Simple live solution

The PXW-Z90 is designed to work seamlessly with Sony's MCX-500 Multi Camera Live Producer, a robust and cost-effective switcher that makes it easy for one person to run a multi-camera live event shoot. When used with the MCX-500 and Remote Commander RM-30BP, a Tally indicator will automatically appear on each PXW-Z90's LCD panel and viewfinder – a red icon indicates when the shot is live (PGM) while Green indicates preview mode (PVW). The MCX-500 supports up to 9 video inputs, 5 channel stereo inputs including XLR with both internal recording and live streaming via Ustream™, Facebook Live, and Youtube Live*.
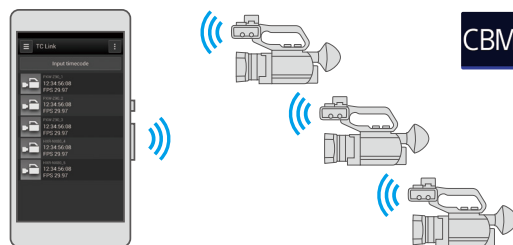
* Facebook live and YouTube live available with V2.0 firmware

Wirelessly Synchronise Multiple Camcorders

When shooting with multiple camcorders, you can synchronize the timecode of each camcorder using Content Browser Mobile™ (CBM) smartphone application* with optional CBKZ-WTCL upgrade. With this feature, all camcorders can synchronise to the primary camcorder you select or to a manually set time – whichever you prefer.

* Version 3.0 Content Browser Mobile™ is required.

Specifications

General	
Mass	Approx 1020 g (Approx. 2 lb 4.0 oz) (with lens hood, eyecup)
	Approx. 1390 g (Approx. 3 lb 1 oz) (with lens hood, handle, eyecup, NP-FV70A battery)
Dimensions (W x H x D)	121.0 x 104.0 x 274.5 mm (4 7/8 x 4 1/8 x 10 7/8 inches) (With the accessories (lens hood, large eyecup), excluding the grip belt and including the projecting parts)
	130.0 x 181.5 x 287.0 mm (5 1/8 x 7 1/4 x 11 3/8 inches) (With the accessories (lens hood, large eyecup, XLR handle unit), excluding the grip belt and including the projecting parts)
Power Requirements	DC In: 8.4 V
	Battery: 7.4 V
Power Consumption	Approx. 6.5 W (while recording with viewfinder and XAVC QFHD 2160/30p 60Mbps)
	Approx. 6.9 W (while recording with LCD and XAVC QFHD 2160/30p 60Mbps)
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to +60°C (-4°F to +140°F)
Battery Operating Time	Approx. 140 min. with NP-FV70A battery (while recording with LCD, XAVC QFHD 2160/30p, 60Mbps)
	Approx. 265 min. with NP-FV70A battery (while playing with LCD, XAVC QFHD 2160/30p, 60Mbps)
Recording Format (Video)	XAVC QFHD : MPEG-4 AVC/H.264 4:2:0 Long profile
	XAVC HD : MPEG-4 AVC/H.264 4:2:2 Long profile
	XAVC Proxy : MPEG-4 AVC/H.264 4:2:0 Long profile
	MPEG HD422* : MPEG-2 422P@HL 4:2:2 Long profile
	MPEG HD420* : MPEG-2 MP@HL 4:2:0 Long profile
	MPEG HD Proxy* : MPEG-4 AVC/H.264 4:2:0 Long profile
	AVCHD : MPEG-4 AVC/H.264 AVCHD 2.0 format compatible
Recording Format (Audio)	XAVC QFHD : Linear PCM 2ch, 24 bit, 48 kHz
	XAVC HD : Linear PCM 2ch, 24 bit, 48 kHz
	XAVC Proxy : AAC-LC 2ch, 16 bit, 48 kHz
	MPEG HD422* : Linear PCM 2ch, 24 bit, 48 kHz
	MPEG HD420* : Linear PCM 2ch, 16 bit, 48 kHz
	MPEG HD Proxy* : AAC-LC 2ch, 16 bit, 48 kHz
	AVCHD : Linear PCM 2ch, 16 bit, 48 kHz / Dolby Digital 2ch, 16 bit, 48 kHz
Recording Frame Rate	XAVC QFHD (3840 x 2160) @29.97p, 25p, 23.98p 100Mbps/60Mbps
	XAVC HD (1920 x 1080) @59.94p, 50p, 29.97p, 25p, 23.98p, 50Mbps/35Mbps
	XAVC HD (1920 x 1080) @59.94i, 50i, 50Mbps/35Mbps/25Mbps
	XAVC HD (1280 x 720) @59.94p, 50p, 50Mbps
	XAVC Proxy (1280 x 720) @59.94p, 50p, 29.97p, 25p, 23.98p, 9Mbps
	XAVC Proxy (640 x 360) @59.94p, 50p, 29.97p, 25p, 23.98p, 3Mbps
	MPEG HD422 (1920 x 1080)* @59.94i, 50i, 29.97p, 25p, 23.98p, 50Mbps
	MPEG HD422 (1280 x 720)* @59.94p, 50p, 50Mbps
	MPEG HD420 (1920 x 1080)* @59.94i, 50i, 29.97p, 25p, 23.98p, HQ mode(35Mbps)
	MPEG HD420 (1440 x 1080)* @59.94i, 50i, HQ mode(35Mbps)
	MPEG HD420 (1280 x 720)* @59.94p, 50p, HQ mode(35Mbps)
	MPEG HD Proxy (1280 x 720)* @59.94p, 50p, 29.97p, 25p, 23.98p, 9Mbps
	MPEG HD Proxy (640 x 360)* @59.94p, 50p, 29.97p, 25p, 23.98p 3Mbps
	AVCHD (1920 x 1080)@59.94p, 50p, PS mode (28Mbps)
	AVCHD (1920 x 1080) @59.94i/50i FX mode (24Mbps) FH mode(17Mbps)
	AVCHD (1920 x 1080) @29.97p/25p/23.98p, FX mode (24Mbps)
	AVCHD (1440 x 1080)@59.94i, 50i LP mode (5Mbps)
	AVCHD (1280 x 720)@59.94p, 50p, HQ mode (9Mbps)
Recording/Playback Time	XAVC QFHD @LPCM 2ch 100 Mbps Approx. 65 min with 64 GB memory card
	XAVC QFHD @LPCM 2ch 60 Mbps Approx. 100 min with 64 GB memory card
	XAVC HD @LPCM 2ch 50 Mbps Approx. 120 min with 64 GB memory card
	XAVC HD @LPCM 2ch 35 Mbps Approx. 170 min with 64 GB memory card
	XAVC HD @LPCM 2ch 25 Mbps Approx. 220 min with 64 GB memory card
	MPEG HD422* @LPCM 2ch 50 Mbps Approx. 110 min with 64 GB memory card
	MPEG HD420* @LPCM 2ch HQ Mode Approx. 170 min with 64 GB memory card
	AVCHD @LPCM 2ch PS Mode Approx. 305 min with 64 GB memory card
	AVCHD @LPCM 2ch FX Mode Approx. 360 min with 64 GB memory card
	AVCHD @LPCM 2ch FH Mode Approx. 495 min with 64 GB memory card
	AVCHD @LPCM 2ch HQ Mode Approx. 880 min with 64 GB memory card
	AVCHD @LPCM 2ch LP Mode Approx. 1540 min with 64 GB memory card

Lens	
Lens Mount	Fixed
Zoom Ratio	12x (optical), servo
Focal Length	f=9.3 - 111.6 mm
	equivalent to f=29.0 - 348.0 mm on 35 mm lens (16:9)
	equivalent to f=32.8 - 393.6 mm on 35 mm lens (3:2)

Iris	F2.8 - F4.5
	auto/manual selectable
Focus	AF/MF selectable
	10 mm to ∞ (Wide)
	1000 mm to ∞ (Tele)
Image Stabilizer	ON/OFF selectable, shift lens
Filter Diameter	M62 mm

Camera Section	
Imaging Device (Type)	1.0-type (13.2 mm x 8.8 mm) back-illuminated Exmor RS CMOS sensor
Effective Picture Elements	Approx.14.2M pixels (16:9)/Approx.12.0M pixels (3:2)
Built-in Optical Filters	OFF: Clear, 1: 1/4ND, 2: 1/16ND, 3: 1/64ND
Minimum Illumination	Standard [60i] 3lux(1/60 Shutter Speed, gain 33dB)
	Standard [50i] 3lux (1/50 Shutter Speed, gain 33dB)
	LowLux [60i] 1.7lux (1/30 Shutter Speed, gain 33dB)
	LowLux [50i] 1.7lux (1/25 Shutter Speed, gain 33dB)
Shutter Speed	[60i]: 1/8 - 1/10,000
	(1/6 - 1/10,000 when shooting with 24p)
	[50i]: 1/6 -1/10,000
Slow & Quick Motion Function	[60i]:2160p:Frame rate selectable 1,2,4,8,15,30fps
	[50i]:2160p:Frame rate selectable 1,2,3,6,12,25fps
	[60i]:1080p:Frame rate selectable 1,2,4,8,15,30,60,120fps
	[50i]:1080p:Frame rate selectable 1,2,3,6,12,25,50,100fps
Super Slow Motion	[60i]:1080p:Frame rate selectable 240,480,960fps
	[50i]:1080p:Frame rate selectable 250,500,1000fps
White Balance	Preset (Indoor:3200K, Outdoor:5600K±7 steps, Color temperature set range:2300-15000K)
	Onepush A, B, Auto selectable
Gain	-3, 0, 3, 6, 9, 12,15, 18, 21, 24, 27, 30, 33 dB, AGC
Gamma Curve	Selectable

Input/Output	
Audio Input	XLR-type 3-pin (female) (x2), line/mic/mic +48 V selectable
Video Output	Integrated into Multi/Micro USB jack (×1), Composite 1.0Vp-p, 75Ω
Audio Output	Integrated into Multi/Micro USB jack
SDI Output	BNC (x1), 3G/HD/SD
	SMPTE 424M/292M/259M standards
USB	Multi/Micro USB jack (x1)
Headphone Output	Stereo mini jack (x1)
Speaker Output	Monaural
Microphone Input	Stereo mini jack (x1)
DC Input	DC jack
Remote	Integrated into Multi/Micro USB jack
	Stereo mini-mini jack (Φ2.5 mm)
HDMI Output	Type A (x1)

Monitoring	
Viewfinder	1.0 cm (0.39 type) OLED
	Approx. 2.36M dots
LCD	8.8 cm (3.5 type)
	Approx. 1.56M dots

Built-in Microphone	
Built-in Microphone	Omni-directional stereo electret condenser microphone

Media	
Type	Memory Stick Pro Duo™ and SD/SDHC/SDXC compatible x1 SD/SDHC/SDXC x1

Wi-Fi/NFC	
Supported format	IEEE 802.11 a/b/g/n/ac
Frequency band	2.4 GHz bandwidth
	5.2/5.3/5.6/5.8 GHz bandwidth**
Security	WEP/WPA-PSK/WPA2-PSK
NFC	NFC Forum Type 3 Tag compliant

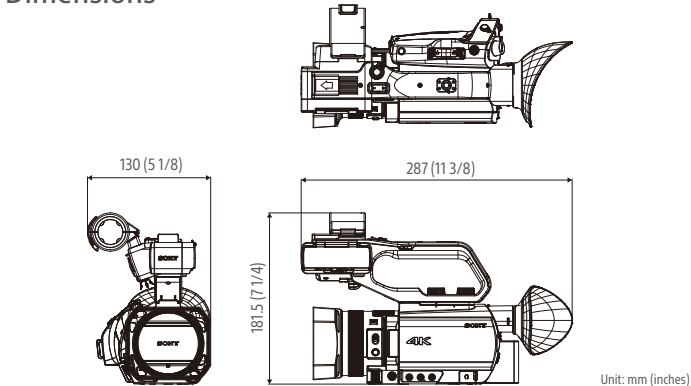| Supplied Accessoies	
	XLR handle unit (1), Lens hood (1), Lens cap (1), Large eyecup (1), Accessory shoe kit (1), USB cable (1), Rechargeable battery pack (NP-FV70A) (1), AC Adaptor (AC-L200D) (1), Power cord (mains lead) (1), Wireless Remote Commander (RMT-845) (1), Lithium battery (CR2025 pre-installed to the Wireless Remote Commander) (1), Operating Guide (2), CD-ROM "Manuals for Solid-State Memory Camcorder" (1), Warranty (1)

* CBKZ-SLMP required
** Depending on country/regional regulation

Available Accessories

NP-FV70A
(7.3 V / 13.8 Wh / 1900 mAh)
NP-FV100A
(7.4 V / 25.9 Wh / 3410 mAh)
Rechargeable Battery Pack

AC-VQV10
(AC 100 V – 240 V)
AC Adaptor/Charger

UWP-D11/UWP-D12
Wireless Microphone Package

SMAD-P3
MI Shoe Mount Adaptor
* required for cable-free operation with UWP-D11/UWP-D12

URX-P03D
UWP-D two-channel portable receiver

SMAD-P3D
MI Shoe Mount Adaptor
* required for cable-free operation with URX-P03D

ECM-VG1
Electret Condenser Microphone

CBKZ-SLMP
MPEG HD Upgrade License

CBKZ-WTCL
WIRELESS TC LINK Upgrade License

CBK-NA1
Network Adapter KIT

MCX-500
Multicamera Live Producer

RM-VPR1
Remote Commander

RM-30BP
Remote Commander

ECM-W1M
MI Shoe Wireless Microphone
* 5.1ch MIX mode is not available

Dimensions

130 (5 1/8)   287 (11 3/8)   181.5 (7 1/4)

Unit: mm (inches)