SONY

PXW-X500

Three 2/3-inch type PowerHAD FX Full HD CCD sensors XDCAM camcorder with multi-format recordings including XAVC

Overview

Highly modular and open standards camcorder ideal for mainstream broadcast operations

The PXW-X500 has three 2/3-inch type Full HD CCD sensors, offering a high sensitivity and low noise image. The camcorder gives broadcasters a high degree of flexibility, allowing you to shoot in a wide variety of HD and SD formats, including 1080 XAVC Intra frame 59.94p*, 50p*, 59.94i and 50i, as well as XAVC Long GOP, MPEG SStP 422 Lite (HDCAM SR), MPEG HD 422 and MPEG HD 420, MPEG IMX and DVCAM. Options allow the camcorder to record directly in Avid DNxHD and Apple ProRes, offering direct compatibility with NLEs. The camcorder also has a host of leading professional features, such as Slow & Quick Motionup to 120 fps for XAVC (as an option), wireless operation, picture cache recording, built-in GPS, Digital Extender, HyperGamma/UserGamma and many more. A wide range of connectors, including 3G/HD/SD-SDI, HDMI and USB, increase the flexibility further.

* Requires firmware version 4.0.

Stable and Unchanged Comfortable operation by CCD image sensors

Newly developed technology for high frame rate shooting despite of CCD sensors while keeping the high signal-to-noise ratio and high sensitivity.

Records a wide variety of HD and SD formats, including XAVC

1080 XAVC Intra frame 59.94p*, 50p*, 59.94i, 50i, 23.97p, 25p and 23.98p, as well as XAVC Long GOP, MPEG SStP 422 Lite (HDCAM SR), MPEG HD422 and MPEG HD 420, MPEG IMX and DVCAM.
* Requires firmware version 4.0.

Direct compatibility with NLEs

Options allow the camcorder to record directly in Avid DNxHD and Apple ProRes.

Slow & Quick Motion options

Up to 120 fps for XAVC (as an option), and Up to 30 fps for MPEG HD 422 (as standard). This is realized by CCD sensors.

Professional features

Includes proxy data recording functions*, user menu lock*, wireless operation, picture cache recording, built-in GPS, Digital Extender, HyperGamma, and more in addition to the variety of interfaces. The latest firmware update also gives the camera improved start-up performance and operation response.
* Requires firmware version 4.0. 1080 60i/50i proxy recording, 256Kbps streaming and hi-res file trim and transfer functions require firmware version 5.0 planned for release early 2017.

This product contains pre-installed software and requires the purchase of licence keys to activate some functions.

Features

Three 2/3-inch type PowerHAD FX Full HD CCD sensors offer high sensitivity and improved S/N ratio

The PXW-X500 is equipped with three 2/3-inch type Full HD CCD sensors. Based on the latest on-chip lens structure, this type of CCD offers a high sensitivity of F12 at 50i (F11 at 60i) and

improved S/N ratio of 60 dB (with NS on) with a typical CCD's characteristics of no jello effects and no flashband symptom. This new CCS sensors can work in 50p/60p system operation at 1080x1920, and realize the high frame rate recording upto 120psf.

High quality XAVC Intra and XAVC Log GOP recordings

The PXW-X500 supports not only MPEG HD 422 50 Mbps in MXF (Material eXchange Format), which is widely accepted by major broadcasters worldwide, but also XAVC Intra frame and XAVC Long GOP codecs. The camera records a wide variety of frame rates including 1080 XAVC Intra frame 59.94p*, 50p*, 59.94i, 50i, 23.97p, 25p and 23.98p, as well as 1080 XAVC Long GOP 59.94p, 50p, 59.94i, 29.97p, 25p and 23.98p. XAVC technology is based on the H.264 standard, which provides an exceptional performance compression technology. XAVC Intra frame compression means that every frame is encoded independent of the other frames – providing a better quality picture and simpler handling in the post process, without compromises. With a Long GOP codec, only certain frames are encoded individually. This allows the codec to squeeze the video into a much smaller bitrate than Intra technology. The main benefit is faster ingest and editing. XAVC Long GOP files also require less storage space than XAVC Intra files, providing budget savings on recording media. The XAVC codec adopts 10 bit sampling for high definition recording with rich tonal expression.

* Requires firmware version 4.0.

Powerful choice of multi codec for greater flexibility

As well as shooting at XAVC HD, MPEG HD 422 50 Mbps and MPEG HD 420 35 Mbps, the camcorder also supports MPEG SStP 422 Lite (HDCAM SR), as well as SD MPEG IMX and DVCAM at 25 Mbps in MXF file format. High-quality MPEG HD422 50 Mbps is fully compliant with the latest EBU recommendations for long-form broadcast production and is widely accepted in

broadcasting stations and production houses. This recording capability makes the PXW-X500 ideal for a wide range of different applications, including newsgathering and documentary production.

Direct open workflows with Avid DNxHD codec and Apple ProRes codec recording options

In addition to MPEG SStP, XAVC, MPEG codes, recording directly in Apple ProRes codec and Avid DNxHD codec are available by license key options.* The DNxHD or ProRes files can stored in the easy-to-manage MXF OP-1a or Quicktime wrapper, and recorded onboard to Sony's SxS PRO+, SxS-1, or XQD G/S Series memory card.

* ProRes codec option PXWK-501 and DNxHD codec option PXWK-502.

Slow and Quick Motion function 1 fps to 120 fps at 1080 in XAVC Intra and XAVC Long* and 1 fps to 30 fps in MPEG HD422

The PXW-X500 offers a powerful Slow and Quick Motion function as an option that enables users to create elegant fast- and slow-motion footage. The PXW-X500 can capture images at frame rates selectable from 1 fps (frame per second) to 120 fps in 1080p in the XAVC codec. It offers approx. 5x slow motion at 23.98p, 4.5x slow motion at 25p and 4x slow motion at 29.97p. In MPEG HD422 codec, the camcorder offers as a standard feature the ability to capture from 1 fps to 30 fps in 1080p mode, in increments of 1 fps. (With the 50Hz mode, frame rates are selectable up to 25 fps in 1080p mode.)

* Slow & Quick Motion function for XAVC is available as an option.

Wireless operation

Wireless operation is available by the connection with Wi-Fi dongle or LTE dongle* for remote control of camera setting,

metadata management, file transfer, streaming* features. It could be utilized with Content Browser Mobile application running on Android OS and iOS tablet.

* LTE dongle operation and streaming capability will be available later.

Proxy recording on SD card*

The PXW-X500 can record XAVC proxy video (H.264 MP 420 Long GOP) with AAC-LC 2ch audio on an SD card. The resolution and bitrate of proxy video can be changed for a more flexible workflow. The proxy files are recorded in MP4 format for better compatibility with ordinary viewers. The lightweight proxy video/audio files are generated separately from the main line recording and recorded to SD cards for quick sharing of content over low-bandwidth mobile networks.
1080 60i/50i proxy recording is added with firmware version 5.0 planned for release early 2017.

Customisable menu with lock function*

This feature allows you to pick and organize frequently used menu items – similar to the bookmark feature of a web browser. By using this feature, you can save a lot of time with no need to repeatedly search for specific menu items. In addition, the user menu can be locked with a 4-digit passcode to ensure there are no unnecessary changes.
* Requires firmware version 4.0.

Dual SxS media slots, Simultaneous and Relay recording

With two SxS memory card slots, the camcorder is compatible with SxS PRO+ and SxS-1 memory cards and XQD and SDXC cards can be also used with an appropriate card adaptors. Two media slots can record in simultaneous recording mode which permits simultaneous recording to two memory cards cards for XAVC, MPEG HD422, and MPEG HD (420) while the Relay mode

automatically switches recording from the first to the second memory card when the first is full.

Wide choice of connections

The camcorder offers numerous connections to suit the broadcast workflow, including 3G HD-SDI, HDMI®, USB, composite output, timecode input/output and genlock input. The 3G-SDI connector is able to input/output the 1080/59.94P or 50P signal. Down-conversion output from HD to SD is also possible. Simultaneous output from both SDI and HDMI is possible. The Rec Trigger signal can be sent through SDI and HDMI to link an external SONY recording device.

2/3-inch lens mount

The PXW-X500 is fitted with a 2/3-inch B4 lens mount.

GPS functionality

The PXW-X500 is equipped with a GPS device. The GPS data is automatically recorded in MXF file locations.

High resolution 16:9 LCD

The PXW-X500 incorporates a 3.5-inch 1,555K dot LCD, offering high resolution and flexible composition options.

Viewfinder options

The camcorder allows various functions to be displayed in the viewfinder, including Focus Mag and Waveform/Vectorscope/Histogram. Viewfinder options include the HDVF-20A, HDVF-200 and CBK-VF02.

HyperGamma and User Gamma

Four types of HyperGamma curve – inherited from Sony's CineAlta camcorders – are provided in addition to six standard gammas.

Digital Extender

The Digital Extender function of the PXW-X500 enables images to

be digitally increased in size 2x, 3x or 4x. Unlike lens extenders, the Digital Extender function performs this increase without any F-drop phenomenon (i.e., without loss of image sensitivity). This can be used with a lens extender.

ALAC (Automatic Lens Aberration Compensation)
This feature decreases chromatic aberration caused by the lens. ALAC is activated only with third-party lenses that incorporate compensation data. (Please check with lens manufacturers for ALAC support.)

24-bit four-channel audio recording
The PXW-X500 records uncompressed four-channel, 24-bit 48 kHz audio in MPEG4 SStP, XAVC Intra, XAVC Long, MPEG HD422 mode or MPEG IMX mode. Each channel level can be adjusted independently by individual level controllers.

Catalyst Browse software from Sony
Free clip management tool for both PC & Mac that supports all Sony professional formats.
Review footage on location, add metadata and review colour corrections.
Seamless upgrade to advanced Catalyst Prepare media preparation tool.

Specifications

Specifications	
Mass	Approx. 3.8 kg (body only without lens, VF, Mic)
Dimensions (W x H x D)	150 x 269 x 332 mm (excluding protrusions, body only)
Power	

Requirements	DC 12 V (11 V~17.0 V)
Power Consumption	Approx. 35W (while XAVC recording, color LCD on)
MPEG4 SStP (SR-Lite 4:2:2)	1920x1080/59.94i,50i,29.97P,23.98P,25P
XAVC Intra	1920x1080/59.94i, 50i, 29.97P, 25P, 23.98P 1280x720/59.94P, 50P
XAVC Long 50/35/25Mbps	1920x1080/59.94i, 50i, 59.94P, 50P, 29.97P, 25P, 23.98P 1280x720/59.94P, 50P
MPEG HD422	1920x1080/59.94i, 50i, 29.97P, 25P, 23.98P 1280x720/59.94P, 50P, 29.97P, 25P, 23.98P
MPEG HD420	1920x1080/59.94i, 50i, 29.97P, 25P, 23.98P 1440x1080/59.94i, 50i 1280x720/59.94P, 50P
MPEG IMX	720x480/59.94i(50M) 720x576/50i(50M)
DVCAM	720x480/59.94i(25M) 720x576/50i(25M)

HD Codecs (Audio)	LPCM 24 bits, 48 kHz, 4 channels
MPEG IMX (Audio)	LPCM 16/24 bits, 48 kHz, 4 channels
DVCAM (Audio)	LPCM 16 bits, 48 kHz, 4 channels
XAVC Proxy 9/3/1/0.5Mbps	AVC/H.264 Main Profile 4:2:0 Long GOP, VBR, 9/3/1/0.5Mbps
XAVC Proxy (Audio)	AAC-LC, 128kbps, 2 channels
Lens Mount	Sony 2/3-inch type bayonet mount
Imaging Device (Type)	3-chip 2/3-type Full HD CCD, PowerHAD FX
Effective Resolution	1920 (H) x 1080 (V)
Optical System	F1.4 prism system
Built-in Filters	ND Filter (Optical filter) 1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND CC Filter (Electrical filter) A: 3200K, B: 4300K, C: 5600K, D: 6300K
Sensitivity (2000 lx, 89.9% reflectance)	F12 (typical) (1920 x 1080/50i mode)
Minimum Illumination	0.016 lx (typical) (1920 x 1080/59.94i mode, F1.4, +42 dB gain, with 16-frame accumulation)

S/N Ratio	60 dB(NS:ON)
Horizontal Resolution	1,000 TV lines or more (1920 x 1080i mode)
Audio Input	XLR-type 3-pin (female) (x2), Line/Mic/Mic +48 V selectable
Video Output	BNC (x1) HD-Y or Analog composite
Audio Output	XLR-type 5-pin
SDI Output	BNC (x2), HD-SDI/SD-SDI selectable
i.LINK	No
Timecode Input	BNC (x1)
Timecode Output	BNC (x1)
Genlock Input	BNC (x1)
USB (Type-A: Host 3.0/2.0)	for Dubbing to HDD/SSD
USB (Type-A: Host 2.0)	for Wi-Fi module (IFU-WML3), and LTE Dongle
USB (Type-B: Device 2.0)	for PC connection as mass storage mode
Headphone Output	Stereo mini jack (x1)
DC Input	XLR-type 4-pin

Remote	8-pin
HDMI Output	HDMI connector (Type A)
Viewfinder	Option HDVF-20A, HDVF-200, CBK-VF02
Built-in LCD Monitor	3.5 type Approx. 1.56M dots, 16:9
Type	SxS Card slot (x2) XQD Card and SDHC Card can be used with an adaptor
Wi-Fi	Yes
NFC	No
GPS	Yes
MI Shoe	No
Note	* Please note that these Specifications are subject to change

Supplied Accessories

Supplied Accessories	Shoulder Belt (1) Cold Shoe Kit (1) Lens Mount Cap (1) USB wireless LAN module (IFU-WLM3) (1)

Protective Cap (2)
Operation Guide (1)
Operation Manual (CD-ROM) (1)

Additional information

DWA-01D requires A-8278-057-B Mount Bracket.

ECM-678, ECM-673 or ECM-VG1 requires optional Cable ECM-0.5X3F5M.

DWA-01D new mount bracket for larger batteries : A-1999-908-B (wider than above A-8278-057-B)

Microphone holder bracket for the HDVF-C30WR viewfinder : A-8279-919-A

VF slide assembly (LB) for the HDVF-C30WR viewfinder : A-8279-413-G

Optional Magnifying glasses for HDVF Viewfinders (HDVF-20A/200) : A-7612-389-C -3.8D to +0.3D (Standard eyepiece of HDVF-20), A-8262-537-A -2.8D to +2.0D

(Farsighted),
A-8262-538-A -3.6D to -0.8D (Low magnification),
A-8267-737-A -3.6D to +0.4D (Standard magnification with special compensation for aberrations).
Note: For the "Farsighted" one, it is also recommended to use ordinary available close-up lens for HDVF-200. It can be combined with the replaced loupe from the repair part 1-788-774-11 for HDVF-20A as well.

Related products

PVM-741

7.4-inch TRIMASTER EL OLED monitor with 2x 3G/HD/SD-SDI inputs and smart functions.

LMD-941W

Full-HD 9-inch LCD monitorwith 2x 3G/HD/SD-SDI inputs and smart functions.

LMD-B170

17-inch cost-effective, lightweight basic grade Full HD LCD monitor for versatile use

LMD-B240

24-inch cost-effective, lightweight basic grade Full HD LCD monitor for versatile use

PVM-A250 v2.0

25-inch TRIMASTER EL™ OLED high grade

PVM-A170 v2.0

17-inch TRIMASTER EL™ OLED high grade

LMD-A170

17-inch lightweight Full HD high grade LCD monitor for studio and field use

LMD-A240

24-inch lightweight Full HD high grade LCD monitor for studio and field use

picture monitor

LMD-A220

21.5-inch lightweight Full HD high grade LCD monitor for studio and field use

picture monitor

PWS-110RX1A

Network RX Station

Gallery