

## PMW-500

Three 2/3-inch Power HAD FX  
CCD sensors XDCAM HD422  
camcorder recording full HD  
(plus SD option)

### Overview

The PMW-500 is Sony Professional's first XDCAM HD422 Camcorder with solid state recording. It supports full-HD 422 50-Mbps MXF record and playback based on highly developed MPEG-2 Long GOP compression technology. Uniquely, it can also be switched to record in HD 420 35-Mbps MP4 format which makes for seamless integration when used alongside XDCAM EX models.

Its 2/3-inch type three Power HAD FX CCD sensors deliver the same outstanding picture quality and low-light performance as the acclaimed PDW-700, however it records onto Solid State SxS media rather than optical Professional Disc.

The exceptionally ergonomic chassis is a development of the acclaimed PDW-700/F800, while already class-leading power consumption is further reduced along with weight for superb on-location usability.

Sony's XDCAM product range sets the benchmark for high speed, exceptionally flexible, file-based workflow. XDCAM Professional Disc products were first introduced in 2004, followed by high-speed memory-based XDCAM EX in 2007. A common technology platform provides a unique hybrid workflow meeting a broad variety of customer application needs.

## Features

### **Three 2/3-inch type Full-HD Power HAD FX CCDs**

The PMW-500 is equipped with three 2/3-inch type 2.2-megapixel full-HD progressive CCDs - the same sensors as used in Sony's acclaimed PDW-F800/700 XDCAM Professional Disc HD 422 camcorders. Based on Sony's Power HAD FX sensor technology and the latest on-chip lens structure, this type of CCD offers a high sensitivity of F12 at 50i (F11 at 59.94i).

### **SxS Memory Cards Combine High Transfer Speeds and High Reliability**

Both SxS PRO™ and SxS-1™\* memory cards use the PCI Express interface to achieve an extremely high data-transfer speed of 800 Mbps, and can resist considerable shock (1500 G) and vibration (15 G). Also, a unique Salvage function serves to restore content damaged by power loss or memory disconnection during recording\*\*.

In addition, with an optional MEAD-MS01 or MEAD-SD01 Media Adaptor\*\*\*, a high-speed Memory Stick™ or SD memory card\*\*\*\* can be used as emergency or alternative recording media.

\* SxS-1 memory cards support fewer re-writes than SxS PRO™ memory cards. Notification is given when an SxS-1 memory card approaches its end of life.

\*\* In some cases, images recorded just before an accident may not be restored (several seconds). No warranty is given on always achieving content restoration.

\*\*\* UDF (MXF) mode, Slow Motion and the Salvage function are not supported.

\*\*\*\* For information about memory devices, please contact your nearest Sony office or authorized dealer.

## **HD 1920x1080 and 1280x720 Recording Using the MPEG HD 422 Codec**

The PMW-500 records and plays back high-definition video with 1920x1080 and 1280x720 resolutions up to 50 Mbps using MPEG-2 4:2:2P HL compression technology.

## **24-bit Four-channel Audio Recording**

The PMW-500 records uncompressed four-channel, 24-bit audio in MPEG HD 422 mode or MPEG IMX mode. Each channel level can be adjusted independently by individual level controllers.

## **Selectable Recording Modes and Video Formats**

In addition to high-quality MPEG HD 422 50-Mbps mode, the PMW-500 can record and play back videos at different bit rates and in a variety of video formats. The PMW-500 supports both the broadcast-standard MXF file wrapper and IT-standard MP4 file wrapper. In UDF mode (MXF), which is compatible with the recording formats of the XDCAM™ Professional Disc Series, and in FAT mode (MP4/AVI), which is compatible with the XDCAM EX™ Series, the supplied XDCAM™ Browser, software can very rapidly convert files between formats, as no transcoding process is required.

## **Long Recording Time**

With highly efficient MPEG-2 Long GOP compression and a large-capacity SxS memory card, the PMW-500 can record high-quality HD 422 50-Mbps images for a long recording time of 110 minutes on a single 64-GB SxS memory card. The SxS memory card can be hot-swapped with two cards while shooting, without interrupting the recording.

## **Well-balanced Compact Body**

Designed to be very compact and ergonomically well balanced, the PMW-500 provides a high level of mobility and comfort in various shooting situations. It inherits the design of Sony's well regarded PMW-350/320 XDCAM EX™ camcorders. The main body

weighs only 3.4 kg

## **Low power consumption**

The power consumption of the PMW-500 is only 29W

## **Digital Extender**

With optional CBK-HD02 boards, the Digital Extender function\* of the PMW-500 enables images to be digitally doubled in size. Unlike lens extenders, the Digital Extender function performs this doubling in size without any F-drop phenomenon (i.e., without loss of image sensitivity).\*\*

\*:This function is due to be activated at the end of March 2011.\*\*: The Digital Extender function does not operate in 1080p mode, S and Q mode, or when working with XDCA-55 via CBK-HD02.

## **Focus Magnification**

A magnified camera picture (x2) is available in the viewfinder, simplifying precise focus adjustment.

## **Auto Focus Assist Function**

The Auto Focus Assist function enables operators to change focus positions manually using the focus ring in AF mode.

## **ALAC (Automatic Lens Aberration Compensation)**

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

## **Slow and Quick Motion Function**

The PMW-500 offers a powerful Slow and Quick Motion function that enables users to create elegant fast- and slow-motion footage. The PMW-500 can capture images at frame rates selectable from 1 fps (frame per second) to 60 fps in 720p mode and from 1 fps to 30 fps in 1080p mode, in increments of 1 fps. (With the PAL setting in UDF (MXF) mode, frame rates are

selectable up to 50 fps in 720p mode and up to 25 fps in 1080p mode.)

## **Slow Shutter**

A maximum of 64 frames can be accumulated using the Slow Shutter function.

## **HyperGamma**

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

## **Interval Recording Function**

The Interval Recording function intermittently records one frame at pre-determined intervals. This is convenient for shooting over long periods of time, and also when creating special effects with extremely rapid motion.

## **Frame Recording Function**

The Frame Recording function records images for pre-determined frames every time the Record button is pressed. This is particularly useful for clay animation shooting.

## **Optical ND Filters and Electrical CC Filters**

The PMW-500 camcorder comes equipped with optical ND filters and electrical CC filters. With electrical CC filters, users can easily select a colour temperature -3200K, 4300K, 5600K, or 6300K - by rotation using a camcorder-assignable switch.

## **ATW (Auto Tracing White Balance) and Hold**

The Auto Tracing White Balance function automatically adjusts the camera's colour temperature according to changes in lighting conditions. If required, the user can hold auto tracing at a desired colour balance via an assignable switch.

## **Gain Control**

Gain Control(-6 dB to +42 dB) and Turbo Gain ("Shockless gain

control") provide smooth transition in gain control.

## **IMX and DVCAM Recording and Playback\***

IMX and DVCAM™ format recording and playback are also supported by the optional CBK-MD01 which can realize smooth migration from current SD operation to near-future HD operation.

\* Please note this is a chargeable option.

## **Proxy Data Recording**

At the same time as recording high-resolution video and audio data, a low-resolution version of this AV data (called proxy data) can be recorded on SxS memory card. Proxy data enables amazingly high-speed file transfer and efficient batch editing workflow. (The Proxy Recording function works only in UDF (MXF) mode.)

## **Pool-feed Operation**

For pool-feed operation\*, optional CBK-HD02 boards provide HD- and SD-SDI inputs and Analog Composite input.

\* This function is due to be activated at the end of March 2011.

## **Up-/Down- and Cross-conversion Capability**

The PMW-500 comes equipped with up- and cross-conversion systems for input signals, which provide operational flexibility. It also supports down-conversion from HD to SD in playback mode. (Down-conversion of input signals and up-/cross-conversion of output signals are not supported.)

## **Freeze Mix**

This function superimposes a previously recorded image onto the viewfinder, making it easy to shoot in the same framework as a previous take. Please note this function works only in HD mode.

### Clip Continuous REC

This mode allows users to create a single, large clip with multiple starts and stops in recording. The benefit of this mode is a faster transport speed for single clips - there is no overhead for the file open/close process. Please note this function works only in UDF (MXF) mode.

### Easy-to-view 3.5-inch Colour LCD Monitor

The PMW-500 is equipped with a large, easy-to-view, 3.5-inch colour LCD monitor with a high resolution of approx. 921,000 effective pixels. This LCD monitor enables operators to instantly review recorded footage, as well as access the camera's set-up menus and view status indications.

### Eight Assignable Switches

Frequently used functions can be programmed onto eight assignable switches on the PMW-500, allowing operators to make rapid changes when working in the field, convenient for shooting over long periods of time, and also when creating special effects with extremely rapid motion

## Specifications

### General

Mass	Approx. 3.4 kg (without lens) Approx. 7 lb 7 oz (without lens)
Dimensions (W x H x D) *1	124 x 269 x 332 mm (excluding protrusions, body only) 5 x 10 5/8 x 13 1/8 inches (excluding protrusions, body only)
Power Requirements	DC 12 V (11 V to 17 V)

Power Consumption	Approx. 33 W (with viewfinder, lens and microphone while recording) Approx. 29 W (body while recording)
Operating Temperature	-5°C to +40°C 23°F to 104°F
Storage Temperature	-20°C to +60°C -4°F to +140°F
Continuous Operating Time	Approx. 170 min with BP-GL95 battery
Recording Format (Video)	MPEG-2 Long GOP: - HD 422 mode: CBR, 50 Mbps max., MPEG-2 422P@HL - HQ mode: VBR, 35 Mbps max., MPEG-2 MP@HL - SP mode: CBR, 25 Mbps, MPEG-2 MP@H-14 - SD mode (with CBK-MD01): IMX, DVCAM
	UDF HD 422 50 mode: LPCM 24 bits, 48 kHz, 4 channels HD 420 HQ mode: LPCM 16 bits, 48 kHz, 4 channels SD IMX mode (with CBK-MD01):



Recording Format (Audio)	<p>LPCM 16/ 24 bits, 48 kHz, 4 channels</p> <p>SD DVCAM mode (with CBK-MD01): LPCM 16 bits, 48 kHz, 4 channels</p> <p>FAT</p> <p>HD mode: LPCM 16 bits, 48 kHz, 4 channels</p> <p>SD DVCAM mode (with CBK-MD01): LPCM 16 bits, 48 kHz, 2 channels</p>
Recording/Playback Time (MPEG HD)	<hr/> <p>UDF Mode</p> <p>HD 422 50/ SD IMX Mode: *2</p> <p>Approx. 120 min with SBS-64G1A (64 GB) memory card</p> <p>Approx. 60 min with SBP-32/ SBS-32G1A (32 GB) memory card</p> <p>Approx. 30 min with SBP-16 (16 GB) memory card</p> <p>HD 420 HQ Mode:</p> <p>Approx. 180 min with SBS-64G1A (64 GB) memory card</p> <p>Approx. 90 min with SBP-32/ SBS-32G1A (32 GB) memory card</p> <p>Approx. 45 min with SBP-16 (16 GB) memory card</p> <p>SD DVCAM Mode: (option)</p> <p>Approx. 220 min with SBS-64G1A (64 GB) memory card</p> <p>Approx. 110 min with SBP-32/ SBS-</p>

	32G1A (32 GB) memory card Approx. 55 min with SBP-16 (16 GB) memory card
Recording/Playback Time (MPEG HD)	FAT Mode *2
	HD HQ Mode: Approx. 200 min with SBS-64G1A (64 GB) memory card Approx. 100 min with SBP-32/ SBS- 32G1A (32 GB) memory card Approx. 50 min with SBP-16 (16 GB) memory card
	HD SP Mode: Approx. 280 min with SBS-64G1A (64 GB) memory card Approx. 140 min with SBP-32/ SBS- 32G1A (32 GB) memory card Approx. 70 min with SBP-16 (16 GB) memory card
	SD DVCAM Mode: (option) Approx. 260 min with SBS-64G1A (64 GB) memory card Approx. 130 min with SBP-32/ SBS- 32G1A (32 GB) memory card Approx. 65 min with SBP-16 (16 GB) memory card
	UDF
	HD 422 50 Mode: MPEG-2

Recording Frame Rate

422P@HL, 50 MBps/ CBR  
- 1920 x 1080/ 59.94i, 50i, 29.97p,  
25p, 23.98p  
- 1280 x 720/ 59.94p, 50p, 29.97p,  
25p, 23.98p  
HD 420 HQ Mode: MPEG-2 MP@HL,  
35 MBps/ VBR  
- 1440 x 1080/ 59.94i, 50i, 29.97p,  
25p, 23.98p,  
- 1280 x 720/ 59.94p, 50p, 29.97p,  
25p, 23.98p (2-3 pull down)  
SD IMX Mode (with CBK-MD01)  
- 720 x 486/ 59.94i, 29.97PsF  
- 720 x 576/ 50i, 25PsF

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FAT

HD HQ 1920 Mode: MPEG-2  
MP@HL, 35 Mbps/ VBR  
- 1920 x 1080/ 59.94i, 50i, 29.97p,  
25p, 23.98p  
HD HQ 1440 Mode: MPEG-2  
MP@HL, 35 Mbps/ VBR  
- 1440 x 1080/ 59.94i, 50i, 29.97p,  
25p, 23.98p  
HD HQ 1280 Mode: MPEG-2  
MP@HL, 35 Mbps/ VBR  
- 1280 x 720/ 59.94p, 50p, 29.97p,  
25p, 23.98p  
HD SP 1440 Mode: MPEG-2 MP@H-

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14, 25 Mbps/ CBR  
 - 1440 x 1080/ 59.94i, 50i, 23.98p (2-3 pull down)  
 SD DVCAM Mode (with CBK-MD01 option)  
 - 720 x 486/ 59.94i, 29.97PsF  
 - 720 x 576/ 50i, 25PsF

## Lens

Lens Mount                      Sony 2/3-inch type bayonet mount

## Input/Output

Genlock Input                      BNC (x1)

Timecode Input                      BNC (x1)

Audio Input                              XLR-type 3-pin (female) (x2),  
 Line/Mic/Mic +48 V selectable

Mic Input                                XLR-type 5-pin

SDI Output                                BNC (x1), HD-SDI/SD-SDI  
 selectable

Video Output                              BNC (x1) HD-Y or Analog  
 composite

Audio Output                              XLR-type 5-pin

Timecode Output	BNC (x1)
Earphone Output	Stereo mini jack (x1)
Speaker Output	Monaural
DC Input	XLR-type 4-pin
DC Output	4-pin
Lens	12-pin
Remote	8-pin
i.LINK	IEEE 1394, 6-pin (x1), HDV (HDV 1080i)/DVCAM stream input/output *3, S400
USB	USB device B Type (x1), host A Type (x1)

## Camera Section

Imager	3-chip 2/3-type HD Power HAD FX CCDs
Effective Picture Elements	1920 (H) x 1080 (V)
Optical System	F1.4 prism system
Built-in Optical Filters	1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND

Shutter Speed (Time)	1/60 sec to 1/2,000 sec + ECS *4 *5
Shutter Speed (Slow Shutter (SLS))	2, 3, 4, 5, 6, 7, 8, 16, 32, 64-frame accumulation
Slow; Quick Motion Function	720p: Frame rate selectable from 1 fps to 60 fps (from 1 fps to 50 fps in the case of PAL area setting in the UDF mode) 1080p: Frame rate selectable from 1 fps to 60 fps (from 1 fps to 25 fps in the case of PAL area setting in the UDF mode)
Sensitivity (2000 lx, 89.9% reflectance)	F11 (typical) (1920 x 1080/59.94i mode) 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 64-frame accumulation)
White Balance	Preset (3200K), Memory A, Memory B/ATW
Gain Selection	-6, -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 dB
S/N Ratio	59 dB (Y) (typical)
	1,000 TV lines or more (1920 x 1080i)

Horizontal Resolution (mode)

## Viewfinder

Viewfinder      Supplied interfaces (20-pin IF for HDVF, 26-pin IF for CBK-VF01)

## Other Equipment

Built-in LCD Monitor      3.5-inch \*6 type color LCD monitor: approx. 921000 effective pixels, 640 (H) x 3 (RGB) x 480 (V), 16:9, hybrid type

## Supplied Accessories

Supplied Accessories      Shoulder strap (1)  
                                  Cold shoe kit (1)  
                                  Lens mount cap (1)  
                                  Flange back adjustment chart (1)  
                                  CD-ROM:  
                                  Utility software (1)  
                                  Operating instructions in PDF (1)  
                                  Operation manuals:  
                                  English version (1)  
                                  Japanese version (1)

## Notes

Note

\*1 The values for dimensions are approximate.

\*2 Recording/ Playback time may vary the according to the encoding or memory.

\*3 HDV/ DV stream input/ output are available only in FAT mode. DVCAM stream input is only for monitoring use on viewfinder.

\*4 Slow shutter setting frames vary according to the system frequency.

\*5 ECS: Extended Clear Scan

\*6 Viewable area measured diagonally.

## Related products



### **SBAC-US20**



### **PMW-50**

Dual SxS PRO rugged, portable deck



### **PMW-1000**

Compact HD/SD SxS memory recording deck



### **DWR-S02D**

Digital wireless receiver



### **ECM-678**

Shotgun Electret condenser



### **ECM-674**

Affordable shotgun Electret condenser



### **ECM-673**

Short Shotgun Electret Condenser



### **UWP-D11**

UWP-D bodypack wireless microphone



microphone



## UWP-D12

UWP-D handheld wireless microphone package

microphone



## UWP-D16

UWP-D bodypack and XLR plug-on wireless microphone package

Microphone.



## MDR-7510

Studio professional headphones

package



## ECM-VG1

Shotgun Electret condenser microphone



## MDR-7506

Stereo professional headphones



## XDS-1000

XDCAM Deck / IT Server with two SxS memory slots and 1TB HDD



## XDS-PD1000

XDCAM Deck / IT Server with two SxS memory slots, Professional Disc drive and 1TB HDD



## HDVF-EL20

OLED 0.7-inch colour HD viewfinder



## HDVF-EL30

OLED 0.7-inch colour Full HD viewfinder with 3.5-inch sub-LCD