PMW-500

Solid-State Memory Camcorder

SONY
make.believe

XDCAM MPEG HD422 PowerHAD FX SxS CINEALTA XMPilot™

2/3-inch type
Power HAD™ FX CCD

SxS™ Memory Card

MPEG HD 422 50 Mbps

Lightweight and
Low power consumption

Top-of-the-range Solid State Memory Shoulder-mount Camcorder

Since introducing its XDCAM™ Professional Disc™ products in 2004, Sony has expanded file-based processes to keep pace with the information technology and networking era, moving from tape operation to IT media operation.

In addition, in 2007 Sony introduced the revolutionary XDCAM EX™ camcorder designed to use the rapidly growing industry-standard Express memory card as recording media.

Both of these series – the XDCAM Professional Disc Series and the XDCAM EX Series – adopt MPEG-2 Long GOP compression technology, and were co-developed on a common technology platform. With their different recording media, Sony established support for a unique hybrid workflow, meeting a broad variety of customer application needs.

Now Sony proudly introduces a powerful new XDCAM family member: the PMW-500, solid- state memory shoulder-mount camcorder with 2/3-inch type three CCDs.

The PMW-500 supports full-HD 422 50-Mbps MXF record and playback based on highly matured MPEG-2 Long GOP compression technology, and it is positioned as the top-end model in the XDCAM Series of solid state memory shoulder-mount camcorders.

Inside a well-balanced and stylish body pulses a Sony Power HAD FX CCD sensor; it is the same sensor as used in XDCAM Professional Disc HD 422 camcorders.

With luxurious picture quality and excellent mobility, the PMW-500 takes professional users to a higher level of productivity.

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 well-proven PDW-F800/700 XDCAM Professional Disc HD 422 camcorders. Based on Sony Power HAD FX sensor technology and the latest on-chip lens structure, this type of CCD offers a high sensitivity of F11 at 59.94i (F12 at 50i) and an excellent signal-to-noise ratio of 59 dB.

Power HAD FX

SxS Memory Cards Combine High Transfer Speeds and High Reliability

Both SxS PRO™ and SxS-1™ *1 memory cards use the PCI Express interface to achieve an extremely high data-transfer speed of 1.2 Gbps by SBS-64G1A/32G1A and 800 Mbps by the other SxS memory cards. They 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*2.
In addition, with an optional MEAD-MS01 or MEAD-SD01 Media Adaptor*3, a high-speed Memory Stick™ or SD memory card*4 can be used as emergency recording media.

*1: 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.

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

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

*4: 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. Also, the PMW-500 can record high-quality 24-bit four-channel audio.

Various 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 PDW-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, XDCAM Browser, supplied 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 120 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.

Recording Time (approx.) on 64GB memory card

UDF (MXF) Mode	HD422 50, 50 Mbps CBR	120 minutes
	HD422 HQ, 35 Mbps VBR	180 minutes
	MPEG IMX™, 50 Mbps (Option)	120 minutes
	DVCAM™, 25 Mpbs (Option)	220 minutes
FAT (MP4/AVI) Mode	HQ, 35 Mbps VBR	200 minutes
	SP, 25 Mbps CBR	280 minutes
	DVCAM, 25 Mpbs (Option)	260 minutes

Recording/Playback time may vary the according to the encording or memory.

	Mode	Sampling	Resolution	Audio	PMW-500	
					UDF (MXF) Mode	FAT (MP4/AVI) Mode
HD	HD422 50 Mbps (CBR)	4:2:2	1920x1080	24bit, 48kHz, 4ch	MXF : 59.94i, 50i, 29.97p, 23.98p, 25p	–
			1280x720		MXF : 59.94p, 50p, 29.97p, 23.98p, 25p	–
	HQ 35 Mbps (VBR)	4:2:0	1920x1080	16bit, 48kHz, 4ch	–	MP4 : 59.94i, 50i, 29.97p, 23.98p, 25p
			1440x1080		MXF : 59.94i, 50i, 29.97p, 23.98p, 25p	MP4 : 59.94i, 50i, 29.97p, 23.98p, 25p
			1280x720		MXF : 59.94p, 50p, 23.98p (Pull-down)	MP4 : 59.94p, 50p, 29.97p, 23.98p, 25p
	SP 25 Mbps (CBR)		1440x1080		–	MP4 : 59.94i, 50i, 23.98p (Pull-down)
SD	MPEG IMX 50 Mbps	4:2:2	720x486	16/24bit, 48kHz, 4ch	MXF : 59.94i, 29.97p (PsF)	–
			720x576		MXF : 50i, 25p (PsF)	–
	DVCAM 25 Mbps	4:1:1	720x480	16bit, 48kHz, 2ch (AVI), 4ch (MXF)	MXF : 59.94i, 29.97p (PsF)	AVI : 59.94i, 29.97p (PsF)
		4:2:0	720x576		MXF : 50i, 25p (PsF)	AVI : 50i, 25p (PsF)

Well-balanced Compact Body and Low Power Consumption

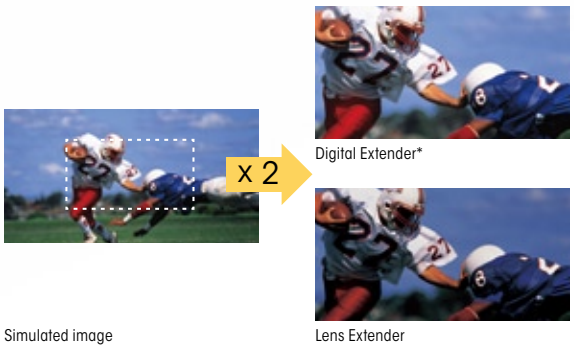
Designed to be very compact and ergonomically well balanced, the PMW-500 provides a high level of mobility and comfort in various shooting situations. The main body weighs only 3.4 kg (7 lb 15 oz) and its power consumption is only 29 W.

Digital Extender

With optional CBK-HD02 boards, the Digital Extender function*1 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) *2.

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

*2: The Digital Extender function does not operate in 1080p mode, S&Q mode, or when working with XDCA-55 via CBK-HD02.



Simulated image

Digital Extender*

Lens Extender

Focus Magnification

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

ALAC (Automatic Lens Aberration Compensation)

This feature decreases any chromatic aberration caused by the lens*1. ALAC is activated only with some third-party lenses that incorporate compensation data.

*1: Please check with lens manufacturers for ALAC support.

Slow & Quick Motion Function

The PMW-500 offers a powerful Slow & 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*1.

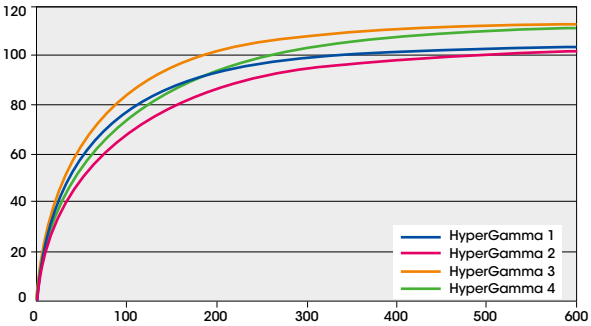
*1: With the PAL setting in UDF (MXF) mode, frame rates are selectable up to 50 fps in 720p mode and up to 25 fps in 1080p mode.

Slow Shutter

A maximum of 16 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 color temperature -3200K, 4300K, 5600K, or 6300K - by rotation using a camcorder-assignable switch.

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

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

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.

* This function works only in UDF (MXF) mode.

Picture Cache Recording
Up to 15 seconds of audio and video signals are buffered even before the Record button is pressed.

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*1.

*1: 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.

* 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 transfer speed for single clips (there is no overhead for the file open/close process).

* This function works only in UDF (MXF) mode.

Live & Play Function
The Live & Play function allows users to simultaneously check both playback signals and incoming camera signals, and sequentially output them without any switching noise. This allows users to frame the next shot, adjust the exposure, and then focus the lens while the camcorder is playing back pre-recordings from disc.

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

High-quality 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.

Scene File System
The Scene File feature allows camera operators to easily call up customized picture-tonal settings to suit particular shooting conditions, and also user files*1, reference files, all files, and lens files. Each scene file can be stored on and loaded from an SxS memory card.

*1: User file support is due to be activated at the end of March 2011.

Easy-to-view 3.5-inch Color LCD Monitor

The PMW-500 is equipped with a large, easy-to-view, 3.5-inch color 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 buttons on the PMW-500, allowing operators to make rapid changes when working in the field.

Viewfinder Options

Two types of optional viewfinder are available: the CBK-VF01 (the same HD viewfinder as supplied with the PMW-350/320) and HDVF Series viewfinders.

* CBK-VF01 is due to be activated at the end of March 2011.

Slot for Digital Wireless Receiver

The PMW-500 is equipped with a slot to accommodate a DWR-S01D digital wireless microphone receiver which provides two-channel audio with stable and secure transmission and also analog wireless receivers can be attached.

Camera Adaptor for Multi-camera Operation

The optional CBK-HD02 enables the XDCA-55 Camera Adaptor to mount directly onto the camcorder, expanding its potential for multi-camera operation.

Affordable MPEG TS Option for Field and Satellite Transmission

The optional HDCA-702 MPEG TS Adaptor, which can be directly docked onto the PMW-500, transmits an MPEG transport stream (TS) via DVB-ASI output with an optional CBK-HD02 50-pin interface.

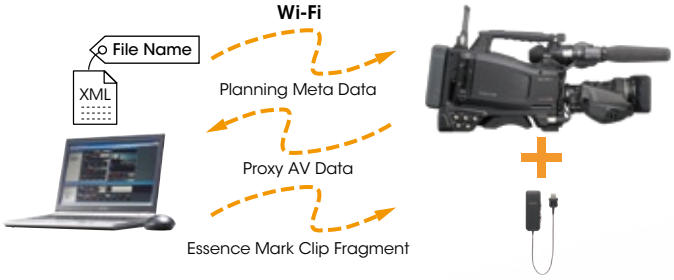
* This capability is due to be activated at the end of March 2011.

Planning Metadata Import via a Wi-Fi Adapter

To realize Sony's innovative XMPilot™ metadata workflow, the PMW-500 is designed to support planning metadata. Before shooting starts, users can import the metadata to be used. This type of metadata is called planning metadata. It diminishes the time and effort of inputting metadata at a location, thus achieving a smooth interface with post-production and archiving. With an optional CBK-WA01 Wi-Fi Adapter, users can achieve a wireless workflow using mobile devices.

* The capability is due to be activated at the end of March 2011.

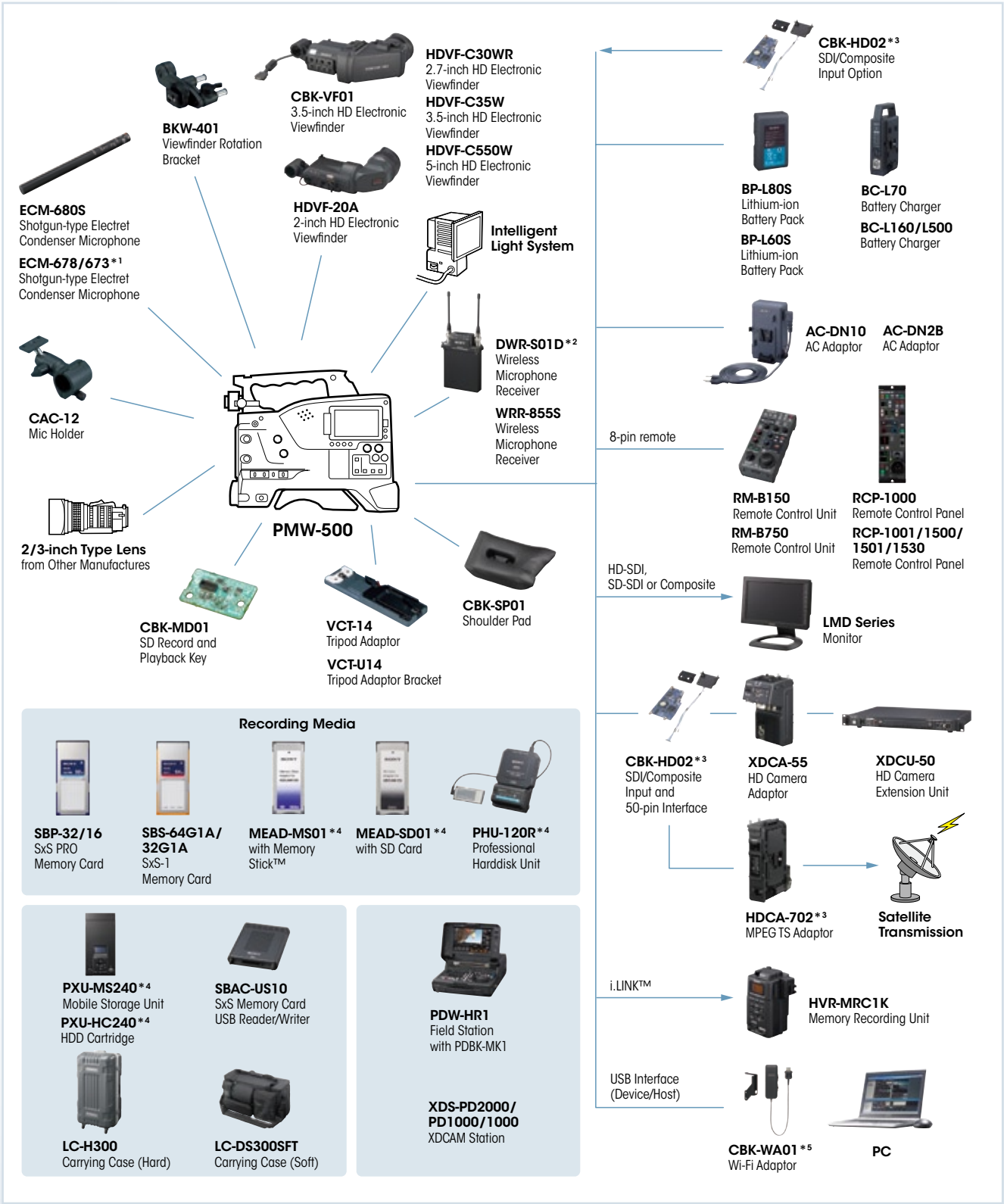
XMPilot™



Supplied Software for Powerful Content Management

The newly developed XDCAM Browser Version 1.0 not only enables users to browse video clips on Windows PCs and Macintosh computers, but also to register and edit metadata, and to convert file formats.

System Configuratuon and Accessories



*1: Requires 3-pin to 5-pin conversion cable.
*2: The digital wireless microphone system is not available in some countries where prohibited by radio law.
*3: HDCA-702, Digital Extender, and Video Input capabilities are due to be activated at the end of March 2011.
*4: UDF (MXF) mode is not supported.
*5: CBK-WA01 capabilities are due to be activated at the end of March 2011.

Specifications

PMW-500	
General	
Mass	3.4 kg (7 lb 7 oz) (body only without lens)
Dimensions (W x H x D)	124 x 269 x 332 mm (5 x 10 5/8 x 13 1/8 inches) without projection (body)
Power requirements	DC 12 V (11V - 17V)
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)
Recording format (Video)	MPEG-2 Long GOP HD422 mode: CBR, maximum bit rate: 50 Mbps, MPEG-2 422P@HL HQ mode: VBR, maximum bit rate: 35 Mbps, MPEG-2 MP@HL SP mode: CBR, 25 Mbps, MPEG-2 MP@H-14 SD mode (when the optional CBK-MD01is installed): IMX, DVCAM
Recording format (Audio)	(UDF Mode) 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 (when the optional CBK-MD01is installed) LPCM 16/24 bits, 48 kHz 4 channels SD DVCAM Mode (when the optional CBK-MD01is installed) LPCM 16 bits, 48 kHz 4 channels (FAT Mode) HD Mode LPCM 16 bits, 48 kHz 4 channels SD DVCAM Mode (when the optional CBK-MD01is installed) LPCM 16 bits, 48 kHz 2 channels
Recording frame rate	(UDF Mode) HD 422 50 Mode : MPEG-2 422P@HL, 50 Mbps/CBR 1920 × 1080/59.94i, 50i, 29.97P, 25P,23.98P 1280 × 720/59.94P, 50P, 29.97P, 25P, 23.98P HD 420 HQ Mode: MPEG-2 MP@HL, 35 Mbps/VBR 1440 × 1080/59.94i, 50i, 29.97P, 25P,23.98P 1280 × 720/59.94P, 50P, 23.98P(PD) SD IMX Mode (when the optional CBK-MD01is installed) 720 × 486/59.94i, 29.97PsF 720 × 576/50i, 25PsF SD DVCAM Mode (when the optional CBK-MD01is installed) 720 × 480/59.94i, 29.97PsF 720 × 576/50i, 25PsF (FAT Mode) HD HQ 1920 Mode: MPEG-2 MP@HL, 35 Mbps/VBR 1920 × 1080/59.94i, 50i, 29.97P, 25P,23.98P HD HQ 1440 Mode: MPEG-2 MP@HL, 35 Mbps/VBR 1440 × 1080/59.94i, 50i, 29.97P, 25P,23.98P HD HQ 1280 Mode: MPEG-2 MP@HL, 35 Mbps/VBR 1280 × 720/59.94P, 50P, 29.97P, 25P,23.98P HD SP 1440 Mode: MPEG-2 MP@H-14, 25 Mbps/CBR 1440 × 1080 /59.94i, 50i (23.98P is converted to 59.94i in 2-3 pulldown processing.) SD DVCAM Mode (when the optional CBK-MD01is installed) 720 × 480/59.94i, 29.97PsF 720 × 576/50i, 25PsF

PMW-500	
Recording/Playback time *1	(UDF Mode) HD 422 50/SD IMX Mode: Approx. 120 min with SBS-64G1A (64 GB) memory card Approx. 60 min with SBP-32 / SBS-32G1A (32 GB) memory card Approx. 30 min with SBP-16 (16 GB) memory card HD 420 HQ Mode: Approx. 180 min with SBS-64G1A (64 GB) memory card Approx. 90 min with SBP-32 / SBS-32G1A (32 GB) memory card Approx. 45 min with SBP-16 (16 GB) memory card SD DVCAM Mode: (Option) Approx. 220 min with SBS-64G1A (64 GB) memory card Approx. 110 min with SBP-32 / SBS-32G1A (32 GB) memory card Approx. 55 min with SBP-16 (16 GB) memory card (FAT mode) 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
Lens	
Lens mount	2/3-type SONY bayonet
Camera Section	
Imaging device	3-chip 2/3-inch type Power HAD FX CCD
Effective picture elements	1920 x 1080 (H x V)
Optical system	F1.4 prism system
Built-in optical filters	1: Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND
Sensitivity (2000 lx, 3200K, 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 16-frame accumulation)
S/N ratio	59 dB (Y) (typical)
Horizontal rezolution	1,000 TV lines or more (1920 x 1080i mode)
Shutter speed	1/60 sec to 1/2,000 sec + ECS*3
Slow shutter (SLS)	2, 3, 4, 5, 6, 7, 8, and 16-frame accumulation
Slow & Quick Motion function	720p: Selectable from 1 fps to 60 fps as recording frame rate* (from 1 fps to 50 fps in the case of Pal Area Setting in the UDF Mode) 1080p: Selectable from 1 fps to 30 fps as recording frame rate (from 1 fps to 25 fps in the case of Pal Area Setting in the UDF Mode)
White balance	Preset (3200K), Memory A, Memory B/ATW
Gain	-6, -3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42 dB
Inputs/Outputs	
Audio input	XLR-type 3-pin (female) (x2), line/mic/mic +48 V selectable
Video output	BNC (x1), Composite, HD-Y
Audio output	XLR-type 5-pin
SDI iutput	(Option) BNC (x1), HD-SDI/SD-SDI selectable
SDI output	BNC (x1), HD-SDI/SD-SDI selectable
i.LINK	IEEE 1394, 6-pin (x1), HDV™ (HDV 1080i)/DVCAM stream input/output*4, S400
Timecode input	BNC (x1)
Timecode output	BNC (x1)
Genlock input	BNC (x1)
USB	USB device B Type (x1), host A Type (x1)
Headphone output	Stereo mini jack (x1)
Speaker output	Monaural
DC input	XLR-type 4-pin
DC output	4-pin
Remote	8-pin
Lens remote	12-pin
MIC	XLR-type 5-pin
Monitoring	
Viewfinder	Supplied interfaces (20-pin IF for HDVF, 26-pin IF for CBK-VF01)
Built-in LCD monitor	3.5-inch*2 type color LCD monitor: approx. 921,000 effective pixels, 640 (H) x 3 (RGB) x 480 (V), 16:9, hybrid type
Media	
Type	ExpressCard/34 slot (x2)
Supplied Accessories	
	Shoulder Strap (x1), Cold Shoe Kit (x1), Operation Manual (x1), XDCAM Browser software (x1), SxS device driver software (x1)

*1 Recording /Playback time may vary the according to the encoding or memory.
*2 Viewable area measured diagonally.
*3 Slow Shutter sertting frames vary according to the system frequency.
*4 HDV/DV stream input/output are available only in FAT mode. DVCAM stream input is only for monitoring use on view finder.

Distributed by

MK10722V1OHB10AUG

The PMW-500 is produced at Sony EMCS Tokai Tec, which has received ISO14001Environmental Management Certification.

ISO 14001 BUREAU VERITAS Certification