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XDCAM HD

MPEG HD422



PMW-200

Solid-State Memory Camcorder

XDCAM

MPEG HD422

DVCAM

SXS

Exmor
FULL HD 3CMOS

Proven High Quality: Three 1/2-inch-type Full-HD Exmor CMOS Sensors

The PMW-200 is a compact camcorder with three 1/2-inch-type Full-HD Exmor[®] CMOS sensors. The sensitivity F11 and S/N ratio 56dB have been achieved. Independent focus, zoom, and iris rings enable precise shooting in many circumstances. With its high-quality MPEG HD422 (50 Mbps) recording capability, which is widely accepted in broadcasting stations and production houses, the PMW-200 helps to boost user creativity in many different applications, including news gathering and documentary production.

With the use of an optional wi-fi adaptor (the CBK-WA01), iris, zoom, and focus can be remotely controlled – ideal when using the camcorder at a distance, such as on a jib. Also, Genlock/TC simplifies multi-camera configurations.



CAMERA FEATURES

» High Picture Quality

The PMW-200 incorporates three 1/2-inch-type Full-HD Exmor CMOS sensors (1920 x 1080) to achieve high resolution, high sensitivity, low noise, and wide dynamic range. These Exmor CMOS sensors were originally developed for the PMW-EX1R, which has proved its quality worldwide. By optimizing 1/2-inch sensors and camera signal processing, the camcorder sensitivity has improved to F11 at 2000 lx and the S/N ratio has increased to 56 dB. These improvements are essential to the professional when shooting under severe lighting conditions, and they give every user more freedom of creative expression.

Exmor
FULL HD 3CMOS

» Manual Control Rings

The PMW-200 incorporates a wide angle of 31.4 – 439 mm (equivalent to a 35-mm lens) with a 14-times zoom lens and SteadyShot[™] feature, and the ability to expand its applications with an optional VCL-EX0877 lens (a 0.8x wide conversion lens). Zoom, focus, and iris can be manually controlled with independent control rings; each function has physical stops and absolute markings, permitting precise adjustments. This end stop is very useful, enabling the user to sensitively adjust each ring to the exact point that is required. Also, a unique focus ring mechanism allows the user to select manual focus and auto focus simply by sliding the focus ring back and forth. There is also an iris control ring for manual adjustment of camera brightness. These features give users a high level of familiarity and operational comfort.



» Focus Assist Functions

Various functions are provided to help with precise control of focus. These include Color Peaking, MF (Manual Focus) Assist, One-push Auto Focus, Expanded Focus, and the Auto Focus function.

» 3.5-inch WVGA (852x480) LCD Monitor

The PMW-200 is equipped with a large, easy-to-read, 3.5-inch* WVGA color LCD panel. This helps users to achieve precise focusing during critical focus control, especially when shooting in HD. The LCD panel also displays various guidance in support of shooting operations. For example, it can display a histogram to visualize contrast in the shooting image, lens information to show the approximate DoF value in the current lens setting, and brightness to show the picture brightness as a percentage.



* Viewable area measured diagonally.

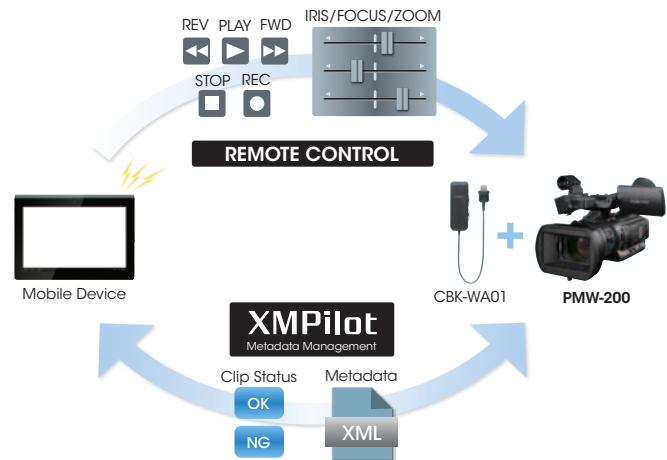
» Various Conveniences via a Wi-Fi[®] Adapter

To realize Sony's innovative XMPilot[™] metadata workflow, the PMW-200 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 the optional CBK-WA01 Wi-Fi Adapter, users can achieve a wireless workflow using mobile devices.

Also, using a wi-fi adapter allows users to remotely control zoom, focus, iris, and white balance as well as the recording functions such as a recording trigger from mobile devices, which is useful when users need to stay away from the camera*.

* The wi-fi remote control function is planned to be available in December 2012 through a firmware version upgrade.



» Slow & Quick Motion (Visual Effects)

By changing the frame rate, slow- and fast-motion visual effects (Slow & Quick Motion) are available. Up to 60-frames-per-second (fps) recording in 720P or 30-fps recording in 1080P is possible to obtain slow motion effects. Also quick motion effects can be obtained by slowing the frame rate down to 1 fps. Other visual effects include Interval Recording, Frame Recording, and Slow Shutter.

» Picture Profile

The Picture Profile feature allows users to easily call up customized picture-tonal settings to suit particular shooting conditions, rather than having to readjust the camera each time. Picture Profile data can be saved on SxS[™] memory cards, and shared with multiple PMW-200 units.

» Selectable Gamma Curves

Users can select the best-suited preset gamma curve to handle contrast and give a specific 'look' to an image. There are six types of standard gamma curve, and four types of HyperGamma which are identical to those on CineAlta[™] cameras.

RECORDING SECTION

» MXF and FAT File Format

The PMW-200 can be used as a handheld camcorder for various types of file-based operation because it employs both industry-standard file formats: the MXF file format (UDF) and MP4 file format (FAT).

» MPEG HD422 Codec

Users can record Full-HD video (1920x1080) at up to 50 Mbps using MPEG HD422 compression technology. Common operation with other XDCAM® HD422 camcorders such as the PMW-500 and the PMW-100 enhances operational convenience, which is proven worldwide and delivers high-speed, intuitive XDCAM HD422 workflows. With the PMW-200, users can also record video in MPEG HD or DVCAM™ formats compatible with the XDCAM EX™ camcorders. (Note: Proxy video is not recorded with the PMW-200.)



» Cache Recording

Once activated, the PMW-200 continuously streams audio and video into its internal memory. When the REC START button is pressed, the content buffered in the camcorder's memory is recorded onto the memory media at the start of the recording clip. The caching period can be set at up to 15 seconds. This function is useful when shooting a developing situation, such as in news gathering, so as not to miss a critical moment.

» Continuous Recording

By activating the Continuous Recording function, multiple clips can be recorded as a single clip, which makes it easy to ingest the file to a non-linear editing (NLE) system.

» Reliable, High-speed Recording Media

The XDCAM Series uses high-speed SxS PRO™ and SxS-1 memory cards for its recording media, developed specifically for professional video creation applications. These memory cards boast high-speed data transfer, which accelerates the post-production workflow. SxS memory cards are also resistant to shock and vibration. Furthermore, memory stick media, SD cards, and XQD® cards can be used as emergency backup media with the appropriate adaptors.

SxS



» 4-hour Continuous Recording

By combining the BP-U60 with two optional SBS-64G1A SxS Memory Cards (64-GB SxS-1 cards), users can record continuously for up to four hours. With the high-capacity BP-U90 Lithium-Ion battery, users can achieve six hours of continuous operation.

AUDIO

» High-quality Audio

The PMW-200 is equipped with two XLR connectors, which are for professional microphones such as the ECM-680S/MS2/678/674/673/VG1 and wireless microphone systems such as the UWP-V1/V2. By combining the built-in stereo microphone with external microphone input, users can record up to four channels of 24-bit 48-kHz high-quality audio in MPEG HD422 50-Mbps mode.

INTERFACES

» HD/SD-SDI, HDMI®, and i.LINK

The SDI connector allows the camcorder to interface with other professional products, and supports down-conversion from HD to SD signals. The PMW-200 can be connected via HDMI* to residential HD displays to perform monitoring. The i.LINK®2 connector can be used for HDV when SP 1440 (FAT) mode is selected, and for DV when DVCAM (FAT) mode is selected.

* Requires HDMI cable sold separately.



» Timecode IN/OUT, and Genlock

The PMW-200 comes equipped with Timecode Input/Output and Genlock Input connectors. These allow users to synchronize the timecode and video with other cameras, enabling easier multi-camera productions.

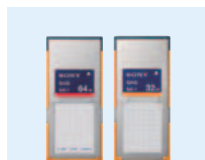
» PC Interface

The PMW-200 can be connected directly with a PC using the USB interface. Even without a memory card reader/writer, users can easily ingest shot files from the PMW-200 to the PC.

OPTIONAL ACCESSORIES



SBP-64A/32
SxS Pro Memory Card



SBS-64G1A/SBS-32G1A
SxS-1 Memory Card



MEAD-MS01
Memory Stick Adaptor



MEAD-SD01
SD Card Adaptor



QDA-EX1
XQD Adaptor



SBAC-US10
SxS Memory USB Reader/
Writer



CBK-WA01
Wi-Fi Adaptor



BP-U90/U60/U30
Li-Ion Battery Pack



BC-U1
Battery Charger (1-slot)



BC-U2
Battery Charger (2-slot)



ECM-680S
Stereo Microphone



ECM-MS2
Stereo Microphone



ECM-678/674/673
Monaural Microphone



UWP-V1/V2
Wireless Microphone System



VCL-EX0877
Wide Conversion Lens



HVR-MRC1K
Memory Recording Unit



PHU-220R
Professional Hard Disk Unit

SPECIFICATIONS

General	
Weight	Approx. 5 lb 1.1 oz (body) Approx. 2.3 kg (body) Approx. 5 lb 15 oz (with lens hood, eyecup, BP-U30 battery, a SxS memory card) Approx. 2.7 kg (with lens hood, eye piece, BP-U30 battery, a SxS memory card)
Dimensions (W x H x D) ¹	6 7/8 x 6 1/2 x 12 1/2 inches (172 x 164 x 317 mm) (without protrusions)
Power Requirements	DC 12 V
Power Consumption	Approx. 12 W (while recording, EVF On, LCD monitor Off, IO Select Off) Approx. 14 W (while recording, EVF On, LCD monitor On, IO Select Off, HD SDI & HD HDMI)
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-4°F to +140°F (-20°C to +60°C)
Battery Operating Time	Approx. 2 hrs with BP-U30 battery (while recording, EVF On, LCD monitor Off, I/O Select Off) Approx. 4 hrs with BP-U60 battery (while recording, EVF On, LCD monitor Off, I/O Select Off) Approx. 6 hrs with BP-U90 battery (while recording, EVF On, LCD monitor Off, I/O Select Off)
Recording Format (Video)	<UDF> - HD422 mode: CBR, maximum bit rate: 50 Mbps, MPEG-2 422P@HL - HD420 mode: VBR, 35 Mbps, MPEG-2 MP@HL - DVCAM mode: DVCAM <FAT> - HQ 1920 mode: VBR, 35 Mbps, MPEG-2 MP@HL - HQ 1440 mode: VBR, 35 Mbps, MPEG-2 MP@HL - HQ 1280 mode: VBR, 35 Mbps, MPEG-2 MP@HL - SP 1440 mode: CBR, 25 Mbps, MPEG-2 MP@H-14 - DVCAM mode: DVCAM
Recording Format (Audio)	<UDF> - HD422 mode: LPCM 24 bits, 48 kHz, 4 channels - Other mode: LPCM 16 bits, 48 kHz, 2 channels <FAT> - HD mode: LPCM 16 bits, 48 kHz, 4 channels - SD mode: LPCM 16 bits, 48 kHz, 2 channels
Recording Frame Rate	<UDF> HD422 Mode: MPEG-2 422P@HL, 50Mbps/ CBR - 1920x1080/ 59.94i, 50i, 29.97p, 25p, 23.98p - 1280x720/ 59.94p, 50p, 29.97p, 25p, 23.98p HD420 Mode: MPEG-2 MP@HL, 35Mbps/ VBR - 1440x1080/ 59.94i, 50i, 29.97p, 25p, 23.98p - 1280x720/ 59.94p, 50p, 23.98p DVCAM Mode - 720x486/ 59.94i, 29.97PsF - 720x576/ 50i, 25PsF <FAT> HQ 1920 Mode: MPEG-2 MP@HL, 35Mbps/ VBR - 1920x1080/ 59.94i, 50i, 29.97p, 25p, 23.98p HQ 1440 Mode: MPEG-2 MP@HL, 35Mbps/ VBR - 1440x1080/ 59.94i, 50i, 29.97p, 25p, 23.98p HQ 1280 Mode: MPEG-2 MP@HL, 35Mbps/ VBR - 1280x720/ 59.94p, 50p, 29.97p, 25p, 23.98p SP 1440 Mode: MPEG-2 MP@H-14, 25Mbps/ CBR - 1440x1080/ 59.94i, 50i, 23.98p (2-3 pull down) DVCAM Mode - 720x480/ 59.94i, 29.97PsF - 720x576/ 50i, 25PsF
Recording/Playback Time	<UDF> HD 422 mode: Approx. 120 min with SBP-64/ 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 mode: Approx. 180 min with SBP-64/ 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 DVCAM mode: Approx. 220 min with SBP-64/ 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> HQ 1920/HQ 1440 mode/HQ 1280 mode: Approx. 200 min with SBP-64/ 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 SP 1440 Mode: Approx. 280 min with SBP-64/ 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 DVCAM mode: Approx. 260 min with SBP-64/ 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	Fixed
Zoom Ratio	14x (optical), servo/manual
Focal Length	f = 5.8 - 81.2 mm (equivalent to 31.4-439 mm on 35 mm lens)
Iris	F1.9 - F16 auto/manual selectable
Focus	AF/MF/Full MF selectable, 800 mm to ∞ (MACRO OFF), 50 mm to ∞ (MACRO ON, Wide), 735 mm to ∞ (MACRO ON, Tele)
Image Stabilizer	ON/OFF selectable, shift lens
Filter Diameter	M77 mm, pitch 0.75mm
Camera Section	
Imaging Device (Type)	3-chip 1/2-inch type "Exmor" Full HD CMOS
Effective Picture Elements	1920 (H) x 1080 (V)
Optical System	F1.6 prism system
Built-in Optical Filters	OFF: Clear, 1: 1/8ND, 2: 1/64ND
Sensitivity (2000 lx, 89.9% reflectance)	F11 (typical) (1920 x 1080/59.94i mode)
Minimum Illumination	0.12 lx (typical) (1920 x 1080/59.94i mode, F1.9, +18 dB gain, with 64-frame accumulation, Gamma off, 100% video level) 0.02 lx (typical) (1920 x 1080/59.94i mode, F1.9, +18 dB gain, with 64-frame accumulation, Gamma on, 50% video level)
S/N Ratio	56 dB (V) (typical)
Horizontal Resolution	1,000 TV lines or more (1920 x 1080i mode)
Shutter Speed	1/32 sec to 1/2,000 sec
Slow Shutter (SLS)	2, 3, 4, 5, 6, 7, 8, 16, 32, and 64-frame accumulation
Slow & Quick Motion Function	720p: Frame rate selectable from 1 fps to 60 fps (from 1 fps to 50 fps in PAL area setting in UDF mode) 1080p: Frame rate selectable from 1 fps to 30 fps (from 1 fps to 25 fps in PAL area setting in UDF mode)
White Balance	Preset (3200K), Memory A, Memory B/ATW
Gain	-3, 0, 3, 6, 9, 12, 18 dB, AGC
Gamma Curve	Selectable
Input/Output	
Audio Input	XLR-type 3-pin (female) (x2), line/mic/mic +48 V selectable Line: +4dBu Mic: -70dBu-30dBu
Composite Output	AV multi connector, NTSC or PAL
Video Output	BNC (x1), HD-Y/Composite 1.0Vp-p, 75Ω (switchable to Genlock in)
Audio Output	A/V multi connector -10dBu (Reference Level), 47kΩ
SDI Output	BNC (x1), HD/SD selectable SMPTE 292M/259M standards
i.LINK	IEEE 1394, 4-pin (x1), HDV (HDV 1080i) input/output, DV output, S400
Timecode Input	BNC (x1) (switchable to TC out) SMPTE 12M-2-2008 standard 0.5V-1.8Vp-p, 10kΩ
Timecode Output	BNC (x1) (switchable to TC in) SMPTE 12M-2-2008 standard 1.0Vp-p, 10kΩ
Genlock Input	BNC (x1) (switchable to Video out) 1.0 Vp-p, 75Ω
USB	USB device, mini-B (x1)
Headphone Output	Stereo mini jack (x1) -18dBu 16Ω
Speaker Output	Monaural, 250mW
DC Input	DC jack
Lens Remote	8-pin, round
HDMI Output	Type A (x1)
Option	4-pin, Type A (x1)
Monitoring	
Viewfinder	0.45-inch type color LCD: 852 (H) x 480 (V), 16:9
Built-in LCD Monitor	3.5-inch type color LCD monitor: 852 (H) x 3 (RGB) x 480 (V), 16:9
Built-in Microphone	
Built-in Microphone	Omni-directional stereo electret condenser microphone.
Media	
Type	ExpressCard/34 slot (x2)
Supplied Accessories	
Supplied Accessories	Lens hood (1), Pre-installed to the Camcorder, Infrared Remote Commander (1), EVF eyecup (1), USB cable (1), AV connecting cable (1), BP-U30 battery pack (1), BC-U1 battery charger (1), Shoulder strap (1), Wi-Fi Adaptor Bracket (1), Microphone Cable Holder (1), Screw for mounting microphone cable holder (1), Lithium battery (CR2032 for data backup) (1), Pre-installed to the Camcorder, Lithium battery (CR2025 for the IR Remote Commander) (1), Pre-installed to the IR Remote Commander, CD-ROM: - Utility software (1). - Operating instructions in PDF (1), Operating instructions (1)

¹ The values for dimensions are approximate.

² i.LINK is a trademark of Sony used only to designate that a product contains an IEEE1394 connector. Not all products with an i.LINK connector will necessarily communicate with each other. For information on compatibility, operating conditions, and proper connection, please refer to the documentation supplied with any device with an i.LINK connector.

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